

**Dissertation**

# **Strengthening Gender Justice in a Just Transition**

**An analysis of historical coal transitions and ongoing transition processes from a feminist perspective**



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## **Abstract**

Facing the climate crisis, it is urgently necessary to phase out coal-fired power generation and mining. This poses a significant challenge for countries and regions directly impacted, as the coal industry often serves as a vital economic and identity anchor. Growing political and scientific discussions on achieving a “just transition”, focusing on making this shift from a fossil to a renewable energy system as equitable as possible, have gained traction in recent years. To successfully shape the transition, it is important to recognize that individuals are affected differently depending on their social positioning along factors such as gender, class and ethnicity and to design transition policies accordingly.

The dissertation shows how the category of gender is relevant in coal transition processes with a focus on the countries UK, USA and Germany. It expands knowledge about how gender justice considerations can be strengthened in the just transition discourse and respective policies. The work is based on qualitative research methods and is rooted in the academic field of sustainability transitions research (STR). It contributes to this field of research by combining feminist theories with STR frameworks and by incorporating feminist research methodologies.

Chapter 2 of the dissertation contains a systematic literature map of the scientific literature examining the impacts on women during historical coal phase-out processes and their political engagement in the transition processes. Based on this compilation of literature, a research agenda is developed which is partly addressed in the subsequent chapters. Chapter 3 focuses on the coal phase-out processes in the UK and USA and compares the developments in the two countries from a gender perspective. Building on the empirical results and feminist theory, indicators are developed aiming to facilitate future research on how gendered power asymmetries become effective in transition processes. In addition, policy recommendations for a gender-equitable design of future phase-out processes are derived from these historical experiences. Chapter 4 employs a critical discourse analysis examining the ongoing structural change process in the German coal region Lusatia. Interviews are conducted with members of an internationally unique women's network, which is committed to strengthening gender equality in transition policy. It is shown how their demands differ from the dominant discourse. The chapter also reflects from a care theory perspective on how care work relevant to the transition process can be strengthened. In the final chapter, the dissertation analyses the discourse on a gender-just transition, which is gaining momentum in the political arena. Based on a narrative policy analysis, it examines which narratives are used by which actors and in how far alliances between the actors become visible. Furthermore, it analyses the extent to which currents of feminist theory are reflected in the narratives. Finally, a proposal is made as to how the narratives could complement each other in a multi-layered vision for a gender-equitable transition.

The work results in some (key) policy recommendations for the gender-equitable design of transition processes: (1) More gender-disaggregated data is needed to study the effects of transition processes (including intersectional dimensions and surveys that do justice to the diversity of gender), (2) support measures should not only be aimed at former (mostly male) coal workers, but should address all groups within the communities, (3) The regions should be developed holistically by not only focusing on the expansion of industrial jobs, but also promoting female-dominated sectors, (4) enhancing the quality of

life necessitates the expansion and support of social infrastructure (care infrastructure, cultural offerings, civil society projects, etc.), (5) the representation of marginalized groups in political decision making should be increased, and (6) the social exchange about what new identity anchors could be for the regions should be strengthened.

**Keywords:** energy transition, coal transition, structural change, just transition, gender, feminist theory, care, sustainability transitions research, critical discourse analysis, narrative policy analysis

## Zusammenfassung

Angesichts der Klimakrise ist der Ausstieg aus der Kohleverstromung und dem Kohlebergbau dringend erforderlich. Dies stellt für die unmittelbar betroffenen Länder und Regionen eine große Herausforderung dar, da die Kohleindustrie oft ein wichtiger Wirtschafts- und Identitätsanker ist. In diesem Zusammenhang hat in den letzten Jahren die politische und wissenschaftliche Diskussion über eine „just transition“ an Fahrt gewonnen, welche darum kreist, wie dieser Übergang von einem fossilen zu einem erneuerbaren Energiesystem so gerecht wie möglich gestaltet werden kann. Um den Strukturwandel erfolgreich zu gestalten, ist es wichtig zu erkennen, dass Menschen je nach ihrer sozialen Positionierung entlang von Faktoren wie Geschlecht, Klasse und ethnischer Zugehörigkeit unterschiedlich betroffen sind.

Die Dissertation zeigt, wie die Kategorie Geschlecht in Kohleausstiegsprozessen relevant ist, und konzentriert sich dabei auf die Länder Großbritannien, USA und Deutschland. Sie erweitert damit das Wissen darüber, wie Geschlechtergerechtigkeit im Diskurs um eine „just transition“ und in den entsprechenden Politiken gestärkt werden kann. Die Arbeit basiert auf qualitativen Forschungsmethoden und ist im akademischen Feld der Sustainability Transitions Research (STR) angesiedelt. Sie trägt zu diesem Forschungsfeld bei, indem sie feministische Theorien mit STR-Frameworks kombiniert und feministische Forschungsmethoden einbezieht.

Kapitel 2 der Dissertation enthält eine systematische Literaturübersicht der wissenschaftlichen Literatur, die die Auswirkungen auf Frauen während historischer Kohleausstiegsprozesse und ihr politisches Engagement in diesen Prozessen untersucht. Darüber hinaus wird eine Forschungsagenda entwickelt, die in den folgenden Kapiteln teilweise aufgegriffen wird. In Kapitel 3 werden die Kohleausstiegsprozesse in Großbritannien und den USA untersucht und die Entwicklungen in beiden Ländern aus einer geschlechtsspezifischen Perspektive verglichen. Aufbauend auf den empirischen Ergebnissen und feministischer Theorie werden Indikatoren entwickelt, die künftige Forschung darüber erleichtern sollen, wie geschlechtsspezifische Machtasymmetrien in Transitionsprozessen wirksam werden. Darüber hinaus werden aus diesen historischen Erfahrungen Politikempfehlungen für eine geschlechtergerechte Ausgestaltung von zukünftigen Ausstiegsprozessen abgeleitet. In Kapitel 4 wird auf Basis einer kritischen Diskursanalyse der laufende Strukturwandelprozess in der deutschen Kohleregion Lausitz untersucht. Dazu werden Interviews mit Mitgliedern eines international einzigartigen Frauennetzwerks geführt, das sich für die Stärkung von Gleichstellungspolitik bei der Gestaltung des Strukturwandels einsetzt. Es wird aufgezeigt, wie sich ihre Forderungen vom dominanten Diskurs unterscheiden. In dem Kapitel wird zudem aus einer care-theoretischen Perspektive reflektiert, wie für den Transformationsprozess relevante Sorgearbeit gestärkt werden kann. Im letzten Kapitel wird der Diskurs über eine „gender-just transition“, der in der politischen Arena an Dynamik gewinnt, untersucht. Auf der Grundlage einer narrativen Politikanalyse wird gezeigt, welche Narrative von welchen Akteuren verwendet werden und welche Allianzen zwischen den Akteuren sichtbar werden. Außerdem wird analysiert, inwieweit sich Strömungen feministischer Theorie in den Narrativen widerspiegeln. Schließlich wird ein Vorschlag gemacht, wie sich die Narrative in einer vielschichtigen Vision für eine „gender-just transition“ ergänzen könnten.

Aus der Arbeit ergeben sich einige (zentrale) politische Empfehlungen für die geschlechtergerechte Gestaltung von Strukturwandelprozessen: (1) Es werden mehr nach Geschlecht aufgeschlüsselte Daten benötigt, um die Auswirkungen von Ausstiegsprozessen zu untersuchen (einschließlich intersektionaler Dimensionen und Erhebungen, die der Vielfalt von Geschlecht gerecht werden), (2) Unterstützungsmaßnahmen sollten nicht nur auf ehemalige (meist männliche) Kohlearbeiter abzielen, sondern alle Gruppen innerhalb der Region erreichen, (3) die Regionen sollten ganzheitlich entwickelt werden, wobei auch Sektoren in denen vor allem Frauen arbeiten – und nicht nur Industriearbeitsplätze – gefördert werden sollten, (4) die Stärkung der Lebensqualität erfordert den Ausbau und die Förderung sozialer Infrastruktur (Pflegeinfrastruktur, kulturelle Angebote, zivilgesellschaftliche Projekte etc.), (5) die Repräsentanz marginalisierter Gruppen in politischen Entscheidungsprozessen sollte erhöht werden und (6) der gesellschaftliche Austausch darüber, was neue Identitätsanker für die Regionen sein könnten, sollte gestärkt werden.

**Stichworte:** Energiewende, Kohleausstieg, Strukturwandel, Just Transition, Geschlecht, feministische Theorie, Care, Nachhaltigkeitsforschung, kritische Diskursanalyse, Narrativanalyse

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## List of Abbreviations

AfD	Alternative für Deutschland
CDA	Critical Discourse Analysis
CRMW	Coal River Mountain Watch
EJM	Environmental Justice Movement
F N.	Fossil Phase-Out Narrative
FG	Focus Group
FOCLA	Friends of Coal Ladies Auxiliary
GDP	Gross Domestic Product
GDR	German Democratic Republic
HPS	"Handlungsprogramm" Saxony
ILO	International Labour Organization
LPB	"Lausitzprogramm" Brandenburg
MLP	Multi-Level-Perspective
MTR	Mountaintop Removal
NDCs	Nationally Determined Contributions
NPF	Narrative Policy Framework
NUM	National Union of Miners
NWAPC	National Women Against Pit Closure
O N.	Opportunity Narrative
PICO	Population Intervention Comparator Outcome
PoD N.	Policy Design Narrative
POINT	POwer-IN-Transition
Pr N.	Protection Narrative
RE	Renewable Energies
Re N.	Representation Narrative
RQ	Research Question
SDG	Sustainable Development Goals
SSG	Strukturstärkungsgesetz
STEM	Science Technology Engineering Mathematics

STR.....Sustainability Transitions Research  
Tr N..... Transformation Narrative  
UMWA ..... United Mine Workers of America  
UN.....United Nations  
VA ..... Virginia  
WV ..... West Virginia

# **Chapter 1**

## **Introduction**

# 1 Introduction

## 1.1 Motivation

The global ecological crisis poses immense challenges for humanity. Even as a schoolgirl, it was clear to me that I wanted my career to contribute to changing social and economic structures in such a way that this crisis could be mitigated. How can this transformation succeed and at the same time contribute to more social justice? This motivation led me to study economics and social sciences. My study scholarship with the Heinrich Böll Foundation enabled me to attend workshops on the transformation of climate-relevant sectors in addition to my studies. In December 2017, I attended Pao-Yu Oei's course on energy economics, where he advertised for a student assistant position in his team. I took up this position at the beginning of 2018 and have since been studying the challenges of coal phase-out – an important building block in combating the climate crisis. In my first papers, I dealt with the challenges of structural change in the German coal regions Rhineland and Lusatia (Oei et al. 2018; Stognief et al. 2019). I wrote my master thesis at the Mercator Research Institute on Global Commons and Climate Change on the experiences of historical coal phase-out processes and contributed with my results to a joint publication (Diluiso et al. 2021). In 2020, I started to work as a research associate in the FossilExit Team and focused on analysing the coal phase-out processes in Germany and the UK (Walk and Stognief 2022; Stognief, Walk, and Oei 2022; Brauers, Oei, and Walk 2020; Walk and Stognief 2021; Stognief et al. 2020; Herpich et al. 2022).

Recent statistics highlight the still urgent need for scientific research on how coal can be phased out quickly. Coal still accounts for approximately 36% of global power generation (BP 2022, 6) and 40% of global fossil CO<sub>2</sub> emissions (Friedlingstein et al. 2022, 1933). In climate protection scenarios that model how a 1.5-degree target could still be achieved with a 50% compliance probability, primary energy from coal falls by 75% in 2030 compared to 2019 (IPCC 2022, 71). This shows how big the challenge is. Given the currently submitted Nationally Determined Contributions (NDCs), it is likely that this target of limiting global warming to 1.5 degrees will not be met (IPCC 2022). To at least keep the chance of global warming below 2 degrees, a rapid phase-out of coal, which is the most carbon-intensive fossil fuel, is urgently necessary (Diluiso et al. 2021).

Numerous challenges surround the coal phase-out, primarily because coal is still abundant and easily manageable through established technologies. Additionally, the coal industry frequently holds an important role in the local economy. The long-term trend for coal production and consumption is declining in the United States and in most of the European countries. However, larger consumption and production by Asian economies are offsetting this decrease (Diluiso et al. 2021; Jakob and Steckel 2022). China and India's coal production and consumption, for example, reached historic highs in 2021 (Yanguas-Parra et al. 2023; IEA 2021a).

In our systematic study of scientific literature on historical coal phase-out processes, we show that the economic relevance of the coal industry in the respective regions and the jobs associated with it is the single most cited barrier to the urgently needed coal transition (Diluiso et al. 2021). Additionally, we mostly observe negative social outcomes of historical coal transitions in terms of worsening living

conditions, growing poverty, a decrease in municipal and social services, and outmigration. One reason for this is that while new industries related to renewable energies are created at the same time as fossil fuel industries are cut, this is not necessarily happening in the same place or to the same quality (Jestl and Römisch 2023). To enable the transition that is urgently needed for climate reasons, it must be designed in such a way that the social impacts for most affected regions are cushioned. These demands are summarized under the slogan of a “Just Transition”, which is finding more and more diverse supporters (see 1.3) (Wilgosh, Sorman, and Barcena 2022; Wang and Lo 2021; Heffron and McCauley 2018; ILO 2015). Therefore, making the phase-out of fossil fuels as fair as possible for the affected communities and developing alternative economic and identity anchors is central to a successful energy transition (A. Schuster et al. 2023).

The impacts of energy transitions, including coal transitions, vary based on individuals' social positions. This placement is shaped by the intersecting dynamics of social inequality categories such as race, gender, and class, giving rise to multiple forms of discrimination that affect access to resources and privileges (Crenshaw 1991). My dissertation shows on different levels how gender justice should be systematically considered in the design of a just transition. Women<sup>1</sup> are less represented as direct workers in the coal industry. In the USA, for example, around 80% of coal production workers are male (National Association of State Energy Officials 2018, 51). However, women are also severely affected by the transition in many ways – but this impact often remains invisible.

They make an important contribution to the maintenance of industry through their unpaid work (Humphries and Thomas 2023; Iwińska and Bukowska 2022). This is hardly taken into account in the design of transition policies. Economic restructuring focuses strongly on the male coal worker (Klimczak and Wódz 2022). Severance pay goes to the workers who are directly employed in the industry increasing interfamilial dependency (Lahiri-Dutt et al. 2022). If women work in the coal industry they mostly work in administrative areas and on the surface, as Klimczak and Wódz (2022) point out about Upper Silesia in Poland, and are less well protected against unemployment than mostly male underground workers. Additionally, indirect effects of transitions on secondary jobs – where more women work – often remain invisible. Wiseman et al. (2017) analysed, e.g., the closing of the Hazelwood coal-fired power plant in Australia's La Trobe Valley in 2018. Each well-paid job in the electricity sector and associated industries sustained up to four jobs in retail, tourism and services, many of them in insecure and low-paid positions where women are the main workers. In their search for career prospects, women also often leave regions that are strongly orientated towards a male-dominated economic sector, such as mining or the carbon-intensive industries, in search of educational and employment opportunities (Bréau et al. 2022). Additionally, especially in the Global South, many women are dependent on the coal industry as informal workers. Lahiri-Dutt (2023) and Nayak and Swain (2023) stress that these informal dependencies on the coal industry are still given far too little consideration when designing phase-out policies. In addition, women are often very active in anti-mining struggles and social movements in the coal regions (Miewald and McCann 2004; Bell and Braun 2010; Barry 2012;

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<sup>1</sup> Based on my data, I mostly use binary gender. I reflect on this in more detail in Section 1.6.

McNeil 2011). Nevertheless, they are underrepresented as stakeholders when it comes to developing transition and reemployment policies (A. Schuster et al. 2023; Lahiri-Dutt 2023; Bréau et al. 2022).

The cultural link between (white) masculinities and fossil fuels, which Daggett (2018) describes as "petro-masculinity", also poses a particular challenge when it comes to phasing out fossil fuels. Hard, potentially dangerous and dirty work in the coal and other fossil fuel industries is connected to patriarchal orders. The phase-out of these industries is thus not only met with resistance from capital interests but also with cultural resistance e.g. from far-right authoritarianism in the US. Petro-masculinities are threatened both by growing "gender and climate trouble" (Daggett 2018, 29). Petro-masculinity takes on different forms locally. In Upper Silesia, for example, there was a very rigid division of labour in the coal communities between men whose work in the coal industry gave them high prestige, they were celebrated as national heroes in the political discourse after World War II, and women who were an invisible minority in the coal industry and worked mainly unpaid as housewives (Klimczak 2022). The material and symbolic decline of this industrial breadwinning petro-masculinity is often experienced as painful and existential, especially when other identity-forming alternatives are lacking (I. K. Allen 2022).

Gender-specific power issues arise not only when it comes to the question of who is affected by the exit process, who benefits from severance packages and who is involved in transition planning. It is also about what kind of futures are being developed for the coal regions. Which industries replace the coal industry? Is the focus on replacing coal jobs with other male-dominated industrial jobs? Or is a post-coal future for the communities thought of more holistically by, e.g., supporting sectors where traditionally more women work, such as care and education, and strengthening civil society? Furthermore, sustainability transitions represent an opportunity to change social power structures and reduce inequalities (Avelino 2017; Braunger and Walk 2022). It is about shaping these fundamental interventions (like the coal transition) in a way that they are gender-transformative and can contribute to a more gender-equal future (Lahiri-Dutt 2023; Spitzner et al. 2020).

With my dissertation, I contribute to making these diverse gender dimensions of (especially coal) transition processes visible in various ways and show how feminist theoretical concepts and frameworks can enrich Sustainability Transitions Research (STR) where I situate my dissertation. Additionally, I show how gender justice considerations can be included more systematically in the design of just transitions. These research objectives are addressed by firstly systematically summarizing scientific literature that examines historical coal phase-out processes from a gender perspective. It becomes apparent that women were affected differently due to their social positioning and had limited opportunities to shape historical coal transitions. Thereby a geographical focus is put on the USA and the UK. From the historical perspective, the dissertation moves on to current transition processes and analyses the structural change process in the German coal region Lusatia. It assesses the demands of women's organisations for shaping the future of their region and shows that a feminist structural change policy means, among other things, to consider care work as crucial social infrastructure. Finally, the dissertation maps the political discourse on a gender-just transition. It becomes clear how diverse the demands are: They range from demands for equal representation on the boards of energy companies to much more transformative calls for a move away from capitalist economic structures.



The introductory chapter of the dissertation is structured as follows. Section 1.2 introduces the case study countries and regions analysed in the dissertation in more detail and provides some historical background on the development of the respective coal phase-out processes. The subsequent Sections (1.3 - 1.5) present the strands of scientific literature that I would like to tie in with my dissertation and show how I contribute to each of these strands with my work. Section 1.6 presents conceptions of gender and reflections on how they are applied in the dissertation. 1.7 presents the research aim of the dissertation and how it is translated into research questions addressed in the respective chapters. 1.8 introduces the main theoretical frameworks and concepts and 1.9 introduces the methods for data collection and analysis. 1.10 summarizes the main findings of the dissertation. In 1.11 I reflect my positionality. After summarizing the shortcomings of the dissertation in 1.12 a research outlook is given in 1.13.

## **1.2 Coal transitions in the UK, USA and Germany**

The following section introduces the geographical focus of my work. The case studies included in the dissertation (Chapters 3 and 4) focus on the countries UK, Germany with a regional focus on Lusatia and USA with a regional focus on Appalachia. All three countries experienced large absolute and relative declines in coal production and consumption (Diluio et al. 2021). I analyse the coal transition processes with a gender perspective, constantly reflecting on what insights can be gleaned for regions yet to undergo the coal transition (see 1.9.1 for a discussion of the case study research design).

The formerly “king coal“ UK was a frontrunner in deciding on a coal phase-out for 2025 in 2015. This date was brought forward by one year to 2024 in 2020 (Brauers, Oei, and Walk 2020). However, a large part of the supply-side transition already took place in the 1980s and had economic and not climate policy reasons. Domestic coal was increasingly uneconomical compared to the coal available on the world market, which is why the Thatcher government massively curtailed domestic coal production. The transition can be considered as an example of an “unjust transition”. The miners' uprisings against the shutdown of large parts of the coal industry were suppressed and the coal communities were hardly supported in building an alternative economic structure and a post-coal identity. Many regions in the UK are still suffering from this failed transition today (Brauers, Oei, and Walk 2020; Phillips 2014; Walk and Stognief 2022; Stognief, Walk, and Oei 2022). The demand-side transition accelerated later but very quickly in comparison to the other country case studies (see Table 1). The reduction in the burning of coal was achieved inter alia through targeted policy instruments such as a carbon price and emissions performance standards. These policies were supported by a general sentiment among the population in the UK that was in favour of climate protection (Brauers, Oei, and Walk 2020; Carter and Jacobs 2014; Stognief, Walk, and Oei 2022; Walk and Stognief 2022). The main coal regions in the UK were spread across the country and were mainly located in Central Scotland, Southern Wales, Northern England and the Midlands (Phillips 2018). In Chapter 2, where the UK is treated as a case study, no geographical focus was chosen because no region was heavily over-represented in the academic literature analysed.

**Table 1: Overview of case study countries and regions.**

	UK	Germany	USA
<b>Regional focus in the dissertation</b>	-	Lusatia	Appalachia
<b>Coal phase-out date</b>	2024	2038 or 2035	-
<b>Demand-side transition</b> (% of hard coal and lignite in electricity generation)	34% (2000) - 2% (2022) <sup>2</sup>	51% (2000) - 31% (2022) <sup>3</sup>	50% (2003) - 20% (2022) <sup>4</sup>
<b>Fuel that (primarily) replaced coal</b>	Mainly natural gas	Mainly RE	Mainly natural gas
<b>Supply-side transition</b> (employment in hard coal production)	607.000 (1960) - 360 (2022) <sup>5</sup>	490.200 (1960) - 4.900 (2018) <sup>6</sup>  Lignite production: 129.700 (1990) – 17.200 (2022) <sup>7</sup>	169.600 (1985) – 51.900 (2018) <sup>8</sup>

As in the UK, domestic hard coal in Germany was uneconomical compared to coal imports. However, West German hard coal was massively subsidized since the 1950s until the last mine was closed by the end of 2018. In Western Germany, therefore, there was a continuous controlled decline in hard coal mining over 60 years (Brauers, Oei, and Walk 2020; Oei, Brauers, and Herpich 2019). The situation was different in Eastern Germany. After the end of the GDR, the structural collapse of the East German lignite mining industry with high unemployment was politically accepted (Furnaro 2022). In 2018, a commission was set up to develop an exit path for both coal mining and coal combustion in Germany (Hauenstein et al. 2023). The commission's recommendations were cast into law in 2020 and the phase-

<sup>2</sup> Figure for 2000 based on Brauers et al (2020) who refer to <https://www.gov.uk/government/statistics/electricity-section-5-energy-trends>; Figure for 2022 from Ember 2023: "The UK's coal to clean journey" <https://ember-climate.org/insights/research/the-uks-coal-to-clean-journey/> (last accessed 8 December 2023).

<sup>3</sup> Brauers et al (2020) and Umweltbundesamt 2023: „Erneuerbare und konventionelle Stromerzeugung“ <https://www.umweltbundesamt.de/daten/energie/erneuerbare-konventionelle-stromerzeugung> (last accessed 8 December 2023).

<sup>4</sup> Figure for 2003 based on Lu and Nemet (2022); Figure for 2022 based on EIA: "Net generation by energy source: Total – all sectors" <https://www.eia.gov/electricity/monthly/> (last accessed 25 January 2024).

<sup>5</sup> UK government: "Historical coal data: coal production, availability and consumption" <https://www.gov.uk/government/statistical-data-sets/historical-coal-data-coal-production-availability-and-consumption> (last accessed 25 January 2024).

<sup>6</sup> Statistik der Kohlenwirtschaft e.V.: „Steinkohle im Überblick“ <https://kohlenstatistik.de/> (last accessed 25 January 2024).

<sup>7</sup> Statistik der Kohlenwirtschaft e.V.: „Braunkohle im Überblick“ <https://kohlenstatistik.de/> (last accessed 25 January 2024).

<sup>8</sup> Federal Reserve Economic Data: "All employees, Coal mining" <https://fred.stlouisfed.org/series/CEU1021210001#0> (last accessed 25 January 2024).

out was decided for 2038 with the option of bringing it forward to 2035.<sup>9</sup> In addition, a package of 40 billion euros in structural funds was approved for the three remaining German coal regions (Walk and Stognief 2021). This is an internationally incomparably high sum (A. Schuster et al. 2023). In comparison, the EU just transition fund, which provides structural funds for all European coal regions, has a volume of 17,5 billion euros.<sup>10</sup>

I chose Lusatia as the subject of study because, among other things, it faces greater challenges than the other German coal regions due to its geographical location and history (Stognief et al. 2019; 2020; Herpich et al. 2022). Lusatia is an East German coal region. During the GDR era, lignite production played a very important role in the supply of heat and electricity: between 1975 and 1990, lignite covered around two-thirds of the GDR's primary energy demand (Hermann, Greiner, and Matthes 2017, 29). Lignite enabled the buildup of heavy industry in Lusatia and a certain independence from Russian oil and gas imports. The coal and heavy industry was an important employer and Lusatia experienced strong population growth (Wolle 2020). Reunification was accompanied by an abrupt structural break: numerous East German industries, including large parts of the Lusatian lignite industry, were unable to keep up with the competition from the West. These industries collapsed and unemployment was high. At the beginning of the 2000s, unemployment in Lusatia was still over 20 per cent (Gürtler, Luh, and Staemmler 2020). Between 1995 and 2015, 18 per cent of Lusatians left the region (Schwartzkopff and Schulz 2015, 7). Today the situation is different: the number of workers in the coal industry was only 7.675<sup>11</sup> in 2022 in comparison to around 79.000<sup>12</sup> in 1989 and there is a general shortage of skilled workers in Lusatia (F wie Kraft 2020). In addition, as mentioned above, Lusatia is receiving a large sum of money by international comparison to help shape structural change (A. Schuster et al. 2023). This shows that the initial situation for the phase-out is much better today. Nevertheless, it is important to be aware of these historical developments and to consider that people who experienced the structural break after reunification are afraid of having to go through something similar again (Gürtler, Luh, and Staemmler 2020). Furthermore, there are still many challenges today such as the continued emigration of young, well-educated people, a disproportionate number of them being young women (Gabler, Kollmorgen, and Kottwitz 2016; Bréau et al. 2022).

In the US, decreasing prices of natural gas mainly due to an increasing domestic production of shale gas, as well as falling prices for wind and solar energy have driven coal out of the market (Lu and Nemet 2022; Mendelevitch, Hauenstein, and Holz 2019). These market factors were so strong that President Trump's attempt to revive coal through policy instruments supported by fossil fuel interest groups was not successful. Counties whose local economy and through taxes also their social services depend on coal have hardly received support from state and federal governments. They have suffered from limited

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<sup>9</sup> However, members of the commission criticised the fact that some important recommendations were not implemented. The path for shutting down lignite-fired power plants, for example, is not as steep as the members of the coal commission had recommended (Walk and Stognief 2021).

<sup>10</sup> European Commission: "The Just Transition Fund" [https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/finance-and-green-deal/just-transition-mechanism/just-transition-funding-sources\\_en](https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/finance-and-green-deal/just-transition-mechanism/just-transition-funding-sources_en) (last accessed 24 November 2023).

<sup>11</sup> These are preliminary numbers for 2020.

<sup>12</sup> Statistik der Kohlenwirtschaft: „Braunkohle Im Überblick 1989-2022“ <https://kohlenstatistik.de/> (last accessed 9 January 2024).

job opportunities as well as environmental degradation caused by coal mining (Lu and Nemet 2022). Research on coal phase-out in the US has a regional focus on Appalachia (Diluiso et al. 2021). Many of the social, ecological and economic challenges associated with the coal phase-out, as well as with mining itself, can be found there. The introduction of the very environmentally damaging mountaintop removal (MTR) mining greatly reduced the number of mining jobs in central Appalachia (Bell and Braun 2010). In the central Appalachian state of West Virginia, e.g., the number of coal workers shrank from around 130.000 to 20.000 from 1948 to 2006 (Bell and York 2010, 121). The decline of the coal industry was accompanied by overall challenging socio-economic developments in Appalachia. In Southwest Virginia, the unemployment rate and job insecurity in the 1990s were, for example, higher than the national average (Seitz 1998). Similar to Lusatia, Appalachia experienced high outmigration rates (Maggard 1994a).

Especially in the USA and the UK, coal as an energy source has been largely replaced with natural gas (Lu and Nemet 2022; Brauers, Oei, and Walk 2020). The burning of natural gas also produces significant CO<sub>2</sub> emissions and the amount of methane emissions during the whole chain of natural gas production, transport and use have been underestimated for a long time. Therefore, the potential of natural gas to lower greenhouse gasses is small and in the long term natural gas cannot contribute to reaching climate targets (Brauers 2022; Brauers, Braunger, and Jewell 2021; Braunger 2023; Kemfert et al. 2022).

The following sections provide an introduction to the strands of scientific literature to which I aim to contribute with my work. 1.3 presents the scientific debate on just transition, 1.4 introduces the scientific field of STR and 1.5 takes a closer look at the existing work on gender within STR.

### **1.3 Concepts of a just transition**

The fact that the Paris Agreement calls for “a just transition of the workforce and the creation of decent work and quality jobs” shows how widespread the demand for a just transition has become (UNFCCC 2015, 2). The concept of just transition focuses broadly on equity aspects associated with the implementation of climate policies. Its usage is prevalent in both scientific and political discussions. However, the broader utilisation has also increased the vagueness and controversial nature of the concept (Wang and Lo 2021; Majekolagbe 2023; Alarcón et al. 2023).

In their analysis, Wang and Lo (2021) explore the application of the concept in scientific literature, distinguishing five thematic areas in which the concept is applied. Originally just transition is a *labour-oriented concept*. The concept was developed by trade unions from the 1970s onwards. They fought for assistance programmes for workers in polluting industries who were confronted with unemployment due to environmental legislation. The focus is on cushioning the hardships for workers and fossil-fuel-dependent communities that will result from a phase-out of fossil fuels (Wang and Lo 2021; A. Schuster et al. 2023; McCauley and Heffron 2018; Majekolagbe 2023). Second, as an *integrated framework for justice* just transition could integrate the more established justice concepts of environmental, climate

and energy justice.<sup>13</sup> The just transition concept could help to develop a space to combine these justice considerations and help e.g. to build alliances between climate activists and fossil fuel-dependent communities, adding more place-based socioeconomic considerations like job security and economic equity to discussions about climate mitigation (Wang and Lo 2021; Heffron and McCauley 2018; McCauley and Heffron 2018). Third, the concept appears in Sustainability Transitions Research (STR) strengthening the analysis of *justice aspects within STR* (see Section 1.4.) Furthermore, just transition is seen as a *governance approach* primary in the context of democratic regimes. Furthermore, there exists a branch of just transition research dedicated to examining *public perception*, such as how the attitudes of stakeholders evolve about the energy transition (Wang and Lo 2021).

In addition to the question of which thematic area the use of the term just transition falls into, the question arises as to which principles of justice are associated with the use of the concept. The three traditional interrelating justice dimensions are *procedural justice* (the right to take part equitably in decision-making processes), *distributional justice* (the fair distribution of burdens and benefits) and *recognitional justice* (recognition of peoples differences and attention to how people might be affected differently by policies) (Fraser 2009; 1998; Fraser and Honneth 2003; Gürtler and Herberg 2021; Pai, Harrison, and Zerriffi 2020). Some literature empirically illustrates how these dimensions of justice context-specifically underlie the demands of a just transition with varying degrees of emphasis (Gürtler and Herberg 2021; Pai, Harrison, and Zerriffi 2020; A. Schuster et al. 2023). Gürtler and Herberg (2021) argue, for example, that the political discourse surrounding the coal phase-out in Lusatia is very much about distributive justice with the billions that are made available to the German coal regions. However, aspects of recognitional justice, where the aim is to do justice to the diversity of perspectives and give people the feeling of being heard and seen, are given too little attention. In the just transition literature, there are increasing calls for *restorative justice* to be included as the fourth justice principle in the design of a just transition. In the process of phasing out, e.g. coal mining, a pacifying remediation process is crucial. It is important to recognize and compensate for the violence that has been done to the environment along with the harm that people suffered, e.g. through pollution or the destruction of their homes for new mining sites (McCauley and Heffron 2018; A. Schuster et al. 2023).

There are tensions between different just transition approaches – such as between trade unions, which are potentially more willing to slow down the process of phasing out fossil fuels to preserve jobs, and environmental activists, who insist on the urgency of a rapid phase-out. The tensions become clear by analysing the depth of reform proposals associated with the concept. Wilgosh et al. (2022) systematically evaluate grey and scientific literature on just transition and cluster the approaches along the spectrum of “limited/affirmative” and “expansive/transformative”. A limited approach to just transition can be defined as worker-focused, oriented towards the status quo and primarily follows market-based solutions. A transformative approach aims for more inclusion giving voice to historically marginalised people and structural transformation challenging social relations that produce and maintain inequalities.

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<sup>13</sup> The focus of environmental justice lays on the inequitable distribution of environmental risks rooted in political, economic and cultural inequalities. Climate justice has more of a global perspective, looks at the uneven distribution of effects of the climate crisis, and challenges the systems that create this crisis. Energy justice problematizes the distribution of harms and benefits of the current way to produce energy (Wang and Lo 2021).

Similarly, the Just Transition Research Collaborative (2018) differentiates between a “status quo”, a “managerial reform”, a “structural reform” and a “transformative” approach to just transition. A useful distinction of the approaches is also between scope and scale: Is it about specific people (e.g. coal workers) in one place or is the focus broader in terms of stakeholder groups and geography? (Stavis and Felli 2020).

Generally, criticism can be directed towards the just transition discourse for its Eurocentrism, given that a majority of publications originate from and centre on Global North countries, neglecting the contextual specificities of Global South nations. In the discourse, it is often implicitly assumed that the transition is organized within a constitutional, liberal and democratic state model. Furthermore, marginalized groups in the informal sector or those reliant on the distribution of natural resource rents (such as from coal exports) through social policies are frequently overlooked. There is an urgent need for additional case studies concentrating on the Global South to enhance more diverse perspectives within the just transition discourse (Alarcón et al. 2023).

In some scientific papers addressing the notion of a just transition, gender aspects are acknowledged. Wilgosh et al. (2022) state, e.g., that transformative and expansive approaches to just transition tend to take into account the transition effects on people with diverse life realities and identities, working e.g. in precarious labour, performing unpaid care work and being affected by intersectional marginalisation. These approaches are mostly pursued by interest groups that are committed to climate, energy and environmental justice. More limited approaches to just transition, often employed by unions, focus on the effects of energy transitions on fossil fuel workers in formalised well-paid positions which are mostly male. García-García et al. (2020) review scientific publications on just energy transitions with a focus on labour and income effects. Gender aspects are mentioned here, particularly in the research agenda depicting future research needs stating that gender implications of the energy transition are hardly scientifically evaluated. When analysing employment effects, e.g., usually only volumes are considered and not the quality of jobs or the distribution of jobs, e.g. between the sexes.

There are only few scientific articles that explicitly deal with the just transition concept from a gender perspective. Lahiri-Dutt (2023, 4) argues that “although the concept [of just transition] recognizes that the transition will not be simple given the socioeconomic and cultural impacts on dependent households and communities, the question of gender equality has so far been neglected”. In their review, Johnson et al (2020) show how gender relations and social inequality have a decisive impact on how the introduction of renewable energy affects people differently. Allwood (2020) analyses EU climate policy and shows that most of it is gender-blind. She calls for greater attention to be paid to how the sustainability transition can take place fairly, with a particular focus on intersectionally disadvantaged people, as social cushioning is not given enough attention. Using the example of the coal industry in India, Lahiri-Dutt (2023) and Nayak and Swain (2023) show how crucial it is to consider gender inequality and the realities of women's lives when strategizing a transition plan. Women are rarely formally employed in the coal industry or represented in trade unions. Their work is more informal and less secure, whether in the informal coal industry or ancillary and secondary industries. They also do most of the unpaid care work which increases when the whole community is under stress. So, women are at

risk of being overlooked and ignored in transition policies, even though they lose a large part of their livelihood. This situation is worsened by the notable lack of representation in decision-making processes concerning the organization of the transition.

It is striking that, in contrast to the scientific discourse, there is a quite broad political discourse on how the transition could be designed in a gender-just way. Chapter 5 clusters this political discourse. Furthermore, Chapter 4 contributes to the scientific literature on a just transition by examining structural change in Lusatia from a feminist perspective as a specific case study where just transition policies are currently under negotiation. Wang and Lo (2021) have identified the need for concrete case studies of what successful just transition governance can look like in practice as one of the conclusions of their review. Further research topics to strengthen the research field on a gender-equitable transition are presented in a research agenda at the end of Chapter 2.

## **1.4 Sustainability transitions research**

I locate my work in the field of sustainability transitions research (STR). In the sense of this field of research the many ecological challenges we face (climate crisis, loss of biodiversity, soil erosion, etc.) are understood as major social challenges (Köhler et al. 2019). These environmental problems are caused by existing unsustainable large-scale systems of provision which are socially embedded such as energy, mobility, food, etc. (Wolfram and Kienesberger 2023). The challenges cannot be addressed with small-scale changes and purely technological solutions, but require radical shifts to new types of sustainable socio-technical systems. STR aims to explain how such radical changes can be achieved (Köhler et al. 2019). The shifts are induced by mutually influencing changes in the established ways of doing (practice), organising (structure) and thinking (culture) (van den Bosch and Rotmans 2008). Specifically STR analyses the role of e.g. government structures, policy mixes, civil society actors, businesses and users in accelerating or slowing down transition processes (Köhler et al. 2019).

There are many different frameworks in STR that try to explain how change occurs. One of these is the meta-theoretical framework developed by Cherp et al. (2018) which helps to analyse national energy transitions by focusing on the co-evolution of techno-economic, socio-technical and political systems. Probably the best-known framework of STR is the Multi-Level-Perspective (MLP). It understands the essence of transitions as a three-level process of mutually reinforcing changes: niche innovations, socio-technical regime and broad political-economic landscape changes (Geels 2002; Hassink, Grin, and Hulsink 2018; Genus and Coles 2008; Avelino 2017). Socio-technological regimes consist of relatively stable institutions, artefacts, techniques, as well as rules and practices that determine what is considered “normal” development and “normal” use of technologies (Smith, Stirling, and Berkhout 2005). The landscape level can be considered as macro developments outside the direct influence of regime and niche actors (e.g. the climate crisis) (Avelino 2017). Early studies in transition research primarily investigated the conditions under which niche innovations, such as the distribution of renewable energies, can be successful (Köhler et al. 2019). According to historical experience, radical change begins in networks of pioneering organisations, technologies and users that form a niche. However, a prerequisite for the niche innovations to diffuse is the destabilisation of the regime caused inter alia by pressure from changes at the broader socio-technical landscape level. The proliferation of niches

requires sufficient common ground with the regime so that these practices can survive in a regime that is still in place, albeit under severe pressure (Smith, Stirling, and Berkhout 2005; Geels 2020).

While incumbent firms can play a role in developing (radical) innovations, they tend to be less willing to develop radical solutions and prefer the continuation of existing trajectories (Geels 2014). Unruh (2000) describes the reasons why it is so difficult to move away from the carbon-based system of production and consumption, despite the ecological damage they cause and the alternatives available, as “carbon lock-in”. Carbon lock-in results from systematic interaction between technologies and institutions. Technological systems, such as the system of electricity production, distribution and use, are embedded in a powerful context of private and political institutions that can prevent alternative technologies from gaining ground. Incumbent firms tend to focus on their existing competencies and not on the development of new products that could make their business model obsolete. Training centres are also geared towards training for current technologies and financial institutions can further strengthen the lock-in by risk-averse lending practices. Moreover, social norms, for example about car ownership, can represent a strong lock-in, as can lobby organisations, associations and unions relating to the existing technology.

In recent years more research has been carried out on the conditions under which incumbent fossil fuel regimes, such as the coal regime, destabilise (Kivimaa and Kern 2016; Kungl and Geels 2018; Geels 2014; Brauers, Oei, and Walk 2020; Brauers and Oei 2020; Turnheim and Geels 2013; Jakob and Steckel 2022). The Triple Embeddedness Framework, e.g. conceptualises how industry regimes are under selection pressure to adapt from the socio-political environment, which requires legitimacy and social fitness, and from the techno-economic environment, which requires economic competitiveness, efficiency and financial performance. The industry regimes, such as the coal regime, mostly employ adaptation strategies, such as political lobbying, to respond to this pressure (Geels 2014; Brauers and Oei 2020; Brauers, Oei, and Walk 2020; Kungl and Geels 2018). The coal industry both in Germany and the UK, e.g., prevented for several decades policies, which would have reduced their business opportunities, and the industry obtained high subsidies in both countries, for example through capacity market policies (Brauers, Oei, and Walk 2020).

In discourses on sustainability, power is usually seen as an instrument for enforcing sustainability measures (Avelino 2017). Increasingly, however, the question of who wins and who loses in these transitions is also being asked under the slogan of just transition (see 1.3). Whose vision is dominant in shaping the transition? What kind of power constellations do we want for the future? These questions are to be in particular addressed in relation to structural power inequalities such as class, race, gender and geographical location (Köhler et al. 2019; Avelino 2017; Avelino and Wittmayer 2016). More and more STR scholars agree that the normative component of sustainability transitions should get more attention: it is not only about tackling environmental problems but also about achieving more social justice in the sense of e.g. poverty reduction and fairer participation (Avelino 2017; Köhler et al. 2019). If existing power asymmetries are not addressed from the outset, they will be reproduced and transferred to the new energy systems (Johnson et al. 2020; Kronsell 2013). Avelino (2017) develops the POINT (POWer-IN-Transition) framework to classify some of these power aspects. Since it is applied in Chapter



3, I will present the framework in more detail in Section 1.8. With my dissertation, I would like to build on the debate about power in transition asking how the phase-out of the socio-technical system around coal can be managed in a socially just, especially gender-just manner.

## **1.5 Gender in sustainability transitions research**

Gender relations are affected by such major changes as sustainability transitions because gender is an essential category of social organisation (Kronsell 2013; Wolfram and Kienesberger 2023). However, in STR there is little research on social differentiation along categories such as gender, ethnicity and class (Lieu et al. 2020; Köhler et al. 2019). Wolfram and Kienesberger (2023) have systematically compiled the literature that deals with gender within STR and found a small sample of 17 scientific articles. They thereby confirmed the “overall lack of conceptual engagement in ST[R] studies with gender as a core factor of societal organisation and transformation” (p.6). However, the authors found a rising number of publications in recent years. Most publications (7/17) focus on energy at the household or village level. Mechlenborg and Gram-Hanssen (2020) show, for example, how the division between home and work, between family life and capitalist work is strongly gendered in modern Westernised middle-class households. It is therefore important when introducing new technologies to examine how these relate to power constellations and the division of labour in the household and to what extent they can contribute to the empowerment of women. Pelloni et al (2020) analyse the conditions under which biogas plants are used and accepted by the population in several Bedouin villages in Israel. They found that since women in the communities are strongly attributed to the responsibility for household chores, including cooking, it is crucial that they adopt the technology.<sup>14</sup> Only one paper analyses exclusively gender dimensions of energy transitions at the national level (Lieu et al. 2020). Another area covered somewhat more frequently in the sample is gender aspects in mobility transitions (5/17). Furthermore, papers focusing on transition processes in the Global South have a comparatively high proportion (10/17). However, it must be critically noted, that these were mainly written by authors from research institutions in the Global North. The impression that there is less literature on the gender implications of energy transitions in the Global North is widely shared in the literature (Johnson et al. 2020; Bréau et al. 2022; Kanning, Mölders, and Hofmeister 2016; Iwińska and Bukowska 2022). In summary, it can be said that analyses of gender in energy transitions focus mostly on questions of energy access at the household level (Lahiri-Dutt 2023; Bréau et al. 2022; Wolfram and Kienesberger 2023). With the focus of my dissertation on national coal phase-out processes (with regional effects, which I look at in particular in Chapter 4) and a focus on countries of the Global North, I therefore contribute to filling a research gap.<sup>15</sup>

In the following, I take a closer look at two suggestions on how STR can be productively linked to feminist theory. Wolfram and Kienesberger (2023) refer to Harding's (1986) suggestion of how gender relations and their effects can be disentangled: 1) structural/institutional (manifested in how e.g. human relations

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<sup>14</sup> In research where the focus is on unpaid housework attributed to women, such as analysing the conditions under which new technologies are accepted, it is important to prevent gender images from being reinforced by the research. To this end, the structures and conditions under which these gender attributions come about must also be analysed and reflected (Hofmeister, Katz, and Mölders 2013).

<sup>15</sup> However, it needs to be considered that Wolfram und Kienesberger (2023) did their literature search already in summer 2020.

are organised), 2) symbolic (expressed e.g. in cultural meanings), and 2) individual/behavioural (articulated e.g. in social practices). These fundamental dimensions are closely intertwined and interacting and gender hierarchies should be dismantled at all three levels. The approach fits well with the idea in STR that transitions occur through changes in structures, cultures and practices (see 1.4) and could offer a conceptual bridge between the two research fields. Additionally, it is also applicable to intersectional analysis.

Kronsell (2013) sees similar analytical levels meaning niches, regimes and landscape levels as in STR reflected in gender studies and to some extent also related to different currents of feminist theories. *Constructivist feminists* tend to focus on the landscape level, meaning norms and practices constituting the gender order. Certain types of masculinity are the accepted and often invisible and unarticulated norm building the landscape in which climate governance takes place. Braunger and Hauenstein (2020) show, e.g., that techno-focused policy proposals are preferred in mainstream climate scenarios inter alia because they are associated with masculinity and thus with control and dominance. Risky and largely unproven carbon dioxide removal technologies tend to be chosen over demand-side solutions. *Materialist feminists* address the gender regime and aim to understand the inherent dynamics. Gender is materially constituted in the economic order through e.g. the division between unpaid, “reproductive” labour ascribed to women and paid, “productive” labour ascribed to men.<sup>16</sup> Similar to STR the question is how regime change can be reached. STR could learn from gender studies to more often ask the question of who are the privileged actors in the regime in relation to social categories (Kronsell 2013). *Liberal feminists* focus on the role of participation. Participation as a key driver for change is considered very relevant in STR as well as in feminist theory. Additionally, both stress the importance of including those who desire change and those who have been excluded in policy decisions in the current regime. In the sense of the STR, these are the “niche players” willing to think in new ways and in the sense of feminist theories not specifically women but in general people who aim for a change of the gender regime (Kronsell 2013).

A speciality of STR is its interdisciplinarity. The scientific field is very open to methods and theories from other social science fields and applies them to better understand transition processes (Köhler et al. 2019; Wolfram and Kienesberger 2023). In this sense, my work contributes to including more feminist theories and methodological approaches to the study of sustainability transitions. In Chapter 3, my co-author and I extend the POINT framework by building mostly on Young's (2002) work and suggest how gendered power asymmetries could be added as a new layer of analysis to the framework. In Chapter 4 feminist methodological approaches are applied using a focus group as a feminist research method for data collection and critical feminist discourse analysis as a method for data analysis (see 1.9). On a theoretical level, Tronto's (1993; 2013) conception of care is used and it is empirically explores what kind of care work is relevant for structural change in Lusatia. In Chapter 5, I refer to various feminist theoretical currents to classify the narratives around a gender-just transition.

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<sup>16</sup> I use the inverted commas to make clear that both types of work should be considered productive (Biesecker and Hofmeister 2006).

## 1.6 Conceptions of gender

The conceptualisations of gender in STR presented in 1.5 can be productively linked to the differentiation of gender as a *category of difference*, as a *structural category*, as a *process category* and as an *epistemological category* (Hofmeister and Katz 2011; Hofmeister, Katz, and Mölders 2013; Kanning, Mölders, and Hofmeister 2016). In the following, I introduce the categories, present the connection to Kronsell (2013) and Wolfram and Kienesberger (2023) in more detail and discuss which conceptions of gender are particularly relevant in the individual chapters of my dissertation.

The *category of difference* stays rather at the individual level and asks questions about vulnerabilities, affectedness, behaviour and perceptions of biological men and women. The category of analysis is not “gender” but “sex”. By assuming differences between biological women and men, the category of sex can be grasped empirically, for example in the form of sex-disaggregated data. In this way, inequalities and oppression of women can be made visible and criticised. However, these sex-disaggregated surveys are also criticised for their homogenising tendencies (Kanning, Mölders, and Hofmeister 2016). The difference category ascribes women equality, at least in relation to their experience of oppression, and a female identity. Especially in a global context and given the diverse life situations of women (e.g. differentiated by class and race) using gender as an identity-political category has been sharply criticised (Hofmeister, Katz, and Mölders 2013; Mishra 2013).

Gender as a *structural category* focuses on socio-structural conditions that produce inequalities. The perspective of analysis therefore shifts from the individual level to the structural level and the category “gender” is used instead of “sex” to underline this social dimension (Kanning, Mölders, and Hofmeister 2016; Bréau et al. 2022). What is considered “feminine” or “masculine” is characterised by social power mechanisms and is embedded in social structures of power (Hofmeister, Katz, and Mölders 2013). Young (2002), which is referred to in Chapters 2 and 3, applies a primarily structural account of gender with her concept of the three axes of gendered social structure. Social structures mean that some people experience obstacles to, e.g., their freedoms and their ability to achieve material well-being. The category of gender is one of the categories (alongside race, class, age etc.) that structure the distribution of privileges and opportunities. It is important to emphasise that this is not about assigning men or women a supposed group identity. The first axis of gendered social structure Young (2002) defines is the “sexual division of labour”. The second axis is “normative heterosexuality”. The heterosexual norm produces serious suffering and leads to limited opportunities for people who do not fit into this norm. The third axis is described as “gendered power hierarchies”. State institutions and companies are usually structured in such a way that higher status, privileges, and decision-making powers lie with men who follow a certain type of masculinity that is socially valorised. The three axes of gendered social structure interact with each other and limit the possibilities and resources of people. I see the connection between gender as a structural category, especially with the regime level dimension by Kronsell (2013) and the structural/institutional dimension by Wolfram and Kienesberger (2023).

Gender as *process category* asks how gender hierarchies are reproduced and changed on individual, structural and symbolic level. Gender is nothing that we have or are but it is negotiated and reproduced in social interaction with individuals and structural conditions (“doing gender”) (Hofmeister and Katz 2011; Spitzner et al. 2020; Butler 1990). Complementary to this is “undoing gender” meaning that gender

can be fluid, dynamic and in-between the binary gender (Mechlenborg and Gram-Hanssen 2020). Under the influence of constructivist approaches, the binary is questioned both in its biological (sex) and social dimension (gender). This adds “queer” as another category to sex and gender. It denotes things, actions and persons that deviate from the norm of binary gender (Kanning, Mölders, and Hofmeister 2016). I see here the closest reference to the individual level according to Wolfram and Kienesberger (2023) on which gender relations are reproduced. However, in the sense of the process category, this processuality and thus also changeability should also be seen on the structural and symbolic level (Hofmeister and Katz 2011; Hofmeister, Katz, and Mölders 2013).

The *epistemological category* aims to uncover “blind spots” in the production of knowledge and to analyse scientific findings with regard to discriminations and marginalisations due to the one-sided valorisation of masculine norms as well as the naturalisation of social inequality structures (Hofmeister, Katz, and Mölders 2013). In the sense of the epistemological category, it is, e.g., analysed how the two dichotomous constructions of culture vs. nature and men vs. women are connected (Hofmeister and Katz 2011). In the Western dualistic construction of reality women /the feminine and nature/the physical-material have been conceptualised as inferior in mutual reference to each other. In dominant Western culture, the whole sphere of reproduction and subsistence is systematically backgrounded and dependency on it is denied (Plumwood 1993). I see connections here to the landscape level conceptualised by Kronsell (2013) in which values associated with masculinity represent the norm as well as to the symbolic dimension of gender relations by Wolfram and Kienesberger (2023).

In Chapter 2 and 3 gender is especially considered as a structural category. Gendered power asymmetries result in women and men being affected differently by coal phase-out processes. It is critical to speak of women as a “group” and, as noted above, such homogenising tendencies are to be criticised. Nevertheless, with my work I aim to show how powerful the category of gender is in the course of sustainability transitions and must therefore generalise to a certain extent, also to develop political demands. To make gender differences empirically tangible, I also apply gender as a category of difference. In Chapter 4, I examine with my co-authors the structural and symbolic devaluation of female-associated care work in structural change and how it could be revaluated (see 1.8 for Tronto’s conception of care). In Chapter 5, I try to capture the breadth of the political discourse on a gender-just transition. Thereby I also work out which concepts of gender related to different currents of feminist theory are used by the actors. The four categories are always intertwined and it is not so easy to distinguish between them in research practice. The distinction should therefore be understood more as an analytical one and the categories as to a large extent mutually complementary (Herdlitschka and Kapitza 2023; Hofmeister, Katz, and Mölders 2013).

I am aware that with my work, focusing mostly on power hierarchies between men and women, I reproduce binary gender. This is also due to my data, which mostly uses this binary. I would like to make clear here that my definition of a woman includes people who define themselves as such. I am aware that binarity causes suffering for transgender, intersex and non-binary people (Fotopoulou 2012). I have tried to include queer perspectives to some extent by, for example, trying to interview people from queer subcultures in the interviews conducted in Chapter 4 or by investigating the extent to which queer

perspectives occur in the gender-just transition discourse in Chapter 5. To better reflect the diversity of gender in research, it is also urgently necessary to improve the availability of data (see 1.13.2).

## 1.7 Research aim and research questions

The research aim of this dissertation is to show the many ways in which gender is relevant in (mostly coal) transition processes. Additionally, it aims to expand the knowledge of how gender justice considerations can be included in the design of just transitions. On a theoretical and methodological level, the aim is to show how feminist theoretical and methodological approaches can be productively linked with STR.

Figure 1 provides an overview of the dissertation. The research design of Chapters 2 and 5 is a systematic analysis of literature. Chapters 3 and 4 apply a case study research design. In terms of content and time focus, Chapters 2 and 3 focus on historical coal phase-out processes. Chapters 4 and 5 deal with current just transition discourses.

<b>Strengthening Gender Justice in a Just Transition</b> An analysis of historical coal transitions and ongoing transition processes from a feminist perspective		
Historical coal transitions	<b>Chapter 2:</b> Strengthening gender justice in a just transition: A research agenda based on a systematic map of gender in coal transitions	Systematic analysis
	<b>Chapter 3:</b> Power in transitions: Gendered power asymmetries in the United Kingdom and the United States coal transitions	Case study
Current just transition discourses	<b>Chapter 4:</b> Tracing a caring transition policy for the German coal region Lusatia	Case study
	<b>Chapter 5:</b> From parity to degrowth: Unpacking narratives of a gender-just transition	Systematic analysis

**Figure 1: Overview of the dissertation.**

The research aim is translated into the following research questions (RQ) answered in the individual chapters. Chapter 2 systematically compiles the scientific literature that exists on the gender-specific effects of coal exit processes and the role of women in these processes.

*RQ1: What evidence exists about the effects of coal transitions on women in contrast to men and about female agency during coal transitions?*

Based on this compilation, it becomes clear that there is the most literature on coal phase-out processes in the UK and the USA. These case studies are examined in more detail in Chapter 3 and a framework is developed for examining sustainability transitions in terms of gendered power asymmetries.

*RQ2: Which role did women play in historical coal transitions in the UK and the US in terms of their participation and which unintended impacts did the transitions have on them?*

In Lusatia the allocation of funds for structural change is in progress, sparking intense discussions on the most pressing needs for the region and how the funds should be utilized. There is an internationally unique women's network which aims to strengthen equality policy demands within the discourse on structural change (Bréau et al. 2022). Chapter 4 examines the demands of this network in comparison to demands in policy documents of the respective state government from a care theory perspective.

*RQ3: What challenges and needs do the active women of the Lusatian Women's Network formulate for regional transition policy and to what extent can the views be seen as a counter-discourse to the dominant structural change discourse? What is relevant care work for the transition?*

Within the political discourse on a just transition, there is a growing chorus advocating for increased representation of gender equality. Calls for a gender-just or feminist transition are being expressed. In Chapter 5, I summarize this discourse.

*RQ4: Which gender-just transition narratives are used by which actors and in how far are currents of feminist theory reflected in them?*

## **1.8 Concepts and frameworks**

Table 2 gives an overview of the theoretical approaches and the methods for data collection and data analysis applied in the chapters. In the following, I delve into theories and frameworks adopted and illustrate how they were applied. In 1.9 I present the methodological approaches adopted. Thereby, I provide examples highlighting connections between the theories and methods presented in each chapter or discuss noteworthy differences that appear relevant (e.g. between discourse and narrative analysis in Chapters 4 and 5).

**Table 2: Overview of theoretical and methodological approaches used in the dissertation.**

	Chapter 2	Chapter 3	Chapter 4	Chapter 5
<b>Title</b>	Strengthening gender justice in a just transition: A research agenda based on a systematic map of gender in coal transitions	Power in transitions: Gendered power asymmetries in the United Kingdom and the United States coal transitions	Tracing a caring transition policy for the German coal region Lusatia	From parity to degrowth: Unpacking narratives of a gender-just transition
<b>Theoretical approach/framework</b>	-	POINT framework by Avelino (2017) combined with Young's (2002) concept of gendered social structure	Concept of care (Tronto 1993, 2013) and social infrastructure (Hall 2020)	Currents of feminist theory
<b>Data collection</b>	Systematic Map of scientific literature	Systematic Map of scientific literature	Semi-structured expert interviews, focus group and policy documents	Systematic collection of policy documents
<b>Data analysis</b>	Content analysis	Content analysis	Critical discourse analysis	Narrative policy analysis

### Power-IN-Transition framework

Avelino (2017) has developed a framework to better analyse power aspects within STR: The Power-IN-Transition framework (POINT framework). The framework focuses on “horizontal” power typologies between actors, as complementary to “vertical” power aspects between mostly niches and regimes frequently analysed in STR. Power is dialectically defined as the “(in)capacity of actors to mobilize resources and institutions to achieve a goal” (Avelino 2017, 507). Within the framework, she develops different dimensions of power in transition, such as the distinction between reinforcing, innovative and transformative power. *Reinforcing power* means reproducing existing institutions and structures. *Innovative power* is the capacity to build new resources and *transformative power* is the capacity to develop new structures and institutions. In Chapter 3 two of the conceptual typologies that make up the POINT framework are applied: (dis-)empowerment and (un-)intended power effects. A major challenge of sustainability transition is how people can be empowered to contribute to shaping the transition. Avelino (2017, 512) dialectally conceptualizes (dis-)empowerment as the process “through which actors gain the (in)capacity to mobilize resources and institutions to achieve a goal.” Further, she considers “gaining capacity” as a process along three dimensions (1) access to institutions and resources (2) strategies to mobilize them and (3) willingness to do so. Along the three dimensions developed, the chapter shows to what extent women were empowered or disempowered to contribute to the historical coal transitions in the UK and the USA. Furthermore, Avelino (2017) emphasises that it is not only about understanding power as a means to an end (to implement sustainability transitions), but that it is also important to examine the often unintended power effects of transition policies. These “dark sides” (p.

517) of sustainability interventions should receive more attention in STR. Additionally, there should be more normative discussions about how (desirable) power relations look like in the course of the sustainability transition. Chapter 3 analyses which (un-)intended power effects the coal transition in the UK and USA had on women.

### Care as social infrastructure

In Chapter 4, my co-authors and I bring together Tronto's concept of care (2013; 1993) and Hall's concept of "social reproduction as social infrastructure" (2020). With this theoretical approach, the chapter emphasises how crucial different types of care are for successful structural change. Care work should be seen as essential infrastructure for regional development.

Fisher and Tronto's general definition of care is applied among other things because of its explicit inclusion of care for non-human nature: "*On the most general level, we suggest that caring be viewed as a species activity that includes everything that we do to maintain, continue, and repair our 'world' so that we can live in it as well as possible. That world includes our bodies, our selves, and our environment, all of which we seek to interweave in a complex, life-sustaining web*" (Tronto 1993, 103). Five phases of care can be differentiated: (1) *caring about*: an unmet caring need is noticed, (2) *caring for*: taking the responsibility for meeting those needs, (3) *care giving*: doing the care work, (4) *care receiving*: observing the response from the person (or animal, environment etc.) cared for (5) *caring with*: assigning responsibilities for care (Tronto 2013). To care implies more than just a passing interest but the accepting of a certain form of burden. Especially the direct care giving (3) is mostly relegated to the less powerful in society: women, people of colour and working-class people. Care work is devalued by its association with privacy, emotions and those in need. Since Western, capitalist societies regard performance, rationality and autonomy as desirable qualities, care work is devalued because it embodies their opposites (Tronto 1993). Tronto (2013) makes clear how central care is for the functioning of societies with her concept of "caring democracies". The provision of all types of caring is a prerequisite for democracies to function and to make it possible to reflect on values such as freedom, equality and justice. Humans depend on the care of others to varying extents throughout different stages of their lives. As care is so central how responsibilities for care work are distributed ("caring with") should be at the centre of democratic debate. People who were previously in the privileged position of not having to worry about care need to stand up and take on a greater role in direct and intimate care.

The key question of structural change is how regions that were dependent on fossil fuels can economically, socially and culturally flourish after the phase-out. Chapter 4 highlights that the dominant transition discourse in Germany predominantly emphasizes enhancing the physical infrastructure of (former) coal regions, with mentions of social infrastructure, albeit to a significantly lesser extent. By using Hall's (2020) concept of "social reproduction as social infrastructure", we build a bridge between the debate on infrastructure development for structural change and Tronto's conception of care work. Social infrastructure are underlying structures that sustain societies and economies. However, it is often used to refer too narrowly to social spaces such as community centres and parks. Hall (2020) stresses that reproductive work in communities and society at large (childcare, education, healthcare etc.) is also part of the social infrastructure upon which societies are built. By making the analogy with physical forms



of infrastructures, such as transport and water supply, the consideration of care as social infrastructure aims to upgrade this form of largely unrecognised, consistently undervalued and gendered work.

### **Currents of feminist theory**

According to Lorber (2005) feminism can be defined as a social movement that aims broadly at reaching gender equality. Feminist theories provide explanations for gender inequality, consequently leading to the development of a wide range of feminist policies. Lorber (2005) broadly differentiates three types of feminist theories that approach the gendered social order differently.<sup>17</sup> Liberal, marxist, socialist and post-colonial feminism can be defined as *gender reform feminism*. Their broad aim is to eliminate practices that discriminate against women from the gendered social order. The inequalities such as unequal access to education, health care and political power need to be addressed structurally as they are built into national and international social structures. *Gender resistance feminism* (e.g. lesbian or standpoint feminism) aims women's voices and perspectives to remodel the gendered social order. The basic criticism is that in the Western male-centred culture women's (diverse) voices, meaning their perspectives and knowledge, remain unheard. Taking apart the gendered order completely by multiplying genders or abolishing them entirely can be considered as the aim of *gender rebellion feminism* (e.g. postmodern, social construction feminism). Feminist deconstruction of the categories gender, sex and sexuality, e.g. questioning the dualities of male and female, heterosexual and homosexual, aims to show that taking them for granted maintains the gender order. The various feminist currents within these three types also differ greatly in the depth of the reform they are striving for. This clearly shows how wide the range of feminist theories is. In Chapter 5, I endeavour to examine which feminist theories from this very broad spectrum can be found in the narratives around a gender-just transition. To make the analysis manageable and based on my material, I decided to examine in particular the extent to which the currents liberal, socialist, postmodern, post-colonial and ecofeminism occur. I present the specificities of those currents in the corresponding chapter.

In my dissertation, I use the wording "gender perspective" or "feminist perspective" when I talk about the perspective of my investigations. When I speak of a gender perspective, I aim to make descriptively visible how the category of gender is effective in ascribing privileges and resources. The application of a "feminist perspective" is more political. When I talk about a feminist perspective, I am concerned with identifying political instruments to counteract gender inequality and showcasing visions of what a gender-equitable world could look like. Behind the wording "feminist" there are of course many different feminist policies, which I try to disentangle, especially in Chapter 5. Partly, I also use the wording feminism politically myself (e.g. in the title). Thereby I am especially inspired by Bell et al. (2020, 1) who developed the vision of a feminist energy system which goes further than adding "women and solar panels". A feminist energy transition focuses on the concerns of disadvantaged groups – people of colour, women, poor people, etc. – and on the preservation of non-human nature. The feminist energy system depicts a holistic vision for a fair way of producing and consuming energy. It means that energy production is organised in a democratic and decentralised way and that the well-being of humans and

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<sup>17</sup> There are many overlaps across approaches, but I think Lorber's approach is useful to showcase the breadth of feminist theoretical currents.

non-human nature is placed above profit and GDP growth. It includes being accountable to those with whom we are in relation including the non-human world. (Potential) injustices associated with the expansion of renewable energies and the ecological debt that the Global North owe to people of the Global South are considered. On a technological level, it is recognised that technologies are not politically neutral and should be developed in collaboration with the communities they are intended to benefit (Bell, Daggett, and Labuski 2020).

## **1.9 Methods**

In the following, the case study research design, that is used in Chapters 3 and 4 (see Figure 1), is introduced. Then, the methods applied for data collection (1.9.2) and data analysis (1.9.3) are presented in more detail. A special focus is put on elaborating under which conditions and why some of the methods can be labelled as feminist.

### **1.9.1 Case study research design**

Chapter 2 records and summarises a scientific debate and Chapter 5 a political debate on a clearly defined subject area as systematically as possible. In contrast, Chapters 3 and 4 apply a case study research design, focussing on the UK and USA (Chapter 3) and Lusatia (Chapter 4) (see Figure 1). The case study research design is very prominent in STR. The aim is to gain an in-depth understanding of context-specific developments. STR scholars typically then try to draw conclusions for other cases by, e.g., developing middle-range theory (Köhler et al. 2019). This attempt to draw conclusions for other cases based on one case is what distinguishes a case study from a study (Gerring 2016). In Chapters 3 and 4, theoretical contributions are developed with the intention of being applicable to other cases as well. In Chapter 3, my co-author and I propose how gendered power asymmetries could be incorporated into the POINT framework so that transition processes can be better analysed from a gender perspective. In Chapter 4, my co-authors and I formulate the theoretical concept of "four pillars of care as social infrastructure", asserting its relevance for coal regions in transition beyond our specific case study. How well our theoretical contributions can be applied to other cases would need to be shown in further analyses.

### **1.9.2 Data collection**

#### **Systematic mapping**

In Chapters 2 and 3 systematic mapping is used as a methodological approach for data collection. The aim of systematic mapping is to systematically collect and collate the scientific literature on a particular topic as comprehensively as possible. A systematic map provides an overview of a specific field of research such as the amount of literature, thematic focus points, methodological approaches and geographical foci. By disclosing the search term and the search engines used, the method aims to be as reproducible as possible reducing reviewer selection bias (Haddaway et al. 2018; Haddaway and Macura 2018; James, Randall, and Haddaway 2016). It is important to test the search term several

times to ensure that as many relevant publications as possible are found in the search.<sup>18</sup> Following the conclusion of the search, each abstract is reviewed, and a determination is made using well-defined inclusion criteria to identify publications worthy of full-text examination. If, upon full-text assessment, it is determined that a publication aligns with the inclusion criteria, pertinent details are recorded in a codebook. The ultimate analysis is then conducted based on the information within the codebook (James, Randall, and Haddaway 2016). In the field of research on climate policy issues, the use of systematic maps to get an overview of a specific research area is increasing. See for example Brauers (2022) on the risks and challenges of natural gas use, Diluiso et al. (2021) on historical coal phase-out processes and Lamb et al. (2020) on social outcomes of climate policies.

### **Grey literature search**

The empirical basis for the narrative policy analysis in Chapter 5 is a grey literature search aiming to be as systematic as possible. Firstly, a Google search was carried out with two different search terms and two different country settings using the online tool “thruuu”. Documents and websites were then included in the data set according to clearly defined inclusion criteria. It was also analysed whether participants of webinars and events that came up in the search had published on the topic of gender- just transition. All references of the relevant documents were then searched for further references in a snowballing process. To ensure that no relevant discourse strands and actors were ignored, I also conducted 5 background interviews with experts in the research field.

### **Semi-structured expert interviews**

Semi-structured interviews are a mixed form between unstructured interviews and structured interviews. In unstructured interviews, the interviewer knows little about a topic and aims for an insider perspective. Even the topic of the interview can change. In structured interviews, mostly close-ended questions are used. The interviewer is very familiar with the topic, knows the possible responses and aims to count how many responses fall in each category (Leech 2002). In semi-structured interviews usually, an interview guideline with open-ended questions is used. The topics to be discussed are predetermined, but there is also enough room for new perspectives and views that the interviewer did not yet know (Leech 2002; Gläser and Laudel 2010). Interviewing an expert means interviewing a person who has specialised knowledge about the issue being researched (Gläser and Laudel 2010). In Chapter 4, my co-authors and I used semi-structured expert interviews as a method of data collection. To ensure that the interview guideline contained all the questions relevant to answering the research question and that it was comprehensible for the interviewees, we sought feedback on the guideline from other scholars conducting research in a similar field and carried out a test interview.

### **Focus group**

A focus group can consist of an already existing constellation of actors, e.g. employees of a specific company or a group formed exclusively for the research process. A special feature of the focus group is that the perspectives of the participants are more prominent than that of the researcher in comparison

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<sup>18</sup> For this purpose, for example, it makes sense to have a test list of publications that should definitely appear in the search.

to a 1 to 1 interview. When conducting a focus group, it is desirable that not only the content of what is said but also the interaction between the participants is systematically analysed (Gailing and Naumann 2018; Wilkinson 1999). Usually, the task of the researcher is restricted to asking follow-up questions, ensuring transitions to further relevant topics and paying attention to the time (Gailing and Naumann 2018).

The aim of a feminist research methodology is to question and change existing gender relations and contribute to the empowerment of the researched (Aanand 2013). Among other things, because the focus group takes power away from the researcher and enables a more reciprocal relationship between researcher and participants, it is labelled as a potentially feminist method (depending on how it is carried out, of course). Under this feminist orientation, it is more common in a focus group setting to bring people together who already know each other or experience similar marginalisation to enable a setting which is closer to everyday social processes (Wilkinson 1999). In addition, a focus group can be useful in revealing the attitudes, views and feelings of groups of people who are marginalised in society (Aanand 2013; Wilkinson 1999). Conducting a focus group can contribute to making people aware of the social causes of their sufferings and thereby to their empowerment (Wilkinson 1999). From the perspective of a feminist research methodology, it is desirable that participants are also involved in formulating the research questions, in the interpretation of the data and that political projects arise from the research addressing the identified issues (Aanand 2013). In Chapter 4, we held a focus group consisting of three women working in the care sector in Lusatia. They know each other and two of them are colleagues. We wanted to create a protected space where they could share their personal experiences with their jobs and their thoughts on the development of Lusatia.

### **1.9.3 Data analysis**

#### **Critical discourse analysis**

Discourses can be considered as flows of knowledge across space and time. They determine how people perceive and interpret reality (Jäger and Maier 2016). The knowledge flow, meaning the discourse, is built into human practices (acting, speaking, thinking, etc.). Materialisations that are made by human action (such as architecture, infrastructure etc.) are also built on the foundation of this knowledge (Jäger and Maier 2016). Discourses are socially formative, as they serve to uphold the established social structure. However, they also hold the capacity to contribute to its evolution and change (Wodak and Meyer 2016). Discourse analysis mostly focuses on the analysis of linguistically performed discursive practices, namely text and speech (Jäger and Maier 2016). The individual text has a minimal effect and is hardly noticeable. In contrast, the discourse with its ongoing recurrence of content achieves a lasting effect by leading to the formation and consolidation of knowledge over time (Jäger and Maier 2016; Jäger 2015). Critical discourse analysis (CDA) aims to reveal power structures and ideologies by showing what seems to be rational and beyond all doubt in a given time and place. Analysing discourses, subjecting them to criticism, and deconstructing them, opens up points of resistance and already holds a critical perspective (Jäger and Maier 2016). A contribution of CDA can be to make counter-discourses and respective strategies for change and new imaginaries more visible (Fairclough 2013). The normative character aligns with a feminist approach to CDA examining how

patriarchal power and dominance based on gender norms are discursively produced in everyday speech and action and how they can be discursively resisted (Lazar 2007). As an empirical example of CDA, Listo (2018) shows how women are specifically marginalised through discourse in the energy poverty and access scholarship. Especially women in the Global South are often constructed as passive victims being vulnerable, hardworking, oppressed, and submissive. However, she also shows that there is a counter-discourse, albeit a smaller one, that presents women as agents of their lives and of change rather than simplifying as objects of energy poverty. Chapter 4 examines whether the political demands and views in the women's network can be considered as a counter-discourse to the dominant discourse on structural change in Lusatia.

### **Narrative policy analysis**

Discourse and narrative analysis are both mostly concerned with examining how language acts as a filter for the representation of reality. However, discourses are broader and can be seen as a set of terms and concepts used in a particular community. Discourse analysis examines linguistic concepts and draws conclusions about the shared worldviews and ideological frameworks within a community. Narratives can be understood as basic elements of discourses. However, a narrative does not determine a discourse and a narrative could also fit well into a variety of discourses (Hermwille 2016). Narratives are essentially simple stories that delineate a particular problem, expound on its consequences, and propose potential solutions (Melchior and Rivera 2021; Hermwille 2016). Narratives thus automatically combine political problem definitions with proposals for action, give or withdraw legitimacy from certain political positions and enable alliances to be formed by representing identification possibilities for political actors (Melchior and Rivera 2021). The complex negotiation processes in politics are not even conceivable outside of language but rather can be reconstructed as language games or simply narratives (Gadinger et al. 2014). In addition to other critical factors that influence the policy process, such as resources, institutions, rules and governing coalitions, narratives have a crucial impact on the policy outcome (Shanahan et al. 2013).

The reconstruction of narratives is helpful to be able to work out different problem views that are competing in a topic-related discourse at one point in time. Narratives can either be worked out on the literal level with the help of grounded theory approaches or certain narrative structures can be assumed and examined deductively. The latter strategy is based on heuristically assumed narrative structures such as formal episode structures, actant roles and plots. There are many different theories on what this basic structure looks like (Viehöver 2001). I opted for the Narrative policy framework (NPF) for the analysis in Chapter 5 (Jones, Shanahan, and McBeth 2014; Shanahan et al. 2013; 2018). The NPF has already been applied several times in the context of STR (see e.g. Hermwille et al. 2023; Hermwille and Sanderink 2019). The NPF defines generalizable and context-independent elements a narrative consists of: characters (mostly heroes, victims, and villains), a setting, a plot and a moral of the story (Jones, McBeth, and Shanahan 2014). The moral of the story can be considered as policy preference meaning a policy problem and/or solution. The NPF is often applied at the individual level to investigate the influence of policy narratives on individuals' opinions via surveys. Another common application is content analysis of documents – the former is applied in Chapter 5 – to systematically study differences between narratives (Pierce, Smith-Walter, and Peterson 2014).

### **Qualitative content analysis**

In all chapters, qualitative content analysis is used as the basis for the empirical data analysis. Qualitative content analysis essentially means forming codes and analyzing the empirical material along these codes. The pragmatic aim is ultimately to reduce complexity based on a certain research perspective (Kuckartz 2018). Qualitative content analysis is not a standardized instrument, but must always be developed according to the specific material and the research question (Mayring 2014). The codes have the function of pointers referring to a specific segment in the text. They can be developed deductively based on the theoretical approach and the research question or inductively based on the material. Mixing both approaches is widespread (Kuckartz 2018). Coding is the transition process between data collection and more comprehensive data analysis. If the codes are clustered according to similarity and regularity, a pattern emerges which helps to identify interconnections within the material. Coding is primarily an interpretative act and not an exact science (Saldaña 2009). Therefore, it is especially important to develop a common understanding of the codes in joint projects (Saldaña 2009; Kuckartz 2018). The coding of material and further collection of data such as interviews can take place in parallel. Feedback loops between the two processes are common (Kuckartz 2018). In each chapter, a codebook was developed based deductively on the respective theoretical approach and research question and inductively on the empirical material. In all the projects I have carried out with co-authors, we have developed a common understanding of the codes. In Chapters 4 and 5 qualitative content analysis was combined with critical discourse analysis and narrative policy analysis respectively. In Chapter 4, we not only developed codes from the care theoretical foundations and research question but also codes to search for, e.g., possible counter-discourses in the sense of critical discourse analysis. In Chapter 5, I developed codes based on currents of feminist theory, my research question and additionally searched for elements of narratives (especially characters, plots, policy problems and solutions) following the NPF.

## **1.10 Outline and findings**

**Table 3: Overview of chapters, research questions, applied theory and methodology, scientific contribution, own contributions and pre-publication.**

	<b>Chapter 2</b>	<b>Chapter 3</b>	<b>Chapter 4</b>	<b>Chapter 5</b>
<b>Title</b>	Strengthening gender justice in a just transition: A research agenda based on a systematic map of gender in coal transitions	Power in transitions: Gendered power asymmetries in the United Kingdom and the United States coal transitions	Tracing a caring transition policy for the German coal region Lusatia	From parity to degrowth: Unpacking narratives of a gender-just transition
<b>Research Questions</b>	<i>What evidence exists about the effects of coal transitions on women in contrast to men and about female agency during coal transitions?</i>	<i>Which role did women play in historical coal transitions in the UK and the US in terms of their participation and which unintended impacts did the transitions have on them?</i>	<i>What challenges and needs do the active women of the Lusatian Women's Network formulate for regional transition policy and to what extent can the views be seen as a counter-discourse to the dominant structural change discourse? What is relevant care work for the transition?</i>	<i>Which gender-just transition narratives are used by which actors and in how far are currents of feminist theory reflected in them?</i>
<b>Theory and methodology</b>	<ul style="list-style-type: none"> <li>• Systematic mapping</li> <li>• Qualitative content analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Case study</li> <li>• POINT framework</li> <li>• Feminist theory</li> <li>• Systematic mapping</li> <li>• Qualitative content analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Case study</li> <li>• Care as social infrastructure</li> <li>• Focus group</li> <li>• Semi-structured expert interviews</li> <li>• Critical discourse analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Feminist theory</li> <li>• Systematic grey literature search</li> <li>• Background interviews</li> <li>• Narrative policy analysis</li> </ul>
<b>Scientific contribution</b>	<ul style="list-style-type: none"> <li>- Overview of scientific evidence on coal transitions effects on women and their role therein</li> <li>- Development of a research agenda corresponding to the ILO just transition guidelines with research questions that need to be investigated to make transition policies more gender-sensitive</li> </ul>	<ul style="list-style-type: none"> <li>- Overview of scientific evidence of coal transitions effects on women in the UK and US and their role therein</li> <li>- Adding gendered power asymmetries as a new layer to the POINT framework developing a tool to conduct gender-sensitive analysis of sustainability transitions</li> <li>- Policy recommendations to cushion coal transition effects on women</li> </ul>	<ul style="list-style-type: none"> <li>- Highlighting the demands for structural change from women's organisations in Lusatia and contrasting them with the dominant discourse on what is needed for a successful coal transition</li> <li>- Development of the concept of "four pillars of care as social infrastructure for coal regions in transition"</li> </ul>	<ul style="list-style-type: none"> <li>- Overview of policy narratives on the integration of gender considerations into discussions concerning a just transition</li> <li>- Developing a multi-layered vision for a gender-just transition by combining the narratives</li> </ul>

	Chapter 2	Chapter 3	Chapter 4	Chapter 5
Publication	Published as: Walk, Paula; Braunger, Isabell; Semb, Josephine; Brodtmann, Carolin; Oei, Pao-Yu; Kemfert, Claudia. <b>2021</b> : “Strengthening Gender Justice in a Just Transition: A Research Agenda Based on a Systematic Map of Gender in Coal Transitions.” <i>Energies</i> 14 (September): 5985. <a href="https://doi.org/10.3390/en14185985">https://doi.org/10.3390/en14185985</a>	Published as: Braunger, Isabell; Walk, Paula. <b>2022</b> : “Power in transitions: Gendered power asymmetries in the United Kingdom and the United States coal transitions.” <i>Energy Research and Social Science</i> 87 (January): 102474 <a href="https://doi.org/10.1016/j.erss.2021.102474">https://doi.org/10.1016/j.erss.2021.102474</a>	Revised version accepted in: <i>Sustainability Nexus Forum</i> (06/2024)	Revised version published as: Walk, Paula. <b>2024</b> : “From Parity to Degrowth: Unpacking Narratives of a Gender- Just Transition.” <i>Energy Research and Social Science</i> 112 (June): 103513 <a href="https://doi.org/10.1016/j.erss.2024.103513">https://doi.org/10.1016/j.erss.2024.103513</a>
Co-authors and own contribution	Joint work with Isabell Braunger, Carolin Brodtmann, Josephine Semb, Pao-Yu Oei and Claudia Kemfert. Conceptualisation was conducted jointly. Methodology, formal analysis and writing were conducted with Isabell Braunger, Carolin Brodtmann and Josephine Semb. Project management and coordination were provided jointly with Isabell Braunger.	Joint work with Isabell Braunger. The conceptualisation, methodology, formal analysis and writing were conducted jointly.	Joint work with Marius Koepchen, Nora Stognief and Johannes Probst. Conceptualisation and methodology were conducted jointly with Marius Koepchen. Interviews were carried out jointly with Marius Koepchen and Nora Stognief. Formal analysis and writing were conducted jointly. Paula Walk had the lead role in the coordination.	Single-author original research article



## **Chapter 2: Strengthening gender justice in a just transition: A research agenda based on a systematic map of gender in coal transitions**

The coal industry frequently serves as a significant economic and identity cornerstone for regions. If the phase-out, which is urgently needed for climate protection reasons, is initiated, there will be social and economic changes in those regions and people will be affected differently (e.g. by gender). The chapter applies the methodology of a systematic map to compile as systematically and comprehensively as possible the scientific literature that deals with the effects of historical coal phase-out processes on women and their role in them. My co-authors and I searched four different databases for literature that met our inclusion criteria. In this process, we screened over 3100 abstracts and read 247 full-text publications. Finally, we included 73 publications in the final analysis. The literature shows across many historical contexts that women have increasingly taken up wage labour in the course of structural change processes, but predominantly in low-paid and insecure jobs. Still, greater labour market participation also gave women a certain degree of financial independence. There were many barriers to women's participation in the structural change process, such as little access to union structures. Therefore, women often organised themselves in less institutionalised grassroots organisations – thematically both to support miners' strikes and to become active against the coal phase-out or in environmental protection movements for the phase-out. Through our analysis, we found many further research gaps. These are summarised in a research agenda at the end of the chapter containing six key issues aligned with the ILO just transition guidelines that should be addressed scientifically. It is important to analyse, e.g., the needs and interests of women in regions affected by structural change. What issues do they prioritise? Chapter 4 contributes to addressing this research gap by examining women's organizations' demands for structural change in Lusatia. Other identified research gaps include, e.g., the link between coal phase-out processes and a loss of identity for regions. How severely are individual regions affected? And is there a difference between men and women in how much they see the region's identity as linked to fossil fuels?

## **Chapter 3: Power in transitions: Gendered power asymmetries in the United Kingdom and the United States coal transitions**

Sustainability transitions are major interventions that lead to resource shifts and thus also affect social power relations. They can make a positive contribution to resolving existing unequal power relationships. However, if this is not explicitly aimed for, existing power relationships risk being reproduced through sustainability transitions (Avelino 2017). Chapter 3 focuses on gender as a powerful category of social organization and examines how transformation dynamics from coal interact with gendered power asymmetries. My co-author and I use the systematic map search from Chapter 2 but focus on 60 publications that deal with the two countries UK and the USA to be able to examine the transformation dynamics in a more context-specific manner. As a theoretical searchlight to identify gender-specific power inequalities in the material, Avelino's (2017) POINT framework is applied and supplemented with the concept of "gendered power asymmetries", which is developed primarily referring to Young (2002) (see 1.8). There are some similarities but also differences between the coal transitions in both countries. In both country contexts, for example, the labour market employment rate for women has increased as a result of the coal transition. However, the attribution of care work to women has largely not changed,

meaning an increased double burden for women. An example of a difference between the two countries is that women in the UK were active in pro-coal movements and women in the USA were leading in environmental justice movements against the very environmentally harmful mountaintop removal mining. In addition to presenting these empirical results, we make a theoretical contribution to STR by expanding the POINT framework with “gendered power asymmetries” as a new layer of analysis. Thereby we provide a tool with which power shifts in the course of sustainability transitions can be specifically examined. Additionally, we have developed policy recommendations on how to cushion coal transition effects on women. These include, for example, that support programs in the course of structural change should not only benefit the mostly male fossil fuel workers but also women and other groups in the regions.

#### **Chapter 4: Tracing a caring transition policy for the German coal region Lusatia**

Chapter 4 focuses on the structural change process currently underway in the German lignite region Lusatia. In Germany, an internationally unprecedented amount of money is being made available to the coal regions. Lusatia alone receives direct payments of 6 billion euros. In the region, the process of distributing the money is in full swing and with it the discussions about which needs are the most urgent to be met with the finances. Using the methodological framework of a critical discourse analysis, the Chapter examines the dominant structural change discourse on the basis of relevant policy documents. What ideas of successful structural change prevail in this discourse? Which needs and challenges are defined as the most pressing in Lusatia? These views are contrasted with the perspectives of the women's network in Lusatia, which advocates for greater visibility of women and their (of course also diverse) demands in structural change. My co-authors and I conducted interviews with 16 women active in the women's network and held a focus group with women who work in the health care sector in Lusatia. While the dominant structural change discourse focuses heavily on the need to create new industrial jobs, the women's network demands that female dominated jobs such as education, care and services – where there is a major shortage of skilled labour (Bréau et al. 2022) – should receive greater attention and financial support. They draw attention to the fact that especially young qualified women are leaving the region which shows that their wishes for the region should be particularly listened to. Based on Tronto's (2013; 1993) concept of care, Hall's (2020) concept of “social reproduction as social infrastructure” and our empirical material we develop “four pillars of care as social infrastructure for coal regions in transition”. First, perpetual care work is needed to treat the deep wounds of the past that coal mining left behind in the population and in the ecological landscape through the demolition of entire villages, fields and forests. Second, caring for social cohesion is essential especially in a region where there is high political dissatisfaction, as was evident in past elections in Lusatia. Third, democratic high-quality care services, such as good education, day-care and health services are crucial especially in an ageing region such as Lusatia. As a final pillar, the question of how to organize care work should be at the heart of democratic decision making. This also means that barriers are reduced so that all social groups are adequately represented in political decision-making processes.

## Chapter 5: From parity to degrowth: Unpacking narratives of a gender-just transition

The scientific literature on how a gender-equitable transition can be implemented is limited (see 1.3). However, there is an increasing political debate on this topic, which I map in Chapter 5 and thereby aim to transfer into scientific discussions. For the investigation, I used the NPF and worked out which different gender-just transition narratives are used in the discourse. The narratives are primarily defined based on the problem descriptions and proposed solutions that appear in the policy documents examined. In addition, it is analysed which ideas of gender justice and thus which currents of feminist theory underlie the narratives. The following six narratives are worked out: (1) the *representation narrative* problematizes the severe underrepresentation of women in climate policy decision-making, (2) the *policy design narrative* indicates that climate policies threaten to deepen gender inequalities if gender justice considerations are not specifically taken into account, (3) the *fossil phase-out narrative* stresses that the effects of fossil fuel transitions on women need to be taken into account, (4) the *opportunity narrative* illustrates that the sustainability transitions could become a huge economic opportunity for women, (5) the *protection narrative* stresses that women are particularly vulnerable to the effects of the climate crisis, (6) the *transformation narrative* states that a gender-just transition can only be reached when deep-seated capitalist and neo-colonial economic structures are changed. With my analysis, I show not only the breadth of the discourse but also how broad the spectrum of actors in it is. For example, unions (although not many) are also represented among the actors, which struck me as positive since, as shown in more detail in Chapters 2 and 3, they played a rather inglorious role in historical coal phase-out processes and contributed to women being excluded from political decisions and actions. The *representation* and *opportunity narrative* mainly aligns with liberal feminist thinking and gender is primarily understood as a category of difference. In the *policy design*, *fossil phase-out* and *protection narrative*, gender is primarily understood as a structural category that is deeply inscribed in social organisation. The *transformation narrative* brings together socialist, postcolonial and ecofeminist critiques of the economic and social system that lead to multiple crises. I conclude from my analysis that the narratives can (to a large extent) complement each other well and represent different valuable starting points for the design of a gender-just transition.

### 1.11 Positionality statement

The aim of research should be to avoid systematic bias and to collect, interpret and present data as neutrally as possible. However, this will never be completely possible because all these research steps are influenced by the subjectivity of the researcher. Positionality implies that the socio-historical-political localisation of the researcher influences all stages of the research process. Researchers are not separate from the social processes they are researching. The researcher's positionality is influenced by his or her worldview such as ontological assumptions about the nature of social reality or epistemological assumptions about how knowledge is created. Additionally, it is influenced by the researcher's political and religious beliefs, gender, sexuality, historical and geographical location, ethnicity, race, social class, (dis)abilities etc. In addition, the position of the researcher in relation to the participants in the research project, such as the interviewees, and the research context influence the research process (Holmes 2020; Wittmayer and Schöpke 2014). The necessary reflexivity of the researcher also includes

accounting for the privilege of belonging to academia and being able to carry out research (Fotopoulou 2012).

A comprehensive positionality statement would reflect on all these aspects and their influence on the individual research steps of this dissertation. For reasons of space, I cannot do this here, but I would like to focus on some aspects that are important to me. On the one hand, my political views are part of my positionality. The fight against the climate crisis and the other ecological crises we are facing is a top political priority for me and also influences my work as a researcher. I am committed to more gender equality with the ultimate goal of dissolving discriminating gender norms so that people can develop as freely as possible. A further basic political attitude of mine is the belief that the democratic constitutional state – even if it is of course in need of improvement on many levels – is the most suitable to achieve necessary changes given the multiple crises. Furthermore, my social positioning as a white, cis, and able-bodied woman, who lives and grew up in the middle class of the Global North, influences my work. In connection with my scientific work in Lusatia, I would also like to add that I did not grow up in Eastern Germany myself, nor did I experience the period of reunification, which still has a strong impact on Lusatia today (see Chapter 4). This offers an interesting starting point for reflecting on the debate as to whether it is more beneficial to be an insider, who knows the researched region very well to grasp a research object, or whether it is more beneficial to come from outside to be able to analyse the culture more neutrally. In my opinion, however, Holmes (2020) rightly argues that hardly any researcher is a pure insider or outsider. For example, I am a German citizen and speak the German language, yet I am not from the region and do not know all cultural and historical subtleties. I have thought a lot about whether it is beneficial to analyse the region if I did not grow up there myself. I have found my way here by thinking that an outsider's view can bring to light some things that locals are not aware of. In the course of my work, it was very important for me to travel to Lusatia many times and to stay there for a short research stay.

## **1.12 Shortcomings**

In the following, I discuss some of the limitations of my dissertation. I focus on points that are common to all or several of my chapters. Specific limitations that relate only to individual chapters (such as the limitations of the systematic literature compilations in Chapters 2 and 5) are dealt with separately in the individual chapters.

Comparative case studies of country contexts are very valuable for gaining scientific knowledge (Köhler et al. 2019). In Chapter 2 comparisons are made between many different geographical contexts. Due to space limitations, my co-authors and I do not do justice to all the country contexts. The same applies to Chapter 5, where I try to present the discourse as comprehensively as possible. An in-depth case study comparison is only conducted in Chapter 3 between the gender implications of historical coal transitions in the USA and UK. Chapter 4 consists of a single in-depth case study. Here it would also have been very valuable to compare Lusatia with another coal region where the coal exit for climate protection reasons is in progress or being prepared, similar to Schuster (2023) but with a feminist and care theoretical perspective. Such a comparison would be useful to test whether our theoretical concept "four

pillars of care as social infrastructure for coal regions in transition” is relevant for other coal regions. Would similar caring needs be found there?

The second limitation I would like to address is that in Chapters 4 and 5 current transition processes are examined primarily from a discursive and narrative perspective. I do not delve into specific policies on the implementation level. In Chapter 4, for example, my co-authors and I do not examine the projects implemented with the structural change funds in Lusatia in more detail from a feminist perspective. We looked at the lists of implemented projects, but it became clear to us that we would have had to go deeper into individual projects to conduct profound analyses. Unfortunately, we were not able to do this due to time constraints. A similar limitation applies to Chapter 5. I analyse narratives but do not extend my examination to investigate how much political and financial capital the actors invest to implement corresponding policies. There is a danger that ambitious goals are formulated, for example by government organizations, but then no or too few resources are invested in their implementation.

The aim of my dissertation is to show how gender as a category of inequality influences the distribution of resources and privileges in the course of coal transition processes. To do this I make some simplifications. I always try to make clear that people's social positioning also depends heavily on other social inequality categories such as race, class, ability, etc. Nevertheless, my focus is on gender and I sometimes have to homogenize and generalize to a certain extent to make gender inequality visible. The same is true for my use of binary gender. I try to incorporate queer perspectives into my work, but due to my database, I repeatedly abstract from the fluidity of gender.

I not only want to combine feminist theory with STR but also to strengthen the use of feminist methods. However, I was only able to partially do justice to the demands of feminist methodology. For the analysis in Chapter 4, for example, my co-authors and I only conducted one focus group which, depending on how it is implemented, can potentially be more empowering than 1-1 interviews (see 1.9.2). Because focus groups are logistically more complex, we primarily conducted traditional individual interviews. Additionally, it would have been desirable to pursue a stronger transdisciplinary approach, especially in Chapter 4. It would have been valuable to include our interview partners in the development of our research questions and the discussion of the results. This would have meant a great deal of effort on all sides, which unfortunately we could not afford without a larger research project behind it. However, we regularly discussed our research design and hypotheses throughout the process with two women from the women's network in Lusatia.

### **1.13 Outlook**

The dissertation shows how the inequality category of gender was relevant in historical coal phase-out processes in the Global North and influenced resource distribution and participation. Using the example of the German coal mining region of Lusatia, it presents which feminist demands are being made in the course of ongoing coal phase-out processes. Further, it opens up the "black box" of the increasingly used demand for a "gender-just transition" and shows which different narratives lie behind the term and by whom they are used. I conclude the introduction with a list of policy recommendations and further research questions that follow from my dissertation. These are certainly not exhaustive and more can be found in the chapters.

### **1.13.1 Policy recommendations**

The first part of the policy recommendations is based on Chapters 2-4, which analyse coal transition processes in Global North countries. Some of them are certainly also valuable for other carbon-intensive regions and for countries in the Global South undergoing structural changes. However, further empirical studies would be necessary to determine the extent of their applicability. The second part of the policy recommendations provides suggestions for a gender-just sustainability transition in a broader sense. I primarily derived them from the analysis presented in Chapter 5, where the focus was not specifically on coal transition processes and no country focus was set. As my dissertation focuses on gender inequality and how this is relevant in structural change, my recommendations are primarily centred on how women can be empowered and work and areas of society connoted with femininity be supported. Nevertheless, many of the recommendations are also relevant for other marginalised groups.

#### **Policy recommendations to strengthen gender justice in coal transition processes**

- Conduct gender-disaggregated analysis of who is affected by the fossil fuel phase-out in carbon intensive regions (a breakdown by sectors affected would be a first step)
- Install training and support programmes for all affected groups, not only for (former) miners
- Pay attention not only towards substituting coal jobs with other industrial jobs but also towards endorsing well-compensated, high-quality employment opportunities in sectors predominantly occupied by women, such as education and professional care work
- Support and develop high-quality social infrastructure such as day-care, meeting places, cultural offerings, emotional and relational care work for the community
- Make it possible for staff positions (e.g. in cultural and community-building projects) to be paid with transition financing
- Make sure that women and other marginalised groups participate in decision-making processes on structural change and hold leading positions (first step: adjusting meeting times so that people with care responsibilities can participate)
- Increase funding for civil society organisations including smaller grassroots organisations (as women are particularly strongly represented there, as the analysis in Chapter 2 shows)
- Create exchange spaces for women (and other marginalised groups) where they can share their sorrows and identify common interests
- Make visible, recognise and better distribute paid and unpaid care work: Is there a shift in this work as a result of structural change?; Encourage men to take their equal share of care work
- Strengthen citizen dialogues about what new identity anchors for the region could look like or how a mining identity could be potentially preserved even after the closures of the mines

#### **Beyond coal – policy recommendations to strengthen gender justice in a just transition**

- Shape climate policies in such a way that they also contribute to gender justice (suitable instruments: gender impact assessment and gender budgeting)
- Strengthen women's resources endowments (through e.g. better access to education, social protection and formal employment) to make them more resilient to the effects of the climate crisis

- Support women and other people affected by intersectional inequality in the green energy sector (through e.g. mentoring, better access to finance, better work-life balance, and change of norms regarding gender roles)
- Organise energy production in a more decentralised and community-based way. It has the potential to contribute to greater participation and empowerment of women.
- Carry out land reforms to ensure that women have formal land titles and are not at risk of land grabbing (e.g. for RE projects)
- Gender-just transition envisioned as more transformative: Change the economic system so that it does not function at the expense of non-human nature, many people, especially in the Global South, and future generations

### **1.13.2 Research outlook**

#### **Methodological advancements**

More gender-disaggregated data is needed to strengthen the analysis of gender inequality in the course of sustainable energy transitions. This finding has run through all chapters. Data collection should be designed in such a way that intersectional inequality and gender diversity beyond the binary are also captured.

In terms of a feminist, empowering research methodology (Aanand 2013), it would be desirable if research projects were set up in such a way that sufficient time and resources are available to involve research participants more closely in the project (joint definition of research questions, development of hypotheses, and dissemination etc.). I see many parallels with action research. Action research considers the research process as a collaborative production of scientific and socially relevant knowledge, as well as of transformative action. Action research has a different understanding of the researcher than conventional research, including roles such as process facilitator, knowledge broker and change agent who encourages transformative action. For this type of collaborative research to become more widespread, many aspects of how research is conducted would need to be reformed, such as the training of researchers and evaluation criteria for scientific research (Wittmayer and Schöpke 2014). This is a long road and involves many reforms, but I think it would be very beneficial for the scientific community to embark on a journey to strengthen this type of research.

#### **Best practice examples for a gender-just transition**

More research is needed on best practice examples of gender-just transition policies. As already mentioned, my work is more on the discursive level and does not analyse specific policies. In dialogue with women of the Lusatian network, for example, we considered that it would be useful to have a very concrete list to tick off to be able to assess the extent to which a project that is funded with state money complies with feminist principles. Is the advancement of women anchored in it? Are there enough high-quality childcare programmes in the area? Is there a sufficient proportion of projects that promote female-dominated sectors? This example refers to Lusatia, a coal region in the Global North. In Chapter 5 I found that the gender-just transition discourse in the political arena is international. I see a need for research to catch up and present more specific case studies of what a gender-just transition can look like in different regions of the world as gender inequality is contingent upon specific contextual factors.

The aim is to identify role models, best-practice examples, but also negative examples, based on which context-specific policy recommendations can then be developed.

**Comparative analysis of regions in transition: How can high quality of life be fostered?**

If comparative analyses are carried out in a context-sensitive manner, they can have great added value. The effective transition away from fossil fuels hinges on the ability to navigate the phase-out in regions that derive economic benefits from fossil fuel revenues and where fossil fuels are integral to the local identity. In a comparison across EU regions, carbon-intensive regions face particular challenges because they have a reduced capacity to provide satisfactory employment opportunities and a high quality of life (Tamilina and Römisch 2023). These challenges are exacerbated by outmigration, which affects in particular carbon-intensive regions in Central and Eastern Europe (Jestl and Römisch 2023). A crucial aspect of effective climate policy is to avert this situation and establish favourable, appealing living conditions in these regions. This goes beyond the sole consideration of the success in generating new (industrial) jobs, as demonstrated in my research. To increase the general attractiveness of carbon-intensive regions a set of measures needs to be adopted, including improvements in the transport infrastructure and good social provisions in areas such as health and education (Tamilina and Römisch 2023; Jestl and Römisch 2023). I see a future field of research in systematically comparing carbon-intensive regions with each other and with non-carbon-intensive regions. This comparison could yield a thorough comprehension of challenges, pinpoint exemplary practices, and present policy recommendations for effectively orchestrating the phase-out of fossil fuels in carbon-intensive regions while simultaneously enhancing the quality of life and decreasing social inequalities.



## Chapter 2:

# **Strengthening gender justice in a just transition: A research agenda based on a systematic map of gender in coal transitions\***

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## **2 Chapter 2: Strengthening gender justice in a just transition: A research agenda based on a systematic map of gender in coal transitions**

### **2.1 Introduction**

All sectors of the economy (e.g. agriculture, transport, industry) will need to undergo deep decarbonisation to achieve a limit of global warming below 1.5 or 2 degrees as stipulated in the Paris Agreement (IPCC 2018a). These low-carbon transitions have a gender dimension since they affect women in different ways than they affect men (Spitzner et al. 2020). The changes might be adversely for women because of their lower financial resources and thus their inability to compensate for their emissions or to purchase low emission technologies. Furthermore, women are still responsible for the majority of care work (e.g. cooking, washing), which leads to a higher energy consumption and thus CO<sub>2</sub> emissions. Furthermore, women often work in less secure jobs with lower level of unionization which could lead to (uncompensated) job losses in case of structural change. These differences in conditions (lower financial resources, less time available due to care work etc.) also mean that women have less agency and opportunity to promote their interests and viewpoints in the political arena, where transition policies are decided (Lieu et al. 2020). However, low carbon transitions could also help overcome such gendered power structures. For example, there is evidence that in the transport sector, the sustainability transition towards greater use of public transport and increased development of cycling and walking infrastructure benefits women; men use cars more often, while women are more likely to walk, cycle and use public transport (Spitzner et al. 2020). Such examples show that a better understanding of the gender dynamics of low-carbon transitions is very much needed to develop gender sensitive transition policies (Lieu et al. 2020). Therefore, a sound data basis is required. However, gender segregated and gender specific data is lacking in most sectors and areas so far.

Our paper is an attempt to start filling in this research gap by systematically collecting scientific evidence on the impact on women of low-carbon transitions and the role that women played – referred to as agency. Based on that data collection we develop a research agenda to systematically advance research on gender and transitions. We focus on the example of coal transitions, because they are essential building blocks on the way to a sustainable economy. Coal is still responsible for more than 40% of global CO<sub>2</sub> emissions.<sup>19</sup> There will only be a chance to comply with the Paris Agreement if a global coal phase-out is achieved in a timely manner (Yanguas Parra, Hauenstein, and Oei 2021; IEA 2021b). Structural change processes from coal have a gender dimension on several levels. There are significantly more men working in the coal industry (e.g. in 2017, 78.4% of the workforce in the US coal industry was male (National Association of State Energy Officials 2018, 51)). The division of labour between the sexes tends to be more pronounced in coal regions, as the employment rate of women in

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<sup>19</sup> International Energy Agency: “CO<sub>2</sub> emissions by energy source, World 1990-2018 in percent” <https://www.iea.org/data-and-statistics/data-browser?country=WORLD&fuel=CO2%20emissions&indicator=CO2BySource> (last accessed 13 July 2021).

coal regions is often lower than the national average (see e.g Janikowska and Kulczycka (2021) for Silesia, Poland and Maggard (1994a) for Appalachia, US). Furthermore, there is an increasing amount of literature that elaborates on the connection of the coal industry with masculine norms (Brown and Spiegel 2019; Bell and Braun 2010; Daggett 2018).

In the first step of our research approach (see Figure 2) we conducted a systematic map (Haddaway and Macura 2018; Haddaway et al. 2018) of the existing evidence on the nexus between gender and coal transitions across a wide range of disciplines, such as anthropology, sociology and economics. A systematic map is a methodology to collect, describe, and catalogue existing evidence on a specific topic in a comprehensive and repeatable way. Systematic maps provide information about the state of the art of the field of interest such as the amount of existing literature on methodological approaches and scientific disciplines (Haddaway and Macura 2018; Collaboration for Environmental Evidence 2018). Therefore, this methodology fits well to answer our research question: What evidence exists about the effects of coal transitions on women in contrast to men, and about female agency during coal transitions?

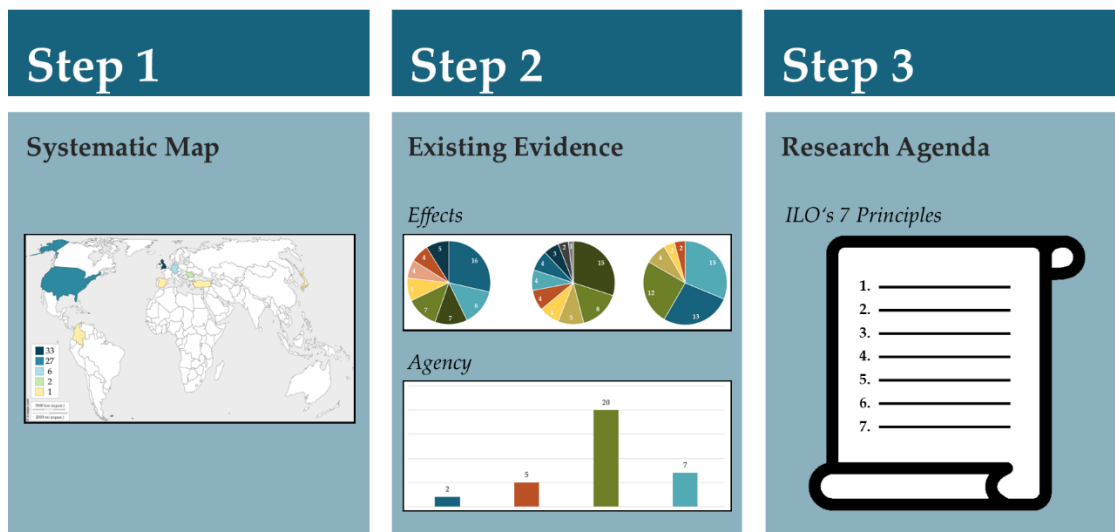


Figure 2: Overview of our research approach.

Source: Own depiction, using resources from freepik<sup>20</sup>.

Our search strategy consisted of a database search in Scopus, EBSCO, Web of Science and ProQuest, a grey literature search, and a call for relevant literature in the scientific community; this was supplemented by snowballing the references of relevant publications. The literature search, and the subsequent full-text reading of 247 publications, yielded 73 relevant studies, mostly focusing on countries in the Global North (mainly the UK, the USA and Germany).

In a second step (see Figure 2), we systematically extracted all information in the publications according to what impact historical coal transitions had on women, and what role women played in the transition. We found that across country contexts, the long-term employment effects of past coal transitions were

<sup>20</sup> Freepik 2021: "Offene schriftrolle umriss Kostenlose Icons" [https://de.freepik.com/freie-ikonen/offene-schriftrolle-umriss\\_735778.htm](https://de.freepik.com/freie-ikonen/offene-schriftrolle-umriss_735778.htm) (last accessed 07 September 2021).

that the (mostly male) miners in coal regions increasingly left the labour force due to early retirement or redundancy, while women increasingly sought employment – giving them an elaborated degree of financial independence. However, many of them had to take up precarious jobs, which were mainly located in the service sector and provided little financial and planning security. Turning towards women's agency, our analysis showed that women active in the political struggle around various historical coal transitions tended to organise themselves in less institutionalised ways compared to men (partly because institutions such as unions were difficult for women to enter). Their activism, for example in the miners' strike in the UK or in anti-coal activism opposing MTR in the USA, usually took place in self-organised grassroots movements or through involvement in community work.

In recent years, there have been increasing calls to equitably share the costs and burdens of a low-carbon transition among all stakeholders, which is summarized by the term "just transition"<sup>21</sup> (ILO 2015; Piggot et al. 2019; Gambhir, Green, and Pearson 2018). The conviction that a just transition also includes gender justice is fortunately becoming more widespread (ILO 2015). However, research looking at the social outcome of low-carbon transitions is often limited to calculating net employment effects (García-García, Carpintero, and Buendía 2020). Therefore, based on our research results and as the third step (see Figure 2) of our research approach, we develop a research agenda. The agenda identifies where research is still lacking concerning the gendered aspects of low-carbon transitions. Through the agenda, we aim to stimulate further research on this topic, the results of which will help policymakers better incorporate gender considerations into policies aimed to shape a just transition. To better systematize and structure the research agenda we use the International Labour Organisation's (ILO) seven "Guidelines for a just transition towards environmentally sustainable economies and societies for all" (ILO 2015, 6). Although the ILO's concept of just transition has some shortcomings, it has been successfully anchored in important international policy documents by the UN and the EU, such as in the Paris Agreement (United Nations 2018; García-García, Carpintero, and Buendía 2020) (UNFCCC 2015, 2). Future research should ask about policies designed to improve working conditions in the service sector and create well-paid jobs for all genders in the Green Economy sectors. In addition, many studies reported an increased total workload for women, as their domestic responsibilities remained, but a new responsibility as wage earners was added. One important area of research to inform policymakers is the availability of care services in carbon-intensive regions and the extent to which missing support infrastructure prevents women from planning their own careers. Furthermore, future research should investigate the main interests, needs and concerns of women affected by the transition, and the kinds of activities and forms of organisation they choose. First, this would make women's activism more visible, and second, it would inform state institutions how to make the transition process more inclusive. It is also important to investigate how women's access to resources, such as adequate funding or access

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<sup>21</sup> We acknowledge that the design of a just transition depends very much on the geographical, social and political context (Brown and Spiegel 2019).

to policymakers and institutions, could be improved so that they are able to better integrate their interests into the political process.

The remainder of the paper is structured as follows: Section 2.2 presents our methodological approach – the systematic map. Section 2.3 summarises the information we have extracted from the publications. Based on those results, Section 2.4 presents our research agenda on how future research on just transition pathways can more comprehensively take into account gender dimensions. Section 2.5 concludes.

## **2.2 Methodology – systematic map**

We answer our research question “what evidence exists about the effects of coal transitions on women in difference to men and about female agency within coal transitions?” using a systematic map. A systematic map is well suited to answer this question, since it is designed to collect, describe and catalogue existing evidence on a specific topic in a comprehensive and repeatable way. In doing so, it provides information about the current scientific state of the field of interest, such as the amount of existing literature as well as geographical foci, methodological approaches, and scientific disciplines. A systematic map can also help to identify research gaps or controversies in the existing literature (Haddaway and Macura 2018; Haddaway et al. 2018; James, Randall, and Haddaway 2016). The results of our systematic map therefore provide a good basis for developing a research agenda.

Starting our research process, we developed a systematic map protocol, which included the research idea, question and aim, inclusion and exclusion criteria, and search strategy. After having received feedback on it from experts in the field, it became the basis of our methodological procedure. In the following, we describe the four stages of our methodological approach.

### **Development of the Search String**

Our research question includes the two basic terms: *coal transition* and *agency*. Before we present our methodological approach, it is important to provide a definition of these two terms and present our concept of *gender*, which is also essential to our work.

We define a *coal transition* as a (regional) decline in the extraction or combustion of coal, or a substantial loss of jobs in the coal industry. This definition allows us to include smaller, regional coal transitions and honours the social significance they bear. We define the concept of *agency* as “the property or capacity of actors to make things happen” (Coole 2010, 11). We conceptualise actors not merely as individuals, separate from their society, but as unique parts of a collective, who make choices based on the structurally presupposed rationales surrounding them, rather than simply autonomously (B. Davies 1991, 42–46).

In our study, we use *gender* as an analytical tool to make socioeconomic inequalities that affect women visible.<sup>22</sup> This is a very simplified approach to gender, but we consider it appropriate for our research interest. It would be beyond the scope of this paper to comprehensively present the findings of gender

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<sup>22</sup> We share the notions of modern feminist theories on the relationship between sex and gender. However, to be able to extract the relevant information from existing literature for this study, we had to conceptualize the category “women” as a socially constructed but direct consequence of the female sex.

research (for a more elaborate and differentiated discussion of gender, see for example Butler 1990; Alaimo and Hekman 2008). Being assigned to the category “woman” generally goes along with gendered norms that lead to constraints, while being assigned to the category “man” commonly brings more privileges (Young 2002). One of the assumptions that goes along with the category “woman” is being a caregiver and socially oriented. Thus, women are expected to do most of the unpaid care work, both related to the physical as well as the emotional well-being of people. Care work is essential for the functioning of a society, however its value is barely recognized, neither in economic terms nor as an high-skilled and energy-intensive activity. The time and energy women invest in care work is no longer available for other activities, which could bring higher status, therefore limiting their own life chances in comparison to men. If a person does not fulfil gendered norms, this behaviour is accompanied by social sanctions. It is essential to note that women are not a homogeneous group, but have very different life situations depending e.g. on age, socioeconomic background, place of origin and race. Still, women have on average less access to resources (e.g. finances, influence on decision-making) than men and consequently different opportunities in life. Women’s social positioning not only influences how transitions affect them, but also their agency within coal transitions, for example regarding their political articulation, their forms of organisation or their representation in decision-making bodies.

In an iterative process, we developed a search string based on these three central terms. A search string is designed to find as many relevant publications as possible when using it in databases. It consists of several categories including synonyms or similar terms. We used one category for coal (e.g. lignite, mining), one for gender (e.g. women, woman) and one for transition & agency (see Table 4). Transition and agency were grouped into one category to ensure that a transition moment is either directly covered or questions of agency are addressed, which might point towards a transition in process (e.g. strike, activists\*).

**Table 4: Search terms by research category.**

Transition and Agency	Coal	Gender
transition*	coal	gender*
transformation*	lignite*	woman*
change*	mining	women*
reform	anthracite* (anthracites)	female*
closure*	miner	mother*
decreas*	miners	femini*
declin*	coalfield*	*wives
collaps*	coalmin*	*wife
crises	coalface	
crisis	AND NOT "data mining"	
strik*	AND NOT "text mining"	
resistance		
protest*		
agency		
activis*		
oppos*		

**Note:** Terms within a category are connected using the Boolean operator OR. The categories are connected by AND, requiring each record to refer to all three categories. Additionally, wildcards (\*) serve to include different endings to the same word stem.

We collected a broad range of relevant search terms for all three categories, which allows us to detect records across disciplines and times of publication – these might differ starkly in their terminology while still addressing the same topics. A preliminary search was conducted to evaluate the relevance of the terms, and a benchmark test with five relevant publications was established (test list). Text mining software was used to analyse the results of the test search and identify further relevant search terms. With this process, we came up with a comprehensive as well as consistent search string (see Table 4).

### **Inclusion and exclusion criteria**

At first, unsystematic pre-tests allowed us to grasp an idea of the scope of existing literature and the exact inclusion and exclusion criteria needed to identify relevant literature. Following the PICO (Population, Intervention, Comparator<sup>23</sup>, Outcome) format, we identified the key inclusion and exclusion criteria (see Table 5) (O'Connor, Green, and Higgins 2008): *Population* encompasses people living in coal-intensive regions worldwide, *Interventions* includes coal transitions as defined above, and *Outcome* relates to gender-related social, political, economic and demographic effects, as well as gendered

<sup>23</sup> Since our research is mostly based on qualitative case studies, a *Comparator* is not applicable.

agency within these transitions. To gather a comprehensive literature base, books, reports, conference papers, theses and working papers as well as journal articles were included in the systematic map.

Combining this with the aforementioned PICO categories, we identified the following inclusion/exclusion criteria:

**Table 5: Inclusion and exclusion criteria.**

Inclusion	Exclusion
<ul style="list-style-type: none"> <li>• <i>Population</i>: focus on coal regions</li> <li>• <i>Intervention</i>: historical coal transition moment (decline in coal production or coal related employment) covered</li> <li>• <i>Outcome</i>: gendered information – effects on women or female agency</li> <li>• Publication in English, German or Spanish</li> </ul>	<ul style="list-style-type: none"> <li>• Only information on masculinity or male perspectives</li> <li>• Exclusively natural-science-based research</li> <li>• Scenarios or policy recommendations for future transitions</li> <li>• Non-scientific literature, e.g. newspaper articles, personal accounts such as diaries</li> <li>• Publication not retrievable<sup>24</sup></li> </ul>

### Search for literature

Based on their scientific disciplines, four databases were selected to build the basis of our literature search: Scopus, EBSCO, Web of Science and ProQuest.<sup>25</sup> Since we were only interested in literature with a particular focus on coal transitions and gender, and in light of the broad selection of search terms per category, we limited the search to titles, abstracts and keywords of publications. CADIMA, an open-source review management software, was used to organise the data.<sup>26</sup>

The search in the databases yielded 3,530 results (for a summary of the request to the databases see Table A 1, in the Appendix). After removing 714 duplicates, 2,816 potentially relevant records were screened for relevance at title-abstract level. To ensure agreement among the four reviewers on inclusion decisions, we conducted a consistency check using the kappa test after all reviewers had read 10% of the abstracts. The result of the kappa test was 0.62; this is acceptable according to common scientific practice. Any disagreements were discussed and rectified. We judged 205 records to be read at full-text level, and 43 of those proved to be both retrievable and relevant to our research question; they were thus included in the systematic map. We complemented our database search with a three-step approach to searching publications not available in our databases:

<sup>24</sup> Primarily, we retrieved full texts through access provided by Technische Universität Berlin (TU Berlin). In the next step, we drew on library subscriptions at Freie Universität Berlin and Humboldt-Universität zu Berlin. Where full texts were still missing, we requested articles directly from corresponding authors or made requests through Researchgate.org.

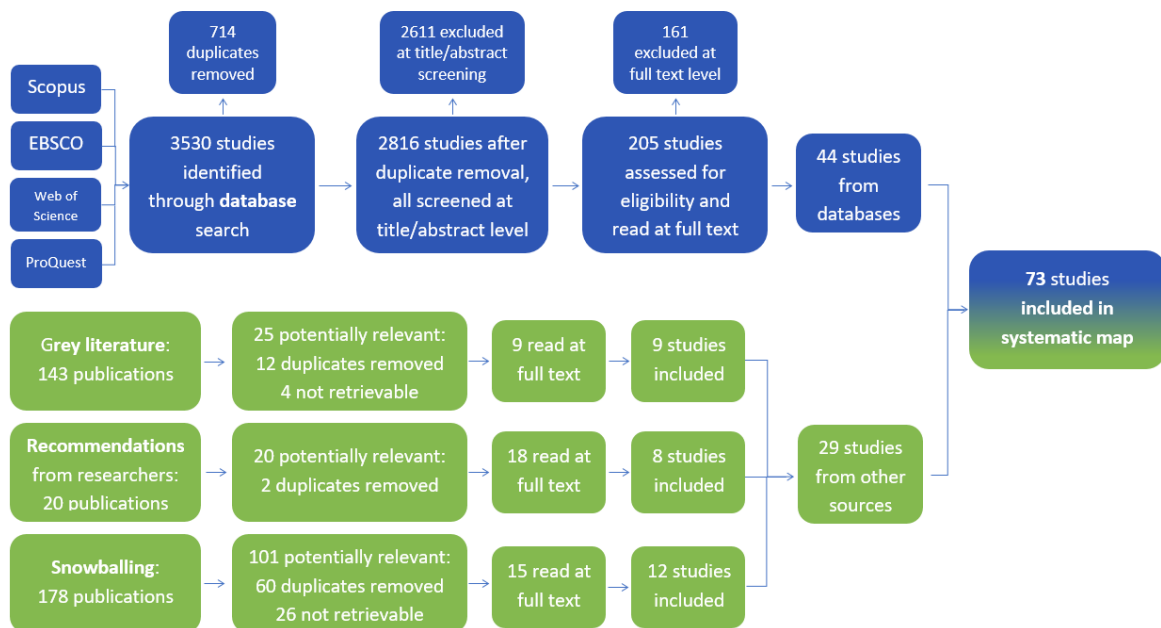
<sup>25</sup> JStor would also be relevant, but could not be used due to its significant restrictions on the length of search strings.

<sup>26</sup> Cadima: <https://www.cadima.info/> (last accessed 5 February 2024).



1. The search for grey literature consisted of two parts (Mahood, Van Eerd, and Irvin 2014) and rendered nine publications for inclusion in the map:
  - The use of two grey literature indexes operated by the Institute for Scientific and Technical Information (France) and by the European Institute for Gender Equality.
  - A search using Google Scholar using a shortened search string, screening the first 100 results.<sup>27</sup>
2. To ask for additional literature recommendations, we established contact with the research community via email and social media. From this, eight additional records were added to the map.
3. Furthermore, we screened all bibliographies of previously included texts for potentially relevant publications (snowballing); this resulted in twelve additional publications.

A total of 25 relevant records were identified through the non-database searches, leading to total of 68 publications (see Figure 3). Publications were split into multiple studies if they a) treated coal transitions in different nations or b) various chapters of one book were found to be relevant. Ultimately, 73 studies were captured systematically in the codebook.



**Figure 3: Detailed description of search for literature.**

Source: Own depiction. Note: Publications were split into multiple studies if they a) treated coal transitions in different nations or b) various chapters of one book were found to be relevant.

For our database search, we only used the above search string in English. We developed and tested a search string in German, but it did not yield any relevant results. We refrained from testing search strings in other languages. However, the search in English and some literature recommendations included publications in German or Spanish which were included in our analysis. Our search string in English is

<sup>27</sup> Additional results did not prove to be relevant.

certainly one reason why the publications in our systematic map predominantly deal with coal transitions in the Global North and especially in the UK and USA. It is possible that a search string in Spanish, for example, would have yielded more results on countries in the Global South (e.g. Chile has experienced a decline in coal production in recent years<sup>28</sup>). Moreover, it is very likely that scientific institutions in the Global North have more resources to facilitate research on this topic.

### **Data-coding strategy**

We developed a comprehensive codebook in a multi-staged process including a test-coding phase. Table 6 presents a list of all categories and subcategories of the codebook. In addition to containing general information about the studies and coal transitions at hand (metadata), the codebook is split into two main sections to reflect the twofold research question. The first section includes information on gendered outcomes of coal transitions in five subcategories: ranging from the individual level, to the household, to the community, as well as information on gendered effects on job markets and the political sphere. The second part of the codebook focuses on female agency in coal transitions, and is split into different groups of female stakeholders. Moreover, we collected information on climate and environmental aspects – which ultimately proved to be disregarded in the literature we read – as well as on concepts of gender, and reported intersectionality with class, race and more. The subcategories featured a mix of fixed dropdown menus and open answer fields, so that the collected data was both highly detailed and consistent among the coding team.

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<sup>28</sup> Statista (2020): “Coal production in Chile from 2010 to 2019” <https://www.statista.com/statistics/1174991/chile-coal-production-volume/> (last accessed 28 April 2021).

**Table 6: Categories and Subcategories.**

Category	Subcategory
Metadata	<ul style="list-style-type: none"> <li>• Study basics (scientific discipline, methodological design, focus of inquiry)</li> <li>• Transition basics (dates, geography, type and scale of transitions, etc.)</li> </ul>
Gender-related outcomes	<ul style="list-style-type: none"> <li>• Job market and economic outcomes (primary, secondary and tertiary sectors)</li> <li>• Political sphere</li> <li>• Social/community level</li> <li>• Household level</li> <li>• Individual level</li> </ul>
Participation in coal transition	<ul style="list-style-type: none"> <li>• Women as workers</li> <li>• Women as male miners' relatives</li> <li>• Women as community members</li> <li>• Other female stakeholders</li> <li>• Effects of female participation in transition process</li> <li>• Men's agency and interest</li> </ul>
Environmental and climate aspects	<ul style="list-style-type: none"> <li>• Environmental or climate aspects as drivers or outcome of transition</li> </ul>
Diversity and intersectionality	<ul style="list-style-type: none"> <li>• Concepts of gender</li> <li>• Intersectionality</li> </ul>

After we had read 10% of the texts from the database search, we discussed inconsistencies in the coding strategies, and identified any missing or unclear categories. The codebook was adjusted slightly to ensure it included all relevant information.

### 2.3 Gender in historical coal transitions

The 73 studies recorded in the systematic map covered gender aspects of coal transitions in eight countries: the USA, Colombia, Germany, Romania, Spain, Turkey, the UK and Japan. Figure 4 provides an overview of the historical coal-production developments in the respective countries and summarises the main gender-related findings detailed in the following sections. It must be noted that Turkey and Colombia did not undergo a national or lasting coal transition. In the case of Turkey, the reduction in coal production remained confined to the region of Zonguldak near the Black Sea, while the decline in coal production in Colombia was only a temporary phenomenon in 2014. Nevertheless, both countries experienced a substantial decline in coal production and thereby met our inclusion criteria. Before we present our results, we would like to point out that the coal transitions in these various countries have played an important role in explaining the developments we describe below. However, there have been other social, political and economic changes (e.g. increasing neoliberalisation in the 1980s and 1990s in the USA (B. E. Smith 2015) and the UK (Dalingwater 2018)) that have influenced the situation of

women, and therefore there is not always a clear causality between the coal phase-outs and the developments described.

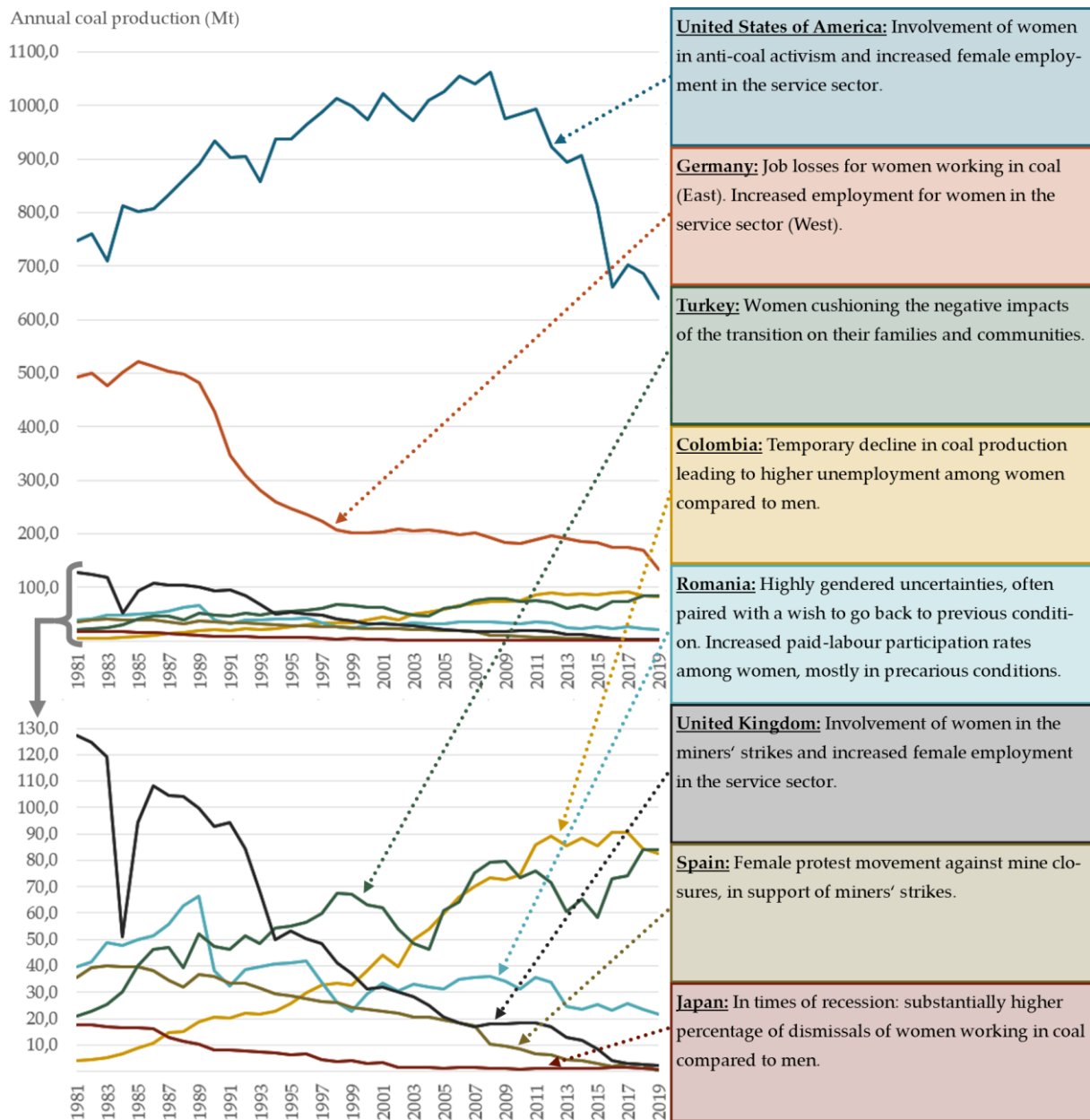


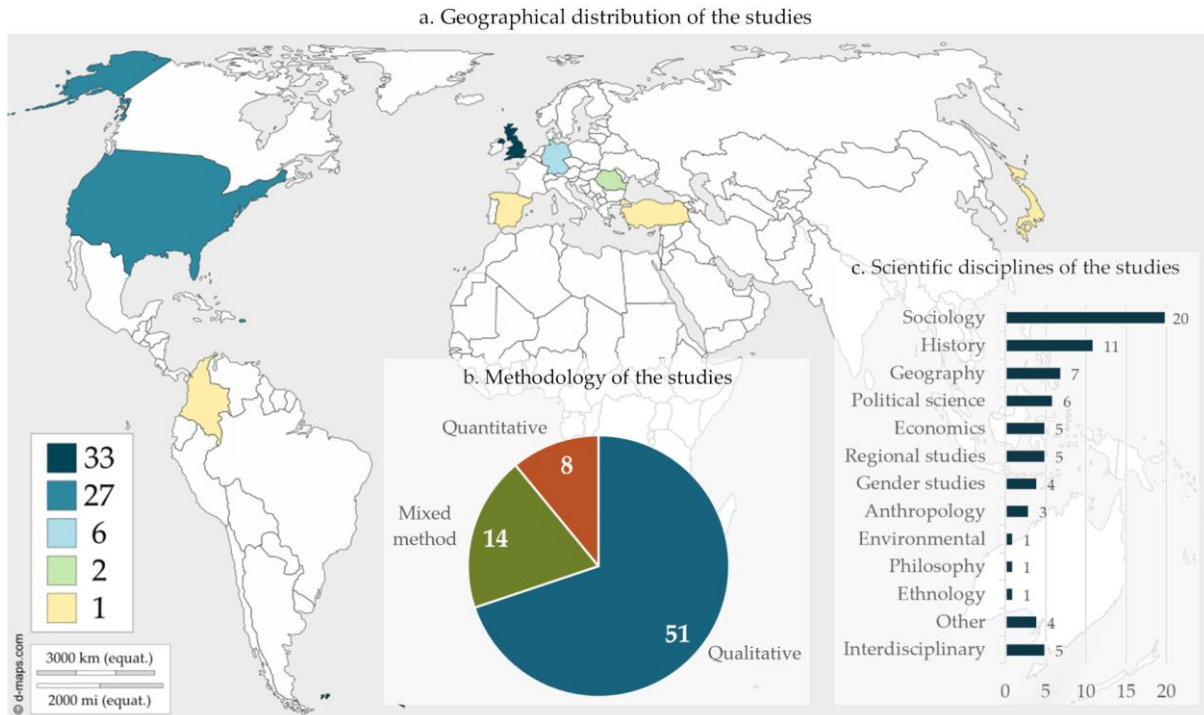
Figure 4: Transitions' overview and main reported gender aspects per country.

Source: Own depiction, based on BP (2020) and information collected in the codebook.

### 2.3.1 Background information on studies and coal transitions

Most of the studies addressed transitions in the Global North (see Figure 5, a), with 33 addressing the 1920s and 1980s coal transitions in the United Kingdom (e.g. Beckwith 1998; Gier-Viskovatoff and Porter 1998; Aragón, Rud, and Toews 2018), while studies concerning coal transitions in the USA follow, with 27 (e.g. Oberhauser 1993; Bell, Fitzgerald, and York 2019; Miewald and McCann 2004). For a more detailed qualitative analysis of the research on gender aspects in the USA and UK coal transitions, see Chapter 3. Regarding Colombia, Spain, Turkey and Japan, there is only one study each (Sanz

Hernández and López Rodríguez 2017; Sengül and Aytekin 2012; Mathias 1993; Arango, Flórez, and Olarte-Delgado 2019) as well as a study by Botta (2019), which covers more than one country. In our research, countries of the Global North are disproportionately represented due to our focus on historical coal transitions. Most studies stem from sociology (20/73), followed by history, geography and political science (see Figure 5, c). The majority of studies conducted were qualitative (51/73, see Figure 5, b). 48 out of the 73 studies were published in journals. Another 15 were book chapters and the rest were grey literature. The vast majority of studies were written by female authors,<sup>29</sup> with 31 (42%) written by single female authors, 21 (29%) by multiple female authors, and only 16 from single or multiple male authors (22%). An additional five studies (7%) appeared to have mixed authorship.



**Figure 5: Country distribution, scientific disciplines & methodologies of the studies.**

Source: Own depiction, global map from d-maps.<sup>30</sup>

The years of publication span from 1984 to 2020, covering transitions starting in Japan after the First World War (Mathias 1993) up to today. Studies on the effects of coal transitions in the UK and the USA, as well as on the UK’s miners’ strikes have been published throughout the whole period (see Figure 6, a).

Turning towards the focus of inquiry (see Figure 6,b), the miners’ strikes in the USA and especially the UK (e.g. Miller 1985; Beckwith 1996; Spence and Stephenson 2007a; R. Davies 2010; Sutcliffe-

<sup>29</sup> Please note that when coding the authors sex, we made a binary categorisation (m/f) based on the authors’ first names. This assignment is based on our Western European cultural experiences and may additionally misgender people with queer identities.

<sup>30</sup> d-maps (2021): “Map Planisphere World (Europe Africa)” [https://dmaps.com/carte.php?num\\_car=13181&lang=en](https://dmaps.com/carte.php?num_car=13181&lang=en) (last accessed 01 July 2021).

Braithwaite and Thomlinson 2018) received broad attention, suggesting the great historical significance of these events. Despite the majority of the studies being based around pro-coal movements, our investigation also found four studies that focused on anti-coal activism by women living in coal regions, which started to be published around 15 years ago (Barry 2008; 2012; Bell and Braun 2010; McNeil 2011). Socioeconomic effects as well as outcomes on community level were also frequently discussed in the studies; this will be described in detail in Section 2.3.2.



**Figure 6: Overview of year of publication (divided in studies stemming from the UK, the USA and other countries) and focus of inquiry.**

Source: Own depiction.

Gender interacts with other social statuses and identities, such as class, race, age or religion. Together, they strongly influence a person's position in society and, consequently, the discrimination they face or privileges they enjoy. Introduced by Crenshaw (1991) and further developed by many feminist scholars, the analytical framework of intersectionality has been widely used to describe the overlapping advantages and disadvantages that go in hand with the above-mentioned statuses and identities.

Figure 7 shows which categories were considered together with gender in the studies. It also shows whether the categories were taken into account comprehensively as a core concept in the study and thus play an overriding role alongside gender, or whether they were treated secondarily to gender as a side concept or were only mentioned in passing. Together with gender, class was an analytical lens in 46 out of the 73 studies, making it a highly relevant intersectional category for coal transitions. Especially in the miners' strikes in the UK 1983-1984, class was essential to women's identities: "Class identity remains intact as a greater 'us', but women are now included within that" (Stephenson and Spence 2013, 230). Also beyond the UK, class was a relevant category in coalmining communities across national borders and emerged in studies about almost all countries represented in the map (e.g. B. E. Smith 2015; Clemens and Rauhut 1999; Maggard 1994a; Kideckel 2004; Bennett 2015; Sanz Hernández and López Rodríguez 2017).

Further relevant intersectional categories are race and age, both of which were addressed in nine out of the 73 studies (see Figure 7). Most studies were concerned with the experiences of “white working class women” both for participation in miners’ strikes as well as the transition’s outcomes (e.g. Beckwith 1996; Seitz 1998; Schell and Silva 2020). However, the situation for women of colour was also treated in some texts, with Joyce Barry noting that “race has been a major framing device for Environmental Justice thought and activism, and [in anti-MTR activism,] people of colour have been at the forefront of this movement” (Barry 2012, 47). Age was also a relevant factor in the coal transitions. A women’s age entails different child care duties, working experiences and educational opportunities, and therefore leads to different coping strategies and possibilities in transition moments (e.g. Ali 1986; Jung 2006).

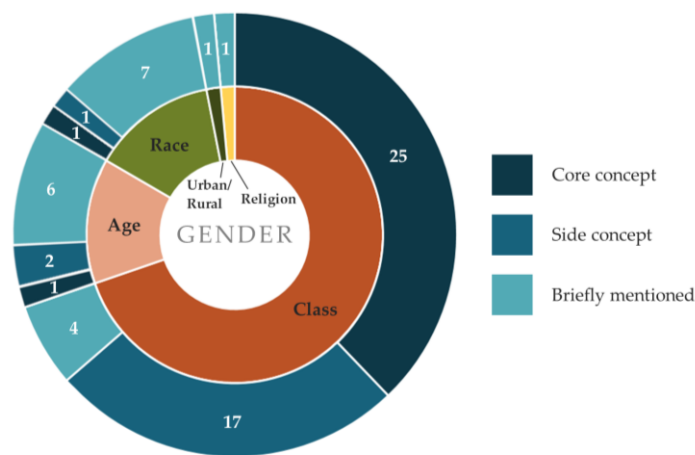


Figure 7: Intersectionality in the studies.

Source: Own depiction.

## 2.3.2 Reported transition effects on women

The following Section reports the transition effects on women we found in the literature. The evidence was grouped into four areas of impact: gendered labour market effects, and effects at the community, household and individual levels.

### 2.3.2.1 Gendered labour market effects

In wide-scale transition moments, the effects on local job markets hold particular relevance. In accordance with this, 40 studies reported outcomes within the primary job market – in our case the coal industry – of which 24 reported job losses in general (usually mentioning that these mining jobs were largely occupied by men, e.g. Dublin and Licht 2000), 8 specifically reported job losses for men and 2 reported reduced employment for women in the coal industry (Mathias 1993; Clemens and Rauhut 1999). Furthermore, various studies emphasise the stark gender segregation of occupations with men working in heavy industry while women predominantly held factory jobs or performed care-based activities (e.g. Dublin and Licht 2000; Oberhauser, Turnage, and Smith 1999). Before the transitions gender differences in tasks and skills were rigid, as some of the coal regions had little other industry and thus scarce alternative employment opportunities for women, leading them to mainly perform unpaid work (e.g. Barry 2001; Spence and Stephenson 2009). In sum, in the course of the transitions the predominantly male workers were subject to massive layoffs, while the impact on women occurred on



the secondary and tertiary job markets. In order to compensate for the decrease in household income, women increasingly took up paid jobs (e.g. Beatty 2016). 35 studies reported outcomes on the secondary and tertiary job market. 20 of those 35 showed increased female employment rates in the aftermath of the transition (e.g. Maggard 1994a; Bennett 2004; Phillips 2018). Additionally, seven studies reported job gains in general, which – again due to gendered segregation of occupations – also meant an increase in female employment (Oberhauser 1993; Measham and Allen 1994; Miewald and McCann 2004). The conditions in these jobs are usually reported to be more precarious, low-paid and insecure compared to the relatively secure mining jobs (Oberhauser 1995; Spence 1998; Miewald and McCann 2004; Phillips 2018). In contrast to the above findings, one study for the UK reported that after the mines closed, women lost employment in the manufacturing service sector, due to male ex-mine workers pushing them out of the job market (Aragón, Rud, and Toews 2018; similar but less substantiated findings in Arango, Flórez, and Olarte-Delgado 2019).

### 2.3.2.2 Effects on community level

Since mining was often a large part of community life, social changes from the transitions were vast. 56 of the 73 studies in the systematic map reported effects at the community level (see Figure 8, a).

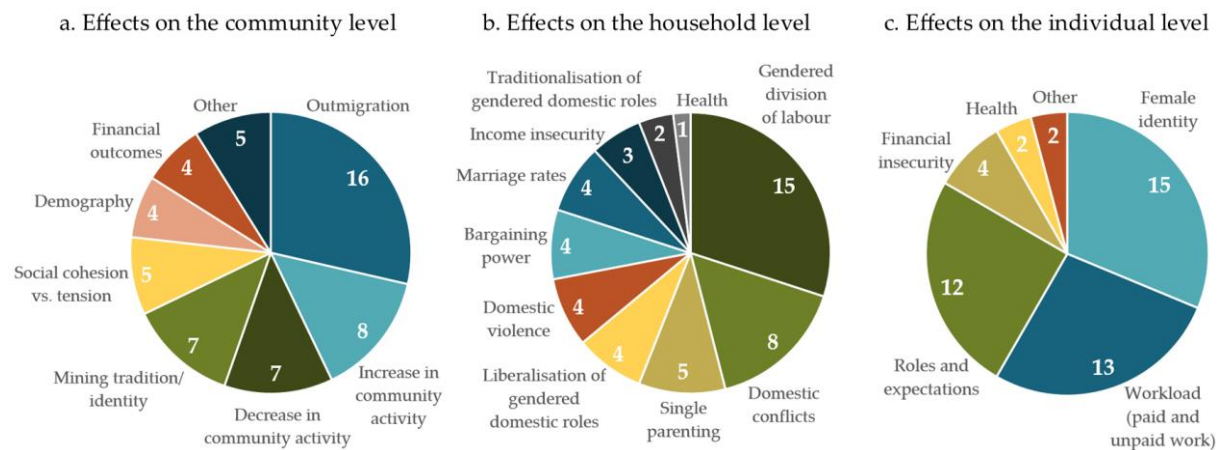


Figure 8: Studies reporting transition effects on women.

Source: Own depiction.

The most prevalent effect of a coal transition was the deterioration of the corresponding locality due to outmigration. This was reported in 29% of the studies we examined and we found different gendered outmigration patterns. For example, in Appalachia (USA) in the 1980s and 1990s, men migrated in high numbers in search of employment in construction or factory work (Oberhauser 1995). In contrast, in Lusatia, former East Germany, it was mostly young women who left after the fall of the Iron Curtain (which was accompanied by a huge decline of the coal industry) to find employment outside their home region (Jacobsen and Winkler 2011). However, outmigration already affected some of the coal mining areas before the transitions took place. For example, Barry (2001) reported in a study focused on the USA that coalmining operations were very loud and environmentally destructive, causing many people to move away; this in turn left mostly empty villages with deteriorating social and economic infrastructure.



The second most affected area is community activity. Here we found nearly equal reports on increases and decreases in community activity due to the coal transition, with eight studies reporting an increase while seven studies investigated a decrease (see Figure 8, a). Often, an increase of community activity was reported during and after miners' strikes where women were involved (e.g. Sanz Hernández and López Rodríguez 2017). People developed a stronger sense of community as they collectively (especially women) made the strike possible, for example, by supporting each other financially or with housework (e.g. Miller 1985; Measham and Allen 1994; Spence and Stephenson 2009; Seitz 1998). As one study on the UK miners' strikes put it: "The discrepancies between activism and ideological support for the strike confirm that people were active in the dispute as much because they had the time, the material resources and the opportunities to allow the possibility of giving support and wanted to help friends and neighbours in the close-knit community, as because of their commitment to the strike itself" (Measham and Allen 1994, 38).

Other studies argued that the necessity for women to become wage earners put heavy strains on community involvement, leading to reported decreases of community activity. This development was attributed to women being traditionally in charge of organising community events and maintaining social networks that they subsequently had no time for after entering the job market (Miewald and McCann 2004). Furthermore, de-unionisation throughout the transition processes and conflicts during the strike weakened the community bond among former miners and led to further defragmentation within communities (Kideckel 2004; 2018; B. E. Smith 2015; Spence 1998). Hence, the development of social life remained unique to each community, and there was no unifying trend in social life accompanying these transitions.

13% of the studies reporting effects at the community level mentioned direct effects on the mining communities' identities. Coal communities often followed an especially patriarchal pattern. According to Maggard (1994a), this was connected to the coal industry itself, as gender inequality was exacerbated by the arrival of the industry in Appalachia. A historical study of the extent to which the arrival of the coal industry exacerbated gender segregation and by what mechanisms would be interesting, but is beyond the scope of our research. Multiple studies reported that the transition away from coal weakened these traditional structures, as women broke out of their assigned sphere of the private (e.g. Spence and Stephenson 2007a; 2009; Miller 1985) (see 2.3.2.3). In many cases, the image of mining communities became heavily romanticised after the coal transition, leading to the founding of institutions and clubs to preserve a long-gone mining identity and tradition (Dawson 2000). Spence and Stephenson (2009) argued that the strong patriarchal tradition also influenced the way women were portrayed in British strikes. They showed that women were presented as only becoming politically active with the miners' strike. However, they found that this misrepresented women's participation in society before the transition. Many of them were already active before, for example, in community work. Mining as an identity was also affected in other ways, however. In the case of Romania, the transition destroyed trust among community members, by pitting active miners that broke the strike (for various, often financial, reasons) against their former colleagues, who were then out of work (Kideckel 2004).

### 2.3.2.3 Effects at the household level

While the two levels of affectedness elaborated on above reflect wide-ranging effects, transition moments also change more small-scale structures, such as household dynamics. For an overview of the different effects found in 50 of our 73 studies, see Figure 8, b.

15 out of 50 (30%) studies reported a change in the gendered division of labour, making it the most prominent effect at the household level. Some studies on households in former coal communities in the UK reported that the new employment situation changed the division of labour, as men started to spend more time at home and women went out to work. As one study put it, “research suggest[s] subtle changes regarding the intersection of class and gender regimes in households that shape this former coalfield. [...] there was growing intolerance of men doing nothing in the way of childcare and housework” (Bennett 2015, 1296). Four studies reported a general liberalisation of gender roles (Miewald and McCann 2004; Stephenson and Spence 2013; Shaw and Mundy 2005; Miller 1985). In another study on the coal transition in the USA it is said “Men can no longer be the sole breadwinners and, because of declining birth rates, increasing access to education, and modern conveniences, women are less tied to the home. [...] They [the women] can attempt to renegotiate a new ‘gender contract’ or leave the relationship all together.” (Miewald and McCann 2004, 1055–57). However there is no clear pattern as other studies also looking at the UK and the USA argued that the patriarchal gender division remained largely the same during and after the transition, often leaving the domestic work to women in addition to their paid jobs (Measham and Allen 1994; Schell and Silva 2020). Various studies stated that the total workload for women increased, as their domestic tasks remained, but a new responsibility as wage earner was added (e.g. Measham and Allen 1994; Dublin and Licht 2016; M. A. Williams 1999). In these cases domestic tasks did not seem to have decreased substantially, as men started to be unemployed. Williams noted, “if a man did help out around the house, his assistance was given ‘behind closed doors’ and ‘covertly in order to avoid embarrassment, and what might be interpreted as an affront to his manhood’” (M. A. Williams 1999, 69).

The second most reported outcome of coal transitions at the household level were domestic conflicts (e.g. Kideckel 2004; Barry 2001; Miller 1985). Four of the studies we evaluated even mentioned increases in domestic violence during the transition (Maggard 1994a; 1994b; Kideckel 2004; Bennett 2004). While the causes of domestic conflicts are manifold, the juxtaposition between women’s traditional responsibilities in households and the changing nature of women’s social positions through employment or political engagement and the resulting erosion of the traditional gendered order has to be seen as one of them (Dublin and Licht 2000; Kideckel 2004). One study mentioned that after the strikes against the mine closures in the UK were over, women were expected to return to their domestic roles as carers, which many refused to do (Shaw and Mundy 2005).

### 2.3.2.4 Effects at the individual level

Effects on women at an individual level were reported in 48 studies (see Figure 8, c). As already mentioned in Section 2.3.2.2. effects on community level, restructuring due to a coal transition had significant effects on the inhabitants’ identities. 15 out of the 48 studies addressing the impact on women at the individual level focused on how female identity changed during the transition (e.g. R. Davies 2010;

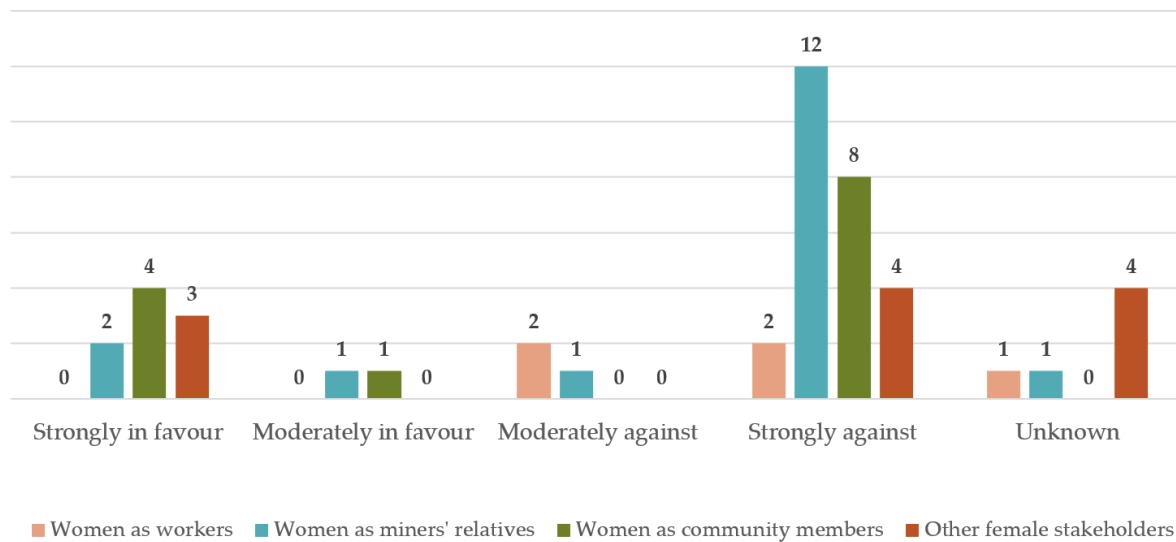
Clemens and Rauhut 1999; Measham and Allen 1994). Since *identity* is a broad concept, the aspects of female identity treated in each study vary greatly. In the UK miners' strikes, for example, traditional female gender norms changed abruptly. This forced a change in women's social identity, and how they were seen within their community (Spence 1998). As Peter (1988, 182) put it, "Instead of occupying a prominent position only within the female community hierarchy, their role in the strike was acknowledged by their recognition as important individuals by both women and men". Another study, focusing on coping strategies of women in the face of economic challenges in Appalachia, recorded a fundamental change in the way women saw themselves through "increased self-esteem, confidence, and [in] gaining some financial independence" (Oberhauser 1995, 64) by generating income, which in turn gave them a perception of themselves as role models for their daughters. Sometimes identity was not simply remodelled; one study from Spain reported a loss of identity for women based on class and their social status as 'miners' wives', who due to the economic restructuring had to replace their role as the reproducing and caring counterpart to the male miners with new roles, based on a new sense of self. Young women in particular, recognising that the return to coal would only work in the short term, started to demand a more future-oriented perspective, and a search for alternative ways to sustain their communities (Sanz Hernández and López Rodríguez 2017).

We can identify the clear pattern across studies and transitions that more women entered the labour market (see Section on gendered labour market effects). Regarding the gendered division of labour there is not such a clear pattern – some studies reported an increasing liberalisation of gender roles after the coal transition while others reported that the paid additionally to the unpaid labour led to a double burden for many women (see Section on the effects on household level). That the division of labour remained largely the same is likely to be due to the gender norms and expectations in the coal transition areas dealt with in 12 out of 48 studies (see Figure 8, c). The highly gendered societal demands placed on women as care-givers and community upholders often remained (e.g. Bell, Fitzgerald, and York 2019; Marshall 2008). These norms had been internalised over centuries, explaining cases in the UK where women remained content with traditional gender norms and avidly supported preserving the pre-transition social order. "Many [women of the support groups in UK] were keen to disassociate themselves from the more militant feminist groups who also became involved in strike support, and preferred to be seen as ordinary women from mining communities. They did not want to change their status within their communities; they were fighting for the stability of the world they knew" (R. Davies 2010, 246–47).

### **2.3.3 Female agency in historical coal transitions**

Just as women's social positioning influences outcomes, agency itself is also gendered within coal transitions. This is reflected in women's forms of organisation, their representation in decision-making bodies and their visibility within coal transitions. Based on the definition of the term "agency" laid out in Section 2.2, we systematically analysed the information on female agency presented in the studies. 26 out of the 73 studies treated agency as their main or sole focus, showing that female agency was a relevant aspect of coal transitions. As the following section shows, female agency both shapes, and is shaped by, transition processes.

Overall, 63% of the 26 studies reported that female actors were moderately or strongly against the coal transition in which they were involved, while 24% studies found women moderately or strongly in favour of it (see Figure 9). The other 13% reported on female agency without explicitly stating their opinion.



**Figure 9: Female stakeholders' opinion on coal transition.**

Source: Own depiction.

Five studies from three publications covered the agency of women as coal workers. This particularly low number of studies reflects the predominance of male workers in coal mines in industrialised countries (e.g. 96.2% of the workforce in the USA coal industry is male (McWilliams et al. 2012, 57)). This group of women were against or strongly against the transition, as it would inevitably entail losing their current jobs. Various studies reported that female miners tended to be dismissed (Mathias 1993) or demoted (Clemens and Rauhut 1999) before their male colleagues, indicating that coal transitions might hit female workers harder or earlier than male workers.

The agency of male miners' female relatives was covered in 17 publications, reporting mostly negative attitudes towards the transitions. For many women involved, saving the mines meant saving their homes and communities: "*Salvar la mina es salvar los pueblos mineros*"<sup>31</sup> (Sanz Hernández and López Rodríguez 2017, 94). In the UK, the USA and Spain women supported miners' strikes in informal, but highly organised grassroots movements and thereby substantially increased the visibility of the male strikers (e.g. Sanz Hernández and López Rodríguez 2017; Sutcliffe-Braithwaite and Thomlinson 2018; Seitz 1998; Spence and Stephenson 2007a). Their activities ranged from collecting strike money, picketing or establishing community kitchens, to more radical forms of action, such as occupation. Miners' support groups in the UK maintained close contacts with the National Union of Miners (NUM), although the form and intensity of cooperation were contentious among the women (Sutcliffe-Braithwaite and Thomlinson 2018). Most of the women's groups distanced themselves from feminist movements,

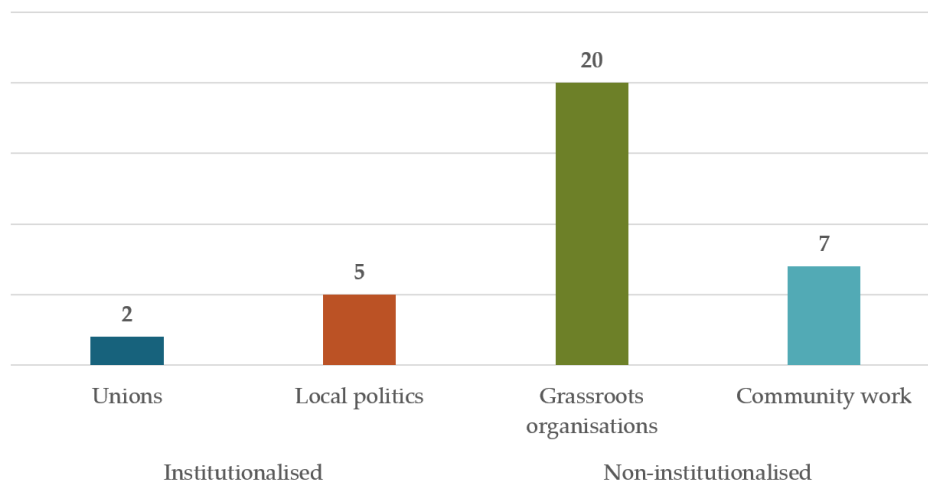
<sup>31</sup> Translation from Spanish: Saving the mine is saving the mining villages.

identifying themselves as miners' relatives or working-class women rather than as feminists (e.g. Beckwith 1996; Seitz 1998; Spence 1998). However, some texts mentioned ties to contemporary feminist movements or stated that the miners' wives were at least influenced by them (Miller 1985; Measham and Allen 1994; Sutcliffe-Braithwaite and Thomlinson 2018). Both women in pro-coal and anti-coal activism made arguments based on their identities as mothers or wives: their feelings of responsibility for the community and desire to preserve a living basis for their children incentivised them to become active. It was solely their judgements about what was best for their community that differed – either maintaining the current coal-based economy (e.g. Sutcliffe-Braithwaite and Thomlinson 2018) or protecting the natural environment (e.g. Bell and Braun 2010).

We also collected information on women who were not directly affected by mine closures in their family environment but were still involved in the process. 13 studies contained information on the agency of women living in coal communities, and 11 studies treated the situation of women who were concerned with coal transition processes as stakeholders in other ways. Five of these publications examined female participation and leadership in environmental activism against MTR in the USA (e.g. Bell and Braun 2010; McNeil 2011; Barry 2012). The activist women fought to protect their families from floods, toxins, air pollution and other dangers caused by the MTR mining technique. They were driven to political action by direct threats to their families and communities, and often had no former experience in activism (McNeil 2011; Barry 2008). West Virginia, where MTR has been particularly prevalent since the 1990s, constituted a prominent example, with women forming organisations such as the “Coal River Mountain Watch”. They educated themselves about the functioning of the coal industry in West Virginia and the supporting political conditions. Barry (2008) reported that their personal self-esteem, their confidence to speak up for their interests, and their identity, apart from their traditional one as wife and mother, were strengthened due to their political activism. In contrast, other women were engaged in pro-coal lobbying in the same regions. Bell et al. (2019) analysed the activities of the “Friends of Coal Ladies’ Auxiliary”, founded in 2007 as a sub-organisation of the “Friends of Coal”. The female members were mostly white and middle class, and their husbands had ties to the coal industry. Through their activities, for example at school events or in support of local residents with everyday problems, they tried to represent the coal industry positively in their communities. Further observations came from Kideckel (2018), who directly addressed the absence of female agency in the transition process in the Jiu Valley in Romania, attributing this to institutional barriers as well as the responsibility of women to support their families, which increased as the economy declined.

Figure 10 summarises our findings regarding the political spheres of female agency in coal transition processes, and reflects the fact that due to a lack of access to institutions and therefore structural power, women have mostly organised themselves informally in grassroots movements and community work (e.g. Gier-Viskovatoff and Porter 1998; Sutcliffe-Braithwaite and Thomlinson 2018; Peter 1988). In the UK, for example, barriers to access to the institutionalised power of the NUM were high; the women were not allowed to participate in union meetings. Four years after the beginning of the strike, in 1987, some women were eventually granted associate membership – without voting rights. Most of the women's contact to the NUM was therefore based on family ties (Sutcliffe-Braithwaite and Thomlinson 2018). Beckwith (1996, 1050) argued that the women's “indirect movement location [not being directly part of the NUM] also facilitated their activism”. Members of the NUM were threatened with punishment,

such as dismissal without compensation, while the women could mobilise and voice their opinion freely and thereby shape the anti-pit-closure discourse. Similar forms of organisation arose in the support of coal strikes in Spain and the USA (Seitz 1998; Sanz Hernández and López Rodríguez 2017). The activism against MRT in the USA, mostly led by women, can also be considered grassroots work. It is to be noted that Coal River Mountain Watch or other anti-MTR groups were nowhere near as institutionalised and powerful as the UMWA (United Mine Workers of America) – even in its weakening state – particularly concerning the union’s standing in formal institutions like the government (McNeil 2011). The forms of protest women chose varied widely, from more traditionally gendered tasks such as community kitchens, to non-violent protests, and even some accounts of violent protests. Moreover, some women engaged in local politics to pursue their interests and “create the conditions and policies that meet their multiple, yet overlapping, aspirations and responsibilities” (Miewald and McCann 2004, 1060) or chose this form of organisation after the initial protests against mine closures were over (Phillips 2018).



**Figure 10: Political spheres of female agency.**

Source: Own depiction.

Various authors elaborated on the question of how increased female visibility and activism during coal transitions affected gender relations. Concerning the transition in Appalachia, Dublin and Licht (2000, 85–86) found that “gender roles were both reinforced and reconfigured during the collapse of the anthracite region’s economy. The system of separate spheres for men and women persisted and even contributed to family survival, although certain role reversals occurred” and Maggard (1994b) noted that traditional understandings of gender were disrupted and women who had not worked previously took up education and job training after participating in the strikes. Sanz Hernández and López Rodríguez (2017) stated that in Spain, the women moved from the private to the public sphere and from a passive role to an active one during their participation in the coal strikes. This changed their overall position in their communities. In the UK, female strike participation was reported to have had only a temporary effect on gender relations (Beckwith 1996; Spence and Stephenson 2007a). Phillips (2018, 46) on the contrary stated that “[m]any women remained active politically after the strike [...] and acquired formal educational qualifications”, while still acknowledging that this was a slow, procedural process.

## **2.4 Discussion and research agenda**

While there has been extensive academic research on coal transitions in general, there has only been a limited amount of academic literature from a gender perspective. Nevertheless, the existing research shows that women have been affected differently by historical coal phase-outs than men, and that women have chosen their own forms of participation in the transition processes.

A central question is if these results can be transferred to today's coal phase-out processes. Many socio-economic conditions have changed. In general, climate change considerations, as prevalent today, were not the reason for the historical coal transitions analysed in this paper; these coal phase-outs were mainly caused by economic factors. Moreover, the transitions were hardly cushioned by social policy. This could be one of the reasons why these transition processes were mainly opposed by the female stakeholders we analysed and why the tenor of the studies was mostly negative. Today, the climate crisis makes the coal phase-out urgent. Furthermore, there is a growing recognition of the need to support coal regions to develop alternative industries (e.g. through the European Just Transitions Fund<sup>32</sup>).

Our analysis of historical coal transitions shows that gender had a major impact on how a person was affected by the transition and to what extent she was involved in decision making. Even though many initial conditions have changed, we can conclude from our analysis and from the fact that gender is still very powerful in assigning men and women different positions in most areas of life, that gender is also relevant for today's sustainability transitions (Spitzner et al. 2020). We see a considerable lack of both quantitative and qualitative gender-aggregated data, and a need for more research to fully understand the gender dimension of today's sustainability transitions. Furthermore, novel policy instruments are needed to cushion the impacts of the transition on women, and consideration should be given to offering them more forms of participation besides their involvement in social dialogue<sup>33</sup>.

Only one of the ILO's just transition guidelines directly addresses the aspect of gender equality. However, we argue that gender should not be treated as just one aspect of the transition, but that the gender dimension runs through all aspects of transitions and should therefore be seen as an integral part of all the guidelines. Based on our findings on women in historical coal transitions, we have therefore developed a research agenda addressing all of the ILO's guidelines. This research agenda should facilitate a systematic scientific exploration of the gender perspective on today's just transitions away from carbon-intensive industries. Such research would contribute significantly to shaping gender-sensitive transition policies as well as gender-aware forms of participation. We recognize that meeting the ILO criteria alone would not lead to a just transition in the broader sense, as the ILO perspective merely focuses on carbon-intensive regions, and fails to address other important aspects of just

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<sup>32</sup> European Commission: "Just Transition funding sources" [https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/actions-being-taken-eu/just-transition-mechanism/just-transition-funding-sources\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/actions-being-taken-eu/just-transition-mechanism/just-transition-funding-sources_en) (last accessed 06 July 2021).

<sup>33</sup> "Social dialogues include all types of negotiation, consultation or simply exchange of information between, or among, representatives of governments, employers and workers, on issues of common interest relating to economic and social policy" In: International Labour Organization: "Social dialogue" [%20%20a](https://www.ilo.org/ifpdial/areas-of-work/social-dialogue/lang--en/index.htm) (last accessed 01 July 2021).

transitions, such as energy and climate justice (Carley and Konisky 2020). Nonetheless, meeting these criteria would be a first step towards a gender just transition.

#### **a. Participation**

The ILO's first principle of a just transition refers to the participation of all relevant stakeholders to ensure social consensus on the goals and pathways to a sustainability transition. This procedural dimension of justice is indeed key when it comes to the question of distributing the costs and benefits of transition processes in a fair way. Our research shows that women in the coal regions have borne a relevant share of the transition costs and had, for example, economic self-interests in transitions. However, due to their limited access to institutionalised decision-making processes and resources, their interests have not fully been taken into account.

To fulfil this ILO principle in future transition processes, greater efforts should be made to include the interests of women (and other marginalised groups). However, to fully integrate gender perspectives into transition processes, it is not enough to involve more women in decision-making processes. To develop gender-sensitive policies, the involvement of actors who are knowledgeable about gender aspects is necessary (Kronsell 2013). Future research on gender and sustainability transitions will be crucial for generating the required knowledge. This includes questions such as the following: What are the main interests, needs and concerns of women affected by transitions? Which type of activities and form of organisation do politically active women choose? What issues do they prioritize? Do they have access to resources (e.g. financial means or access to policymakers)? Has there been a shift in women's political activity in recent decades away from grassroots structures towards more formalised types of organisation because of improved access to such structures (e.g. unions, parties)? If not, how can the work of informally organised women be better transmitted to political bodies that shape transformation processes? Are there still barriers for women to join formal political organisations, such as unions or parties?

#### **b. Rights at work**

Policies must respect, promote and bring about fundamental rights at work. This is the ILO's second principle. From a gender perspective, this principle is of great interest. Our research has shown that during and after the transition, more women entered the labour market, mainly taking up precarious and low-paid jobs in the service sector. Such a shift from industrial jobs to a more service-oriented regional economy can be expected in many future sustainability transitions. A fundamental question in this context is how to improve working conditions in the service sector. Another question concerns how women can be involved in the planning process at an early stage, before the transformation process is in full swing (see Guideline a) above), to ensure that they have time to participate in training programmes, for example.

#### **c. Gender equality**

The third ILO principle directly addresses gender within sustainability transitions, and states that policies and programmes must take into account the significant gender dimension of many environmental challenges and opportunities. We hope our research will help broaden the focus of this important point:



not only environmental degradation, but the transitions itself and its consequences affect women differently than men. Historical coal transitions illustrate that the double burden of (usually unpaid) care work and paid work increased for women due to the transition. An interesting and important area of research to inform policymakers is the availability of care services in carbon-intensive regions. Does the existing care infrastructure differ from other regions? To what extent does this care infrastructure depend on financial support from the carbon-intensive industry (e.g. corporate day-care centres)? Do the existing childcare services meet the needs of families/women? What is missing and to what extent does this influence women's career planning and their ability to participate in the transition process?

We found multiple evidence in the literature that patriarchal structures are more pronounced in coal regions and thus traditional gender norms are more persistent than in other regions. Further research could develop and test indicators of this relationship. A starting point could be to compare the distribution of care work between male and female household members or the identification with traditional role models between carbon-intensive and other regions. If this correlation is confirmed, the causes for this discrepancy should also be researched further.

#### **d. Coherence**

Energy policy and policymaking processes are dominated by a technocratic perspective. Economic perspectives are limited to energy prices, jobs and labour, while social aspects are often neglected entirely (García-García, Carpintero, and Buendía 2020; Lieu et al. 2020). This one-sidedness is also reflected in the ILO's mention of coherence, which states that policies in all areas should focus on the creation of an enabling environment for "enterprises, workers, investors and consumers to embrace and drive the transition towards environmentally sustainable and inclusive economies and societies." (ILO 2015, 6). What about the citizens, the community members, those who have left the workforce, or future generations? Coal phase-out processes have multiple social as well as economic impacts on these groups. Existing research mentions, for example, increased intra-household conflict, domestic violence, social tensions in communities, and outmigration. However, the scientific evidence is particularly thin concerning these aspects, and much more research is needed to understand what impacts (in addition to economic ones) low-carbon transitions have on communities and families, as well as how these impacts could be prevented or compensated for. On the other hand, research also provides examples of positive effects of coal transitions on women (intra-household empowerment, shifting traditional role models). The loss of (regional) identity is another aspect that is often discussed in the context of coal transitions. However, we did not find a significant amount of literature addressing this aspect from a female perspective. Future research could explore the question of whether women and men see the fossil-fuel industry as equally important for a given region. From studies on the attitudes of men and women to the climate crisis, it can generally be said that women on average perceive the climate crisis as a greater threat (Spitzner et al. 2020). Therefore, one research hypothesis would be that they also rate the coal phase-out as more urgent in order to overcome the climate crisis. Further research questions could be: Is the decline of the fossil-fuel industry accompanied by a loss of identity? Do women and men view it differently? It would also be of interest to better understand what empowering moments coal transitions have on women, and how this could be considered in policymaking processes.

**e. Employment**

The ILO's employment dimension emphasises the need to create a just transition for all. So far, however, transition policies have focused on compensating workers and communities directly affected by transitions away from fossil fuels (Piggot et al. 2019). This approach falls short, as indirectly affected workers in supporting sectors (e.g. the service sector) are not compensated, and job (re)training programmes are not designed for those who had mainly been engaged in unpaid care work or non-primary sectors before the transition. Since those working in the coal industry (and other carbon-intensive industries) are mainly men, while those working in the service sector and responsible for care work are mainly women, the gender-based injustice of this approach becomes clear. Further research should address this issue by collecting comprehensive data on the status quo in carbon-intensive regions, such as female employment rates and part-time employment rates in carbon-intensive regions compared to the respective national average. Are there differences between such regions, and if so, what are the reasons for this? It would also be of great value to have data on whether women want to enter the labour market, what barriers they have to overcome to do so, what skills and educational backgrounds women have, and what training opportunities are needed to give them better access to well-paid and secure jobs. A closer look at the career paths of women in energy companies would also be of value. Interesting cases could be, for example, whether there are gender differences in career paths after the closure of power plants or after the restructuring of energy companies towards more climate-friendly business fields (e.g. renewable energies).

Another relevant aspect related to employment is the integration of women into the social dialogue around sustainability transitions. Our research of historical transitions shows that it has been difficult for women to participate in union structures. Is this still the case, and if so, how can unions open their doors to women, and how can unions better represent the rights of workers in female-dominated professions?

**f. No "one size fits all"**

The ILO's sixth principle underscores that there is no blueprint for a just transition, and that the appropriateness of certain policy instruments varies according to the specific conditions in each region. Likewise, women are not a homogeneous group of actors, but have very different life situations depending on their age, race, abilities, socioeconomic status and educational background. This was at least somewhat reflected in the research we analysed for this study, and should always be taken into consideration when raising these research questions. For example, it would be worthwhile to conduct a detailed study on the different life situations of women from different backgrounds (e.g. in terms of class, race, age) and compare the ways they have been affected differently by energy transitions. Furthermore, it would be interesting to compare the situations of women working in the service sector across different countries that are either facing an energy transition or are in the middle of one. What differences exist among countries? How have some countries managed to build better working conditions in female-dominated professions? Which policy instruments are effective, and why?

**g. International cooperation**

The last ILO principle focuses on international cooperation. In this respect, our research has its limitations. Due to our focus on historical coal transitions, we ended up with a dataset that focused on

industrialised countries in the Global North. This limits the validity of our research to the Global North, which means we do not take into account the specific circumstances faced by women in the Global South. However, in the first phase of our literature search we came across a number of studies that we ultimately had to exclude from our analysis in a later step that dealt with ongoing coal transitions or with transitions in other mining sectors such as gold mining. It is likely that this literature provides some insights into transition processes in the Global South that could lead to recommendations for just transition policies. It would be an interesting future research project to, for example, compile the literature on agency of women in current coal disputes in another systematic map. In Colombia, for example, Afro-Colombian and indigenous women play an important role in grassroots movements fighting for better protection of their land from dangerous and polluting coal mining (Mohr et al. 2020).

## **2.5 Conclusion**

The low-carbon transition that needs to be implemented in all sectors of the economy to mitigate the catastrophic effects of unlimited global warming affects different social groups differently and creates unequal chances for these groups to voice their opinions depending on their position in society. It is the task of science to examine the different needs and interests of these various groups – for example women, who unfortunately still have different starting conditions and resource endowments than men – and thus develop a basis for fair structural policies for all social groups.

The conviction that low-carbon transitions should be implemented as fairly as possible for all parties involved (i.e. a just transition) has gained ground in international discourse in recent years. The gender dimension of climate and environmental policies is also recognised by major international political organisations such as the UN in its SDGs (Sustainable Development Goals). However, there is little scientific basis so far for gender-sensitive transition policies, because scholars looking at the consequences of low-carbon transitions often merely analyse broader economic effects (e.g. net employment effects) on entire regions, rather than the effects that transitions have on actor groups other than predominantly male miners. Addressing this issue, we developed a research agenda which leads to a better understanding of the interrelationship between gender and low-carbon transitions.

To develop such a research agenda, it was essential to gain an overview of all existing empirical information on this topic. To this end, we have conducted a systematic map that was as comprehensive as possible, containing publications dealing with our research question – the impact of historical coal transitions on women and their role in it. In the process of compiling the systematic map, we read over 3100 abstracts of potentially relevant publications obtained through a systematic literature search. After title and abstract screening, we identified 247 texts that could be relevant to our research question and read them in full text. 73 studies contained relevant results, which we then analysed. Based on these studies, we identified the most important links between coal transitions and gender, and developed a research agenda corresponding to the ILO guidelines for just transitions with essential questions that need to be investigated to make structural policies more gender-sensitive in the future.

We found various effects that historical coal phase-out processes had on women; these very much depended on the country context and the living reality of each woman. However, there are still some general statements we can make.

Previous coal transitions have often led to women entering the labour market, as many men in the coal industry lost their jobs and thus income. These women found employment especially in the service sector where, on average, the pay was significantly lower and the working conditions worse than in male-dominated sectors. Even though the economic situation for many families in former coal-mining regions worsened in general, women in those families gained some financial independence due to their increased employment; this strengthened their self-esteem and confidence. However, the lack of child-care services also led to an increased double burden and limited women's career opportunities. The coal phase-out process additionally changed community life within coal regions. Often whole communities participated, for example, in miners' strikes, which strengthened their sense of community. Women contributed significantly to these activities and networked the community members. On the other hand, with the advancing coal phase-out, women in former coal regions had less and less time to do community work as they traditionally had done due to their increased double work burden. In addition, structural change in the context of the coal phase-out had an impact on household cohabitation. In some cases, men and women were able to reorganise the division of labour in the household, as women increasingly took up employment. In other cases, however, the increasing change in the male breadwinner model had negative effects and led to intra-family conflicts and even violence.

Just as women's social positioning influences the effects that coal transitions have on them, agency within coal transitions is also gendered. Women have been active in both pro-coal and anti-coal movements. Regarding pro-coal movements, we found information on women's roles in miners' strikes in the UK, the USA and Spain. It was difficult for women to gain access to union structures, which led them to organise themselves into grassroots movements. They took up a variety of actions, from fundraising and setting up community kitchens to more radical actions, such as occupation. Women also played a large role in anti-coal movements, such as in the fight against MTR in the USA. These grassroots groups were largely established by women. One reason for this is that men had closer ties to the coal industry. Activism in both pro-coal and anti-coal movements – even though this activism has been restricted by patriarchal structures in society – has often empowered women and increased their self-confidence.

Based on these findings, we identified the following key issues that need to be addressed scientifically in order to achieve a gender-just transition.

1. How can women's interests be better integrated into low-carbon transition processes?
2. How can working conditions be improved in female-dominated sectors?
3. How can care work be distributed more fairly (within families and within society)?
4. What non-economic effects (e.g. identity loss, conflicts, domestic violence) do transitions have on carbon-intensive regions, and how do these affect women differently than men?
5. How can the restructuring of local employment opportunities be designed to lead to more gender equity?
6. How can the different, intersecting life situations (age, class, race) of women affected by low-carbon transitions better be taken into account?

Furthermore, we found only a relatively small number of relevant studies in spite of a complex and extensive research process, which shows that the topic is still underresearched. In general, much more gender-aggregated qualitative and quantitative data is needed. In sum, we agree with García-García et al. (2020, 13) that failing to consider “the gender implications of the energy transition is an analytical bias we can no longer afford” since women, due to their social positioning in society, are very differently affected by low-carbon transitions and have different opportunities to shape it politically compared to men. Understanding their needs and positions more thoroughly is key to ensuring an economically and socially successful transition.

## Chapter 3

# Power in transitions: Gendered power asymmetries in the United Kingdom and the United States Coal transitions<sup>\*</sup>

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## 3 Chapter 3: Power in transitions: Gendered power asymmetries in the United Kingdom and the United States coal transitions

### 3.1 Introduction

Sustainability transitions in general, and coal transitions in particular, are gender-relevant processes. The majority of the coal industry workforce is male (e.g. 78.4% of the workforce in US coal production in 2017 was male (National Association of State Energy Officials 2018, 51). In addition, 95% of board members of the 500 biggest coal companies are men (van Dyke and Dallmann 2013).) The 1980s and 1990s saw a sharp decline in coal production and coal-fired power generation in the UK and the US, our countries of interest (BP 2020). National policy measures in response to declines in coal production have traditionally targeted mine employees through retirement subsidies or by funding severance packages, for example, mainly cushioning the direct effects that coal transitions have on men (Strambo, Aung, and Atteridge 2019). As we show in our paper, however, women are the backbone of coal transitions. For this reason, we argue that the excessive focus of transition policies on (male) workers falls short of fully addressing the socio-economic effects of transitioning away from coal. This leads to an incomplete mobilisation of regional capacities for transition, and reinforces existing inequalities between men and women. Since global coal phase-out is urgently needed to limit global warming and prevent associated catastrophic consequences, the analysis of phase-out dynamics is highly relevant (IPCC 2018b; Oei, Yanguas-Parra, and Hauenstein 2020). Although our analysis focuses on coal, our results can be transferred to other sustainability transitions.

Over the past two decades, extensive research has documented mutual interdependencies between gender relations and energy (for review see e.g. Köhlin et al. 2011). So far, however, few connections have been made between this research strand and social science energy and transition research (Fraune 2018; Köhler et al. 2019). In this paper, we aim to bring together these two strands by integrating gender aspects into transition theory. We build on Avelino's (2017) Power in Transition Framework (POINT) in which she conceptualises how sustainability transitions influence power relations. Our theoretical contribution is to develop the concept of "*gendered power asymmetries*" based on feminist theory, and to add this concept to the POINT framework as a new layer of analysis. We do this by the empirical evaluation of 60 publications which were identified by Walk et al. (2021) (Chapter 2) using a systematic map. The method of systematic mapping represents an extensive and systematic search for publications, so that we can assume that our analysis takes into account the majority of existing publications on the nexus between gender and coal phase-out processes in the UK and US. We build on the information in the publications to answer the following research question: Which role did women play in historical coal transitions in the UK and the US in terms of their participation and which unintended impacts did the transitions have on them? Thereby we aim to show how *gendered power asymmetries* operated in the historical coal transitions in these two countries. In particular, we describe some of the employment, individual, and household impacts that the shrinking coal industry and the accompanying structural change has had on women, and analyse how women became active in pro- and anti-coal movements.



The resulting framework provides researchers in the field with a tool to analyse the gender dimension of sustainability transitions. Furthermore, our empirical findings may help policymakers to design more gender-sensitive transition policies that not only achieve greater gender equality – a widely accepted goal at the political level (see e.g. Sustainable Development Goal 5) – but also ensure that the transition potential of affected regions is fully realised. The main findings include: (1) training and support programmes in the context of future coal transitions should address not only (former) miners, but also women and other affected groups in those regions; (2) access to care services that meet the needs of families is a prerequisite for the political and social participation of women; (3) the interests of women must be better taken into account by, e.g. ensuring the equal representation of women in decision-making processes (expert groups, local politics, etc.). These recommendations can only be seen as first approaches. In order to fully understand the impact of transitions on gendered power asymmetries and to be able to include them in political processes, further field research is needed.

The remainder of the paper is structured as follows: In Section 3.2, we conceptualise *gendered power asymmetries* based on feminist theory, and add this element to Avelino’s POINT framework. In Section 3.3, we present our methodological design. In Section 3.4, we analyse, which effects historical coal transitions in the UK and the US have had on women as well as their participation in the transition processes. Using the empirical findings from the literature analysis, we complement the POINT framework in Section 3.5 to include gender in transition theory. Section 3.6 concludes the paper, and presents policy recommendations for gender-just transition policies.

## **3.2 Conceptualisation of power and gender in transition theory**

In this paper, we analyse women as an “actor group”. We are aware that women are not a homogenous group, but have very different life situations depending on age, socio-economic background, and race, among other forms of social difference. We share modern feminist theories’ notions that neither sex nor gender are in fact binary, and that individuals do not always identify with the gender assigned to them (Butler 1990). At the same time, we need an analytical tool to theorise about inequalities based on social structures and systematic processes. In our paper, we therefore distinguish between the categories “men” and “women”, to show the constraints, limitations, and attributions to which a group of people is exposed due to their passive assignment to a gender (Young 2002).

### **3.2.1 Gendered power asymmetries**

In her analysis of social categories, Ridgeway (2011) explains the logic of binary categories, and how each individual is passively grouped into one category (or various categories). The category system is based on a specific thinking pattern of the “Christian West”. This way of thinking operates with dichotomies, consisting of two opposing poles (e.g. human–nature, mind–body). Examples of characteristics of dualisms include hierarchisation, homogenisation, and backgrounding (Plumwood 1993, 47). Each category (or, more specifically, each pole) comes with a set of rules and norms. These rules and norms create expectations for a certain behaviour (role) as well as the association of a certain social status (based on the dualistic logic that the group of one pole is more respected and perceived as more competent than the other) (Ridgeway 2011). The role and status that people receive due to their assignment to certain poles of different categories is decisive for the opportunities and possibilities

available to them or the effort they must make in order to use a preferred possibility. Other powerful categories by which power structures are constructed include race, class, and age.

Young (2002) defines which configuration constitutes membership of the group “women”. She identifies three main axes of “gendered social structure”:

### 1) Sexual division of labour

The structuring of work by gender is a basic characteristic of all modern societies. For example, domestic work related not only to the physical well-being of people (e.g. cooking and cleaning), but also to their emotional well-being (e.g. comforting and educating) is mainly unpaid work performed by women. Domestic work is essential for the functioning of society, and yet it is rarely valued (backgrounding). Since domestic work costs a lot of time and energy, which women then no longer have for other activities (that come with a higher status), it therefore limits their own life chances (Young 2002; Folbre 1994).

### 2) Normative heterosexuality

The second axis of gender structuring is normative heterosexuality, which produces serious suffering and wrongful limitations on freedom (Young 2002). Young’s concept of normative heterosexuality is related to Butler’s concept of the heterosexual matrix. This matrix determines the normative rules according to which the sexes must emerge socially and relate to each other as – heterosexual – men and women. However, operating within the heterosexual matrix also offers the possibility of shifting rather than consolidating the norm because it is reproduced by constant repetition of individuals (Butler 1990).

### 3) Gendered hierarchies of power

Gendered hierarchies of power are embedded, e.g. in the structuring of state institutions and companies. They provide some groups – usually (white) men – status, privileges and freedom (Young 2002). For example, the perception that women are less competent than men (despite having the same formal qualifications) leads to an underrepresentation of women in high-level positions. This third axis intersects the other two axes in multiple ways. For example, the sexual division of labour can be legally encouraged by taxing spouses differently (e.g. *Ehegattensplittung* in Germany).

In the following, we will call the interplay of the three axes of gendered social structure *gendered power asymmetries* to emphasise the power imbalance between men and women. *Gendered power asymmetries* inscribed in the structuring of social institutions and deeply internalised and reproduced by everyday practices have far-reaching consequences for the lives of women and men, i.e. the constraints and opportunities they face (Ridgeway 2011).

## 3.2.2 Power in transition theory: the POINT framework

Avelino (2017) developed the Power in Transitions (POINT) framework to analyse power dynamics in the context of sustainability transitions. The framework contributes to the ongoing discussion on how to better integrate power, agency, and politics into socio-technical transitions research. Avelino argues that, in sustainability transitions, power is often rather seen as a “means to an end” (instrumentalisation of power to achieve more (ecological) sustainability) than an “end in itself” (desirable power distribution).

However, sustainability transitions include processes of redistribution of resources, and could therefore be opportunities to “expose, problematize, and resist the ongoing reproduction of harmful power relations” such as *gendered power asymmetries* (Avelino 2017, 515).

The POINT framework is conceptualised along the three levels of the multi-level perspective (MLP): niche, regime, and landscape. Moreover, it contains:

- “A set of conceptual typologies for distinguishing different dimensions of power in transitions” which reflects both stability (reinforcive power) and change (innovative power and transformative power) (Avelino 2017, 516);
- The dimension of (dis)empowerment, which conceptualises how actors “gain the (in)capacity to mobilize resources and institution to achieve a goal” within the transition (Avelino 2017, 512).
- The notion of (un)intended side effects of transitions.

In our analysis, we apply the latter two aspects of the POINT framework – (dis)empowerment and (un)intended side effects – to analyse how these aspects interact with *gendered power asymmetries*. We ask how *gendered power asymmetries* (consisting of the three axes of gendered social structure) affect the (dis)empowerment of women to contribute to the transition process, and how the (un)intended side effects of the transition affect women differently to men. In the second step, we will refine the POINT framework based on our findings, providing a tool for the gender-sensitive analysis of sustainability transitions.

### **3.2.2.1 (Un)intended effects**

By developing the concept of “(un)sustainable power distributions”, the POINT framework includes a placeholder for the need for wider societal discourse on a desirable vision of power distribution that should accompany the process of sustainability transitions. The underlying assumption is that transitions in the socio-technical system can have larger societal impacts that can be co-created as part of the transformation.

We have shown that the workings of the three axes of gendered social structure result in power arrangements between men and women that are unjust, or, to use Avelino’s term, “unsustainable”, and that broad societal consensus for change exists. However, there is no broad public discourse yet on how to consider transition and gender equality policies together. This might be based on the mistaken assumption that there are no gender-specific impacts of sustainability transitions, or that they mainly affect men because jobs in carbon-intensive industries, such as coal mining and car manufacturing, are male-dominated, meaning that the focus should be on male employment.

Our work aims to show that sustainability transitions, such as coal phase-outs, have a specific impact on women, and if this fact is not recognised in transition policies, *gendered power asymmetries* are reproduced.

### **3.2.2.2 (Dis)empowerment**

With the concept of (dis)empowerment, Avelino (2017) addresses the (in)capacity of actors to contribute to the transition process. She sheds light on how different actors’ starting positions are with regard to participating in the transition. She defines (dis)empowerment as the process through which actors gain

the (in)capacity to mobilise resources and institutions to achieve a goal. Specifically, empowerment is defined as a process that includes an actor's willingness to apply strategies for gaining access to resources (e.g. funding, knowledge, networks) and institutions. We use Avelino's notion of (dis)empowerment to emphasise the two-sided nature of the term, meaning that transition processes can also disempower actors.

Willingness can be defined as an actor's will to mobilise resources, including the will to gain resources, acquire skills, and develop strategies. We assume that when women recognise their self-interest in the transition, they develop the willingness to use strategies to assert their interests and to feed their perspectives into the political process. Strategies can be defined as methods applied and skills used to mobilise those resources. Such strategies also include how actors play into existing power relations (e.g. gender relations). Access to resources refers to the awareness that those resources (can) exist, information on where they can be found or created, and who owns them (Avelino 2017; Avelino and Rotmans 2009).

We aim to understand how women's capacity to contribute to the transition process is influenced and constrained by the above theorised *gendered power asymmetries*.

### 3.3 Women in coal transitions: Data collection

To answer our research question on the role of women<sup>34</sup> in historical coal transitions in the UK and the US in terms of their participation ((dis)empowerment)) as well as the (un)intended impact of transitions on women, we draw on 60 publications extracted from a systematic literature map (Walk et al. 2021) (see Chapter 2). We define a coal transition as a decline in coal production or consumption and/or a loss of jobs in the industry.

A systematic map is a methodology to collect, describe, and catalogue existing evidence on a specific topic in a comprehensive and repeatable way. Systematic maps provide information about the state of the art of the field of interest, such as the amount of existing literature on methodological approaches and scientific disciplines (Haddaway et al. 2018; Haddaway and Macura 2018; Collaboration for Environmental Evidence 2018). In their systematic map, Walk et al. (2021) catalogue existing literature on the research nexus between historical coal transitions and gender. In June 2020, they conducted a database search in the databases Scopus, EBSCO, Web of Science and ProQuest which yielded (after removing duplicates) 2,816 potentially relevant publications. All abstracts were read by a member of the coding team and were subsequently read in full text if the abstract matched the research question. The database search yielded 44 relevant publications. The same inclusion/exclusion procedure was applied to additional searches (grey literature etc.), which yielded further 29 publications. Besides journal papers they also included books, reports, conference papers, theses, and working papers to their systematic

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<sup>34</sup> To be able to extract the relevant information for this study, we work with binary categories, and group individuals to the female gender if they are considered as being of the female sex in the text, while aware of the limitations of this approach.

map. With this explicit and replicable research design the authors aim to reduce bias in the collection of the publications (Sovacool, Axsen, and Sorrell 2018).

While Walk et al. (2021) quantitatively analyse the state of knowledge on the nexus of coal transitions and gender our paper analyses qualitatively the literature on the UK and the US only. By using for our analysis the publications on the UK and US coal transition that were found through this systematic and extensive process, we can assume that we are taking into account the majority of publications that have been published on this topic up to mid of 2020 when the search was conducted. These two countries are interesting cases because the gender aspect of their coal transitions is thoroughly researched, as the systematic map shows. Furthermore, these countries' coal transitions are nearly complete, facilitating our evaluation. Sixty of the 73 studies in the map address one of these two countries, making the data basis for applying the presented theory to other cases rather thin, and therefore not comparable to the US and the UK. If useful for our general analysis, however, we include additional information from other cases such as Germany, Romania, or Spain in the discussion section.

To extract information from the texts, we developed a codebook based on that by Walk et al. (2021) and our theoretical approach. Table 7 presents the three categories and 13 subcategories contained in the codebook, and the related theoretical concept (see Section 3.2.2).

**Table 7: Categories and subcategories of the codebook.**

Category	Subcategories	Related theoretical concept
Effects of the transition on women	Job market / economic effects	(Un)intended effects
	Effects on communities	
	Household effects	
	Individual effects on women	
Effects of female participation in the transition process	Effects on gender relations	
	Effects on communities	
	Long-term effects	
(Dis)empowerment	Women's interests	Willingness (aspect of (dis)empowerment)
	Women's organisation	Strategy (aspect of (dis)empowerment)
	Women's visibility	Access (aspect of (dis)empowerment)
	Women's success and failure	Willingness (aspect of (dis)empowerment)
	Women's conflict and cooperation with other actors	Strategy (aspect of (dis)empowerment)
	Women's involvement in the political sphere	Strategy/resources (aspect of (dis)empowerment)

### 3.4 Gendered power asymmetries in coal transitions

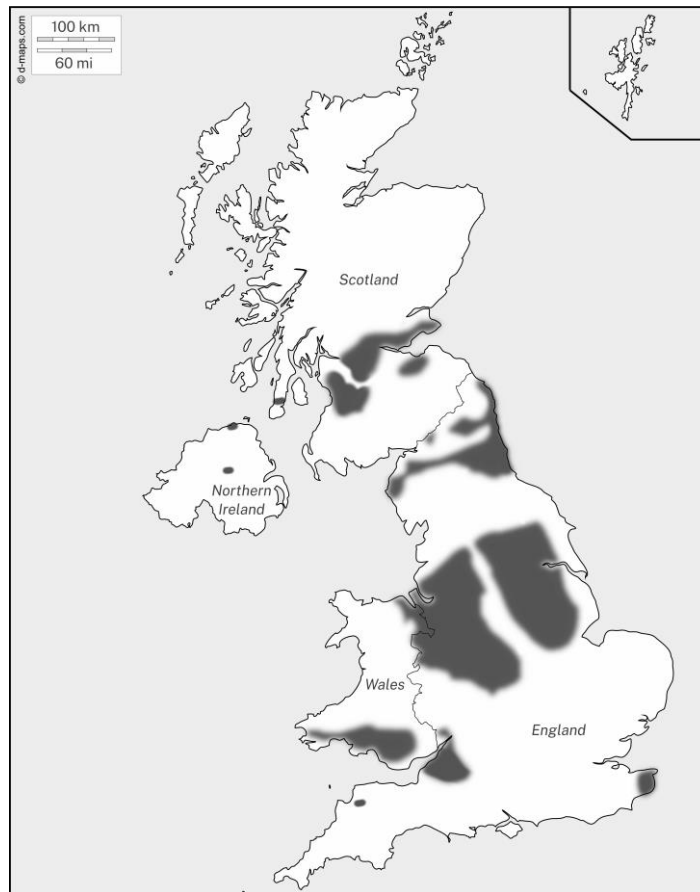
In this section, we summarise the information contained in the 60 publications in terms of (un)intended effects and (dis)empowerment. We look at the coal transition in the UK in two separate periods: the coal transition period between 1920 and 1940, and the 1980s coal transition period. With regard to the US coal transition, we focus on one region in particular – Appalachia – in the period from the 1980s to the early 2000s. For each transition period, we provide background information on the actual transition as well as general information on the situation of women so as to embed the results in their historic context.

#### 3.4.1 The United Kingdom

##### 3.4.1.1 Historical overview of the coal transition

The coal regions of the UK were mainly located in central Scotland, southern Wales, northern England, and the Midlands (Phillips 2018) (see Figure 11). Overall, the 20th century was characterised by a

continuous decline in the number of people employed in the coal industry. The decline of the coal industry began after World War I, when export markets for British coal collapsed while domestic demand fell. Despite the economic pressure, the industry failed to modernise, which meant that it continued to lose competitiveness. Eventually, mine owners cut wages to make the industry profitable again (Turnheim and Geels 2012). This led to major unrest and strikes, such as the lockout in 1926, which ended disastrously for the workers, the coal regions, and the unions (Miners' Federation of Great Britain, MFGB). The coal regions suffered a severe economic recession, while families slipped into poverty due to high debts that they were unable to repay (Gier-Viskovatoff and Porter 1998).



**Figure 11: Coal regions of the United Kingdom and Northern Ireland.**

Source: Based on (Northern Mine Research Society 2021), underlying map from d-maps (2021a).

An economic upswing in the industry in the 1940s and 1950s, accompanied by the mechanisation of the industry and a resulting loss of jobs, was followed by a decline in coal consumption in the 1960s (Turnheim and Geels 2012). The loss of strategic importance of coal as a domestic energy source paved the way for the neoliberal course of the Thatcher government from 1979 onwards, which aimed to slash subsidies to the coal industry.

Coal mines were closed, and the negative economic impact on the workers and regions was barely mitigated by social policy measures. In 1984, the struggle between the government and the union (renamed the National Union of Mineworkers (NUM) in 1945) escalated into the Great Miners' Strike. The strike – the largest in British history – lasted over a year. The subsequent decline of the coal industry

in the 1980s and 1990s led to a dramatic loss of jobs in the coal regions. In 1981, the coal industry employed 250,000 people; by 2005, the figure had fallen to less than 5,000 (Beatty 2016).

The most comprehensive part of the literature we analyse in this section refers to the changes in the 1980s and their long-term effects; a small part of the literature deals with developments in the 1920s and 1930s. Our sample contains no analyses for developments in the 1960s. In the following, we analyse the two transitions as separate cases because they occurred independently.

### **3.4.1.2 Gender and transition in the UK between 1920 and 1940**

By the late 18th century, a strict role division between men and women had already been established in many mining communities, after women were forbidden by law to work in coal mines in 1842 (V. G. Hall 2001; Lahiri-Dutt 2020). Due to weak economic diversification, women had only limited options to find paid work, and even the few jobs in the service sector available to them were difficult for married women to obtain due to their household and childcare duties. This led to only around 12% of the female population in coal regions being employed in 1930 (V. G. Hall 2001). As a result, many women were dependent on the income of their male family members; they themselves were responsible for unpaid domestic work.

Working conditions in the household were hard. While the eight-hour day was standardised for men in 1908, women's physical workload remained both very high and time-consuming. Women's work was also made more difficult because public services such as running water, were less well developed in mining regions than in other regions (M. A. Williams 1999). In addition to the hard work, women were physically burdened by high birth rates. In general, living conditions led to a 20% lower life expectancy for women than for their husbands, even though the latter were exposed to high-risk occupations such as mining (V. G. Hall 2001).

#### **(Un)intended effects on women**

The financial losses suffered during the 1920s lockout worsened the economic situation of many families and made the – already exhausting – everyday lives of woman even more difficult (M. A. Williams 1999). Women were responsible for strictly rationing the unsteady and low household income and for ensuring that the family had a good supply of food and clothing. The resulting **emotional pressure** was so high that some women were able, decades later, to describe in detail the strategies they used to reduce family expenses (Gier-Viskovatoff and Porter 1998). Most coal mines, were located in remote regions and the miners and their families had to live in (often poorly maintained and expensive) rental houses owned by the mining companies. Therefore, the job loss was always tied to the loss of their shelter, which put additional emotional pressure on the families.

Despite strict budgeting of the household income, money was extremely tight in many families. If the male household members were unable to find work for a long period, women were forced to **take up paid work** (usually in the informal sector) **in addition to their household duties**. Girls and young women were forced to **migrate** to find work in other regions and support their families with their earnings (M. A. Williams 1999). Whether, and how much, male family members participated in completing household chores during the strike phase or unemployment periods differed from household to



household. In interviews, some women reported that their male household members did not participate in domestic work at all, or only if nobody saw them doing it. Others reported that they received support from their male household members (Gier-Viskovatoff and Porter 1998).

Birth rates fell in the 1930s due to job losses and the economic depression. However, **maternal mortality**, which was already high, rose to a record high (M. A. Williams 1999).

### **(Dis)empowerment of women**

#### *Willingness*

In the 19th century, women in the UK had their own interests in the miners' protests, and took an active role in those protests. By staging a solidarity protest, women were **mainly supporting the striking men** – given that women were not allowed to work in the mines. However, keeping the mines open was also in their own interest. After all, besides wanting their men to keep their jobs, many of the women also collected coal at the edges of opencast mines, either for their own use or for sale. When the economic situation of many families worsened during the strike, the women's forms of protest became more aggressive, leading to stone-throwing, a form of protest that could result in a prison sentence (Gier-Viskovatoff and Porter 1998).

#### *Strategy*

In principle, **women's forms of protest** were community based and included such strategies as harassing strikebreakers or men who refused to join the union (Gier-Viskovatoff and Porter 1998). Gier-Viskovatoff and Porter (1998) show in their analysis that some of the forms of protest used by women in the coal regions in the 19th and early 20th centuries were so effective that they were practised up until the 1980s.

Although most of the women's protest was community based, it would clearly fall short not to mention women who were organised in **parties or other organisations**, and their engagement. Even before the strike, not all women fit the rigid role of housewife and mother, but were politically active. The upheavals during the 1920s and 1930s created the freedom for more women to be politically active because they found it easier to gain their respective husband's consent during the dire economic situation in those two decades (V. G. Hall 2001).

One important task that female members of the Labour party took on during the strike was to **distribute relief supplies to miners' families**. Women went from house to house to inquire about families' needs, and distributed the required items a few days later; they also organised marches and galas to keep up the community spirit (V. G. Hall 2001). Although support groups were organised locally, they were also connected regionally and nationally. Some groups also had international contacts (V. G. Hall 2001). The women's work in the support groups made a significant contribution to alleviating the misery that befell the strikers' families, helping to maintain the miners' ability to participate in the strike.

#### *Resources*

The support provided by women during the Miners' Strike, by contributing to the housekeeping, organising community protests and support groups, and collecting donations, was of great importance. Nevertheless, due to the lack of appreciation for their commitment, women's support did not result in

their better access to resources. For example, **their demands for a place and a voice in the union remained unheard** by the union leaders, and faded away completely when the need to organise women became less urgent as the unions regained power and influence in the 1940s (Gier-Viskovatoff and Porter 1998).

### **3.4.1.3 Gender and transition in the UK in the 1980s**

In the 1960s and 1970s, the British society and economy underwent a number of fundamental changes. For example, new industries were established that provided jobs for women and, like everywhere else in the UK, women's employment rates increased in the coal regions (Phillips 2018; R. Davies 2010). In south Wales, for example, 40% of women were employed in 1980, compared to only 13.5% in 1939 (R. Davies 2010, 242). However, similar to other working and middle-class communities, the rigid gendered division of labour still prevailed in mining communities (Gier-Viskovatoff and Porter 1998; Spence and Stephenson 2009; Measham and Allen 1994). The somewhat lower level of female employment compared to the UK also contributed to this gendered division of labour, which was caused by the less differentiated economic landscape and the small service sector (Beatty 2016; Peter 1988).

#### **(Un)intended effects on women**

The decline of the coal industry affected the **employment situation of women** in the coal regions and their families in multiple ways. Overall, men's employment declined in Wales and England, while women's increased. This trend was even more noticeable in the coal regions. The employment rate for men fell by 11.2% between 1981 and 2011 (9.8% in Wales and England generally), while for women it rose by 11.6% over the same period (10.7% in Wales and England generally) (Aragón, Rud, and Toews 2018).

One reason for this trend is the general restructuring of the economy in favour of the **service sector**. Such a general shift in the employment structure also took place in the coal regions, and is described in the literature for northeast Durham, for example. While jobs in the coal industry disappeared, the service sector expanded with low-paid and insecure jobs (in 1970, 50% of the workforce was in the service sector; in 2000, the figure was 70%) (Bennett 2015; Roberts 2009). Surveys in the West Yorkshire region show that people considered it easier for women to find work locally than for men (Measham and Allen 1994).

Statistics from Mansfield show that this increase in women's employment was accompanied by an increase in **part-time work** among women (in 1981, 41.6% of women worked part-time; in 1995, the figure was 49.9%). At the same time, the wage level in the region was £268.50 per week, well below the national average of £351.70, which may be related to the increase in women's employment (Bennett 2004).

However, there were also negative impacts on women's employment. Aragón, Rud and Toews (2018) show for coal regions in Wales and England that mine closures had a negative impact on employment opportunities for women, particularly in **manufacturing**.

With time, women in the coal regions increasingly faced male competition for jobs outside the coal industry. “The **gender balance in job growth** has ... changed over time. In the 1980s, when the coal job losses among men were greatest, 60% of the increase in non-coal jobs went to women. Between 1991 and 2001, the share going to women fell to 50%. Between 2001 and 2008, men took the largest share of new jobs” (Beatty 2016, 830).

Similar to the transition between 1920 and 1940, the transition in the 1980s was accompanied by an **increase in workload** for many women. The increased amount of paid work had to be done in addition to domestic work, which was still seen as a female task. Even as men’s inactivity in the home became less tolerated, they continued to define themselves as the breadwinners, and often refused to assist in the household (Measham and Allen 1994; Bennett 2004; 2015; R. Davies 2010; Dicks 1996). In addition, women now had to manage the household and provide food for the family on a lower income, and often had to emotionally support their partners (Dicks 1996). As the coal industry declined, structures in the communities funded by the local coal industry broke down. Whereas there were 200 youth clubs in Britain organised by the miners’ Welfare Service in the 1950s, there were none by the early 2000s. Women often had to compensate for this loss, because maintaining social relationships and organising social interaction traditionally falls within the sphere of female responsibility, adding further to their workload (Spence and Stephenson 2007b).

The coal phase-out also had **social consequences** for the regions and the families in general. For example, the changes in the labour market were not smooth, and social upheaval occurred as the now unemployed men were unwilling to accept their wives taking up paid work (Bennett 2004; Dicks 1996). One woman reported in an interview that her husband “was just ... turned down for benefit, and he wants me to give my job up, there’s no way I’m going to give my job up. And it was just real suffering that was caused by it, you know. Real domestic upheaval” (Bennett 2004, 158). The lack of childcare facilities made it difficult for women to enter the workforce. Alcohol abuse, increased drug use, marital breakdown, child and sexual abuse, and domestic violence were also cited as problems that increased as a result of the decline of the coal industry (Bennett 2004; Roberts 2009).

### **(Dis)empowerment of women**

#### *Willingness*

The women active during the strike were a heterogeneous group, with different backgrounds. and diverse motivations to become organised and get involved. Some had an **economic self-interest**, as they were also affected by their respective partner’s loss of income (Gier-Viskovatoff and Porter 1998). Many **identified themselves as miners’ wives**, and felt personally attacked by statements made by the political elite (Peter 1988). In addition, coal was the basis of the local economy, the loss of which also had a significant (negative) **impact on women’s regions and communities** (Stephenson and Spence 2013). Many members of support groups did not aim to achieve a fundamental change in their status within society, and did not want to be associated with the feminist movement, but were keen to maintain their lives and communities as they were when the coal industry was thriving (R. Davies 2010).

### Strategy

Since women were excluded from trade unions and were not allowed to attend their meetings, they had to find other ways to express their protest (Spence 1998). Even at the start of the strike, women's support groups emerged everywhere, with **women organising themselves locally**, forming regional networks that were coordinated across the country. The support groups took on various tasks, from distributing food and organising community meals to fundraising activities in order to finance their work (Sutcliffe-Braithwaite and Thomlinson 2018). Since the women were denied a legitimate interest in the matter, they had to justify their protest even more than the miners (Beckwith 1996). Many of the support groups solved this problem by calling themselves miners' wives, demonstrating that they were acting out of direct concern, even though some parts of the group were decidedly not, or only partially made up of, miners' wives (Spence and Stephenson 2007a).

The women's organisational structures were rather loose, which gave them considerable flexibility – a great advantage in those uncertain times. In addition, the groups worked efficiently, and were easily accessible to all those wishing to get involved (Suddick 2005).<sup>35</sup> The groups also organised nationally in the newly formed **National Women Against Pit Closure (NWAPC)**. The NWAPC coordinated the groups on a national basis; it collected and distributed donations collectively, and organised demonstrations, conferences, rallies and other events. The NWAPC “was not an organisation that appeared spontaneously, but one that grew out of careful political planning and execution by women who were far from politically inexperienced”, even though they presented themselves for strategic reasons to the public as “innocent” miners' wives (Sutcliffe-Braithwaite and Thomlinson 2018, 19).

In addition to their work in support groups, some women also joined strikers on the **picket lines**, in the streets or in **direct action**, especially those who had experience in political organisation before the strike (R. Davies 2010). Women did not differ from men in the radicalness of their protest, but were sometimes underestimated by the police, which enabled them to get to the picket line more easily, for instance (J. Stone 2020; Ali 1986).

### Resources

One problem with the allocation of new resources was that the contribution of women to the success of the protests was often downplayed, and therefore not rewarded. For example, women in the groups were key to making the miners' protest broad-based by contributing their own resources, such as their direct local connections and their personal networks (Gier-Viskovatoff and Porter 1998). In addition, they mobilised financial resources for the strike (Suddick 2005). But despite their important contribution, **women's activism was often perceived as secondary** and dependent on that of men (Spence and Stephenson 2007b). And when it came to the issue of access to NUM structures and women's participation in decision-making processes, or supporting their work with financial resources, the NUM

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<sup>35</sup> Measham and Allen (1994) provide a clear overview of who was organised in the groups, the barriers that prevented women from participating, and the social contexts in which the groups were active.

vehemently rejected the women's efforts (Gier-Viskovatoff and Porter 1998; Sutcliffe-Braithwaite and Thomlinson 2018; Peter 1988).

While women were not given a place in union structures, they did receive a lot of **media attention** for their work in support groups. However, they tended to be portrayed in a traditional role as caring wives, while it was difficult for them to gain access to the media as political actors, because journalists were more interested in talking to miners' wives or mothers than to activists (Beckwith 1996).

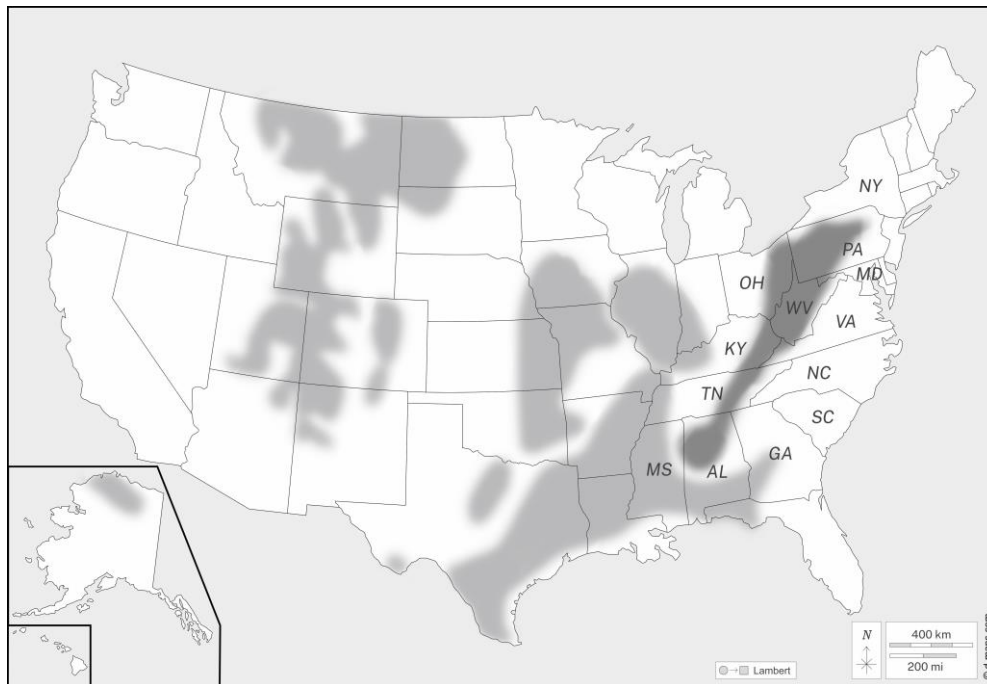
Some of the women's contributions went entirely unrecognised, such as providing **emotional support** to those affected, which for many women was a central and also stressful part of their work (Spence and Stephenson 2007a; 2009). Another example is the **community work** that many women did even before the strike. However, the narrative found repeatedly, especially in early literature about support groups, portrays the strike as a transformative element that changed women's lives (Measham and Allen 1994). "This narrative suggests that the typical strike activist was a miner's wife who, in solidarity with her man, left the domestic sphere to defend her family, community, and inherited way of life. Through her actions, she underwent a metamorphosis from housewife to political activist, transformed by collective engagement with the men's struggle into a new female working-class vanguard" (Spence and Stephenson 2009, 73). Underlying this narrative is a very one-dimensional (masculine) notion of political engagement that must take place in formal party or trade union bodies and at a meta-level, while community work is not considered as such engagement (Spence and Stephenson 2007a; Measham and Allen 1994).

Whether the strike and women's participation directly changed their position in their communities is rather controversial (Measham and Allen 1994). Some women were able to acquire **social capital** through their involvement (Spence and Stephenson 2009), while others managed to break out of existing social patterns (Spence and Stephenson 2007b; Stephenson and Spence 2013). But **existing role models were not fundamentally questioned**, and women remained in charge of domestic work (Peter 1988; Spence and Stephenson 2007b; Stephenson and Spence 2013; Beckwith 1996). It was therefore not easy for all women to continue their involvement, even if they wanted to, because they no longer had childcare or were unable to afford the cost of travel. During the strike phase, these obstacles were absent or less present, because childcare was organised and travel expenses were borne collectively (Spence and Stephenson 2007a).

## **3.4.2 Appalachia, USA**

### **3.4.2.1 Historical overview of the coal transition**

Of the 27 publications on the US coal transition in the systematic map, 25 address the Appalachian coal region (see Figure 12, highlighted in a darker colour). This section therefore focuses on women's living realities in this coal region, which extends over several federal states. Most publications concentrate on two central Appalachian states: West Virginia (WV) and Virginia (VA) (primarily the southwest of this state).



**Figure 12: Coal regions of the United States of America (Appalachia highlighted in a darker colour).**

Source: Based on (EIA 2020), underlying map from d-maps (2021b).

Mechanisation and an accompanying productivity increase led to a steady decline in the employment rate in the Appalachian coal mines from World War II onwards. In the 1980 and 1990s, the emergence of mountaintop removal (MTR) coal mining in particular radically reduced the number of mining jobs throughout central Appalachia (Bell and Braun 2010; Maggard 1994a). Between 1948 and 2006, the number of coal miners fell from 131,700 to 20,100 in West Virginia (Bell and Braun 2010). Coal production began to decline later than coal employment. From a plateau of about 150 million tonnes in the 1990s, it fell to about 70 in 2016 from the late 1990s onwards.<sup>36</sup> Protests against MTR – a very noisy and polluting mining technology – emerged in the 1990s, led mainly by women from the affected communities.

Appalachia has a long history of often violent battles between organised labour and coal companies. In the early 20th century, the coal industry was particularly life-determining, as coal companies often owned the entire infrastructure of a community (including shops, schools, and doctors' surgeries). For example, salaries were sometimes only issued in a company-owned currency that could only be spent in the company-owned shops. There was often resistance against this form of oppression, involving also women (Reichart 2001). Later bitterly contested strikes occurred in the 1970s and late 1980s in the context of an overall shrinking industry (especially in terms of jobs), revolving mainly around the battle for better working conditions (Seitz 1998). Due to the period covered in the publications, the following

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<sup>36</sup> Casey Leins (2017): "West Virginia Is Dying and Trump Can't Save It" <https://www.usnews.com/news/best-states/articles/2017-05-25/west-virginia-is-dying-and-trump-cant-save-it>. (last accessed 20 April 2021)

analysis focuses on the situation of women in Appalachia in the 1980s until the early 2000s. The shrinkage in the coal industry was accompanied by a generally troublesome socio-economic development. In Southwest Virginia, for example, the unemployment rate, dependency on social benefits, and income insecurity were higher than the state average in the 1990s (Seitz 1998). Besides the challenging economic situation, Appalachia needed to cope with negative stereotypical assumptions about the intellectual, moral, and physical inferiority of the poor (relative to the US average), mostly white and working class population (Seitz 1998). Furthermore, Appalachia experienced high outmigration rates. The population in West Virginia, for instance, declined by 8% between 1980 and 1990 (Maggard 1994a). The support from state and federal governments for a just transition out of coal in the region is criticised as insufficient (Hess, McKane, and Belletto 2021).

### **3.4.2.2 Gender and transition in Appalachia**

According to Maggard (1994a), when the coal industry moved into Appalachia, in the earliest period of industrialisation in the coal sector, the sex segregation between men and women intensified. Men were recruited as labourers for the mining industry, while women were responsible for managing the household and caring for dependents. Traditionally, women were forbidden to work in the mines. Their presence was even considered bad luck. When women did work outside the home, they traditionally performed work in sewing factories (Seitz 1998). This segregation of the workplace was overlain with and supported by deeply internalised patriarchal relations. Patterns of economic opportunity, market, and household divisions of labour and gendered self-identities that characterise Appalachia can be traced to this day to this strong sex segregation (Schell and Silva 2020; Maggard 1994a). Women's labour force participation rates in West Virginia were dramatically lower than men's, and the lowest of any state in the US throughout most of the 20th century (Maggard 1994a).

#### **(Un)intended effects on women**

As described above, employment in the male-dominated coal industry declined from World War II onwards, but especially between 1970 and 1990 (Miewald and McCann 2004; Maggard 1994a). As a consequence, women had the opportunity, and were also faced with the need, to **enter the wage labour market** (Miewald and McCann 2004). Most of them found employment in the growing service sector, often in part-time, low-wage, insecure jobs, and in areas such as nursing, food service, secretarial work, or home-based production (Maggard 1994b; Miewald and McCann 2004; Oberhauser, Turnage, and Smith 1999; Oberhauser 2002). This shift from an economy dominated by the coal industry to a more service-based economy led to an increase in the labour force participation rate of women in West Virginia from 33.5% in 1977 to 47.8% in 1997 (Oberhauser 2002). In 1990, however, female employment was still 14.9% below the national average, and the lowest of any state (Oberhauser 1993). Income in the service sector is not comparable to the wage level in the mining sector or other traditionally male-dominated occupations (Miewald and McCann 2004). In 2000, women workers in West Virginia (including part-time workers) earned an average of 55 cents for every dollar earned by men (Oberhauser 2002). The annual base salaries of manufacturing jobs in 1989 averaged \$24,000, \$36,000 for mining jobs, and \$12,000 for service sector jobs (Oberhauser 1993).

Women's entry to the labour market was hampered by many **barriers**, such as a lack of access to (public or private) transport, domestic responsibilities, inadequate vocational training opportunities, and a lack

of work experience (Oberhauser, Turnage, and Smith 1999; Oberhauser 2002). Interviews with 44 Eastern Kentucky women revealed that their gender status in the family, poverty, and a lack of support services for economically vulnerable families, as well as domestic abuse, sexism, and classism were other barriers to their personal advancement (Maggard 1994b). This contributed to women seeking employment mainly in the informal labour market and working at home, since this type of work was easier to combine with domestic work (Oberhauser, Turnage, and Smith 1999). In the early 1990s, 16% of West Virginian counties had no licensed childcare centres. Over 70% of working parents relied on friends and relatives to take care of their children (Oberhauser 2002). In the interviews conducted by Miewald and McCann (2004), women reported having been “pushed” into jobs that fit their “natural” roles and domestic responsibilities due to traditional patriarchal relations. Women’s wages were considered as being additional to men’s wages, and men were still seen as the family breadwinner (Miewald and McCann 2004).

One example of how women became economically active despite these hurdles was the *Appalachian By Design Network* (Oberhauser 2002). Most of the women in the network lived in central Appalachia, and produced knitwear. Due to the aforementioned constraints (a lack of transport and care facilities, etc.), most of them worked from home. The network was based on self-organisation, and was characterised by the strong Appalachian culture of community and solidarity (Maggard 1994a; Oberhauser 2002).

Due to their increasing labour market participation, **women gained financial independence**. In some cases, they negotiated a new and more egalitarian division of labour with their husbands, many of whom were former miners (Miewald and McCann 2004). In other households, men considered the increasing independence of their wives as a threat to their patriarchal authority, which went hand in hand with **marital conflict, violence, and divorce** (Miewald and McCann 2004). Redundancies in coal mines tended to be followed by increasing incidences of domestic violence (Maggard 1994a).

Overall, the **workload for women increased**, as women still did most of the housework – in addition to their increasing wage work (Oberhauser, Turnage, and Smith 1999). Women had less time to maintain community and kinship relations within the coal mining communities than was traditionally the case. However, their financial independence gave them more self-esteem and self-confidence, and they were able to establish new social contacts at their workplace (Miewald and McCann 2004).

Even if the labour market effects of the coal transition on former male miners are at the centre of the political debate (see introduction), publications on the US coal transition show that there are also **effects on men**, especially at the individual and household level, that are not sufficiently recognised. With the demise of the coal industry, men lost their place in the economy to some extent, but were often reluctant to take on responsibilities in the household because of the still present patriarchal relations. The interviews conducted by Miewald and McCann revealed that many men were not only reluctant to share domestic work equally, but also to move from work in the mining sector to work they perceived as “women’s work”, such as jobs in the service sector. In addition, some men saw women’s independence as a threat to their masculinity, and they were suspicious when their wives took on a more active role outside the home and the family (Schell and Silva 2020; Miewald and McCann 2004). The more



economically active role of women in former coal regions led to a certain degree of discrepancy between gender stereotypes and the economic reality (Bell and Braun 2010; McNeil 2011). Many men are “no longer able to live up to the hegemonic image of masculinity that has historically pervaded the region” (Bell and Braun 2010, 799).

### **(Dis)empowerment of women**

#### ***Women in miners’ strikes and other pro-coal movements***

The publications on the US coal transition contain information on women’s participation in miners’ strikes in the 1920s (see Reichart 2001), in the 1970s (see Reichart 2001), and late 1980s (see Seitz 1998). Those efforts were often, but not exclusively, organised by miners’ wives.

#### *Willingness*

For example, against the backdrop of an overall shrinking coal industry, **women supported the 1989/1990 miners’ strike** against the Pittson Coal Company for better health benefits for retired and disabled miners. The next section focuses on the role played by women during this strike period. Women founded several subgroups connected to the miners’ union UMWA (United Mine Workers of America) – called Family Auxiliaries – in the respective localities. They accused the Pittson Coal Company of betraying ill and disabled miners who worked their entire lives for the company. They criticised the union for not seeing the community and the family beyond the individual worker (Seitz 1998).

The Friends of Coal Ladies Auxiliary (FOCLA), founded in 2007 as a suborganisation of Friends of Coal, is an example of more recent activism by **women in pro-coal movements**. The women members, comprising mainly white middle-class women whose husbands often had ties to the coal industry, tried to represent the coal industry positively in their communities (Bell, Fitzgerald, and York 2019). Bell et al. (2019) described Friends of Coal as an “astroturf” organisation created by the coal industry to give residents the impression that the coal industry was important to the identity and economic well-being of West Virginia.

#### *Strategies*

In the early 20th century, women in coal communities sometimes boycotted the coal company’s shop in times of strike. Since this was often the only shop in town, this measure was a life-threatening demonstration of action against the coal company. In the 1970s, women organised distributions of food from less needy families to needy families. This enabled the union to prolong its negotiations with the coal companies. Thus, in the **1920s and the 1970s**, women mainly participated in strikes in a way that was associated with their gender, doing what was in their power within the gender constraints imposed on them by society (Reichart 2001).

“Traditional” female forms of participation were also present in the **1989/1990 strike**. These included cooking, caring for children, making clothes with union symbols, and boycotting company shops. However, woman also broke with traditional gendered conventions by finding new ways of engaging in the movement. They participated in pickets, protested at shareholder meetings, blocked roads, took over buildings, and even faced possible imprisonment for their activism. They also organised marches to picket the homes of Pittson management and their lawyers. The women found strength in their mutual support and their practice of consensus building. Both the union leadership and the women in the

Auxiliary wanted the strike to be non-violent. For example, the women tried to contain the emotions that ran high and often ended in violent confrontations during the strike, or they stood in front of the men and protected them from the police, because they were less aggressive towards women (Seitz 1998).

Members of FOCLA became **publicly visible for the coal industry** by engaging in activities such as fundraising, school events, and car auctions or by assisting families and individuals in need in their communities. The women distributed items such as “Mr. Coal toys” to residents at nursing homes and children at daycare centres. By undertaking such activities, FOCLA aimed to portray the coal industry as an indispensable part of West Virginia’s communities and way of life (Bell, Fitzgerald, and York 2019). “Through these women, Friends of Coal gains caretaking credibility that reflects back on the entire industry,” (Bell, Fitzgerald, and York 2019, 330).

### *Resources*

The Family Auxiliaries’ actions during the 1989/1990 strike received a lot of **media attention**. The women members argued that the union wanted to control their group to take credit for their highly visible actions. They contradicted the widespread perception that they had been sent to the front of the strike by the union, and stressed that their strike activities were self-determined. The use of a common group name – Family Auxiliaries – contributed to **group solidarity** and created a bond of solidarity between women who had barely experienced themselves as a group and as subjects. However, women’s participation in the strike was also limited by their social obligations and marital constraints. Some miners objected to their wives interfering in the “male” business of trade union politics. However, many female members of family auxiliaries were no longer willing to accept a subordinate social position as a member of the working class, as an Appalachian, and as a woman (Seitz 1998).

FOCLA women were **hierarchically lower** than the mostly male members of the main organisation Friends of Coal, and therefore had less decision-making power and access to decision-makers (Bell, Fitzgerald, and York 2019; B. E. Smith 2015). The male-dominated Friends of Coal fought not only for a return of the coal industry, but also for a retention of rigid, traditional gender rules (B. E. Smith 2015).

### ***Women in anti-coal movements***

There has been an increase in the use of MTR in Appalachia, especially since the 1990s. The industry is very loud and environmentally polluting. Besides living under such stressful conditions (noise, pollution, smell), the inhabitants of these coal mining communities were faced with the threat of being bought out and relocated by the coal operators (Barry 2001; 2008). The technique was practiced throughout Appalachia, but was undertaken on a particularly large scale in West Virginia (Barry 2001). An Environmental Justice Movement (EJM) fought against this method.

### *Willingness*

The EJM in the central Appalachian coalfield in the early 1990s. It was disproportionately composed of and led by white working class women (B. E. Smith 2015; Bell, Fitzgerald, and York 2019; Barry 2001; Kideckel 2018; McNeil 2011; Barry 2008). 90% of the members of Environmental Justice groups in the US were women (Barry 2008). Many of the women in the EJM had no experience in activism. They were driven to political action by direct threats to their homes and communities. They fought to **protect their**

**families** from air pollution, toxins, flooding, and other dangers associated with MTR. Women were most often motivated to their activist work by their identities as “mothers” and “Appalachians”, and a deep connection to the land and Appalachian culture that they wanted to preserve (Bell and Braun 2010; Barry 2012; Feng 2020). Interestingly, the same patriarchal relations that served to assign women to the private domestic sphere where they took care of the family encouraged women to become politically active outside the home when it came to the devastating effects of coal mining (Barry 2008). Many women involved in EJ groups would not label themselves as either environmentalists or feminists (Barry 2008; 2012, 20).

In interviews with female activists, they mentioned goals beyond local activism, such as **educating the rest of the country** about the social and environmental costs of coal-based energy production, and the need for alternative, more sustainable fuels (Barry 2008). Many activists were looking for alternative ways of organising the economy and society that were rooted in the values of their region. In doing so, they wanted to help preserve values of community and solidarity for the future (McNeil 2011). Political activism against the coal industry may involve severe threats to the lives of activists and their families. Many residents labelled activists as environmental radicals seeking to take away jobs from the area. A number of activists received regular death threats (Barry 2008).

Bell and Brown (2010) analysed why men are less active in EJM, concluding that one reason was the “**coal mining identity**” that many **men** in the region had. The men interviewed often worked in the industry or had ties to it, preventing them from taking a critical position. They feared that they would lose their status in the community, which they had gained in part through their involvement in the coal industry. Weakened union power and a constructed coal community identity added to the low mobilization (Feng 2020). Sometimes they even discredited the activities of their female relatives in order to preserve their own status (Bell and Braun 2010). The few men in Bell and Brown’s interview sample who were involved in the EJM considered the “coal mining identity” to be much less relevant for their self-image (Bell and Braun 2010).

### *Strategies*

The Coal River Mountain Watch (CRMW) was one of the many female-dominated grassroots groups formed in the 1990s to fight the effects of MTR mining in West Virginia. The members engaged in different forms of activism. They practised, for instance, **civil disobedience** by preventing coal trucks from passing, accepting the threat of imprisonment in the process (Barry 2008). Besides direct action, they also **organised rallies and education campaigns**, monitored coal industry meetings, or lobbied the state government to fight for economic and social justice in the coal fields (Barry 2008; 2012).

### *Resources*

CRMW was extremely successful in organising **media attention** from all over the US for their fight, even though their base of active members was rather small (McNeil 2011). The women themselves created resources in their movement, e.g. by **educating each other** about the workings of the coal industry in West Virginia and the political conditions that supported it. Their activism increased their personal self-esteem and their confidence to speak up for their interests, and strengthened their identity besides their traditional identity as a wife and mother (Barry 2008). Despite these examples of success, the resources available to groups such as CRMW and other anti-MTR groups/networks were not comparable to those

available to unions such as UMWA, especially in terms of their access to, and thus ability to influence, formal institutions such as the state government.

### **3.5 Discussion**

In this section, we discuss the similarities and differences of the three coal transition periods and supplement the analysis with insights from other cases such as Germany, Turkey, and Romania. Based on the similarities identified, we derive the main realms of (un)intended effects that sustainability transitions have on women and the relevant aspects that influence women's (dis)empowerment in sustainability transitions. In both realms, our analysis shows many similarities between the transition in the UK and the US, as well as between the transitions in the UK in the 1930s and in the 1980s. We therefore assume that our findings can not only be transferred to different geographic regions in industrialised countries, but are also valid for longer periods. By including our findings in the POINT framework, we offer a tool to conduct gender-sensitive analysis of sustainability transitions.

#### **3.5.1 (Un)intended effects**

While jobs in the mainly male-dominated coal industry declined, the female **employment** rate increased in the UK's and the US's coal transitions. However, the women faced many difficulties entering the labour market (e.g. a lack of access to transport, care services, inadequate job training services, and a lack of work experience). In both the UK and the US, women took on insecure, low-paid part-time jobs. Similar patterns can be found in the coal regions Jui Valley in Romania in the 1990s (Kideckel 2004) and in the Ruhr Area of Germany in the 1960s and 1970s (Jung 2006). Such a development is not specifically a characteristic of coal transitions, but of deindustrialisation processes in general. However, existing research indicates that this dynamic has unfolded even more intensely in the coal regions. It is very likely that such a shift will also be a relevant factor in regions affected by future sustainability transitions.

In all transitions, women faced an increase in their workload, as they continued to be primarily responsible for domestic work, despite their entry to the labour market. In some cases, **domestic work** even increased, as they were also responsible for compensating for the loss of social facilities such as youth clubs, which were often funded by the local coal industry. In addition, women bore much of the burden of the also increasing emotional work. Similar observations were made in the Zonguldak coal region in Turkey after the coal industry shrank considerably in the 1970s. It was up to women to sustain the social (e.g. neighbourhood) networks. Under the condition of economic depression, women turned into "strategic actors in the formulation and implementation of survival strategies" (Sengül and Aytekin 2012, 178). We also consider these observations from historical coal transitions to be relevant for future transitions. Until today, a large part of domestic work is still being done by women. Future coal transitions will be accompanied by structural change processes, during which the traditional breadwinner and caretaker model will continue to dissolve. To support families in this process, appropriate care services are needed, and it must be ensured that a living wage and appropriate working conditions prevail in all sectors.

Women's entry to the labour market and the related shift in responsibilities that was closely linked to self-identification and **gender stereotypes** was not smooth in all cases. The new job and the resulting greater financial independence were a source of greater self-esteem for women. At the same time, the coal industry, which is traditionally associated with male employment and identity, declined (Daggett 2018). These opposing developments were a burden on family life. For future coal transitions, it is therefore important to find new identity anchors both for former miners and for the regions as a whole.

For both the UK and the US, three areas can be identified in which the transition had side effects on women: 1) Employment (increase in female labour force participation, job quality); 2) Societal (domestic work distribution / care services); 3) Effects within the family (loss of identity, family conflicts, shift in gender performances). Overall, it can be said that the first of Young's three axes of the gendered social structure sexual division of labour is particularly effective. Domestic work continued to be located in women's sphere of responsibility, despite the shift in wage labour. The second axis – normative heterosexuality – also includes gender stereotypes. This seemed to be particularly powerful in largely preventing a fair division of labour between the sexes when women increasingly took up paid employment. Men have felt very uncomfortable across transitions taking on work with female connotations such as childcare and housework. In addition, the third axis – gendered hierarchies of power – plays a role in the phase-out process and the accompanied structural change. One reason for the poor working conditions in female dominated sectors is the low unionisation rate and a lack of lobby power of employees in those sectors, most of whom are female.

### **3.5.2 (Dis)empowerment**

We also found many similarities in terms of women's participation in coal transition processes. However, the picture was not as clear as with the effects of the transition. The most significant difference is that in the US, a female-led anti-coal movement evolved in the 1990s, while in the UK there was a strong female pro-coal movement, but not a single publication mentioned an anti-coal movement or protest related to the transition in the 1980s.

In terms of women's **willingness**, we can see that in any position women held during the coal transition (e.g. pro or anti-coal, wife/relative of a miner, member of the community), they had a self-interest, which they expressed. For example, they had an economic self-interest when their husbands, brothers, or friends were threatened with the loss of their jobs, as the economic effect and the emotional burden affected the whole family and community. They also had an interest in maintaining the (environmental or economic) standard of living of their communities or the region. As such, even if women are not directly affected by unemployment, they have an interest in participating in the transition; they have their own concerns and visions. This may seem trivial, but in both transitions it was not a given that women's perspectives would be heard. In the US, for example, women explicitly criticised the union for not defending the interests of families and communities, and instead focusing only on the perspective of workers. And for the UK, it was reported that attempts were made to delegitimise the women's protest as they were not directly affected.

Regarding the **strategies** that women used, we found that women organised their protest and actions in different structures than men, firstly because they had limited access to male structures, and secondly because their focus of action was different. In both cases, women managed to establish their own well-

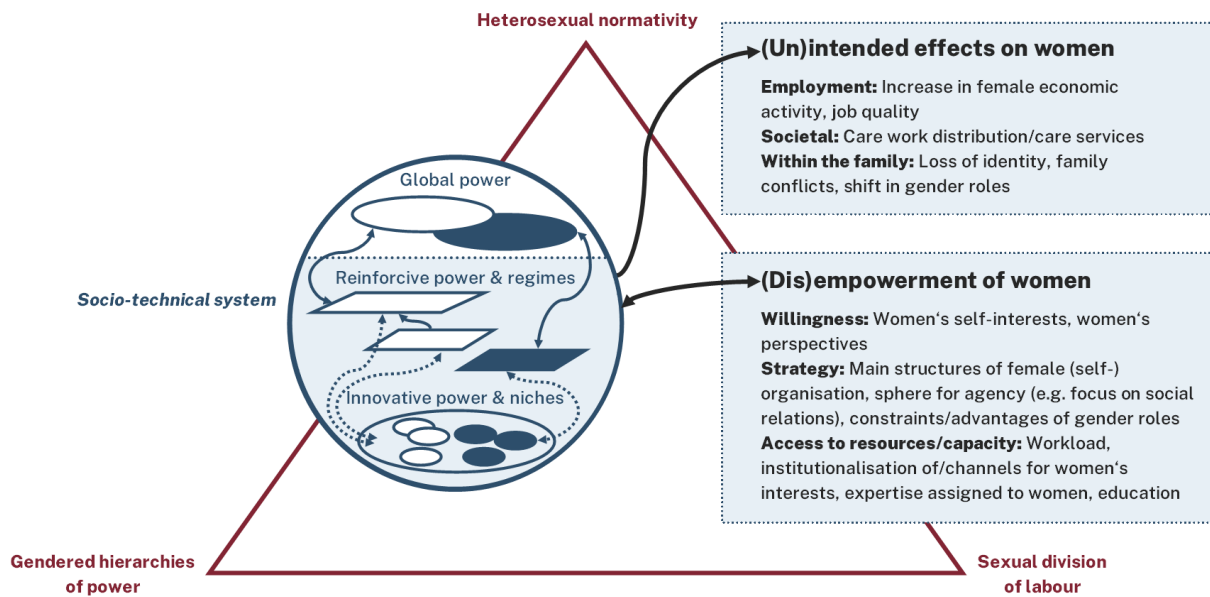
functioning organisations within a short time. These were not only rooted in the communities, but were also organised at the national level; they financed their work themselves and worked in cooperation with existing associations (e.g. unions). Especially in the UK, it became clear that women partly used the gender expectations assigned to them to their advantage. In the US, women have also given legitimacy to their protest against MTR by linking it to responsibility for people and nature, a caring role that is consistent with gender norms. Furthermore, in the US, female activists fighting MTR organised their own solidarity networks. They supported each other and educated themselves on the workings of the US coal industry.

We found in all three cases that limited **access to resources** made it difficult for women to participate in the transition process. One reason for this limitation was the women's already high or increasing workload. Another reason was that women rarely receive any credit for the important community organisation and other groundwork they did, because this work was considered less important than engagement in (male-dominated) political institutions such as parties or unions. On the other hand, female protest received a lot of media attention in the US and in the UK. Women's participation in the 1980s strikes in the US increased the media attention for miners' concerns. Striking women in a miners' strike in Spain in the 2000s were equally successful in gaining public attention for the problems of coal mining communities (Sanz Hernández and López Rodríguez 2017). In the UK, however, it was more difficult for women to gain media attention as political activists than as miners' wives or relatives.

With regard to (dis)empowerment, all three axes of *gendered power asymmetries* identified by Young are at work, too. The first axis – sexual division of labour – restricted women's ability to participate in the strikes/movements around the coal phase-out, because they were primarily responsible for domestic work. The second axis – normative heterosexuality – restricted women in the sense that they were heard mainly when they performed in gender stereotypical roles. The third axis of gendered hierarchies of power is also clearly visible, as institutions such as unions were much less accessible to women than to men.

### 3.5.3 Adding *gendered power asymmetries* to the POINT framework

Building on our empirical findings, we propose indicators that help to analyse how *gendered power asymmetries* affect the way women can contribute to sustainability transitions ((dis)empowerment) and are affected by it ((un)intended effects). We added these variables to the POINT framework as a supplementary layer of analysis (see Figure 13). For (un)intended effects, we derived the three meta-variables "employment", "societal effects", and "effects within the family" from our empirical study, and extracted the key subvariables that should be considered in a gender analysis of the transition. We also added the most important subvariables to the three meta-variables "willingness", "strategy", and "access to resources/capacity" mentioned by Avelino in her definition of (dis)empowerment. We consider those elements as relevant for an analysis of transition processes from a gender perspective.



**Figure 13: (Un)intended effects of sustainability transitions and (dis)empowerment (aspects of the POINT framework) influenced by gendered power asymmetries.**

Source: Own depiction based on (Avelino 2017).

### 3.5.4 Limitations

Our analysis has limitations rooted in our definition of coal transition as a decline in coal production and/or a decline in jobs, which resulted in a dataset that focused on industrialised countries in the Global North and excluded any ongoing transition processes currently initiated by climate change mitigation efforts. Therefore, we do not take into account the specific circumstances faced by women in the Global South. In India, for example, many women work in the coal industry, mainly in the informal sector. Economic, social and intra-family impacts of the coal transition could therefore be very different for them than in the context of our analysis (Lahiri-Dutt 2020; 2018). Furthermore, the exclusion of ongoing transitions initiated by climate change targets obscures an important area of female agency: the climate justice movement, which is primarily led by female actors (Barry 2008).

We followed Avelino (2017) and operationalised (dis)empowerment using the notions of willingness, strategy, and access to resources. For the purpose of contributing to a better understanding and theorisation of empowerment within transition research, this definition is useful because it breaks down a complex political, social, and psychological process into observable and manageable variables. However, it is important to highlight that empowerment is much more than that. Empowerment is a profound change of social, cultural, economic, and political relations that really enable “self-development and self-determination” (A. Allen 2008, 165–66). It is also a complex and reciprocal process on the individual as well as the collective level (A. Allen 2008).

We are aware that the changes in women's lives that we can observe in the US and the UK in times of a shrinking coal industry are not only related to the coal phase-out, but also to other processes of change in societies at that time. For example, neoliberal policies in the UK in the 1980s led to a reduction of welfare state benefits and an increase in atypical employment, which affected women in particular

(Dalingwater 2018). Nevertheless, our evaluation enables us to show that the structural change in the context of the coal phase-out has indeed contributed to changing women's life realities.

Finally, although our study focuses on women, masculinity, male role models, and male agency are part of the bigger picture of a gender analysis in sustainability transitions. We did not address this aspect in depth in our analysis, but some research exists on this issue (see, for example Wicks 2002; B. E. Smith 2015; Scott 2010).

We found a remarkable constancy of the effects of coal transitions on women and of barriers to political participation across two countries and over long periods. Moreover, while there has certainly been progress in gender equality (in the countries we analysed), gender is still a powerful category that decisively affects a person's life chances (Spitzner et al. 2020). We therefore consider our research relevant to current transitions as well. A current coal phase-out process, namely the decision-making process of the Coal Commission in Germany, is such an example. In 2019, the German government set up a commission to propose a path for Germany's coal phase-out. Not only were fewer women represented overall (10 of the 31 members were women), but women's interests were also underrepresented. For example, the trade union representatives in the commission mainly represented the interests of current employees, especially from industry, and were less concerned with how well-paid and secure jobs, e.g. in the female-dominated service sector, can be created in the future (Agora Energiewende and Aurora Energy Research 2019).

### 3.6 Conclusion

The climate crisis is one of the greatest challenges facing humanity, and combating it requires a global coal phase-out. These transition processes cause profound economic and social change. We show in our paper that these changes do not affect men and women equally, but interact with deeply rooted power asymmetries. We therefore empirically analysed *gendered power asymmetries* in historical coal transitions in the US and the UK using 60 publications retrieved from a systematic map search.

The findings of our empirical analysis show that women are the backbone of transition processes, however their contributions remained often invisible. We showed that women's interests and needs must be considered in transition policies to ensure that the whole transition potential of the affected region can be leveraged, and strong structural breaks prevented. Based on the situation of women in past coal phase-out processes in the UK and the US, we developed the following policy recommendations for ensuring more gender-just future transitions:

#### **Policy recommendations to cushion coal transitions effects on women:**

##### **Employment**

- Information and counselling centres for women should be located in the regions where they have the possibility to network and find support for their job search
- Working conditions in female-dominated sectors, such as the services and, in particular, the care sector, have to be improved



- Ensure that women have access to high-quality jobs (e.g. by considering female mobility patterns)

### **Societal**

- The value of care work (including emotional work) must be more strongly recognised in general and in particular during transition processes
- Access to care services that meet the needs of families is a prerequisite for the economic, political, and social participation of parents and, in particular, women
- Develop strategies to overcome hegemonic masculinity, e.g. create incentives to share care work equally, self-help groups for ex-miners/men to cope with the loss of (a very identity-forming) job
- Ensure the continued funding of social facilities previously financed or sponsored by the coal industry
- Strengthen citizen participation formats so that residents of coal regions can engage in dialogue about what a new “identity” for the region might look like

### **Effects within the family**

- Meeting points for women should be established in particularly affected regions, providing a safe space where women can share their troubles and sorrows with each other
- Counselling centres for families in financial distress
- Establishing programmes for the maintenance of mental health

### **Policy recommendations to empower women to actively participate in coal transitions:**

#### **Willingness**

- Create exchange spaces for women to identify and name their common interests
- Strengthen organisations in which women come together to represent their interests

#### **Strategy**

- A better institutionalisation of women’s interests, e.g. by assuring an equal representation of women in decision-making processes (expert groups, local politics, etc.)
- Support the demand of workers in women-dominated sectors, especially the care sector, for better working conditions e.g. by facilitating women’s access to unions, changing the organisational culture within trade unions, taking greater account of the interests of female members and families in trade unions
- Provide special funding to grassroots organisations and community-based work, as these are forms of organisations especially used by women

## **Resources**

- Training and support programmes should address not only (former) miners, but also women and other groups affected in the regions
- Reduce barriers to political involvement (reconciliation of work, family, and political work)
- Provisioning of care and financial services

It is important that these measures are taken before the transition is in full swing, to make sure that women have a choice and are not forced into jobs with poor conditions due to the economic pressure created by their husbands' job losses.

There is a great need for further research on the nexus between sustainability transitions and gendered power asymmetries. For example, it would be worthwhile to conduct more research based on primary empirical data in current coal phase-out regions (for a more detailed research agenda on the nexus between gender and coal transitions, see Walk et al.(2021), Chapter 2). More research should also be conducted on how sustainability transitions in other sectors<sup>37</sup> interact with gendered power asymmetries.

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<sup>37</sup> For example, transitions in the transport sector, depending on how they are designed, can either favour or disadvantage women who drive less than men and use more public transport (Spitzner et al. 2020). A transition that strengthens public transport would therefore tend to benefit them, while greater promotion of electric cars would strengthen male transport behaviour.

## Chapter 4

# Tracing a caring transition policy for the German coal region Lusatia<sup>\*</sup>

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<sup>\*</sup> *under review at Sustainability Nexus Forum since September 2023.* This is the version of the article before peer review or editing, as submitted by the authors. Walk, Paula; Koepchen, Marius; Stognief, Nora; Probst, Johannes: "Tracing a caring transition policy for the German coal region Lusatia."

## 4 Chapter 4: Tracing a caring transition policy for the German coal region Lusatia

### 4.1 Introduction

The room is roaring with applause as spoken-word artist Jessy James LaFleur has just finished her performance speaking to the sentiment many women feel here in this region: being fed up and tired of the sexism in everyday life and local politics, worrying about the growing right-wing movement but still being fired up to fight. The event – a conference<sup>38</sup> organized by the alliance of municipal Equal Opportunity Officers in the coal region of Lusatia in eastern Germany – is bound to be a major success: With about a hundred and twenty people in attendance, it is on this day in September 2022 that the careful network building of local women demanding their voices to be heard in the transition process culminates. The unique women’s alliances that have formed in Lusatia to influence regional transition and the allocation of transition funds have inspired us to analyze transition policy from a distinctly feminist point of view. The alliances put the interests of women in the transition in the foreground, arguing *inter alia* for upgrading of paid and unpaid care work, which is still largely done by women.

Lusatia is one of three active lignite (brown coal) mining regions in Germany. Lignite has been mined and burned industrially in the region for about 100 years. However, following the German reunification, large parts of the industries of the former German Democratic Republic (GDR) were dismantled, also affecting the coal industry in Lusatia (Ragnitz et al. 2022). The number of direct employees in the lignite industry decreased from 79.016 in 1989 to 7.362 in 2021.<sup>39</sup> In Germany, the legal deadline for phasing out lignite is 2038 (with the possibility of bringing it forward to 2035).<sup>40</sup> However, the coalition agreement of the current ruling coalition states that the phase-out should be completed in 2030 if possible. 40 billion euros are being provided for the German coal regions to shape the regional transition<sup>41</sup> process, 17.2 billion of which are allotted to Lusatia alone.<sup>42</sup> The amount of money that has been made available to the regions in Germany to shape the coal phase-out makes it a unique case internationally (Furnaro 2023). In our paper, we have investigated which ideas of a successful transition influence the allocation

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<sup>38</sup> F wie Kraft (2022): “Struktur wandel dich - Struktur, wir wandeln dich! Mehr Geschlechtergerechtigkeit im Strukturwandel”, September 19, 2022, Spremberg/Grodtk <https://www.fwiekraft.de/ereignisse/320-struktur-wandel-dich-struktur-wir-wandeln-dich/2022-09-16-12-00> (last accessed July 23, 2023).

<sup>39</sup> Statistik der Kohlenwirtschaft e.V. (2022): „Braunkohle im Überblick“ <https://kohlenstatistik.de/> (last accessed Feb 21, 2023).

<sup>40</sup> Federal government Germany (2020): „Gesetz zur Reduzierung und zur Beendigung der Kohleverstromung und zur Änderung weiterer Gesetze (Kohleausstiegsgesetz)“ [https://www.bgbl.de/xaver/bgbl/start.xav?startbk=Bundesanzeiger\\_BGBl&start=//%5b@attr\\_id=%27bgbl120s1818.pdf%27%5d#\\_\\_bgbl\\_\\_%2F%2F\\*%5B%40attr\\_id%3D%27bgbl120s1818.pdf%27%5D\\_\\_1682583574675](https://www.bgbl.de/xaver/bgbl/start.xav?startbk=Bundesanzeiger_BGBl&start=//%5b@attr_id=%27bgbl120s1818.pdf%27%5d#__bgbl__%2F%2F*%5B%40attr_id%3D%27bgbl120s1818.pdf%27%5D__1682583574675) (last accessed April 27, 2023).

<sup>41</sup> In German, the transition is commonly referred to as “Strukturwandel” (literal translation: “structural change”). In our paper, we use the term “regional transition”, as it is more widely understood outside the German context.

<sup>42</sup> Federal government Germany (2020): “Investitionsgesetz Kohleregionen” [https://www.bmbf.de/bmbf/shareddocs/downloads/files/strukturstaerkungsgesetz-kohleregionen.pdf?\\_\\_blob=publicationFile&v=1](https://www.bmbf.de/bmbf/shareddocs/downloads/files/strukturstaerkungsgesetz-kohleregionen.pdf?__blob=publicationFile&v=1) (last accessed May 31, 2023).

of these funds. We examined these dominant ideas from a distinctive feminist and care theoretical perspective.

Viewing the regional transition through a care lens means trying to find practical answers to the difficult questions of how to conduct societal change in a just and caring way. Care work that is associated with femininity tends to be overlooked in patriarchal societies (Tronto 2013). Therefore, our research focuses on the state of economic sectors which are predominantly occupied by women in the prevailing regional transition discourse, such as the health sector, education, or daycare. We made particular use of Hall's (2020, 1) concept of "social reproduction as social infrastructure". It describes that social infrastructure, i.e., the structure of social connections that is essential for the survival of a community, must be maintained through constant care work (in the sense of e.g. maintaining relationships, childcare, education, and healthcare). We consider social infrastructure to be an important part of the so-called soft location factors (Masch 2022). We contribute to spelling out in concrete terms what social infrastructure encompasses.

We used critical discourse analysis to study the policy discourse on the regional transition in Lusatia (Fairclough 2013; Jäger 2015; Jäger and Maier 2016). We analyzed relevant policy documents that guide transition policy. We contrasted this analysis with data from semi-structured interviews with 16 politically active women in Lusatia as well as one focus group with 3 women who work in caring professions. Our research questions were:

- (1) What challenges and needs do the active women of the Lusatian Women's Network formulate for regional transition policy? To what extent can the views within the network be seen as a counter-discourse to the dominant structural change discourse expressed in the policy documents?
- (2) What is relevant care work for the transition? How can conclusions be drawn for other coal regions?

Our research builds on a lively international debate on the design of gender-just transitions (cf. Bell, Daggett, and Labuski 2020; Lieu et al. 2020; Wolfram and Kienesberger 2023). In our view, the debate focuses strongly on how the upscaling of renewable energies can be gender-equitable (cf. Johnson et al. 2020). With few exceptions, there is little research so far on what aspects need to be considered from a feminist perspective when phasing out fossil fuels in affected regions (Braunger and Walk 2022; Walk et al. 2021; Lahiri-Dutt et al. 2022; Nayak and Swain 2023; Humphries and Thomas 2023) (see Chapter 2 and 3).

With our work, we make female-associated care work visible as an important part of social infrastructure (re)building in a region undergoing a sustainability transition. We soon found that a simplistic criticism of masculinist patriarchal patterns in policymaking does not suffice for a deeper understanding of the issues at hand. Rather, as our investigations progressed, we have identified a care-oriented view of the transition where meeting the elementary needs of people is the foundation of economic thinking. In official policy documents concepts related to social reproduction were rarely mentioned and remain largely undefined and empty. Our key contribution, based on our theoretical considerations and empirical material, is the development of four pillars of care work as social infrastructure pertaining to coal regions in transition: (1) aftercare for social and ecological residuals of coal mining, (2) social

cohesion, (3) democratic care services, and (4) caring democracy: democratic decision-making on how to care.

## 4.2 Theoretical approach

In the European descended patriarchal thinking tradition care work is usually considered as direct care to children and the elderly as well as housework. It is culturally assigned as women's work. This assignment does not only lead to an unequal distribution of care work within households but also to a highly sex-segregated workforce. Those to whom this work is attributed – women in general or professional carers who are not paid at all or are poorly paid – are moralized as “natural” carers and therefore also constantly criticized for not caring “enough” or for having lost their “natural” ability to care (Puig de la Bellacasa 2017). In this binary norm, being considered male means to be given a “pass” out of thinking about care work that is assigned to women and girls. We follow Tronto (2013) in her argument that work in protection (such as in the police or military) and production (e.g., in industry) can be understood as care work associated with masculinity. For example, Allen's (2022) case study of the Upper Silesia coal mining region in Poland describes how the loving care that men provide for their families by producing heat from coal ovens is entangled with their masculinity and identity as coal miners.

Yet, our work focuses on forms of care<sup>43</sup> that are associated with femininity. This care is thought of as confined to the privacy of family houses despite being essential in every area of society. However, it is structurally devalued and considered to be in opposition to virtues that neoliberal societies hold in high regard, such as accomplishment, autonomy, and rationality (Tronto 1993).

A particular part of care work that is very relevant to the argument we develop regarding the political struggle of women's networks in Lusatia is captured in Tronto's (2013) concept of *caring with*: assigning responsibilities for care. She argues that debate on how to organize care (*caring with*) should be at the heart of democratic societies. Care is a public value and involves public practices. In a “caring democracy”, people have an equal say about an acceptable way to share caring responsibilities (Tronto 2013). We apply Tronto's and Fisher's broad definition of care which also includes caring for nonhumans: “*On the most general level, we suggest that caring be viewed as a species activity that includes everything that we do to maintain, continue, and repair our ‘world’ so that we can live in it as well as possible. That world includes our bodies, our selves, and our environment, all of which we seek to interweave in a complex, life-sustaining web*” (Fisher and Tronto 1991, cited in Tronto 2013, 103).

Based on Tronto's work, Gottschlich and Katz (2020a; 2020b) develop the notion of *Caring with nature/s*. Nature/s are understood as independent, self-regenerating, and potent subjects with which humans are indispensably interwoven. *Caring with nature/s* means recognizing the relationality of all human and nonhuman worlds (despite their manifold differences) due to their vulnerability and transience, as well as their fundamental interdependence. *Caring with nature/s*, meaning dealing with the theoretical foundations and the practical and political preconditions of care, is – as *caring with* in relation to other

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<sup>43</sup> If we speak about care in the following, we mean care associated with femininity.

humans – an indispensable social necessity (Gottschlich and Katz 2020a). Beckett and Keeling (2019) apply the notion of care to the remediation of former mines. They emphasize that mine rehabilitation is not just about “cleaning up” and removing hazardous waste, but also about perpetual care for the people, social relations, environment, and wildlife that have been hurt or damaged by the mine. There is a need for care to heal these torn open wounds, which calls for “Memory-work and a place-based ethics of care” (Till 2012, 1). This work of mourning can nourish collectivity and can open up the imagining of more just futures (Till 2012).

The relationship between humans and the nonhuman world is characterized by human appropriation and exploitation of nonhumans (Gottschlich and Hackfort 2022). The current ecological, economic, and political crisis can be described as a product of capitalist society actively undermining its ability to, in Tronto’s terms, “*maintain, continue, and repair our ‘world’*” (1993, 103; Heilmann and Scholz 2018; Fraser 2021).

The major concept in the policymaking of the Federal Republic of Germany connected to care work is “Daseinsvorsorge” (public service, literally “existence provision”). The concept originated in the right-wing German academics pondering infrastructure planning in preparation for the second world war (Folkers 2017). The care (“Sorge”) aspect of public services in the tradition of the German welfare state rest in parts upon the Christian concept of “caritas”, invoking an authoritarian pastor caring for his community like a herder for his sheep (Folkers 2020). At present, some social movements in Germany are trying to redefine the concept of “Daseinsvorsorge” in a progressive manner but given its authoritarian history, we have deliberately chosen to make use of the term “social infrastructure” instead. We only use the term “Daseinsvorsorge” when we quote our interviewees.

“Infrastructure” is the background structure – from the Latin prefix *infra* (“below”) – that makes social, economic, cultural, and political life happen. Correspondingly, a basic understanding of social infrastructure is “networks of spaces, facilities, institutions, and groups that create affordances for social connection” that are crucial to making social life possible (Latham and Layton 2019, 3). The concept of social infrastructure makes visible the places of encounter and essential activities for social cohesion, which are often invisible and devalued in the debate about public space. We understand the pivotal concept of social cohesion as having three essential features as Schiefer and van der Noll (2017, 17) have distilled from decades of scholarly debate: “(1) the quality of social relations (including social networks, trust, acceptance of diversity, and participation), (2) identification with the social entity, and (3) orientation towards the common good (sense of responsibility, solidarity, compliance to social order).” The notion of social infrastructure is not only increasingly used among scholars but also in policymaking, especially in urban planning (S. M. Hall 2020). The Berlin districts, for example, are developing social infrastructure concepts to ensure that care facilities (schools, daycare centers, youth leisure facilities, playgrounds, libraries, etc.) are sufficiently available and distributed in the districts according to demographic developments.<sup>44</sup>

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<sup>44</sup> Senate Department for Urban Development, Building and Housing Berlin: „Soziale Infrastruktur-Konzepte (SIKo)“ <https://www.stadtentwicklung.berlin.de/planen/siko/> (last accessed July 24, 2023).

Hall (2020) criticizes these conceptions of social infrastructure as being too abbreviated and too focused on the construction of specific places and buildings as it lacks consideration of the essential reproductive work in communities such as childcare, education, and healthcare (paid and unpaid). She argues that the intimacy and associated emotional care work that is necessary to hold up, for example, a friendship, a family, or a civil society organization is a crucial part of social infrastructure. She, therefore, argues for the importance of treating “social reproduction as social infrastructure” (S. M. Hall 2020, 1). Given how the terms care and social reproduction are similarly characterized around the maintenance of (life)worlds in Tronto (2013) and Hall (2020), we argue to put them into conversation towards a notion of care as social infrastructure.

The role of care work as social infrastructure becomes particularly visible when it is being reduced or discontinued, for example in times of austerity (Pearson and Elson 2015). In short, people constantly reproduce infrastructure. They actively participate in the production of structures that enable and sustain life in a city or region (Schilliger 2022). Investing in social reproduction as social infrastructure means including care work in economic analysis and policy (S. M. Hall 2020). Our paper contributes to this by showing which types of care work are relevant in the regional transition (and as such are part of social infrastructure) and how they can be strengthened and made more visible.

Following Puig de la Bellacasa (2017), we use the concept of care as an analytic tool to ask “how to care?” in the context of the regional transition rather than as a description of a predetermined collection of practices. Our ambition is therefore not to remain criticizing but to go a step further and highlight local women’s answers to the complex questions of how to conduct a societal transition.

### **4.3 Methodological approach**

Critical discourse analysis (CDA) provides the methodological framework for our analysis. Discourses can be defined as flows of knowledge through time and space. They institutionalize and regulate how people think, talk, and act and thereby contribute to the structuring of power and domination relations (Jäger 2015; Jäger and Maier 2016). Even though no individual or group can determine the discourse, power relations have a decisive influence on which of the many constructions of the world are socially most efficacious (Fairclough 2013). CDA shows what is to be considered normal and not normal in a certain historical and geographical context, what is considered sayable, rational, and beyond all doubt (Jäger 2015; Jäger and Maier 2016). The establishing and maintaining of normality is done by constant repetition of certain themes which constitute a kind of uniformity also between different discourses. In reference to discourses that are dominated by this uniformity one can speak of hegemony (Jäger 2015). Claims to truth dominant in a discourse that appear as common sense or objective are in a Gramscian sense hegemonic if there seems to be no alternative way of thinking (Jäger and Maier 2016). However, in reference to Folkers (2021), we choose to adapt Gramsci’s notion of hegemony analogous to Williams (1977, 121–27), who argues that rather than constituting a hegemonic historical block, what is dominant is always challenged by the emerging and influenced by residual history. In Folkers’ (2021, 2) words, “Residual, dominant, and emergent are therefore not simply past, present, and future, but instances of a complex and conflictual now.” A contribution of CDA can be to make visible the counter-discourses to hegemonic discourses and corresponding strategies for change and new imaginaries (Fairclough 2013).



The critical agenda of CDA fits into a feminist research framework as it explores how power and dominance are produced in patriarchal societies and how they can be dissolved, while disadvantaged groups are being empowered or able to empower themselves (Lazar 2007; Bell, Daggett, and Labuski 2020).

In the spirit of a feminist research agenda, we would like to put the demands and needs of otherwise little-heard and underrepresented people in regional transition policies first. In our case, this is the Lusatian women's network. We compared their views and demands with the views found in the dominant discourse. To capture the dominant discourse, we analyzed three key policy documents pertaining to the regional transition: the mission statement (*Leitbild*) in the federal Structural Support Act ("Strukturstärkungsgesetz", SSG), the "Action Program" ("Handlungsprogramm", HPS) in Saxony, and the "Lusatia Program" ("Lausitzprogramm", LPB) in Brandenburg.<sup>45</sup> The latter two are the policy guidelines of the federal states, Brandenburg and Saxony, that the region Lusatia is part of. These two documents were written to operationalize the requirements from the SSG in their respective jurisdictions, that is, providing a framework for the allocation of public funds intended for supporting the transition away from coal. As such, they reflect the viewpoint of the state governments and administrations who oversee regional transition policy and its implementation. Alongside the SSG's mission statement<sup>46</sup>, we therefore consider the contents of these policy documents to adequately represent the dominant transition discourse in Lusatia.

We aimed to examine the extent to which a potential counter-discourse to the ideas in the policy documents is developed in the women's network in Lusatia. Part of the network is the organization "F wie Kraft" (literally "F for force") which was founded in Görlitz. It was inspired by a study that showed that more young women than men are moving out of the region and that women in the region need more opportunities for mutual exchange and networking (Gabler, Kollmorgen, and Kottwitz 2016). Other important initiatives in the region include the Alliance of Gender Equality Officers and the Women's Political Council of the State of Brandenburg. We conducted 15 semi-structured expert interviews (including one double interview) with women who are active in the network and knowledgeable about the transition policy process. These included equal opportunities officers of the regions, members of the state parliament, and women who are active in civil society associations. Based on the interviews we were able to make well-founded statements about which ideas of the future and needs for Lusatia are predominant and in how far criticism of the dominant transition discourse is being exercised. Since we are specifically interested in care work and its relevance for the regional transition, we also conducted a focus group with 3 women who work in the care sector in Lusatia.

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<sup>45</sup> Regional government Brandenburg (2020): „Das Lausitzprogramm 2038. Prozesspapier zum Aufbau von Entscheidungs- und Begleitstrukturen im Transformationsprozess“ [https://lausitz-brandenburg.de/wp-content/uploads/2020/09/Lausitzprogramm-2038\\_20200914.pdf](https://lausitz-brandenburg.de/wp-content/uploads/2020/09/Lausitzprogramm-2038_20200914.pdf) (last accessed April 27, 2023); Regional government Saxony (2020): „Handlungsprogramm zur Umsetzung des Strukturstärkungsgesetzes Kohleregionen des Bundes in den sächsischen Braunkohlerevieren“ <https://www.strukturentwicklung.sachsen.de/download/Handlungsprogramm.pdf> (last accessed April 27, 2023)

<sup>46</sup> Since the remainder of the SSG's contents are already covered through the HPS and LPB, we did not explicitly consider them in our research.

For the evaluation of our material, we followed the methodological guidelines of qualitative content analysis (Saldaña 2009; Kuckartz 2018). The first step was to develop codes based on our theoretical approach and our initial research questions. Three of the authors each applied those codes independently to one policy paper and one interview and developed inductive codes in the process. After this independent round of coding, we discussed our coding in the group to refine the codes and develop a clear definition for each. These steps were repeated during a second round that included all 3 policy documents as well as 4 interviews. Once the codebook was finalized (see Table A 2 in the Appendix), the entire material was coded. Finally, the first author re-read all coded material and double-checked the coding.

We used general codes such as positive and negative descriptions of the current situation as well as opportunities, potentials, and needs of Lusatia to capture the dominant discourse and investigate whether different ideas dominate in the women's network in the sense of a counter-discourse (Fairclough 2013). In accordance with our theoretical approach, we used several categories of female-associated care work to search our material for care work relevant to the regional transition. We further used codes such as "women in local politics" and "participation" to explore the perceived deficit in caring democracy (Tronto 2013; S. M. Hall 2020).

We are aware that the statements in the policy documents and in the interviews can only be compared to a limited extent. For instance, we explicitly asked our interviewees about care work in the transition that was relevant to them but did not interview representatives of the governmental discourse and therefore did not give them the opportunity to comment on this and the ongoing transition process. Therefore, by merely referring to the documents, we cannot characterize the dominant discourse on the regional transition in its entirety. Accordingly, the focus of our evaluation is on the (potential) counter-discourse. We have spoken to many different representatives of the women's network and are therefore able to capture the theses and demands expressed, which are quite diverse as well.

## **4.4 Results: Needs for care work identified by local women**

In the following, we describe the challenges that our interviewees perceive in Lusatia and the diverse needs for care work that they identify in the transition process. Additionally, we show how the policy documents address these demands. When citing the interviews, we refer to them by number in square brackets. The focus group is abbreviated "FG" and the policy documents "HPS", "LPB", and "SSG", respectively.

### **4.4.1 Aftercare for historical residuals of coal mining**

*"This aftercare will keep us busy for another 100 years, the water balance and global warming and droughts, too."* [10]

The challenges of the current transition in Lusatia can only be understood against the background of the history of lignite mining and the structural break in the 1990s, which gives rise to a special need for care. GDR times were marked by a heavy reliance on lignite as an energy source and work in the industry was held in high esteem. After the reunification, the structural break led to widespread

unemployment and outmigration [14] (Schwartzkopff and Schulz 2015; Hermann, Greiner, and Matthes 2017; Gürtler, Luh, and Staemmler 2020). There is also a special need for aftercare to heal the social conflicts that have evolved over the decades of mining (see Section 4.4.3) and replace the coal identity with new identity anchors. Several interviewees would like to maintain a culture of remembrance regarding the industrial heritage of the region [1, 2, 4, 6, 8, 10, 12]. Some point out that it is possible to maintain and appreciate this mining identity even after climate change demands a stop to coal [6, 10, 12].

In addition to the social and cultural dimension, ecological aftercare of lignite mining plays an important role in our interviewees' point of view, as coal mining has left deep trenches and wounds in the landscape. There is criticism of how open pit mining, but also subsequent recultivation is over-shaping the landscape and leaving behind lasting environmental damage [15]. Large parts of the post-mining landscape are closed off due to ground instabilities, with landslides frequently occurring in these areas. The flooding of former open-pit mines to form lakes is also not working as planned and the limited availability of water is a major problem [10, 15] (R. Schuster 2022). Policy documents mention this aspect only in passing: the HPS identifies a need for action to restore the water balance and fill the water deficit.

A recurring theme throughout our interviews is the brittleness ("Brüchigkeit") of people's individual life stories and their social networks and infrastructures. This is often mentioned in the context of the structural break of the 1990s [8, 11]. Young people are still told by teachers and families that they should leave the region to have good job prospects [3, 7, 8, 11]. Our interviews say that past negative transition experiences have not been adequately addressed [11], which can lead to a defensive attitude against the upcoming transition [12]. On the other hand, interviewees point out that the people of Lusatia are used to change and have gained a lot of experience on how to shape it [8, 11, 15]. In the policy documents, the deindustrialization and political turnaround after the German reunification are only marginally addressed, especially in terms of the social consequences (HPS, LPB).

The conditions of today's transition are very different from those of the 1990s: large amounts of money are spent on the diversification of the economy and infrastructure development, and unemployment is low.<sup>47</sup> However, the region still faces the challenge of people leaving the region. There is a shortage of skilled workers in Lusatia [3, 10, 12, 13, 15]<sup>48</sup> and especially well-qualified women are emigrating [1, 5, 6, 7] (F wie Kraft 2020). A population survey shows that young women in particular feel less connected to the region and are more likely to plan to move away.<sup>49</sup> Our interviewees cite a lack of (career) prospects [FG, 2, 4, 6, 13, 15], a lack of promotion and appreciation [3, 6, 12], and more attractive salaries elsewhere as reasons for women's departure [7, 15]. Migration from the region is hardly

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<sup>47</sup> The unemployment rate in Lusatia was at 6,4% in 2020 (Walk and Stognief 2021; Statistische Ämter des Bundes und der Länder 2021).

<sup>48</sup> In the spatial planning region Lausitz-Spreewald, for example, it is forecasted that the labour force potential will decline by 23.5% between 2017 and 2040 (Seibert 2022).

<sup>49</sup> Franziska Stölzel (2021): „Die Sicht der jüngeren Frauen auf die Lausitz“ <https://lausitz-monitor.de/artikel/die-sicht-der-juengeren-frauen-auf-die-lausitz/> (last accessed July 24, 2023).

addressed in the policy documents analyzed. The risk of people, especially women, moving away is mentioned only once [HPS; p. 10].

#### 4.4.2 Public services

*“[...] the question for society as a whole is: What value is attributed to this care work?” [12]*

Our interviewees identify an urgent need for the improvement of the provision of public services (“Daseinsvorsorge”). Services that typically fall under the definition of public services include the basic supply of electricity, water, and heating energy for the population, sewage disposal and waste collection, and access to certain public infrastructures such as hospitals, education, cultural facilities, and transport (Mause 2018). “Daseinsvorsorge” is mentioned in the SSG as part of the supporting infrastructure supposed to foster economic competitiveness. Building on this law, the LPB uses the term social infrastructure (“soziale Infrastruktur”) to mean public services. Of the three priorities in the LPB’s guiding principles, it is the lowest. Yet another term, “public care” (“öffentliche Fürsorge”), is used to point out that public services serve the purpose of improving location factors for the economy or likewise making work in the region more attractive [HPS, LPB].

Our interviewees criticize this hierarchization in public policy where regional transition policy has a too narrow focus on replacing coal jobs with work in other industries [6, 10, 12]. They point out that too little attention is paid to jobs that fall within the scope of public services. In the policy documents, occupations outside the STEM fields are mentioned only sporadically. For example, social occupations are not regarded as equally important for the transition, as they are mentioned much less frequently. The social sector that receives the most attention is the medical sector [HPS, LPB, SSG]. This one-sidedness is surprising, especially considering the projected demand for skilled workers in the region. The highest projected demand in Brandenburg and Saxony from 2018 to 2035 is in the health sector, while demand is also high in education (Wagner 2020).

Our interviewees point out very frequently that the perspective of people doing professional care work (the majority being women) is missing in the transition debate [1, 6, 7, 10]. If care work is funded, it is often with a narrow focus on care facilities for children only, neglecting the remainder of the large spectrum of care work that is needed [2, 13]. Money goes mainly into concrete infrastructure [1, 6, 8, 11] and there are too few opportunities to support staff positions [1, 6, 8, 12].

Perhaps the most pressing issue in the field of professional care work that our interviewees mention is the medical sector. There is a lack of medical doctors and nurses on the countryside and in small towns [FG, HPS]. Care for the elderly is one of the most pressing issues in Lusatia mentioned by both policy documents and organized women [6, 10, 12, 13] (HPS, LPB). The classic division of labor in Lusatia has evolved over time and is rooted in GDR times, when women were expected to work full time while still being primarily responsible for the household and children [1, 2, 3, 8, 14]. If care work for children and the elderly is not done by professionals, it is likely to increase the double burden on women and limit the time they can invest in other activities, including political participation [13] (Pearson 2019; Schilliger 2022). Another dimension is the development of transregional care chains, with Poland and Czechia being close neighbors [1].

Public transport is another essential public service in need of expansion [13, 14]. Roads are being given a much higher priority than railway lines, while bike lanes are largely considered unimportant in planning [1, 4, 11, 12]. At the same time, research has shown that women use public transport more than men do (Bauhardt 2012). With more and more people working from home, the development of good internet and cell phone infrastructure is crucial, both of which are severely lacking in many areas [13, 15]. In contrast to the policy documents, the first chapter of a report developed by Lusatian citizens on the future development of Lusatia (“Zukunftswerkstatt Lausitz”, literally “Future workshop Lusatia”) deals with public services, while other aspects of successful regional development, such as business promotion, are not so prioritized by the citizens and are dealt with in later chapters [2] (Wirtschaftsregion Lausitz GmbH 2020).

#### **4.4.3 Social cohesion**

*“How do you build this form of conviviality that is often found in these projects initiated by women, where there is exchange, where there are distribution structures, where meeting and education somehow play a role?” [2]*

Early on in our interview process, caring for social cohesion turned out to be one of the most pressing issues for locally organized women. However, issues of emotional and relational care work, organizing social events, bringing people together and facilitating dialogue, or assessing problems of social cohesion and connecting social cohesion to democratic development do not once come up in the official documents [SSG, LPB, HPS, 11]. Meanwhile, many interviewees mentioned some aspects of this dimension of care work while pointing out that it is mainly done by women without compensation [9, 11, 14]. As stated by several interviewees, an important question to be answered is how to support the care work of maintaining social relationships and stop neglecting the people doing it [9, 14].

A particular need to strengthen social cohesion stems from the history of coal mining. Over the last century, more than 100 Lusatian villages had to make way for lignite, in whole or in part; thousands of people were resettled for this purpose. The resettlement was often painful and traumatic for those affected. The loss of their homes was usually preceded by years of waiting, and the uncertainty as to whether the open pit mine would come or not was hard to bear (cf. Müller 2019). Many of the affected villages were in the core settlement area of the Sorbian/Wendish people. These village communities were torn apart by the resettlement, accelerating the decline of the Sorbian/Wendish language and culture [5, 10, 15]. Especially over the past decades, coal mining in Lusatia has led to a strong separation of local people into those with a pro-coal and those with an anti-coal stance. For instance, some staunchly opposed the relocation of their villages while others were in favor of it, waiting for the coal mine to come so that they could finally leave and be compensated [14, 15]. Our interviewees point out that there is a lack of dialogue on these social conflicts and rifts between people and that there is no reappraisal of historical wounds [8, 10, 11, 14, 15]. In the policy documents, these issues are hardly mentioned; only the HPS briefly mentions the “second successive structural change”, referring to the deindustrialization of the 1990s [HPS, p. 10].

In small towns such as Weißwasser/Běla Woda or Hoyerswerda/Wojerecy<sup>50</sup>, our interviewees feel that social life is in decline with the disappearance of social spaces such as cinemas or sports clubs [FG]. Smaller villages are often lacking essential social infrastructures such as a bakery or a place to buy groceries. Local associations such as carnival, sports, or youth clubs as well as the local volunteer fire watch are considered pivotal for the quality of life in Lusatian villages [11, 14]. An active community life or generally good memories of one's youth in the region can strengthen people's roots and encourage them to return to their home region [7, 11]. The network F wie Kraft organizes political and cultural networking events to empower women in the region. Their networking work contributes to equality in political engagement, social cohesion, and the visibility of female perspectives [2, 4, 9].

Raising awareness of care dimensions or gender equality topics is considered another important form of care work [3] which tends to be particularly strenuous, considered unnecessary, or even actively hindered by conservative parts of politics and people at the top of the administration [2, 5, 7, 8, 9]. Especially for women who do this challenging gender equality work, a network of like-minded women is important. As one interviewee put it: "If another [woman] leaves, the burden will become even heavier for the other and you'll see her shoulders going down: 'Please don't go!'" [8]. As in other regions, there is still a lot of gender equality work to be done, for example to improve the compatibility of work and family life by encouraging fathers to take longer periods of parental leave and to consider working part-time [3, 8]. Women feel that they are often reduced to their ability to bear children [5, 7, 10, 12]. Our interviewees are convinced that this is absolutely the wrong way to approach women. To attract young women to the region, they want to be addressed with consideration of their whole potential and knowledge [7, 12] (see Section 4.4.1).

Some interviewees emphasize that family ties tend to be particularly deep in Lusatia and that this is in an important factor that motivates people to stay in the region or return [FG, 13]. Interestingly, though, the care work within families that creates these ties remains little considered. When we asked our interviewees directly about care work relevant to the regional transition, they emphasize care structures for the aging population, paid care activities, and social engagement, while care work done within families is mentioned less frequently.

#### 4.4.4 Representation and participation

*"This opinionated, frustrated, old generation of men that keeps looking down on young women who have completely different demands today, ideas about life and so on, that has always hit me hard as well"* [10]

According to our interviewees, transition policy often remains abstract for citizens and is hardly tangible in concrete projects. Opportunities for participation are often unknown [FG, 4, 13, 15]. People need to feel that their voices are being heard, which does not always require large-scale projects with extensive funding [14]. Moreover, marginalized groups such as women, young people, or people with a migration

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<sup>50</sup> When referring to municipalities in the officially recognized settlement area of the Sorbian/Wendish people, we use the German and Sorbian language names alongside each other.

background are underrepresented in local politics [1, 8, 11, 15]. Leading positions in regional transition agencies are overwhelmingly occupied by men [3, 5, 8]. One interviewee noted that this was also true in GDR times: even though women usually worked full-time, nearly all positions of power were still held by men [3]. Some have the impression that participation processes are only implemented to ensure that formal criteria are met and to appease the public [7, 9]. On the other hand, the representative democratic process is riddled with white patriarchal power structures, with local councils being perceived as “toxic places” by many women [Remark at “Struktur wandel dich” conference, 5, 8, 14], who criticize that there is a culture of debate where men claim a disproportionately large share of speaking time, interacting in a way that is focused on gaining power rather than solving problems [5, 11]. Access for people with care responsibilities is rendered very difficult due to the time of day when meetings usually take place [1, 3, 13, 14]. All this is contributing to the fact that local politics and decision-making bodies tend to have a very low share of women [1, 3, 5, 6, 10, 12, 13, 14]. This results in transition policy being very much shaped by patriarchal white masculinity [8, 9, 11].

Adding to the already dire situation in the councils and parliament is the rise of the right-wing movement and parties in the area. The right-wing populist party AfD became the strongest force in Lusatia in the 2019 state elections in Brandenburg and Saxony with 32.8% and won almost two-thirds of the direct mandates in the region (Gürtler, Luh, and Staemmler 2020; Lorenz and Träger 2020). Our interviewees emphasize a lack of communication between social groups as well as between generations, which leads to a hardening of political fronts and a shift to the political right [11, 14]. The rise of right-wing movements is also a reason for many to leave the region or not to move to the region [4, 6, 8, 9, 14]. Young women and people who do not fit into normative ideas of gender and race tend to feel deterred by this [9]. The policy documents mention the challenges associated with the shift to the right only in very vague terms of an image problem for the region.

#### **4.5 Discussion: Care as social infrastructure for coal regions in transition**

Referring to our initial research questions we found that the perspectives on local needs and the critique from the women's network cannot be described as a counter-discourse to a dominant discourse. Many women seem to be very pragmatic in their interest in building networks and alliances figuring out “how to care” rather than defending a utopian vision. Instead, the organized Lusatian women's emerging discourse, which is situated mostly in white, cis-hetero middle-class communities, challenges the dominant discourse in making its blindside visible: the fact that social infrastructure is in dire need of repair and the associated care work lacks funding, recognition, and the contribution of men. On the contrary, the dominant transition discourse contains the simplistic idea that the creation of industrial jobs and physical infrastructure are automatically going to lead to a positive development of social infrastructure and thus to a population influx. Our interviewees point out major gaps in this dominant discourse, but most do not question other fundamental assumptions and views such as the growth imperative that underlies the policy documents. Although their networks function very much in a bottom-up manner, they still tend to appeal to state actors, not fundamentally questioning their legitimacy but rather aiming to improve the existing decision-making process. Most of the women's networks

consciously do not frame themselves as “feminist”; despite this, many of their talking points and demands are reflected in feminist theory.

In the following, we spell out what types of care work are relevant for the transition and thus represent important pillars of “social infrastructure”, a wording also used by our interviewees [4, 11]. In doing this, we bring our theoretical approach into conversation with our interviewees’ calls for investment into multiple dimensions of social infrastructure. Referring back to Tronto (2013) and her observation that the care work involved in the repair of social infrastructure is associated with femininity and subordination may help explain why this infrastructure is currently being neglected in public spending. From the Lusatian case, we derive a concept that could be translated for other coal regions in transition. We represent the four pillars as tree trunks because we consider them organically connected. They represent the material entanglement between human memory, social arrangements, coal mines, their residual waste, and nonhuman networks. Furthermore, we understand “care as social infrastructure” as an open and non-static concept to which new pillars (as tree trunks) could be added (see Figure 14).

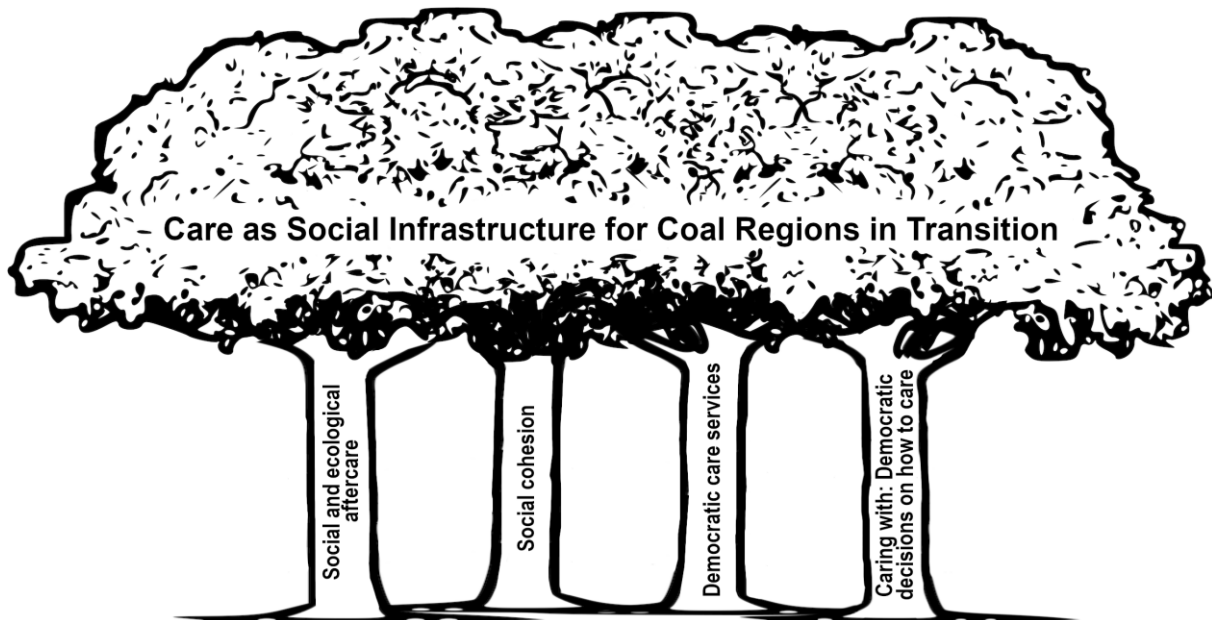


Figure 14: Four pillars of care as social infrastructure for coal regions in transition.

Source: Own depiction.

#### 4.5.1 Aftercare for social and ecological residuals of coal mining

As our interview process progressed it became ever more visible how social networks in Lusatia are deeply place-based, with a close entanglement of intimate social infrastructure with the local environment (or its degradation). The dredging of villages, fields, and forests leaves wounds in society and in the landscape that need to heal. Our interviews point to constant interruption and injury in the biographies of local people and the ecological history of the region [8, 11, 12]. In reference to this, one of our interviewees describes a sense of emptiness and fallow ground that she feels in Lusatia [8]. Despite recultivation efforts, traces and scars from coal mining will remain visible and perpetual care will be needed. Additionally, lignite mining requires “cultural aftercare” which is entangled with care for the



ecological residuals of mining (Beckett and Keeling 2019). A place-based care ethic can help (re)build social infrastructure and engage in memory work to deal with the “root shock” of having one’s “emotional ecosystem” destroyed by forced removal (Till 2012; Fullilove 2016, 11). Till (2012, 7) points out the significance of place-based “politics of memory” for the democratic empowerment of citizens especially in “post-authoritarian societies”, which is very relevant in Lusatia given its GDR history. Our interviewees criticize that there is no appropriate culture of remembrance in Lusatia and that a critical examination of lignite mining and its consequences is lacking [10, 11].

We define this aftercare as a type of care work that is particular to coal regions and therefore part of place-based social infrastructure. Based on the concept of caring with nature/s, we describe this process as shaped by the entangled agency of humans and nonhumans (Barad 2007; Gottschlich and Katz 2020a; 2020b). Our interviewees’ emerging discourse and carefully woven networks challenge the dominant “energy region” theme in a way that centers visions around matters of care in an intertwined past, present and future (cf. Puig de la Bellacasa 2017; Folkers 2021). Naturecultural history is taking place not only in the past, instead, residuals of extractivism and authoritarianism have an imprint on the dominant discourse in the conflictual now. To overcome resistance against mine closure, our interviewees highlight the importance of appreciating the societal contributions of miners and the positive aspects of mining culture [12]. This aftercare, the necessary mourning and celebration of what once was, is an important part of building social cohesion (cf. Till 2012).

#### **4.5.2 Social cohesion as essential social infrastructure**

Caring for social cohesion enables people to envision positive futures of a common good, create a shared identity and good social relations (Schiefer and van der Noll 2017). All of this is in jeopardy according to our interviewees as the political shift to the right has made visible in the last elections. The lack of social cohesion in Lusatia also means great dissatisfaction, hardened social fronts, and distrust in political representatives. Heer et al. (2021, 6) point out that this is a “blind spot” in current transition policy that might “endanger the entire project of structural transformation”. While certainly an accurate assessment, the care for social cohesion should be treated as an end in itself and a part of “what is needed for a good life” [14]. Taking a closer look, “Mit-ein-ander” (social cohesion, literally “with-one-other”), a term frequently used by our interviewees, points to the necessary reach to the unknown “other” to develop social infrastructure [1, 4, 14].

The classic definition of the term social infrastructure focuses primarily on places for encounters (Latham and Layton 2019; S. M. Hall 2020). Especially in small villages, a central meeting place such as a grocery store can create a sense of community [10]. Hall (2020) points out that these places of encounter and communication are not just created once but that their maintenance requires continuous care work. Our interviewees as agents of the transition demand that an appropriate portion of the transition funds be redirected towards this constant care work as essential social infrastructure [1, 4, 12, 14]. In addition, as we can also observe in Lusatia, the burden related to this care work is unfairly distributed among genders in our societies at large. It is mostly women who build social infrastructure in the region through their unpaid and often invisible care work. Local women’s organizations’ efforts toward social cohesion have already produced visible results and inspired a sense of an emerging powerful discourse that is apparent in the network’s interviews, public remarks, meetings, and conferences.

### **4.5.3 Democratic care services as essential social infrastructure**

Care services are part of the feminist concept of social infrastructure and play a central role in the emerging discourse of local women in the region. However, we struggle to make use of the term public services (“Daseinsvorsorge” in German) given its troubled history in authoritarian ideas. Instead, we propose the term “democratic care services” (“demokratische Daseinsfürsorge” in German) to make sense of a feminist idea of a democratic caring regional transition policy. Our interviewees criticize that the dominant transition discourse is very much focused on how male-dominated jobs in the coal industry can be replaced with other industrial jobs. Democratic care services are crucial, especially in ageing regions such as Lusatia, but also in many other carbon-intensive regions. As there is a general shortage of skilled workers in Lusatia, creating new jobs should not be the top priority if the goal is to attract newcomers to the region. Instead, there is a demand for social infrastructure including high-quality care services such as good education, day-care, and health services.

The need to improve care services is reflected in the dominant discourse as well, however, our interviewees criticize that the allocated money flows mainly into physical infrastructure such as hospitals instead of better wages and working conditions for female-associated care work, let alone campaigns to motivate men to take up caring professions. This points to a problem of distribution of resources and power and the underlying patriarchal structures in these decisions [8]. The funding of childcare facilities alone is not sufficient for a transformative feminist approach to regional transition. Feminist economics demands an alternative way of economic thinking that puts care at the center and makes it the guiding principle of all economic activity. With the use of the term “democratic care services” we describe a feminist notion of care distinct from prevalent authoritarian ideas of care.

### **4.5.4 Caring democracy: Democratic decision-making on how to care**

Tronto’s (2013) concept of “caring democracy” puts the political question on how to care at the center of democratic decision-making instead of assuming that women are going to keep doing care work silently and out of sight. We find that such a debate about how to organize care work (“caring with”) and how to give it appropriate funding priority is the final pillar of social infrastructure. This requires that all social groups are adequately represented where political decisions are made, e.g., in local and regional parliaments. In Lusatia, women are underrepresented in regional parliaments and there is evidence of a sexist culture of debate. Additionally, meeting dates are rarely designed in a way that allows people with the double burden of wage work and unpaid care work to participate. In this way, the unequal distribution of unpaid care work contributes to the democratic deficit, which is an issue not only of gender but of intersecting race, class, and other oppressive structures.

Adding to the difficulty of democratic debate in Lusatia is the damage that the structural break after the German reunification has done to the social-psychological fabric combined with the neglect of its repair. The resulting political divides stifle dialog in the region and favor right wing parties, a development studied by Salomo (2019) in the neighboring federal state of Thuringia. There, she also finds a situation where young women leave while young men stay, combined with a fear of loss of status and the feeling of having been left behind, concluding that these factors contribute to racist and antidemocratic

tendencies [1]. Some interviewees feel unable to criticize the state from a left-wing perspective because they feel like they are asked to “take care and keep the region together” (“Kümmere dich und halt die Region zusammen”) [8]. Appealing to the state to care better could also be seen as a strategic alliance against the onslaught of right-wing “anti-establishment” propaganda. Funneling transition funds into social cohesion (“das Miteinander”) could be a way to democratically involve people who are disenchanted with politics and are feeling resentful based on their experience with previous transition policies after the collapse of GDR ( 5.5.2).

## 4.6 Conclusion

In Lusatia, we find empirical evidence for what Hall (2020) has theoretically described: a dismissal of the constantly occurring care work that is essential for the maintenance of societal and economic life at large. The need for this care work, which Hall (2020) describes as constitutive of social infrastructure, is especially apparent in regions facing social and economic challenges. This includes regions where climate protection demands the winding down of a carbon-intensive industry that was an important anchor of regional economy and identity. Using the framework of a critical discourse analysis we have found that while the policy documents relevant to the coal transition in Lusatia do mention concepts related to social infrastructure, they are neither prioritized nor is it specified what these terms encompass. We criticize this shortcoming based on feminist care theory and interviews with politically active women in the region and define four pillars of care work as social infrastructure that require further investment:

- (1) There is a need for **aftercare for the social and ecological residuals of coal mining**. This includes, for example, memory work about the negative effects on nonhumans and the resettlement of humans.
- (2) The rise of right-wing populism in Lusatia is a sign that **social cohesion** is in dire need of investment. Places of encounter and communication must be created, with continuously paid positions to ensure the care work needed to sustain them.
- (3) **Democratic care services** (health, education, etc.; “demokratische Daseinsfürsorge”) should be given higher priority as a central component of a successful regional transition policy. They should receive similar attention to industrial jobs which are associated with masculinity.
- (4) In the sense of a “**caring democracy**”, it should be decided democratically how care work is distributed and organized. Barriers to participation in democratic decision-making need to be removed.

To summarize, a strengthening of care work and the creation and maintenance of social infrastructure is a critical aspect of the regional transition in Lusatia that is largely overlooked in policymaking. Despite this, local women are already active every day in their communities putting thought, work, and effort into these difficult tasks. Local initiatives are a testament to the fact that maintaining our common world requires constant creative problem solving which must be considered an important site of knowledge production.

We would like to point to the limits of our perspective as scientists situated outside of the study region who belong to a community of “feminist” or “sustainable energy” researchers. We intend the conceptual

framing of the four interlocking pillars of social infrastructure to be understood as open for adaptation and alteration through further research, as the process of caring transition policy making is going to keep bringing up new questions that have not yet been answered in this work. Building on our work, future research could show how care work as part of the social infrastructure can be supported and promoted in specific processes of government funding, focusing on the practical process of figuring out how to care. Intersectional perspectives, such as those from the Global South and the queer community, could help uncover aspects that are beyond the scope of our case study. Additionally, a holistic exploration of remediation can answer questions about aftercare for the social and ecological residuals of mining.

## **Chapter 5:**

# **From parity to degrowth: Unpacking narratives of a gender-just transition\***

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## 5 Chapter 5: From parity to degrowth: Unpacking narratives of a gender-just transition

### 5.1 Introduction

Sustainability transitions have manifold gender dimensions. Mainstream energy pathways represent, for example, mostly dominant male perspectives while perspectives of others, especially of women, are largely left out (Lieu et al. 2020). The implementation of low-carbon technologies impacts gender and social equity in intersectional ways (Johnson et al. 2020). Women and men have been, e.g., differently affected by historical coal phase-out processes (Walk et al. 2021) (see Chapter 2 and 3). Without explicit attention to gender, sustainability transitions risk reproducing the inequalities that exist in the fossil fuel-based economic system (Braunger and Walk 2022; Lahiri-Dutt 2023). The call for a gender-just<sup>51</sup> or feminist just transition has become increasingly prominent in recent political conversations referring to the notion of a ‘just transition’.<sup>52</sup> A wide range of actors -from international organisations, unions and, business actors to NGOs- join these demands as I will show in my analysis.

In the broadest sense, the just transition discourse revolves around the question of how the transition to a climate-neutral world can be designed as fair as possible for all people. Numerous scholarly contributions have attempted to summarize the various currents and ideas of just transition (Wang and Lo 2021; Wilgosh, Sorman, and Barcena 2022; Heffron and McCauley 2018; Healy and Barry 2017; Stevis and Felli 2020). In some scientific papers dealing with the concept of just transition, the gender dimension is mentioned without going into more detail (García-García, Carpintero, and Buendía 2020; Piggot 2018; Wilgosh, Sorman, and Barcena 2022). Even though a wide range of social and political actors argue that gender equity should play an elementary role in the design of a just transition, these demands have not been scientifically evaluated. In their review of gender in sustainability transition studies, Wolfram and Kienesberger (2023, 12) conclude that “gender forms a largely underexplored yet highly influential variable of sustainability transitions.” My contribution aims to make the diverse voices advocating for a gender-just transition visible for research, bridging the gap between societal and scientific discussions. Additionally, the empirically worked-out narratives show how gender justice considerations could be more thoroughly included in discussions on a just transition.

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<sup>51</sup> Not all actors use the exact term “gender-just transition” when insisting that gender justice should play a greater role in the discussions about a just transition. However, for ease of reading, I mostly use this term to summarise the demands. In Table A 4 in the Appendix, I list the evaluated documents with titles where the exact wording the respective actors use can be seen.

<sup>52</sup> See e.g. these events on the topic:

-Webinar at COP27 (12.11.2022): “Delivering a gender-responsive just transition” <https://media.un.org/en/asset/k1q/k1qu53tqjt> (last accessed 7 September 2023).

-Event with a session on “just transition” organised from OECD (05.-06.03.2020): “Mainstreaming Gender and Empowering Women for Environmental Sustainability” <https://www.oecd.org/env/global-forum-on-environment-mainstreaming-gender-and-empowering-women-for-environmental-sustainability.htm> (last accessed 7 September 2023).

-Event by the Climate Justice Coalition UK (09.11.2021): “Questioning the Paris Agreement in Feminist Pathways towards a Just and Equitable Transition” <https://climatejustice.uk/peoples-summit/questioning-the-paris-agreement-in-feminist-pathways-towards-a-just-and-equitable-transition/> (last accessed 7 September 2023).

Concepts of a sustainable world – such as a gender-just transition – are shaped by the social interaction of narratives, by the constant debate about the meaning and interpretation of the concepts (Hermwille 2016). People narrate and remember stories. That is why narrative communication and perception play such an important role in public policy (Jones, McBeth, and Shanahan 2014; O'Bryan, Dunlop, and Radaelli 2014). Narratives around a gender-just transition can be defined as *policy narratives* because they are stories told about policy problems (e.g. women benefiting less from transition policies) and proposed policy solutions (e.g. gender mainstreaming for transition policies) for them. I opted for the Narrative Policy Framework (NPF) to analyse the policy narratives around a gender-just transition (Jones, Shanahan, and McBeth 2014; Shanahan et al. 2013; 2018).

Various interpretations of gender justice exist, as indicated by diverse feminist theories. I aim to explore how different currents of feminist theory are reflected in the gender-just transition narratives. For my analysis, I selected liberal-, socialist-, post-colonial-, postmodern, and ecofeminism. These streams were chosen because they reflect the breadth of feminist theories well and many of their argumentative patterns can be found in the material.

My research question is:

- (1) Which gender-just transition narratives are used by which actors and in how far are currents of feminist theory reflected in them?

My analysis does not focus on a specific country or sector. I am interested in the diversity of narratives used internationally around the demand to take gender justice more into account when thinking about just transition. As I aim to analyse the political discourse, I focused on grey literature and examined 65 English-language policy documents (policy briefs, websites, interviews, etc.). My analysis primarily centers on demonstrating which narratives are employed by various actors when addressing the gender dimension of sustainability transitions. What are the problems addressed and what solutions are proposed?

The paper is structured as follows. Section 5.2 introduces the NPF and defines the essential elements that make up a narrative. Additionally, it introduces the aforementioned currents of feminist theory and some selected scholarly contributions to classify just transition approaches. Chapter 5.3 introduces the methodological approach and chapter 5.4 presents the narratives. Chapter 5.5 explores the implementation of the NPF, examines the patterns of feminist theories within the narratives, and investigates the alliances behind these narratives. Furthermore, based on the classification of just transition approaches, it reflects on the magnitude of reform the narratives aim for and how the narratives can be combined in a multi-layered version for a gender-just sustainability transition. Chapter 5.6 concludes.

## **5.2 Theoretical approach**

Individual and collective actors make – consciously or unconsciously – use of narrative schemata in social practice (Viehöver 2001). Narratives can be defined as simple stories, that outline a certain problem, define its consequences, and propose solutions (Hermwille 2016; Melchior and Rivera 2021). Narratives are an expression of what is made visible, what is interpreted as a problem, and put into words. Political debates are necessarily conducted through narratives. They influence both decision-

making, policy implementation, and policy evaluation (Shanahan et al. 2018). Narratives are never objective but an expression of political attitudes. The point of narrative analysis is not to identify which narrative accurately represents reality but to examine the systematic variation in the representation of policy realities within narratives (Jones, McBeth, and Shanahan 2014). There are various theories on what the basic structure of a narrative looks like. According to Greimas, the semantic conditions of any narrative can be described by a relational model, which consists of the relations between six actants: subject, object, helper, opponent, commissioner, and addressee (Arnold 2012). Kenneth Burke distinguishes five elements of a pentad. He lays a focus on the action described by the narrative (actors, the action itself and context, intention, and means of action) (Melchior and Rivera 2021). I chose the NPF because the discourse around a gender-just transition is primarily about describing political problems. The emphasis is less on a particular action or a complex relationship between actants. The NPF defines elements a narrative usually consists of: a *setting*, *policy problems*, *policy solutions*, *characters*, and a *plot*. A policy narrative revolves around a specific *policy problem* and is embedded in a policy context (*setting*). The *setting* is usually accepted as a given by the narrator without too much questioning. The story told around the specific problem usually features several *characters*, mostly *victims* (those harmed by the problem), *villains* (those causing the problem), and *heroes* (those fixing the problem). The characters do not need to be individual humans but might also be abstract entities. The *plot* embeds the characters and their relationships and actions in the policy setting. In policy narratives, certain *policy solutions* are proposed to the *policy problem*, both are also referred to as “moral of the story” (Shanahan et al. 2018; Jones, McBeth, and Shanahan 2014; Shanahan et al. 2013). The elements that characterise narratives are what differentiate them from other message structures such as lists or chronologies (Jones, McBeth, and Shanahan 2014; Shanahan et al. 2013).

An objective of the paper is to analyse the conceptions of gender justice, meaning the feminist theories, that underlie the gender-just transition narratives. Feminist theories explain the reasons for gender inequality and outline policies to address and reduce it (Lorber 2005). Key aspects of liberal-, socialist-, post-colonial-, postmodern, and ecofeminism are summarized by examining their perspectives on gender, the equality policy issues they prioritize, and their proposed policy solutions. I am aware that I cannot do justice to the depth and complexity of each stream and there are many overlaps, but I try to identify some key characteristics and controversies. Not only in feminist theory but also in the energy justice literature the concept of intersectionality is becoming increasingly important (Sovacool et al. 2017; Johnson et al. 2020; Kaijser and Kronsell 2014). As an analytical tool, intersectionality helps to show how power structures such as ethnicity, indigeneity, gender, class, sexuality, geography, and age interact with each other and thus influence people's social position, their power (or lack thereof) and the resulting experiences of privilege and oppression (Kaijser and Kronsell 2014; Mejía-Montero et al. 2023). Power interactions occur at all levels, from institutional practices to individual actions. Social categorisations reflect underlying and implicit power structures often presented as natural differences (Kaijser and Kronsell 2014). The following section provides some elaborations on how the concept of intersectionality is applied in different feminist theories.

According to *liberal feminism*, the primary goal is that women and men should be treated in a gender-neutral manner. Liberal feminism sees the core problem of gender inequality in the labour market. The



objective is to increase female representation in traditionally male-dominated fields like technology and promote greater male participation in female-dominated sectors such as care and education (Lorber 2005; Lenz 2019). Furthermore, the aim is to strengthen the political representation of women (Kronsell 2013). I consider liberal feminism's conception of gender to be primarily based on the category of difference. It focuses on the individual level and asks about differences in affectedness, behaviour, and vulnerabilities of biological women and men. A female identity and equality are assumed at least with regard to a shared experience of oppression (Hofmeister, Katz, and Mölders 2013; Kanning, Mölders, and Hofmeister 2016). Other than e.g. socialist feminism, liberal feminism aims to achieve gender equality within the framework of the current economic and social system (Fraser 2013). Liberal feminism can be criticized for demanding equal access for (mostly elite) women to the spheres of elite men without questioning dominant structures and masculine values that prevail there (Plumwood 1993).<sup>53</sup>

*Socialist feminist* thinking places a special emphasis on considering gender, race, and class as each a worldwide, social structural system of disadvantage and privilege which intertwine (Lorber 2005). Gender is primarily understood as a structural category. Social power dynamics determine what is considered "female" and "male" and establish the societal positions of men and women (Hofmeister, Katz, and Mölders 2013). Gender is rooted in the economic structure of society that generates gender-specific forms of distributive inequality such as gender-based exploitation and economic marginalisation (Fraser and Honneth 2003). It is imperative to transform these structures of inequality at their core, as relying solely on equality strategies within existing socio-political frameworks proves insufficient (Hofmeister, Katz, and Mölders 2013). *Socialist feminism* is particularly concerned with understanding the interdependencies of capitalism and patriarchy and overcoming both systems of oppression (Eisenstein 1979). This means, inter alia, breaking the fundamental distinction between paid "productive" labour and unpaid "reproductive" labour assigned to women as well as between lower paid, female dominated, "pink collar" and higher paid, male dominated jobs on the labour market (Fraser 2013).

*Post-colonial feminism* can be described as a version of socialist feminism with a special focus on intersectional inequalities caused by colonialism and neo-colonial economic structures (Lorber 2005). Post-colonial feminists criticise the tendency of Western feminists to homogenise, women's experiences. Women's living circumstances are very diverse and depend on race, class and (colonial) history, among other contextual factors (Mishra 2013; Crenshaw 1991). *Post-colonial feminism* explores the challenging question of how the long-silenced voices of subaltern women can be heard (Spivak et al. 2011). Not only domination relations should be foregrounded but also struggle and resistance (Mohanty 2003; Collins 2000).

*Ecofeminism* criticises devaluations and forms of oppression that determine both gender relations and relations with non-human nature (Gottschlich, Hackfort, and Katz 2022; Plumwood 1993). The exploitative relationship of domination between humans and nature and the exploitative and oppressive

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<sup>53</sup> Science and technology, for example, are such spheres where values associated with masculinity such as objectivity, abstraction and rationality are seen as particularly important and an orientation towards the dominance of nature (and of excluded groups) prevails (Plumwood 1993).

male-female relationship that prevails in most societies are intimately linked. The capitalist economy depends for its functioning on appropriating the services of nature, the care work mostly done by women, and the work of people in the Global South (Mies and Shiva 2016)<sup>54</sup>. Ecofeminism is sometimes accused of essentialising the connection between women and nature, for example, by granting women an epistemologically privileged understanding of and access to nature (Katz 2012). However, many ecofeminists and related, partly overlapping currents such as Feminist Political Ecology, Feminist Environmentalism, or Queer Ecology clearly oppose essentialist interpretations (Gottschlich, Hackfort, and Katz 2022; Mortimer-Sandilands and Erickson 2010). It is not a biologically based greater proximity of women to nature, but rather it is the material reality of social gender within political-economic relations that essentially determines women's relationship to nature or their exposure to environmental degradation (Gottschlich, Hackfort, and Katz 2022; MacGregor 2021). In ecofeminist thinking gender is not only considered as a structural category but also as an epistemological category. It is examined how knowledge production contributes to the naturalisation of nature and gender relations. In the dominant Western culture, there is an often unarticulated and largely unseen one-sided valorisation of masculine values, particularly emphasizing qualities such as control, dominance, and objectivity (Hofmeister, Katz, and Mölders 2013; Kronsell 2013). From this perspective, energy transition research, for example, can be criticised for its one-sided focus on technology, innovation, and economic growth and its neglect of demand side solutions and behavioural changes (Braunger and Hauenstein 2020; Herdlitschka and Kapitza 2023).

*Postmodern feminism* fundamentally questions that gender categories are oppositional, dual, and fixed. Gender, sexuality, and bodies are culturally (re)produced e.g. in movies and advertisements (Lorber 2005). Individuals are involved in this constant reproduction – Butler (1988) calls it *performativity* – and thus contribute to maintaining the gender categories. Gender is considered as a process category: It is nothing that we have or are but emerges through constant negotiation in social interactions (Hofmeister, Katz, and Mölders 2013). Social conventions impose sanctions on individuals who define themselves outside of the heteronormative framework of sex, gender, and sexuality (Lorber 2005). *Postmodern feminism* criticizes feminist policies based on the single universal category “women” not considering gender and sex as shifting and fluid categories (Lorber 2005). Kaijser and Kronsell (2014) stress that also other social categorisations should not be regarded as fixed but always understood as being constantly reproduced and negotiated in their specific geographical and historical contexts.

The so-called *material turn* can be seen as a reaction to *postmodern feminism*, which focuses on discourse and language, bringing the materiality of the human body and the natural world again on centre stage of feminist debates also with reference to early ecofeminist ideas. Main objectives are to investigate the interaction and interweaving of culture, discourse, history, biology, technology, and

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<sup>54</sup> I have quoted Vandana Shiva here because she has written widely cited works on ecofeminism. At the same time, I do not want to leave unmentioned that she has recently spread problematic conspiracy myths (see e.g. <https://www.tagesschau.de/faktenfinder/vandana-shiva-gentechnik-101.html> (last accessed 9 September 2023)).

environment and to understand matter and nature as active, autonomous, and dynamic (Alaimo and Hekman 2008; Löw et al. 2017).

Many academic contributions strive to categorize distinct approaches within the discourse on just transition (Wang and Lo 2021; Heffron and McCauley 2018; Wilgosh, Sorman, and Barcena 2022; Stevis and Felli 2020; Just Transition Research Collaborative 2018). For instance, these classifications are based on factors such as scale and scope (Stevis and Felli 2020) or on the nature of reform demands, distinguishing between limited and transformative approaches (Wilgosh, Sorman, and Barcena 2022). The Just Transition Research Collaborative (2018) differentiates between four ideal-typical just transition approaches. The *status quo approach* focuses on the compensation for workers who will lose their jobs due to the transition to a low-carbon economy. The *managerial reform approach* aims to improve working conditions and standards within the existing economic system and balance of power. The goal of the *structural reform* approach is to achieve both more distributive and procedural justice by reforming governance structures, facilitating democratic decision-making, and fostering collective ownership. A *transformative approach* to a just transition entails a fundamental transformation of the economic and political system, which is seen as responsible for ecological and social crises. This approach involves a shift away from economic growth and the development of fundamentally altered human-nature relationships.

### 5.3 Methodological approach

The NPF is usually applied at the micro-level studying how narratives affect the decisions of individuals via surveys or quasi-experimental techniques, or at the meso-level investigating which narratives are used in a political discourse. For the meso-level analysis content analysis (qualitatively and quantitatively) of political documents or debates is appropriate (Pierce, Smith-Walter, and Peterson 2014; Jones, McBeth, and Shanahan 2014; O'Bryan, Dunlop, and Radaelli 2014). In the sustainability transition literature, a meso-level NPF analysis has been applied, for example, to explore narratives employed by fossil fuel companies in response to the Trump administration's withdrawal from the Paris Agreement (Hermwille and Sanderink 2019) or to analyse diverging narratives of just transition in four European carbon-intensive regions (Hermwille et al. 2023).

I employed a meso-level analysis and utilized qualitative content analysis of policy documents as my methodological approach. I analysed grey literature (policy briefs, reports, blog posts, press releases, websites, or interviews) published in English. The majority of the documents were written by civil society actors (46%<sup>55</sup>), followed by governmental actors (29%), researchers (9%), business actors (9%), and unions (6%) (see Figure 15, d). As the primary focus was on analysing the political discourse surrounding a gender-just transition, and the NPF is especially suitable for this task, scientific articles were omitted from my sample. I applied the NPF minimal definition of a narrative: the policy narrative must contain at least one *character* and a policy stance (either the description of a *policy problem* or its *solution*) (Shanahan et al. 2013). The documents must specifically pertain to sustainability transition and/or structural change. The sector the document is focusing on was not an exclusion criterion. The

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<sup>55</sup> The percentages are rounded.

document had to explicitly emphasize the gender dimension of the low-carbon transition, either in its title or abstract. Documents published after 2010 have been included.

The sampling strategy was fourfold:

1. **Grey literature search:** With the search terms “gender just transition” and “feminist transition” I conducted a Google search on 16 February 2023 with the online tool *thruu* extracting the first 90 results for each search term for a search based in Germany and South-Africa respectively. By utilising the two search terms and conducting a Google search in two very different countries I tried to cover a broad spectrum of narratives. My approach was inspired by Wilgosh et al. (2022), who did a grey literature google search for their mapping of just transition narratives. I took out two of the relevant documents I found because I had more suitable and up-to-date documents from the same actor. The grey literature search resulted in 50 relevant documents.
2. Documents by **participants of webinars and podcasts:** Through the Google search I came across 27 podcasts and webinars on the gender dimensions of sustainability transitions. I created a list of all participants and searched for relevant publications they or their institutions published. I found 7 additional relevant documents.
3. **Expert interviews:** I did expert interviews with 5 experts in the field from Australia, India, Germany, and the UK discussing the gender-just transition debate and making sure that I did not miss important perspectives. I came across one additional document via the expert interviews.
4. **Snowballing:** I snowballed the reference lists of all relevant documents and thereby collected 7 additional documents.

In summary, I analysed 65 relevant documents. A codebook (see Table A 3 in the Appendix) was developed based on the elements of the NPF, feminist theory, and inductively developed codes. The coding was performed with MAXQDA. Longer documents were analysed in their entirety as a rule. Only in the case of 7 reports I concentrated –due to their length- on the most important policy sections such as the preface, the summary, or the conclusion.

## 5.4 Results: Narratives of a gender-just transition

In the following, I present six ideal-typical gender-just transition narratives. They were formed by grouping similar problem descriptions and proposed solutions that were found in the documents.<sup>56</sup> Actors often use multiple narratives. A detailed breakdown of which actor uses which narrative is depicted in Table A 4 in the Appendix. Thereby the narratives are abbreviated as follows: representation narrative (Re N.), policy design narrative (PoD N.), fossil phase-out narrative (F N.), protection narrative (Pr N.), opportunity narrative (O N.) and transformation narrative (Tr N.). Figure 15 shows the frequency

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<sup>56</sup> I have made a qualitative selection of which problem descriptions and proposed solutions I combined into narratives. For reasons of space, I limited myself to those that occurred most frequently in the material.

of narratives broken down by actor group and geographic reference point.<sup>57</sup> Actors may not share the entire narrative, only certain aspects of it. Under each subheading, I briefly summarize the narrative: the *policy problem* description, the proposed *solution*, and what a gender-just transition would mean in terms of the respective narrative. I italicize elements of the NPF when referencing them. To save space, I use abbreviations for the documents analysed. They are listed in full in Table A 4 in the Appendix.

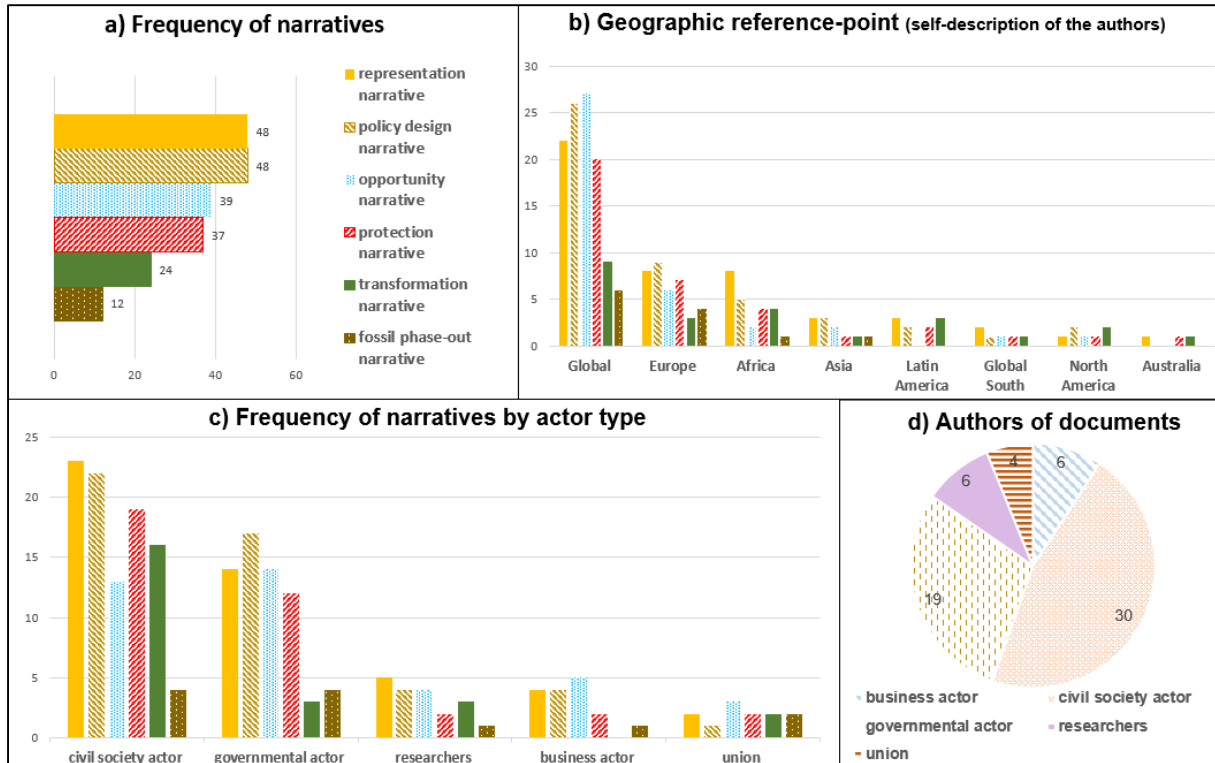


Figure 15: Frequency of Narratives (general, by actor type, and by geographic reference-point) and overview of authors by actor type.

Source: Own depiction.

### 5.4.1 Representation narrative

*Women are severely underrepresented in decision-making on climate policies. Achieving a gender-just transition entails empowering women as change agents and ensuring gender parity in decision-making processes related to climate policies.*

Women are seen as *heroes* in the NPF sense of combating the climate crisis: They are widely acknowledged for their active involvement in social and environmental movements (c18, g7, b2, r2) particularly recognized as leaders within the climate movement (u3, c18) and advocacy for protecting threatened territories (c17, c5). Due to the social role assigned to them to care for their families, they are often particularly affected when important resources such as water and land are insufficient in both quality and quantity (c17, c14). Therefore, they are particularly motivated to fight for the preservation of

<sup>57</sup> I refer to where the actor comes from by continent as the geographic reference point. For international global organisations, I have used Global as the reference point and not the continent where the organisation is based. Since some actors classify themselves as actors from the Global South, I have classified them accordingly.

these ecological resources (c17). Women are also portrayed as politicians who are committed to effective climate protection (g4, u4, g10, g14).

The core *policy problem* description is that women are severely under-represented in climate policy decision-making spaces (u3, c23, c30, c18, c29, u4, c6, c15, c22, g13, c24, g5, g8, g7, g12, r4, r6, r3, g19, g14, c19, c16, c10, c5, c4, c1, c14) such as in international climate negotiations (c18, g8, c16, c5). In general, there is a lack of integration of civil society organizations (c12). Specifically, the engagement and backing of women's organizations would lead to an improved amplification of women's voices (g7, g2, g12). The intersectional dimension is strongly emphasized by a large number of actors: it is above all people of colour and poor, working class, and indigenous communities who are underrepresented (c30, c20, u4, g13, g10, g7, g12, c1, c14, r6).

#### 5.4.2 Policy design narrative

*Current climate policies threaten to deepen gender inequalities. A gender-just transition means shaping climate policies in such a way that they also contribute to gender justice.*

The *policy problem* description of this narrative is: If gender equality is not explicitly included in climate policies, programs and projects, gender inequality, which is deeply rooted in social norms, risks being reinforced (c12, c18, c29, g4, c8, c28, c22, g8, g10, g7, g12, r6, c19, b3, g3, c6). Instruments like carbon taxes, job creation measures, reskilling, investments, and subsidies in particular sectors or technologies are likely to have different impacts on men and women (c18). How people are affected by the policies also depends crucially on other structural categories such as income, age, ability/disability, racialisation, or sexual identity (c18, g13).

Most climate policies lack this (intersectional) gender perspective or it is insufficient (c12, c18, c29, g4, g13, g8, r6, g9, g1). For example, the EU's Green Deal is said to be largely gender-blind (c29, c18, c19). Most of the investment flows into male-dominated sectors, i.e. into high carbon sectors to enable conversion, or directly into renewable sectors. Very few investments are directed towards sectors dominated by women, which often exhibit poorer working conditions (c18, c19) (see 5.4.5). As a *policy solution*, gender equality should be considered as one aim of environmental and climate policy (c29, g13, g8, g12, r6, g17, g9), as well as of climate finance (g8, g12, c16, g9, b2, g18). If gender equality is considered climate policies can contribute to both gender equality and effective mitigation and adaptation measures (g5, g10, c26, b2, c8, b3). As an example, the redistribution of the revenues from the CO<sub>2</sub> price at the EU level could be designed in such a way that especially lower-income citizens benefit from it, the majority of whom are women (c29). As instruments to ensure that gender equality considerations are mainstreamed in climate policy-making inter alia gender budgeting and gender impact assessment are mentioned. Gender budgeting ensures that all budgetary decisions are accompanied by gender analysis (c12, c29, g4, g13, g8, g1). Gender impact assessment assesses who is impacted by climate policies (c12, g4, g13, c29). However, many stakeholders agree that there is a lack of data to make a comprehensive gender analysis in the context of climate policies (c18, g4, b5, c6, c15, g13, c24, g8, g10, g7, g12, g2, c28, g1).

Another common *policy problem* description in this context is that large-scale renewable energy projects risk replicating existing patterns of gender discrimination (c15, c8, c22, r4, c9). A frequently voiced *policy problem* is that land is being taken away for (supposedly) green projects, especially from indigenous population groups (c13, c22) and women (g17, c13, c22, g10, g12). The cultivation of agrofuels is mentioned as an example of this (g17, c22). Women are more at risk of land grabbing as they often do not own formal land titles (c13, c25, c22, g10, g12). Land reform that gives women equal access to and control over land is mentioned as one *policy solution* for a gender-just transition (c23, b6, b5, c13, c15, g8, g17).

### **5.4.3 Fossil phase-out narrative**

*The phase-out of fossil fuels, especially of coal, is seen as a challenge that largely affects men. A gender-just transition means taking into account the effects on women when phasing out fossil fuels.*

The phase-out of fossil fuels is a task of climate policy, but since it is often explicitly mentioned throughout the documents, I present a separate fossil phase-out narrative. The phase-out of coal and other fossil fuels will lead to a loss of well-paid direct jobs in the industry, especially for men. In 2017, e.g., 78.4% of the workforce in the US coal industry was male (National Association of State Energy Officials 2018). Women are portrayed as the invisible *victims* of coal phase-out processes in affected communities (g7, g11, c10, c4). Since the division of labour in coal regions is historically more patriarchal, women there are generally more dependent on men's income (g7, g11). Other reported effects of the coal phase-out on women include an increase in gender-based violence (b5, g7), and an increased double burden due to increasing (often low-paid and unsecure) paid employment and unpaid care work (g7, r4, c4). Women's vulnerabilities and experiences with coal exit are not homogeneous: social categories such as race, ethnicity, caste, immigration status, sexuality, and age are factors that have a critical impact (r4, g7).

In mining countries in the Global South women are often indirectly dependent on the coal industry as informal workers (g7, r4). They lose their livelihoods through a coal phase-out, as they hardly benefit from retraining measures or redundancy packages that formally employed mostly male coal workers receive (g7, r4, g11). Additionally, women have a significant presence in supply and secondary goods and service sectors, making them indirectly reliant on the coal industry when it plays a substantial role in regional economic value generation (g7). Women are additionally impacted by the lasting environmental pollution often experienced by coal communities long after closure. This is because they bear the primary responsibility for the healthcare of their family members and the maintenance of agricultural subsistence activities (g7).

As a *policy solution* informal coal mining should be decriminalized and those workers including many women should be offered social protection programs (g7). There is a general demand to strive for a holistic development of the municipalities concerned (b5, g7, g18, g11) not only focusing on the conversion of high carbon industries (c18, c29, u4). This includes improving working conditions in female-dominated economic sectors like the care sector (b5, g18, c18, u4) and generally diversifying the economic structure of coal regions including small-scale productive activities (r4).

#### 5.4.4 Opportunity narrative

*Women benefit less from the economic opportunities of the sustainability transition. A gender-equitable transition means that barriers in the labour market and education must be removed in order to achieve gender parity in green sectors.*

If properly managed, the sustainability transition is presented as a major economic opportunity for women (c6, r5, c15, c8, c24, g5, g8, g7, g12, r3, g14, g9, b1). However, many barriers stand in the way. A common *policy problem* description is that the energy sector is male-dominated (r5, c6, c15, c8, g8, g10, r6, g14, b1). Thus, women are at risk of benefiting little from green investments. The study of IRINA (2019) that women in the renewable energy sector occupy only 32% of full-time jobs is frequently used in the argumentation (r5, g7, g12, c26, g14). Additionally, women work disproportionately in the administrative area (r5, g12, r3). One reason for that is the low representation of female students in STEM fields (r5, g8, g7, r6, g19, g15). Social and cultural norms regarding gender roles are listed as one reason why women are less likely to aspire to STEM occupations (c6, c15, g7, r6, r3, g16), such as construction jobs being considered inappropriate for women, but also legal discrimination (c6). In addition, care work restricts women from attending courses or taking up certain jobs that require, for example, a longer absence from home (r5, c6, g7, r6). Access to the opportunities of the green energy transition also strongly depends on intersectional factors such as race, class, caste, disability, etc. (r5, c6, c24, r6, g14). To increase the proportion of women in the green economy, also as entrepreneurs, women need better access to finance (r5, b6, c6, c13, c15, g8, g10, r6, c26, g14, c28, g9, c29), there is a need for role models (r5, g15) and mentoring programs (c15, g10, g16, c28, b2, c29). Specific skills training for women is essential (u4, b5, c6, c13, c24, g8, g10, g18, g12, r6, c26, g16, c28, b2, g1, c29) such as enhancing their financial and digital literacy (b6). The creation of economic opportunities for women in the green economy must go hand in hand with a more equal distribution of care work, the expansion of care services (r5, c13, g8, g18, u1) and generally working conditions that support a balance between work and family life (b6, c13, c15, c27, g8, g10, g7, r6, g16).

The decentralised energy system of smaller scale and off-grid renewables offers opportunities for female entrepreneurs, especially in rural areas (r5, c15, c13, g12, c16, c11). If renewable energy production and consumption are organized in a democratic, decentralized, and community-based manner, it has the potential to achieve greater participation and empowerment of women (c13, r6, c11). Sectors in which women are overrepresented, such as the care sector, education, or small-scale agriculture, are also low-carbon and green jobs (b1, u4, c6, c25). Accordingly, they should receive more attention and be promoted more strongly within the framework of the sustainability transition (u4, c6, b4, b1). Not only women themselves benefit from a better representation but also companies through improved innovative capacity (b5, g19, g16) and by meeting investors' and consumers' demands for gender equality (b5). Furthermore, there is a contention that companies profit from the increased purchasing power of women (b5, b3). Similarly, it is asserted that narrowing the gender employment gap holds the potential for global GDP growth (c6, g18, c26, b3).



### 5.4.5 Protection narrative

*Women are particularly affected by the climate crisis. A gender-just transition means increasing women's resources and thus better protecting them from crises.*

Women are severely affected by the climate crisis and are therefore portrayed as *victims* in the sense of the NFP (u3, c18, c12, c2, c30, c29, g4, u4, b5, c6, c25, c22, g13, c24, g5, g8, g10, g7, g12, g17, g14, c19, c17, c16, c11, c7, g9, c5, b4, g3). The following *policy problem* description is predominant: Women are mostly responsible for providing for the family in their social role as caregivers and food providers. The climate crisis will most likely increase this care burden because, inter alia, the soil quality decreases, water gets scarce and food prices rise (u4, b5, c6, c8, g5, g8, g7, g12, r3, c19, c5). Girls are more likely to be kept out of school to help with the increasing domestic work (c6, g8). As women, many of them migrants and people of colour (u3, g5), are disproportionately employed in the health and social care sector, they will have to absorb the effects of the climate crisis, such as increasing health care needs due to extreme weather events, also as professional workers (u4, g8).

Additionally, women are more affected by poverty and have fewer resources than men to protect themselves against the effects of the climate crisis (c12, c6, c22, g7, r3, c19). One reason for that is that they are more strongly represented in insecure, informal, and low-pay employment relationships without proper social protection (u3, c2, u4, g5, g8, r, 3, g9). Additionally, migration due to the climate crisis will make women more vulnerable to gender-based violence (u3, u4, r3, g12). The better integration of women into the formal labour market including access to social protection and increased education opportunities are seen as *policy solutions* to strengthen their resilience to the effects of the climate crisis (u3, c12, u4, b5, c8). Additionally, investments in the health sector as well as the childcare and elderly care sector should be increased to reduce women's burden with unpaid care work (u4, u3, c12, c6, g8).

The intersectional dimension is very much considered. Poor, marginalised and racialized women, especially in the Global South, are particularly affected by the climate crisis (c12, c18, c29, g4, u4, c22, g13, g8, g12, r3, g17, c19, c11, c7, g9, b4). The Corona crisis is often cited as an example of how crises can reinforce existing gender inequalities (c12, u3, c6, c24, r3). The increase in unpaid care work due to the lockdown and closure of care facilities has mainly affected women (u3, c18, u4, c22, r3). Relatedly, more women have lost their jobs in the wake of the crisis (u3, c6, g8, r3).

### 5.4.6 Transformation narrative

*Intersectional inequality is caused by capitalist, neo-colonial, and patriarchal structures. To achieve a truly (gender)-just transition these deep-seated economic structures need to be changed.*

The *villain* is identified as the Global North, primarily accountable for the climate crisis due to its (historical) resource consumption and greenhouse gas emissions (c23, c18, c22, g12, c7). More generally, the *villain* is depicted as patriarchal capitalism (c2, c29, c25, c22, c3, c1, r2, c18). The *policy problem* is described as the interconnectedness of the capitalist economy with the exploitation of labour, the excessive depletion of natural resources, and the onset of the climate crisis (c2, c30, c18, u4, c22, g12, r2). Peasant and working-class women in the Global South are particularly affected, because they bear the burden of pollution, land grabs and climate impacts (c30, c2, c18) (see 5.4.5). The capitalist and patriarchal economic system is based on the unpaid or underpaid work of women (c2, c25, c22, c1,

r2). Care work, which is predominantly carried out by women, and the essential ecological processes that support life are both undervalued within the existing economic framework (c18, c23, u4, c15, c22, g12, r2, c30).

Compensations for colonial legacies and for past and ongoing emissions would be appropriate, given that these factors have facilitated the advancement of the Global North (u4, c23, g12). Colonial structures are partly reproduced in the expansion of renewable energies and so-called green grabbing occurs, for example, for the construction of solar plants (c22). Generally, an exclusive fixation on technological solutions to halt the climate crisis is criticized (c22, c1, r2, c3). These kinds of solutions are proposed by a mostly male Western elite (c22).

Women are portrayed as *heroes* leading the struggles to protect territories and affected communities from extractives or other environmental harm (c30, u4, c25, c22) and exemplifying a sustainable lifestyle (c30, c22, c1). Alternative approaches to the existing economic system are found in local solidarity solutions, such as movements that promote local sustainable renewable energy projects (c30, c2, c25, c22, c17, c11). Specially, the importance of agroecology, which is increasingly applied by women (c2, g17, c17) is emphasized for a feminist just transition. Agroecology is understood as a feminist, anti-racist, and anti-colonial practice that relies on ancestral knowledge and culture to achieve food sovereignty (c22, c3). More generally, the *policy solution* is described as a well-being economy based on care for the people and the planet (c18, c29, c25, g12, g17, c1) and a detachment from a fixation on GDP growth (c18, c29, u4, c22, g17, r2). This involves moving away from the Western idea that non-human nature should primarily serve people to the idea that people are part of natural processes (g17, g12, r2). As an example degrowth, a policy that moves away from GDP as an indicator, reduces the ecological impact, and addresses global inequality (Hickel 2021; Schmelzer and Vetter 2021), is explicitly mentioned as an alternative economic model (c22). This involves moving away from the Western idea that non-human nature should primarily serve people to the idea that people are part of natural processes (g17, g12, r2).

## 5.5 Discussion

### 5.5.1 Elements of the Narrative Policy Framework

In particular, the NPF characters of *victim* and *hero* can be elaborated in the discourse on gender-equitable transition, whereas the *villain* character is less frequently represented. The *victim* character is most often used within the *protection narrative*: Women are considered as "*victims*" of the climate crisis. However, also in the context of the *policy design narrative* women are portrayed as "*victims*" -in the sense of the NPF- of a gender-unjust RE transition, which threatens if gender justice is not taken into account. At the same time, a narrative that reduces women to aid receivers and the needy is criticised: "The "gender and development" focus is still predominant, meaning that women's participation as aid receivers is perceived as being enough. This ultimately reveals the harmful potential of an energy transition that is neither just, nor emancipatory" (c22, p.12) (see also g3). The *hero* character is also very well represented: women are seen as change agents in combating the climate crisis, whether in social movements, as entrepreneurs, politicians, farmers, or consumers. A *villain* in the sense of who or

what triggered the crisis is only discussed in the *transformation narrative*. Reference is made on an abstract level to capitalist and neo-colonial economic structures, whereas specific actors are hardly mentioned. Although there is some empirical evidence cited that men cause on average more CO<sub>2</sub> emissions, in contrast to what some might assume, “men” are not seen as *villains* in the discourse who can be blamed for the problems mentioned (climate crisis, gender blindness in climate policy-making, etc.). When causes are named, they are understood as systemically anchored in social norms and economic structures. On the other hand, it is also rarely explicitly mentioned that men have to be won over as allies to achieve a gender-just transition (g10, c1). I was able to form the narratives well along *policy problems* and *solutions* they described. However, some elements of the NPF proved less applicable to my study. For instance, I encountered challenges with utilizing plots effectively since they typically focus on describing developments within a specific context. In contrast, the narratives in my dataset tended to be more abstract and less tied to specific geographical circumstances.

### 5.5.2 Feminist theories underlying the narratives

For liberal feminists equal representation in politics and society tends to be the most important strategy against gender discrimination (Kronsell 2013). Both the *opportunity narrative*, which focuses on how women can benefit equally from the green transition in the labour market, and the *representation narrative*, which calls for equal political representation, can be classified as liberal feminist perspectives. In the sense of gender as a category of difference, it is primarily about traditional women’s promotion to increase their representation in politics and business (Hofmeister, Katz, and Mölders 2013). Masculine values that dominate in these spheres are not criticised (Plumwood 1993).

The *policy design* and *fossil phase-out narrative* assumes that gender is deeply woven into social power relations considering gender mainly as a structural category. Failure to address this in climate policy may result in the solidification of these inequalities. Instruments such as gender mainstreaming or gender impact assessment are useful because they help to systematically search for and analyse gender inequality in all social policy areas and institutions (Hofmeister, Katz, and Mölders 2013). These instruments are explicitly mentioned as solution options in the *policy design narrative*. The *protection narrative* holds a structural understanding of gender as well and looks at social and economic structures that lead to women being particularly affected by the climate crisis. So, all three narratives hold a structural account of gender, as especially socialist and post-colonial feminism do, but they do not advocate a more radical social change in the sense of, for example, a different economic order as demanded by socialist feminist thinking.

I called the *transformation narrative* as such because it strives for a rapid, comprehensive transformation of the social and economic system.<sup>58</sup> Ecofeminist, post-colonial, and socialist feminist thinking come together in the critique of the current economic system: it is based on the exploitation of nature and care

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<sup>58</sup> The terms *transition* and *transformation* are often used interchangeably in scientific publications. Usage of the word *transformation* tends to emphasise the speed and radicality of change more than the use of the word *transition*. *Transition* is more often used when the process of change, the actors involved and the hurdles are in focus (Child and Breyer 2017). Throughout the remainder of the paper, I predominantly employ the term *transition* as the other narratives focus less on a radical transformation and more on pragmatic approaches to instigate change. Moreover, the term *transition* is more prevalent in the material.

labour and reinforces global inequalities arising from colonial structures. Gender is considered as structural category but also as epistemological category, because, underlying masculine norms of policy-making, such as the fixation on technological solutions to the climate crisis, are being criticised (Hofmeister, Katz, and Mölders 2013; Herdlitschka and Kapitza 2023). Only ecofeminist thinking is explicitly mentioned as such. Especially civil society actors from Africa explicitly describe their thoughts as ecofeminist (c23, c30, c5). It is remarkable that an essentialist connection, in which women are described as "naturally" closer to nature, is not made explicit at any point. This view is also explicitly rejected in some cases: "We don't want to fall into the trap of expecting women to "nurture" the environment back from its destruction"(c4).

Apart from a few exceptions, gender is understood as a binary category in most documents, and this binarity is not questioned. So, postmodern feminism is rarely represented in the gender-just transition discourse. In a few cases, discrimination based on gender non-conformity (c29, u4, g7, c1) or the greater vulnerability of transgender or intersex people in times of climate disasters (u4, r3) is noted. Gender is viewed across narratives in an intersectional way. To consider gender in interaction with other social categories can be considered mainstream in the gender-just transition discourse.

Various recurring themes permeate the narratives, with one key theme centering on land. It is stressed that women should have formal land rights. Furthermore, the narratives state that due to their primary responsibility for agricultural subsistence work, women are particularly susceptible to climate impacts and pollution such as those stemming from coal mining. Moreover, they are considered pioneers in the adoption of eco-friendly farming techniques, with a notable emphasis on agroecology. Another thematic area is (health-)care. Women bear the primary responsibility for this task, and concurrently, the demand for this work will surge in the course of the climate crisis. This makes it all the more urgent for a gender-equitable transition to distribute this work fairly and improve public provision. In general, good working and educational conditions for women are seen across the narratives as an absolute prerequisite for a gender-just transition. The discourse is at an abstract level – few documents go into detail about individual countries. However, there are some interesting geographical specifics. Documents from the Global South, for example, have a larger focus on struggles defending territories, which are strongly led by women.<sup>59</sup> It was striking that those who call their analysis *feminist* or call for a *feminist* just transition tend to use the *transformation narrative* and strive for more fundamental change.

### 5.5.3 Alliances for a gender-just transition

Looking at the discourse as a whole, the *representation narrative* and *policy design narrative* are most often applied (see Figure 15, a). When examining individual actors and their geographic reference points, it becomes evident that the *opportunity narrative* prevails within actors at the global level and among business entities. For actors from the Global South, the *representation narrative* is dominant and the *transformation narrative* is disproportionately frequent in Latin America. At the European level, the

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<sup>59</sup> This struggle for environmental and human rights can be very dangerous because of threats from the state or corporate side (c23, c20, g12, g2, c1).

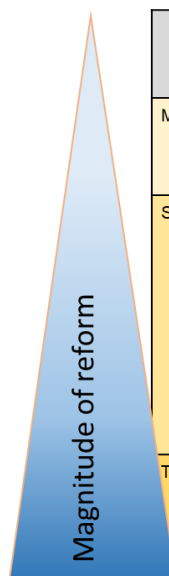
*policy design narrative* is most often used. All narratives except the *transformation narrative* are represented among all actors (with different weightings). The *transformation narrative* is not represented at all among business actors but is disproportionately represented among civil society actors and researchers. UN Women is one of the rare government entities that employs the *transformation narrative*: “The economic system that has made it so difficult for most people to carve out a sustainable livelihood, and has been built on the back of women’s unpaid and underpaid care work, has also created patterns of consumption and production that are destroying the natural environment” (g12, p.51). Behind the other narratives, there is a broader consensus. Actors who aim for a radical change in the sense of the *transformation narrative* often also use other narratives and call for, e.g., greater political and economic representation of women (for a detailed list of which actors apply which narratives, see Table A 4 in the Appendix).

I argue that the entire discourse with its mutually complementary narratives could be understood as a multi-layered vision for a gender-just transition. The narratives can be categorised<sup>60</sup> as different approaches<sup>61</sup> to just transition (Just Transition Research Collaborative 2018) (see Figure 16). The *opportunity narrative* focuses primarily on corporate strategies and educational programs to increase the share of women in green energy sectors, so it has a relatively small scope (Stevis and Felli 2020). I classify this narrative as managerial reform approach because it does not question the existing economic system and balance of power. I consider the *representation*, *policy design*, *fossil phase-out*, and *protection narrative* as structural reform approaches because they aim to reach more distributive and procedural justice by reforming governance structures. The *transformation narrative* can be classified as transformative approach to just transition because it challenges current political and economic institutions, asserting that merely increasing women's representation or allocating more resources within the existing system is insufficient.

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<sup>60</sup> The classification remains rather superficial for reasons of space and because in order to be able to comprehensively assess the extent to which e.g. participation processes really correspond to principles of procedural justice, these would have to be looked at more closely.

<sup>61</sup> The status quo approach that the Just Transition Research Collaborative (2018) defines is primarily concerned with replacing old fossil fuel jobs with new ones. This argument does not appear in my data material, because they all argue that the design of a just transition should not be only about creating new jobs for mostly men who work in fossil energy.



Just transition approach	Gender-just transition narrative	Core policy problem	Core policy solution
Managerial reform	Opportunity narrative	Women benefit too little from the opportunities of the green transition	Increasing women's percentage in STEM fields
Structural reform	Representation narrative	Low participation of women in climate policy decisions	Increasing women's representation in climate politics
	Policy design/ fossil phase-out narrative	Gender specific effects of climate policies too little considered	Better integration of gender equality and climate policy
	Protection narrative	Women are particularly affected by the climate crisis	Increasing women's resource endowment
Transformative approaches	Transformation narrative	Exploitation of care work and ecological services within capitalist economic system	A new economic order that places care for humans and non-humans at the centre

**Figure 16: Integrating gender justice considerations into just transition approaches.**

Source: Own depiction.

The (sketchy) classification shows that the narratives address policy problems at different structural depths and aim at different levels of societal change. Reform-type approaches that aim at smaller scale and scope could be seen as valuable first steps if they go in the direction of more justice and democracy (Stavis and Felli 2020; Just Transition Research Collaborative 2018; Wilgosh, Sorman, and Barcena 2022). Taken together, the various narratives might create a multi-layered vision of a gender-just transition, propose solutions that target different problems, and facilitate the formation of alliances. By working out the narratives and with the classification, I show how gender justice considerations can be more systematically included in the just transition discourse. Of course, there is the danger that the transformative potential is lost if established actors endorse a shared vision (Wilgosh, Sorman, and Barcena 2022) (c22) and power interests place limits on the formation of alliances under a broader narrative of a gender-just transition. Furthermore, some neoliberal ideas that focus primarily on the possibility that more gender equality could lead to more corporate growth, for example, are to be criticized. However, similar to Wilgosh et al. (2022), I would argue that alliance formation is urgently needed, especially in times of a (threatening) right-wing backlash against both climate policy and gender equality policy. It is noticeable that this danger hardly ever appeared in the evaluated documents. I think it is important to know the other narratives and actors, to learn from each other, to form alliances, and thus to strengthen the political actor group that works for a gender-just transition. A prerequisite for alliance building is the development of a shared language and concept (Wilgosh, Sorman, and Barcena 2022; Wang and Lo 2021), to which I aim to contribute with my analysis.

#### 5.5.4 Limitations

My analysis has some limitations. I did not analyse a representative sample of gender-just transition narratives. Many voices were excluded, as they did not publish any documents on their visions of a gender-just transition in English. Some narratives are certainly also published on this topic, but they use

different wording and therefore did not appear in the search. Additionally, from my object of study, the policy documents, I cannot deduce how many resources the actors actually invest in their political work to achieve a gender-equitable transition. The interviewed experts stated that especially when it comes to gender equality issues, there is a danger that policy guidelines and ideas are published by organisations, but hardly any political capital or corporate resources are invested to achieve success in this area. Additionally, actors are differently able and powerful to place their narratives which I did not consider. Incumbents in particular have the resources to place narratives and thus also to influence the transformation paths to serve their interests (Hermwille 2016).

## **5.6 Conclusion**

Achieving more climate protection and gender equality are big challenges. These problems can and should be considered together on many different levels. For example, there is a need for more women in positions of political and corporate responsibility who make climate policy decisions. However, it is not enough to pursue this approach alone; it is also necessary, e.g., to fundamentally question economic institutions, that undervalue care work performed by humans and non-humans, and have led to the multiple crises we face. My analysis offers a comprehensive overview of the political discourse surrounding the integration of gender justice considerations into discussions concerning a just transition. In my analysis, based on the Narrative Policy Framework, I have identified six narratives that are coloured by different feminist theories and concepts of gender, which address different problems and propose solutions in the context of a gender-equitable transition. I think that the different approaches are valuable, can complement each other well, and thereby create a multi-layered vision for a gender-just transition.

The reviewed documents consistently emphasize the urgent need for further research on implementing gender-equitable transitions, particularly through country-specific case studies to identify best practices. What successful gender impact assessments of climate and transition policies exist, for example, and how can they be transferred to other countries? Additionally, using the NPF as a methodological framework, it would be interesting to examine political arenas more closely, where the shaping of transition policies is at stake. It could be examined to what extent gender considerations occur there, by which actors they are presented, and which counter-narratives are formed. I hope that my contribution can stimulate the scientific debate on the gender dimension of just transition and that many more debates and works will follow on how the urgently needed sustainability transition can also advance gender equality.

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## 7 Appendices of individual chapters

### 7.1 Appendix Chapter 2

Table A 1: Queries to databases on 3 June 2020

Portal	Databases	Access provided by	Search Term	Further Limitation	Number of results
Scopus (Elsevier)	Not applicable	Humboldt-Universität zu Berlin (HU Berlin)	(TITLE-ABS-KEY ((gender*) OR (women*) OR (woman*) OR (female*) OR (mother*) OR (femini*) OR (*wives) OR (*wife))) AND (TITLE-ABS-KEY (((coal) OR (lignite*) OR (mining) OR (anthracite*) OR (miner) OR (miners) OR (coalfield*) OR (coalmin*) OR (coalface)) AND NOT ("data mining") AND NOT ("text mining"))) AND (TITLE-ABS-KEY ((transition*) OR (transformation*) OR (change*) OR (reform) OR (closure*) OR (decreas*) OR (declin*) OR (collaps*) OR (crisis) OR (crises) OR (strik*) OR (resistance) OR (protest*) OR (agency) OR (activis*) OR (oppos*)))	Search limited to Title, Abstracts, Keywords; Subject areas limited to Environmental Sciences, Social Sciences, Arts and Humanities, Earth and Planetary Sciences, Business Management and Accounting, Multidisciplinary, Economics Econ-ometrics and Finance, Psychology, Energy, Unde-fined	1,256
Web of Science	Science Citation Index Expanded (SCI-EXPANDED) Social Sciences Citation Index (SSCI) Arts & Humanities Citation Index (A&HCI)	Technische Universität Berlin (TU Berlin)	not applicable (sum of single searches, not generated automatically)	List too long for table, see below <sup>62</sup>	520

<sup>62</sup> Additional parameters Refined by: [excluding] WEB OF SCIENCE CATEGORIES: ( HEALTH CARE SCIENCES SERVICES OR PUBLIC ENVIRONMENTAL OCCUPATIONAL HEALTH OR BIOTECHNOLOGY APPLIED MICROBIOLOGY OR TOXICOLOGY OR NUCLEAR SCIENCE TECHNOLOGY OR ENTOMOLOGY OR IMMUNOLOGY OR PHYSIOLOGY OR NEUROSCIENCES OR SPORT SCIENCES OR PARASITOLOGY OR SURGERY OR WATER RESOURCES OR VETERINARY SCIENCES OR ENDOCRINOLOGY METABOLISM OR ONCOLOGY OR PSYCHIATRY OR GEOCHEMISTRY GEOPHYSICS OR COMPUTER SCIENCE INFORMATION SYSTEMS OR NURSING OR ZOOLOGY OR ORNITHOLOGY OR ORTHOPEDICS OR BIOCHEMISTRY MOLECULAR BIOLOGY OR EVOLUTIONARY BIOLOGY OR BIOLOGY OR TROPICAL MEDICINE OR RESPIRATORY SYSTEM OR UROLOGY NEPHROLOGY OR MEDICINE GENERAL INTERNAL OR METALLURGY METALLURGICAL ENGINEERING OR CHEMISTRY ANALYTICAL OR PHARMACOLOGY PHARMACY OR METEOROLOGY ATMOSPHERIC SCIENCES OR CHEMISTRY MULTIDISCIPLINARY OR COMPUTER SCIENCE THEORY METHODS OR CLINICAL NEUROLOGY OR MEDICINE RESEARCH EXPERIMENTAL OR COMPUTER SCIENCE INTERDISCIPLINARY APPLICATIONS OR DERMATOLOGY OR AGRONOMY OR ENGINEERING CHEMICAL OR INFECTIOUS DISEASES OR BIOCHEMICAL RESEARCH METHODS OR FISHERIES OR RADIOLOGY NUCLEAR MEDICINE MEDICAL IMAGING OR BIOPHYSICS OR FORESTRY OR GENETICS HEREDITY OR CARDIAC CARDIOVASCULAR SYSTEMS OR EDUCATION EDUCATIONAL RESEARCH OR COMPUTER SCIENCE ARTIFICIAL INTELLIGENCE OR MICROBIOLOGY OR PLANT SCIENCES OR HORTICULTURE OR OBSTETRICS GYNECOLOGY OR PSYCHOLOGY MULTIDISCIPLINARY OR MEDICINE LEGAL OR MARINE FRESHWATER BIOLOGY OR REPRODUCTIVE BIOLOGY OR PEDIATRICS OR BIODIVERSITY CONSERVATION OR AGRICULTURE MULTIDISCIPLINARY OR CELL BIOLOGY OR CHEMISTRY APPLIED )



	<p>Conference Proceedings Citation Index- Science (CPCI-S)</p> <p>Conference Proceedings Citation Index- Social Science &amp; Humanities (CPCI-SSH)</p> <p>Book Citation Index- Science (BKCI-S)</p> <p>Book Citation Index- Social Sciences &amp; Humanities (BKCI-SSH)</p> <p>Emerging Sources Citation Index (ESCI)</p>				
ProQuest	<p>ABI/INFORM Collection</p> <p>Applied Social Sciences Index &amp; Abstracts (ASSIA)</p> <p>British Periodicals</p> <p>Digital National Security Archive</p> <p>ERIC</p> <p>PAIS Index</p> <p>Periodicals Archive Online</p> <p>Periodicals Index Online</p> <p>Sociological Abstracts</p> <p>Worldwide Political Science Abstracts</p>	Technische Universität Berlin (TU Berlin)	<p>((noft(transition*) OR noft(transformation*) OR noft(change*) OR noft(reform) OR noft(closure*) OR noft(decreas*) OR noft(declin*) OR noft(collaps*) OR noft(crises) OR noft(crisis) OR noft(strik*) OR noft(resistance) OR noft(protest*) OR noft(agency) OR noft(activis*) OR noft(oppos*)) AND ((noft(coal) OR noft(lignite*) OR noft(mining) OR noft(anthracite*) OR noft(miner) OR noft(miners) OR noft(coalfield*) OR noft(coalmin*) OR noft(coalface)) NOT noft("data mining") NOT noft("text mining")) AND (noft(gender*) OR noft(woman*) OR noft(women*) OR noft(female*) OR noft(mother*) OR noft(femini*) OR noft(wives) OR noft(housewives) OR noft(wife) OR noft(housewife))) NOT stype.exact("Wire Feeds"))</p>	<p>noft=all fields excluding full text</p> <p>newspaper feeds excluded</p> <p>does not allow for * before word, *wife/wives supplemented by wife/wives and housewife/wives</p>	1,632
EBSCO	EconLit	Freie Universität Berlin (FU Berlin)	<p>(transition*+ OR +transformation*+ OR +change*+ OR +reform+ OR +closure*+ OR +decreasing+ OR +decrease*+ OR +declin*+ OR+collaps*+ OR +cris*s + OR +strik*+ OR +resistance+ OR +protest*+ OR +agency+ OR +activis*+ OR +oppos*+ AND +(mining + OR +lignite*+ OR +anthracite*+ OR +coal+ OR +miner+ OR +miners+ OR +coalfield*+ OR +coalface+ OR +((NOT+"data+mining"))+ OR + ((NOT+"text+mining")))+ AND +(gender*+ OR +woman*+ OR + women*+ OR +female*+ OR +mother*+ OR + femini*+ OR +*wives+ OR +*wife)</p>	<p>no limitations applied</p>	122

## 7.2 Appendix Chapter 4

**Table A 2: Codebook**

Code	Subcode	Information/theoretical background
Negative condition descriptions and challenges		codes to broadly capture what is considered relevant in the dominant discourse and the (potentially) counter- discourse
Needs of Lusatia		
Positive state descriptions		
Opportunities and potentials of Lusatia		
Competition/Competitiveness		Referring to the concept of hegemonic masculinities
Innovation		
Jobs		Inductively developed codes based on the policy documents
Transformation		
Future		
Quality of Life		
Identity		Inductively developed code
Care associated with femininity	(Not paid) direct care for people	Referring to care theory especially Tronto 2013
	Professional care work	
	Art and culture	
	Education	
	Mobility	
	Climate protection measures	
	Other forms of direct and indirect care for humans and nonhumans	
Nonhumans		(Puig de la Bellacasa 2017)
Social infrastructure		Inductively developed code based on the interviews
Women in local politics		Referring to care theory
Structural change (transition) process		Referring to context / research question
Women on the labour market/ Working conditions for women		Referring to context / research question

Outmigration of women	Referring to the context / research question
Inertia of patriarchal system	Inductively developed code taking reference to “inertia of the petrocultural status quo” (I. K. Allen 2022, 194) about Wilson et al. (2017)
Criticism of the mainstream	Code to capture the critique of dominant discourse
Lack of ideas	Inductively developed code
Nationalist structures	Inductively developed code

## 7.3 Appendix Chapter 5

**Table A 3: Codebook including deductively and inductively developed codes**

Code	Description	Theoretical background
Policy problem	Which policy problem is described? How fundamental is the policy problem?	Narrative Policy Framework (NPF)
Setting	The setting in which the policy problem is embedded	NPF
Policy solution	Proposed solution	NPF
Character 1: Hero	Who could potentially fix the policy problem?	NPF
Character 2: Villain	Who is causing the policy problem?	NPF
Character 3: Victim	Who is harmed?	NPF
Plots <sup>63</sup>	How are the characters and their relationships and actions embedded in the policy setting?	NPF
Gender categories	Are the two categories men and women seen as universal or culturally formed?	Post-modern feminism
Intersectional dimension	Are social categories interacting with gender (race, class etc.) seen as relevant?	Especially socialist feminism
Struggle and resistance	To what extent are local resistance movements talked about?	Post-colonial feminism
Women and nature	How is the connection made?	Ecofeminism
Capitalism	How is capitalisms talked about?	Socialist feminism
Colonialism	How is colonialism talked about?	Post-colonial feminism
Degrowth	Is a shift away from GDP growth considered?	Socialist feminism and ecofeminism
Representation and participation	What are the demands with regard to the representation and participation of women?	Liberal feminism
Covid	How is Covid being discussed and what political demands are arising from the experience of the pandemic?	Inductively developed
Land	Which role does access to and control over land play for a gender-just transition?	Inductively developed

<sup>63</sup> For the analysis of plots I built on a modified typology of prototypical plots by Stone (2012) similar to Hermwille and Sanderink (2019) and Hermwille et al. (2023). As described in the discussion, they turned out to be not so relevant for my analysis, so I decided not to present them all individually in the codebook for the appendix.

**Table A 4: Overview of analysed documents (Narratives abbreviated)**

Title	Institution(s)	(Lead) Author(s)	Acro- nym	actor type	Geographic reference point	date	Pr N.	PoD N.	F N.	O N.	Re N.	Tr N.
Gender Equity in the Just Transition and the Shift to Green Jobs	BSR	Kate Coles, Annelise Thim and Samantha Harris	b1	business	Global	2021				x	x	
Gender-smart investing as an enabler of the just transition	British International Investment		b2	business	Europe			x		x	x	
International Women's Day 2019: remembering gender in the just transition	PRI	Bettina Reinboth	b3	business	Global	2019		x		x	x	
Investing in the care economy for a feminist economic transition and a quadruple win	KORE Global	Carolina Robino and Rebecca Calder	b4	business	North America	2022	x					
Women and the Net Zero economy: A transition toolkit for businesses with global supply chains	PWC, Business Fights Poverty and Harvard Kennedy School	Alice Allan and Annabel Beales	b5	business	Global		x	x	x	x	x	
Women and the Net Zero economy: A briefing on changes in garment, agriculture and energy supply chains	PWC	Georgia Stevenson	b6	business	Global	2021		x		x		
Just (Global feminist) transitions	JASS		c1	civil society	Global South	2017					x	x
A feminist interpretation of just and equitable transitions in the context of climate change	Asia Pacific Forum on Women, Law and Development		c2	civil society	Asia	2017	x	x			x	x

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Just Energy Transition Is A Feminist Agenda	Capire	Marianna Fernandes	c3	civil society	Global	2021		x				x
JUST transition? Only if women are taken into account	Just Transition Blog and Bankwatch	Joanna Jakubowska	c4	civil society	Europe	2022			x	x	x	
Let's Make 2023 the Year of Feminist Leadership in Climate Action	Natural Justice	Lauren Nel	c5	civil society	Africa	2022	x	x			x	x
Making the Green Transition Work for Women: Unlocking Gender-just Economic Opportunities in the Era of Crisis Recovery	CARE	Mareen Buschmann	c6	civil society	Global	2022	x	x		x	x	
No Climate Justice without Gender Equality	Rosa Luxemburg Stiftung	Interview with Emilia Reyes	c7	civil society	Latin America	2022	x	x			x	x
Setting a Roadmap for a Feminist Green Transformation: Using Economic, Social, Cultural and Environmental Rights as Guiding Tools for a Gender-Just Transition	The Global Initiative for Economic, Social and Cultural Rights	Alejandra Lozano	c8	civil society	Global	2022	x	x		x	x	x
Some Keys for a feminist and popular energy transition	ProDESC	Verónica Vidal Degiorgis	c9	civil society	Latin America			x			x	x
South Africa's women need the energy transition to work for them	China Dialogue	Dianah Chiyangwa	c10	civil society	Africa	2023		x	x		x	
The energy transition is part of the feminist and a human rights agenda	GNHRE	Alejandra Lozano and Lorena Zenteno	c11	civil society	Global	2022	x			x		x

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The EU's transition to climate justice and gender equality	FEPS	Gill Allwood	c12	civil society	Europe	2022	x	x			x	
Submission to the United Nations Special Rapporteur on Extreme Poverty and Human Rights on gender equality as a central component of a just transition	The Global Initiative for Economic, Social and Cultural Rights		c13	civil society	Global	2020	x	x		x	x	
There can be no #ClimateJustice without #GenderJustice	Earthlife Africa		c14	civil society	Africa	2022				x	x	
Women's Participation in the Renewable Energy Transition: A Human Rights Perspective. Towards a gender-just transition	The Global Initiative for Economic, Social and Cultural Rights	Alejandra Lozano	c15	civil society	Global	2021	x	x		x	x	
Women must be part of a just, climate-resilient transition - Hivos	Hivos and ENERGIA	Sheila Oparaocha	c16	civil society	Global South		x	x		x	x	
17- Are there feminist perspectives on the energy transition?	tni and Taller Ecologista		c17	civil society	Latin America		x				x	x
A Feminist European Green Deal. Towards an ecological and gender just transition	Friedrich-Ebert Stiftung, WECF, EEB	Rose Heffernan, Patrizia Heidegger, Gabriele Köhler, Anke Stock, Katy Wiese	c18	civil society	Europe	2021	x	x	x			x
A Just Transition must have Gender Equality at its core	PES and SOLIDAR	Mikael Leyi	c19	civil society	Europe	2021	x	x			x	

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ACTIVATING FEMINIST NATURAL RESOURCE GOVERNANCE TO HERALD A JUST TRANSITION: 18-POLICY IMPERATIVES	open letter by African civil society organisations		c20	civil society	Africa	2020		x			x	
Climate Justice Is Racial Justice Is Gender Justice	YES! Magazine and NAACP Environmental and Climate Justice Program	Interview with Jacqueline Patterson	c21	civil society	North America	2017						x
If it's not feminist, it's not just. WOMEN'S VOICES, ANALYSIS AND ACTION TOWARDS A JUST ENERGY TRANSITION	Friends of the Earth International	Marianna Fernandes	c22	civil society	Global	2021	x	x			x	x
a pan-african ecofeminist womanifesto	FEMNET		c23	civil society	Africa	2022		x			x	x
Catalyzing Action towards Gender Equality and Women's Empowerment to accelerate a Just, Inclusive and Sustainable Energy Transition	Gender and Energy Compact		c24	civil society	Global	2022	x	x		x	x	
Another World is Possible: Advancing feminist economic alternatives to secure rights, justice and autonomy for women and a fair, green, gender equal world	Actionaid	Rachel Noble, Rachel Walker, Lila Caballero and Asha Herten	c25	civil society	Global	2020	x	x				x



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Further steps are needed to ensure a gender-just energy transition	Friedrich-Ebert Stiftung and ENERGIA	Silvia Sartori	c26	civil society	Europe	2020	x	x		x		
Gender Equality & Just Transition	WEDO	Majandra Rodriguez Acha	c27	civil society	Global	2016				x		
Gender in the transition to sustainable energy for all: From evidence to inclusive policies	ENERGIA	Joy Clancy, Andrew Barnett, Elizabeth Cecelski, Shonali Pachauri, Soma Dutta, Sheila Oparaocha and Annemarije Kooijman	c28	civil society	Global	2019		x		x	x	
Why the European Green Deal needs ecofeminism	EEB and WECF	Patrizia Heidegger, Nadège Lharaig, Katy Wiese, Anke Stock, Rose Heffernan	c29	civil society	Europe	2021	x	x	x	x	x	x
Standing in solidarity with peasant and working-class women in Africa as they build a collective vision for a just and sustainable future!	Womin		c30	civil society	Africa	2018	x				x	x
2. Assessing the integration of gender equality in environmental policies and tools in Greece   Empowering Women in the Transition Towards Green Growth in Greece	OECD		g1	governmental	Global	2022		x		x	x	
Key levers to catalyse a green and gender equitable recovery	UN women		g2	governmental	Global	2021		x			x	

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For a Just Transition in Africa, We Need Women's Leadership	The B Team	Monica Maduekwe and Allison Robertshaw	g3	governmental	Africa	2019	x	x			x	
Gender equality and climate change: towards mainstreaming the gender perspective in the European Green Deal		Kata Tüttö	g4	governmental	Europe	2022	x	x		x	x	
Gender, labour and a just transition towards environmentally sustainable economies and societies for all	ILO		g5	governmental	Global	2016	x	x	x	x	x	
Just Transition Archive - Urbanet Climate Neutrality: What Does Gender Have to Do With It?	Urbanet	Annika Dalén	g6	governmental	Europe	2023		x			x	
Just Transition for All: A Feminist Approach for the Coal Sector	Worldbank	Kuntala Lahiri-Dutt	g7	governmental	Global	2021	x	x	x	x	x	x
Just Transition: An Essential Pathway to Achieving Gender Equality and Social Justice	ILO	Gabriela Balvedi Pimentel	g8	governmental	Global	2022	x	x		x	x	
No "Just Transition" Without Gender Equality	Global Green Growth Institute		g9	governmental actor	Global	2022	x	x		x		
PATHWAYS FOR JUST TRANSITIONS: gender responsive policies & place based investment	Just Transition Initiative, CSIS and CIF	Ben Cahill and Mary Margaret Allen	g10	governmental	Global	2021	x	x		x	x	
UNECE examines the gender dimensions of a just transition out of coal mining	UNECE		g11	governmental	Global	2022		x	x			

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Beyond COVID-19: A Feminist Plan for Sustainability and Social Justice	UN women	Laura Turquet	g12	governmental	Global	2021	x	x		x	x	x
Gender Integration in NDCs: A Commonwealth Best Practice Guide	The Commonwealth	Ruth Kattumuri	g13	governmental	Global	2022	x	x		x	x	
Gender, climate and finance: How financial institutions can support a gender-just transition	UN Environment Programme – Finance Initiative	Joana Pedro and Cassandra Devine	g14	governmental	Global	2022	x	x		x	x	
The energy transition fueled by women’s participation & leadership	Worldbank	Demetrios Papathanasiou and Hana Brix	g15	governmental	Global	2023				x		
Investing in girls & women as agents of change for green transition	Worldbank	Hana Brix, Jaime Saavedra and Shobhana Sosale	g16	governmental	Global	2023				x		
What Does Justice Look Like in a Gender-Just Transition for a New Eco-Social Contract?	UNRISD	Somali Cerise and Laura Turquet	g17	governmental	Global	2022	x	x			x	x
Just Transition and Gender – A Review	UN women	Samantha Smith	g18	governmental	Global	2021	x	x	x	x		
Tracking gender and the clean energy transition	IEA		g19	governmental	Global	2018		x		x	x	

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Designing feminist energy systems: climate politics beyond 'jobs' and 'babies' - Autonomy	The Mayapple Energy Transition Collective	Cara Daggett, Christine Labuski and Shannon Elizabeth Bell	r1	researcher	North America	2022		x				x
Ecofeminism and a 'Just Transition'	GWG Beyond Development	Ariel Salleh	r2	researcher	Australia	2021	x				x	x
Just transition in South Africa: the case for a gender just approach	TIPS	Nokwanda Maseko	r3	researcher	Africa	2021	x			x	x	x
GENDER AND JUST TRANSITION: Envisioning a Gender-Transformative Pathway to Energy Transition in India's Coal States	Centre for Policy Research	Suravee Nayak and Ashwini K Swain	r4	researcher	Asia	2023		x	x	x	x	
Mapping the Intersection of Women's Economic Empowerment, Care Work and Clean Energy	IDRC CRDI	Kate Grantham	r5	researcher	North America	2022		x		x	x	
Integrating gender in transitions to renewable energy in the Lower Mekong Region	SEI	Sofie Mortensen and Michael Boyland	r6	researcher	Asia	2019		x		x	x	
IndustriALL calls for a gender-transformative and inclusive Just Transition   IndustriALL	IndustriALL		u1	union	Global	2022				x		
A feminist just transition must be anti-patriarchal and decolonial	Public Services International	Verónica Montúfar	u2	union	Global	2022						x
Global Unions call to action for a gender-transformative and inclusive just transition for a green and caring world	Several Global Unions		u3	union	Global		x		x	x	x	

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The Gender Dimensions of the Climate Crisis and the European Green Deal	EPSU	Larissa Nenning	u4	union	Europe	2022	x	x	x	x	x	x