IN SEARCH OF
JUST TRANSFORMATIONS

EXPLORING THE TRANSFORMATIVE POTENTIAL OF ENVIRONMENTAL
JUSTICE MOVEMENTS IN CENTRAL AND EASTERN EUROPE

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Abstract

This thesis argues that integrating environmental justice considerations into transformation efforts is essential for long-term and sustainable societal change. Tackling wicked problems like climate change involves fundamental social changes, requiring closer examination of social and ecological aspects rather than forceful enforcement of solutions. This is best achieved through contextualized and tailor-made sustainability solutions. Transformative change is often driven by place-based struggles that coalesce around social-ecological conflicts and injustices, embodying environmental justice movements aimed at halting or preventing social and environmental damage. To better understand movement-induced transformation processes for social justice and environmental sustainability, the concept of *just transformations* has emerged in scientific and policy discourse. Despite the prominence of place-based struggles in Central and Eastern Europe, their potential for just transformations remains understudied. Therefore, this thesis aims to expand theoretical and empirical understandings in this context.

To achieve this, a comprehensive literature review and expert interviews are conducted to develop the study's analytical framework for just transformations. This framework incorporates insights from various transition literature, emphasizing critical, deliberate, and just approaches to transformations based on four criteria: (1) directionality, (2) spheres, (3) scales, and (4) depth of change. The developed framework is empirically applied to two case studies in Central and Eastern Europe, focusing on environmental justice movements in Poland and Romania opposing major extractive energy projects in coal and shale gas production, respectively. The cases are assessed using semi-structured interviews, document analysis, and desk research.

Following the empirical analysis, the framework is further refined and contextualized, revealing novel indicators. Findings suggest that environmental justice movements are transformative when they outline higher-level objectives beyond conflict resolution in their directionality, challenging incumbent paradigms in the energy sector. Paradigms are embedded in cultural, relational, and structural hegemonic power types, which need to be configured simultaneously for deep changes. Targeting relational and cultural power is crucial in the region, achievable even amidst drastic top-down structural measures. Through the configuration of hegemonic power, spheres of just transformations can be enhanced across broader scales, which the Polish case demonstrates. Changes in one sphere foster changes in others, highlighting the interconnectedness of transformation dimensions. Unique contextual findings of the Romanian case reveal negative outcomes in certain spheres, which cautions for closer scrutiny and an integrative approach in planning sustainability transformations.

Although none of the movements achieved a fully just transformation, when coupled with broader change processes and movements, they become crucial drivers of transformative change.

Keywords: environmental justice, environmental justice movements, just transformations, sustainability, framework, critical and contextual approaches, Central and Eastern Europe.

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Finally, thank you for taking the time to read this thesis. I know it is lengthy, but I hope you find it interesting and thought-provoking.

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List of Acronyms

ATF	Alternatives transformation framework
CEE	Central and Eastern Europe
CTF	Conflict transformation framework
EIA	Environmental impact assessment
EJ	Environmental justice
ENGO	Environmental non-governmental organization
EU	European Union
JT	Just transformations
NGO	Non-governmental organization
SEC	Social-ecological conflict
SES	Social-ecological system
SET	Social-ecological transformation
StopEP	Stop Elektrownia Północ

1. Introduction

Issues of justice have been integral to policy and academic debates about climate change and governance practices (Bulkeley et al., 2013). For instance, the United Nations Sustainable Development Goals (SDGs) aim for social equity, environmental protection, and minimizing economic inequalities (Kronenberg et al., 2020). Similarly, just transitions are at the heart of the European Union's policy processes with strategies such as the Just Transition Mechanism that aim for a fair transition towards a climate-neutral economy (European Commission, n.d.) and the Aarhus Convention for environmental democracy that gives access to justice for the public (European Commission, 2021). At more grassroots levels, environmental justice has become a salient consideration for communities to protect their environment and rights against continuous "appropriation, transformation and dispossession of nature" (Álvarez & Coolsaet, 2018, p. 1).

Importantly, transformative approaches are often provoked by environmental injustices that lie in ecological conflicts and the resulting changes in social metabolisms (Temper et al., 2018a; Temper et al., 2018b). These transformations are often the result of place-based struggles and are embodied in movements to halt or prevent environmental damage and pollution that could adversely impact communities. The Environmental Justice Atlas (EJ Atlas) also represents this relationship between environmental injustice, conflict, and sustainability transformation with a considerable number of cases of conflict-induced environmental justice (EJ) movements (Martin et al., 2020; Temper et al., 2015). Such movements are important both locally and globally in our search for an ecologically and socially just world (Temper et al., 2018a). Therefore, this paper seeks to highlight the importance of placing environmental justice at the heart of sustainability transformations.

However, the definition of environmental justice changes with place, time and the perspectives of the community affected (Martínez-Alier et al., 2016; Špirić, 2017). While socio-ecological conflicts are extensively researched in core and peripheral regions, our understanding of this is more limited in the semi-periphery (Špirić, 2017; Velicu, 2019). According to world systems theory, the semi-periphery comprises countries that are in an intermediate position in the core-periphery hierarchy (Martin et al., 1998). In the European context, the semi-periphery consists of countries recently acceded to the EU as well as aspiring members (Špirić, 2017). This covers various Central and Eastern European (CEE) countries that underwent a complex transition process from socialism to capitalism (Baker & Jehlička, 1998). This involved shifts to constitutional democracy, market economy, and the organization of civil society (Baker & Jehlička, 1998). The region constantly aims to become core through further economic development which is consequently accompanied by various ecological conflicts (Špirić, 2017). Overall, as ecological conflicts are often induced by growth and changes in social metabolisms (such as energy flows and economic materials) (Temper et al., 2018a), the European semi-periphery is an extremely important region to study.

1.1. Problem definition and knowledge gap

1.1.1. The notion of just transformations

Although the theoretical notion of environmental justice is embraced, its practical notion is often overlooked when planning for sustainability at both global and local scales (Kronenberg

et al., 2020; Menton et al., 2020). Regarding global sustainability governance, although many environmental problems are inherent problems of justice, the SDGs only implicitly refer to justice aspects, with understandings of transformation and justice biased towards the dominant and most represented voices (Menton et al., 2020; Sénit, 2020). Overall, despite the growing need to extend and provide a more holistic and geographically sensible framework for environmental justice (Álvarez & Coolsaet, 2018; Menton et al., 2020; Temper, 2018; Velicu & Kaïka, 2017), the notion of just transformations (JT) predominantly lies in mainstream environmental justice frameworks defined through Western concepts and knowledge (Bennett et al., 2019; Álvarez & Coolsaet, 2018). Without a more holistic understanding of environmental justice, fully just transformations will be difficult to realize (Menton et al., 2020).

1.1.2. The transformative potential of environmental justice movements

Importantly, the role of EJ movements in sustainability transformations remains an even greater gap in the literature, despite their effort to actively redefine and promote sustainability and foster social mobilizations (Temper et al., 2018a). Various cases reported in the EJ Atlas demonstrate that greater environmental justice brings greater environmental sustainability (Scheidel et al., 2017). Thus, further investigation of their transformative power is needed to better understand their strategies driving alternative visions for sustainability transformations. This is crucial as alternatives allow for more radical sustainability transformations, while mainstream visions work within existing structures of the global economy (Sénit, 2020). Considering the urgency of transformative change for achieving sustainability and justice, many believe that incremental and reformist changes are not effective and that more radical approaches are needed (Martin et al., 2020).

1.1.3. The contextual implications of Central and Eastern Europe

Notably, scholars have drawn attention to the cruciality of recognizing the difference between contexts to truly understand what constitutes environmental (in)justice for different communities and what practices are used (Holifield et al., 2009). Hence, there is a growing need to refine and extend the environmental justice framework for just transformations to fit wider contexts, avoid the reproduction of colonial knowledge, and provide viable, context-bound, and just sustainability solutions all around the world (Álvarez & Coolsaet, 2018; Menton et al., 2020; Temper, 2018; Velicu & Kaïka, 2017). Our understanding of the CEE context in this respect is even more limited. The concepts and organizational models for sustainability in the region are often adopted from Western environmental knowledge, disregarding important contextual differences (Jehlička & Jacobsson, 2021). It is thus crucial to investigate how grassroots initiatives such as EJ movements can foster transformations through impacting power structures, and different spheres and scalar dynamics of transformations in semi-peripheral, non-Western contexts. This particularly pertains to understanding the contextual implications of CEE for collective action, especially the various strategies of EJ movements that can induce transformations (Temper et al., 2018b). Considering that dominant and marginalised ways of thinking and doing merge in semi-peripheral regions, these contexts allow for novel sustainability solutions to fill in the outlined gap in our understanding (Špirić, 2017).
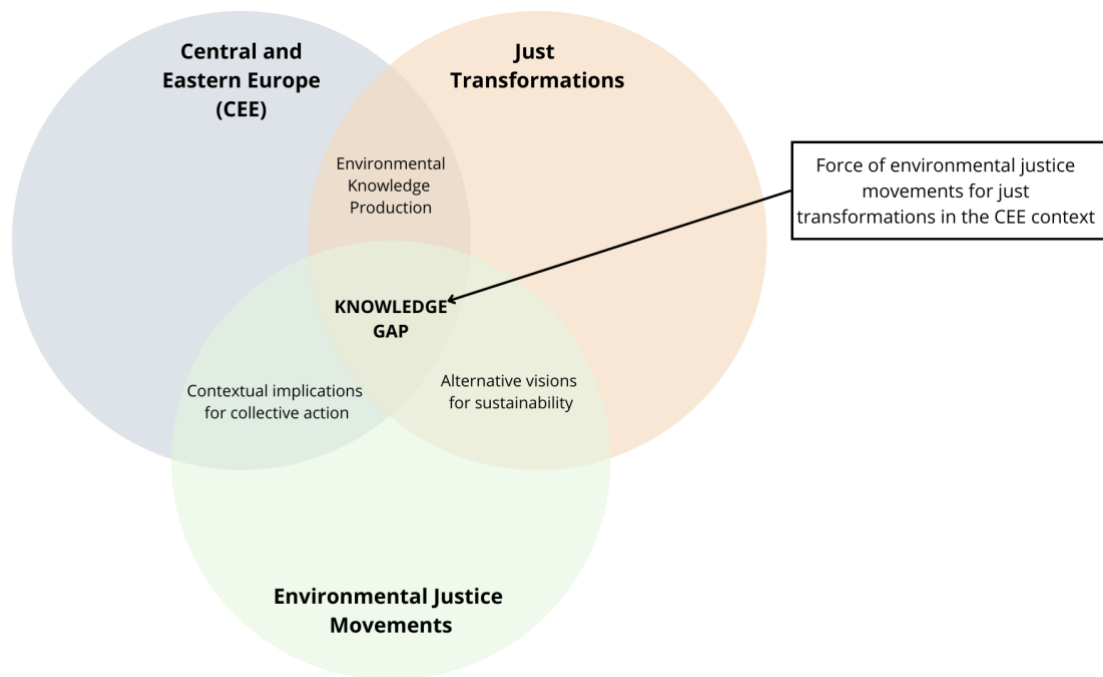
Figure 1. Knowledge gap under investigation.

1.2.   Research objective and research questions

This research aims to fill in the above knowledge gap by generating exploratory knowledge about the potential of EJ movements for just transformations in the Central and Eastern European context. Exploratory research is particularly relevant to discover novel and underexplored topics to reveal new insights and knowledge in wider contexts (Elman et al., 2020).

Therefore, the research objective is to provide theoretical and empirical contributions to understanding the force of EJ movements for just transformations in CEE countries. This is achieved through a critical review of the literature and a comparative analysis of EJ movement cases to identify their contribution to just transformations and the underlying strategies that facilitate these processes. To assess this, a comprehensive analytical framework is developed, incorporating both literature and empirical insights to extend and contextualize the theoretical background of EJ movements and just transformations. Subsequently, a comparative case study analysis examines the just transformative character, impact, and objectives of EJ movements in Poland and Romania, specifically within the region's energy sector. Based on the theoretical and empirical findings, practical recommendations are proposed. This research objective is reflected in the following exploratory research question and corroborative sub-questions:

RQ: In what ways do environmental justice movements in Central and Eastern Europe contribute to just transformations when addressing social-ecological conflicts, and how can they enhance our understanding of sustainability transformations in this context?

SQ1: How can just transformations be defined and operationalized within the Central and Eastern European context?

SQ2: What is the transformative character of the strategies employed by the movements in Central and Eastern Europe?

SQ3: How and to what extent do the selected environmental justice movements foster just transformative impacts in this context, and how do these impacts compare across the movements?

SQ4: How do environmental justice movements in Central and Eastern Europe develop objectives that serve as alternatives to the region's social-ecological system?

SQ5: What additional empirical and practical insights can be derived from the analysis to inform our understanding of just transformations in Central and Eastern Europe?

1.3.   Scientific relevance

Previous research showed that environmentalism and the shape of social movements for environmental justice can share similarities but can also greatly differ across contexts (Martinez-Alier et al., 2016). This implies different forms of potential and prefigurative power for transformations in different contexts. This study addresses this by investigating how environmental justice is conceived and enacted in practice in a specific and often understudied context, Central and Eastern Europe. Research on environmental justice and movements is mostly focused on the world's core and periphery (Špirić, 2017; Velicu, 2019). Few studies focused on societies that are geographically, economically, and politically positioned between core and periphery regions. Overall, even when CEE is studied, environmentalism is mostly assessed against concepts and frameworks for and from Western contexts, often resulting in negative assessments of sustainability initiatives (Jehlička & Jacobsson, 2021; Kronenberg et al., 2020). The post-colonial and decolonial approaches can provide a novel and valuable lens for assessing sustainability in the semi-periphery and shift unfavourable comparisons towards a productive difference approach (Jehlička & Jacobsson, 2021; Müller, 2018). But at the same time, it is important to recognise the imperial/colonial history of CEE and provide a critical perspective on the region (Albrecht, 2019). Therefore, the development of a context-specific framework could enrich our empirical and theoretical understanding of the region in terms of just transformations and the strategies of movements that can facilitate, or potentially, constrain them.

1.4.   Societal relevance

Although ecological conflicts and the induced EJ movements are a growing field of study (Temper et al., 2018a), their transformative power for just sustainability is still overlooked (Temper et al., 2018b). As changes in social metabolisms took place quite suddenly in Central and Eastern European societies (Špirić, 2017), their implications for environmental justice and sustainability transformations require greater attention.

The post-socialist countries in CEE are committed to the Paris Agreement and sustainable development, and many have outlined national strategies to achieve the SDGs (Kronenberg et al., 2020). Yet, environmental justice is often unknown outside of closed academic circles and environmental non-governmental organizations (ENGO), and thus, it is rarely addressed in power and political processes (Špirić, 2017; Velicu, 2019). If they cover it

at all, it is mostly present in urban development strategies and includes only the theoretical basis of problems without offering solutions suitable for the local conditions (Kronenberg et al., 2020). Therefore, it is crucial to bring environmental justice to the forefront of academic and policy debates in this region. By politicizing socio-environmental issues, more equitable and sustainable futures can be envisioned as the focus is put on the different worlds and ecologies people want to live in (Temper et al., 2018a). Overall, this study could foster policymaking for environmental justice and sustainability transformations in this special context by outlining a more tailor-made and context-bound approach.

1.5. Research framework

The steps to answer the research questions are schematically illustrated in Figure 2.

Firstly, an extensive literature review is performed to derive the relevant concepts and their relations (phase 1). Further desk research in phase 2 reveals the most important EJ movement strategies and the dimensions of just transformations to develop the analytical framework (SQ1). In phase 3, the framework is applied to two similar cases of EJ movements in Central and Eastern Europe. For this, the cases are analysed and compared to reveal their transformative character (SQ2), just transformative impact (SQ3), and alternative objectives to the region's existing SES, the energy sector (SQ4). Subsequently, the findings are synthesised in phase 4. Based on the theoretical and empirical findings, SQ1 is revisited to propose a context-bound and expanded just transformations framework for Central and Eastern Europe. Lastly, academic and practical recommendations are formulated for just transformations and EJ movements in the specified context (SQ5).
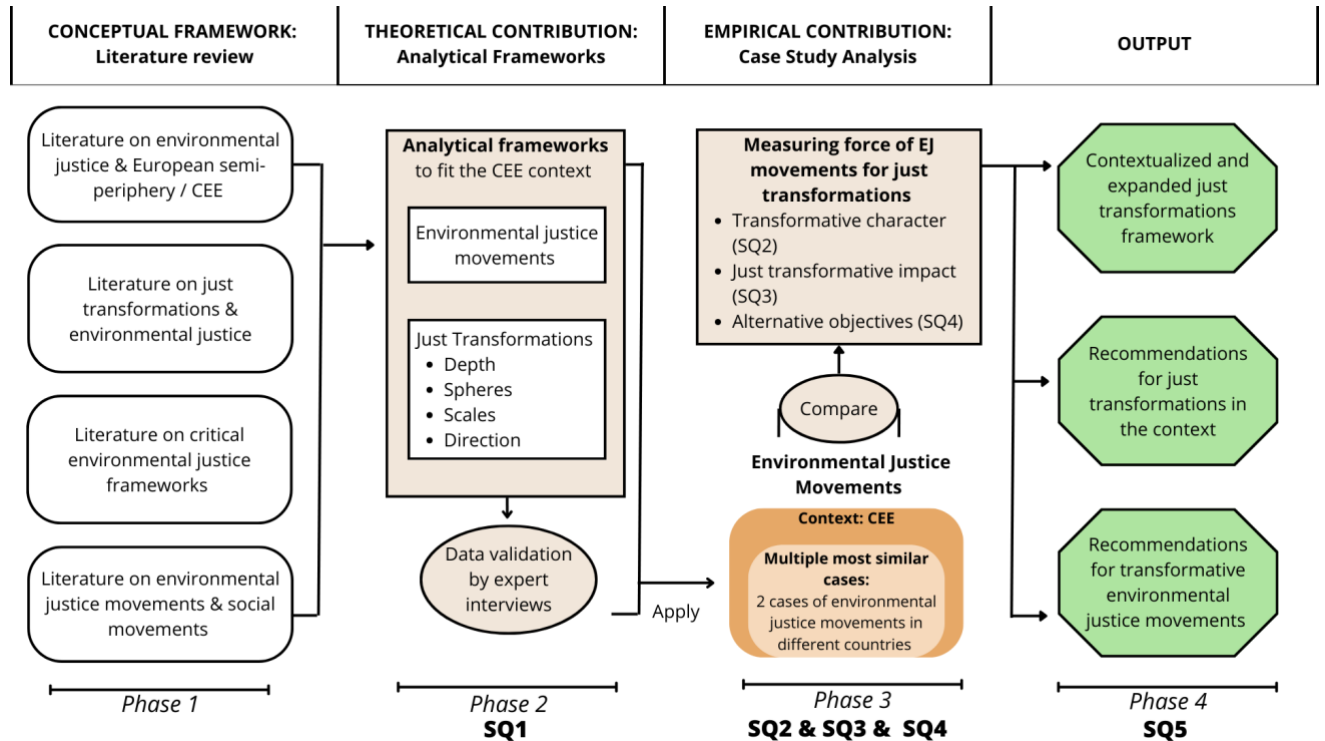
Figure 2. Research framework.

2. Conceptual research design

2.1. Theoretical background

The theoretical background of just transformations is at the cross-section of the following fields: transformations towards sustainability, environmental justice, and environmental justice movements. Therefore, this section provides an overview of insights from these fields and their contribution to the conceptualization of just transformations in the energy sector.

2.1.1. The notion of just transformations

Transformations to sustainability are increasingly highlighted in sustainability science to address social and ecological crises (Feola, 2015; Patterson et al., 2017; Temper et al., 2018b). Transformation is a multifaceted and multilevel process which does not only entail a shift to sustainability, but also a radical and systemic change in deeply held values and beliefs, patterns of social behaviour, and multilevel governance (Feola et al., 2021; Westley et al., 2011). Such fundamental and radical changes are crucial considering the magnitude and disruptive nature of global environmental change (Feola, 2015; Westley et al., 2011).

There are various conceptual approaches in the literature that refer to these fundamental shifts; this paper uses the term 'just transformations' (JT) which is becoming more embedded in scientific and policy terminologies (Bennett et al., 2019; Kothari et al., 2023; Schlosberg et al., 2017). Importantly, it is a nascent and plural field in which many paradigms coexist (Bennett et al., 2019; Feola, 2015), and therefore, this paper aims to review critical approaches that promote societal change towards sustainability and consider justice at grassroots and higher levels of society (see next section).

Overall, placing justice considerations at the heart of transformations is of utmost importance as issues of equity and social justice are often overlooked in sustainability science (Agyeman, 2013; Bennett et al., 2019). Yet, societal transformations are shaped by and shape the distribution of wealth, opportunities, and privileges attributed to different social groups (Blythe et al., 2018). Such considerations are especially important when tackling wicked problems such as climate change which requires fundamental social changes (Agyeman, 2013). It is thus argued that transformations need to integrate justice as a fundamental goal to allow for long-term and sustainable societal changes, where the justice and sustainability aspects reinforce each other (Martin et al., 2020; I. Rodriguez, personal communication, January 16, 2024; J. Tschersich, personal communication, February 6, 2024). This thesis follows the work of Bennett et al. (2019) who embrace justice as an inherent focus of sustainability transformations research and propose the following definition:

> *"Just transformations* refer to radical shifts in social–ecological system configurations through forced, emergent or deliberate processes that produce balanced and beneficial outcomes for both social justice and environmental sustainability" (Bennett et al., 2019, p. 5).

Building on central papers in the growing field of transformations to sustainability (Kothari et al., 2023; Sievers-Glotzbach & Tschersich, 2019; Temper et al. 2018b), *just transformations* are conceptualized using the following analytical criteria, adapted to the focus of this thesis:

(1) **Direction of change**: Directional transformation towards the pursuit of environmental justice objectives.

(2) **Spheres of change**: Just processes of change in social-ecological systems.

(3) **Scales of change**: Diffusion of transformative change across spatial, temporal, and societal scales.

(4) **Depth of change**: Linking power agency with fundamental changes in hegemonic power structures (structural, personal, and cultural power).

Firstly, just transformations entail a ***directional*** shift from local social-ecological conflicts (SEC) and processes of change towards wider social justice and environmental sustainability (Bennett et al., 2019; Kothari et al., 2023; Sievers-Glotzbach & Tschersich, 2019; Tschersich et al., 2023). Directionality towards just transformations is crucial for *"paradigm shifts which also translate into institutional changes, changes in practices. While at the same time, allowing for a plurality of pathways."* (J. Tschersich, personal communication, February 6, 2024). However, the notion of justice underpinning just transformations is multifaceted and complex (as noted by all the experts, see Appendix A). Therefore, section 2.1.3. reviews EJ theory which is useful for providing further guidance to understanding the dimensions of justice underlying sustainability transformations (Bennett et al., 2019).

Second, the ***spheres*** of change refer to social-ecological systems (SES) in terms of the achievement of a multi-dimensional and intersectional harmony between ecological and social, cultural, economic, and democratic spheres (Temper et al., 2018b). Transformations therefore involve a co-evolutionary change across spheres leading to equity, justice, and sustainability (Kothari et al., 2023). Change can start in any sphere and dynamically evolve and result in changes in other spheres.

Just transformations must also bring about the diffusion of EJ and alternatives across multiple ***scales*** such as space, time, and society (Temper et al., 2018b). Such scalar dynamics reflect the large-scale transformative impact of transformation processes in terms of diffusion from location to location (spatial scale), long-term process (temporal scale), and change at the single individual level, to the social movements, communities or societal levels and the interrelations between them (societal scale).

Importantly, just transformations to sustainability involve ***deep*** changes through the confrontation, configuration, and replacement of hegemonic power structures (Feola et al., 2021; Temper et al., 2018b). Hegemonic power includes three interlinked dimensions. First, it can manifest in visible forms such as through institutions where legal and economic frameworks are created and where regulations and policies are decided upon (Rodríguez & Inturias, 2018). This type of power is also referred to as *structural or institutional power*. However, power is also exerted in a hidden form such as *relational power* through people, their power networks and the organization of their practices that maintain their hegemonic power (Long & Van Der Ploeg, 1989; Temper et al., 2018b). Such behind-the-scenes activities can reinforce certain group's dominant position in society, exclude others from participation and control decision-making processes (Rodríguez & Inturias, 2018). Lastly, hegemonic power is also exercised in invisible forms through discourses, knowledge systems, narratives, norms, and values that become embedded in society. This form of power is called *cultural power*.

Importantly, such invisible and hidden forms of power often act together and are embodied in structural forms such as state institutions, civil society, and the market. Therefore, making a distinction between the different forms of hegemonic power is crucial to understanding the dynamics of power relations in SECs and the entrenchment of injustices. Incumbent paradigms that sustain the status quo are embedded in power relations (see Figure 3), and thus, deep changes in hegemonic power would lead to major changes in societal, institutional, economic, and cultural structures (Tschersich et al., 2023).

Thus, transformations of hegemonic power structures are central in just transformations (Anonymous, personal communication, January 30, 2024; I. Rodriguez, personal communication, January 16, 2024). This process links the power of agency - which is the ability of people to define social and political issues and impact others for desired solutions (Arts & Van Tatenhove, 2004; Rodríguez & Inturias, 2018) - with power at higher levels. In this sense, power is dynamic where the power of agency can influence hegemonic power structures (power to), while hegemonic power structures manifest in institutions, relations, and culture, and in turn, can influence power of agency (power over) (Rodríguez & Inturias, 2018; Sievers-Glotzbach & Tschersich, 2019). This dynamic is illustrated in Figure 3. Overall, deep changes occur when the power of agency can impact all three forms of hegemonic power at the same time: structures, people and their networks, and culture (Rodríguez & Inturias, 2018).
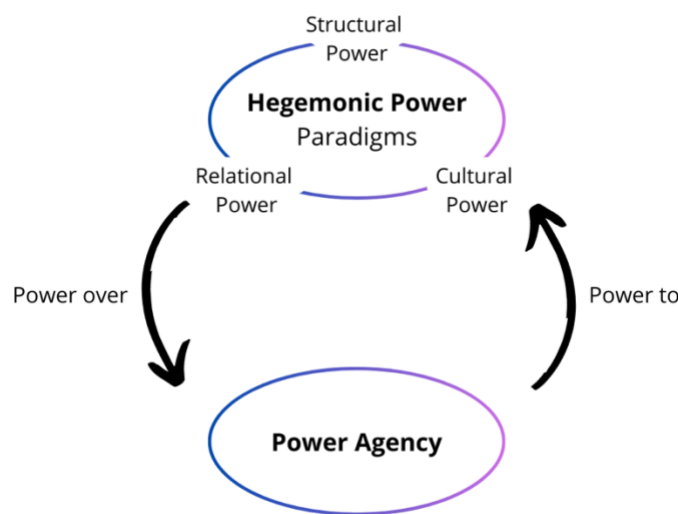
Figure 3. Link between power agency and hegemonic power in transformations (Rodríguez & Inturias, 2018; Sievers-Glotzbach & Tschersich, 2019).

2.1.2. Review of deliberate and just approaches to transformations

This section presents various conceptual approaches to JT that serve as the foundation of the study's conceptual framework. The approaches are reviewed based on the above-specified criteria (direction, spheres, scales, and depth of change) to inform the conceptualization of JT. Importantly, the selection of approaches was based on their deemed relevance in providing insights for the criteria and was informed by an extensive literature review and the input of five expert interviews from relevant fields (see Appendix A). The application of such selection criteria was important as a comprehensive review of all transformations approaches is beyond the scope of this thesis.

The goal of this section is to derive insights from deliberate and just approaches to transformations. In this regard, a deliberate approach to transformations encompasses a deep and systemic change in terms of the configuration and replacement of problematic power structures reflected in dominant institutions, knowledge systems, practices, norms, and nature-human relations (Bennett et a., 2019; Feola et al., 2021; O'Brien, 2012; Rodríguez & Inturias, 2018). This is in contrast with incremental changes and the mere imposition of supposed solutions and values. By focusing on deliberate approaches, the research agenda proposed by Feola et al. (2021) can be advanced; that recognizes transformations as a complex, multifaceted, and multilevel process involving the unmaking of capitalist modernity and the making of alternatives. Such processes of unmaking and making are crucial in enhancing JT as they can challenge the status quo and the respective societal and environmental injustices. Besides, the approaches must advance the integration of justice in transformations research. Notably, this section also demonstrates the diverse understandings of justice and their respective dimensions which will be further refined in the following parts of the thesis.

Just transitions literature is one of the most notable bodies of scholarship that aims at linking social justice with sustainability transformations. This approach generally focuses on specific industries or communities and aims to achieve transitions with justice considerations at their core (directionality of change) (Patterson et al., 2018). With its origin from labour and environmental justice movements, economic considerations were central in the early efforts of just transitions (Tschersich & Kok, 2022). However, the concept evolved over time and was adopted by different groups to include environmental, climate and energy justice perspectives as well (Wang & Lo, 2021). Thus, just transitions approach has generally been applied to study social-technical systems in energy and climate transitions (spheres of change) (Jenkins et al, 2016 in Tschersich & Kok, 2022). This perspective is particularly relevant for this thesis as a just transition away from the incumbent fossil fuel energy paradigm is the central focus of the case studies. Overall, this approach brings distributional, recognitional and procedural justice to the forefront of transition efforts such as through advocating for equal energy access, security rights of workers and inclusive and diverse participation in decision making (Patterson et al., 2018). Importantly, the notion of justice in just transitions remains contested in the literature with various understandings of its dimensions and organizing principles (Tschersich & Kok, 2022; Wang & Lo, 2021). For this reason, the multidimensional and multifaceted nature of this approach needs to be acknowledged. While the three mainstream dimensions of justice are generally present across studies, many scholars move beyond them and include restorative justice as a vital addition to the dimensions (McCauley & Heffron, 2018; Whitfield et al., 2021). This entails a relational approach to the environment including fair compensation for harms to communities and the environment, and more recently, tends to refer to the reparation of historical damages (Tschersich & Kok, 2022; Whitfield et al., 2021).

Regarding the scales of change, just transitions tend to focus on greater societal changes in a timely manner (Tschersich & Kok, 2022). Considering the depth of change, there are various trends in the just transition literature. While just transition as an integrated framework for justice aims to assess issues of power in justice-oriented social transformations (Wang & Lo, 2021; Williams & Doyon, 2019), other strands of just transition literature (e.g., just transition as a socio-technical transition) only implicitly address power dynamics in niches, regimes, and landscapes interactions (micro, meso, and macro levels, respectively), generally

assessed through the multi-level perspective (Sievers-Glotzbach & Tschersich, 2019). This links to an important shortcoming of the just transition approach which relates to the limited attention to power dynamics between and among lower and higher levels of decision-making bodies, and thus, unclarities in its potential to transform those (depth of change) (Wang & Lo, 2021).

Another important contribution to the field of transformations comes from *resilience* literature that entails crises-triggered social-ecological changes (Bennett et al., 2019; Folke et al., 2010; Olsson et al., 2014). According to this approach, the conservation of a productive and healthy ecosystem that can provide for future generations is key (Folke et al., 2010; Sievers-Glotzbach & Tschersich, 2019). This highlights an orientation towards ecological justice and intra- and intergenerational justice objectives (direction of change). Resilience studies provide a deep understanding of the complexity and dynamics of SESs across spatial and temporal scales when they undergo transformations (scales of change) (Sievers-Glotzbach & Tschersich, 2019). Transformations in this respect describe the creation of new regimes that are characterized by new system properties and continuous feedback between social and ecological system components (spheres of change) (Bennett et al., 2019; Folke et al., 2010; Walker et al., 2004). However, changes in power dynamics (depth of change) are generally less central in social-ecological resilience approaches (Sievers-Glotzbach & Tschersich, 2019). Therefore, other related fields such as development resilience devote greater attention to such dimensions, for instance, to the political and institutional aspects of transformation processes. Overall, this approach will be crucial for the conceptual framework in terms of outlining the nature-human interconnectedness in SES changes.

The *critical approach* to transformations was proposed by Görg et al. (2017) which draws conceptual and empirical insights from Social and Political Ecology (in Sievers-Glotzbach & Tschersich, 2019). The two disciplines are deeply concerned with underlying power relations and social-ecological dynamics, and thus, they provide crucial perspectives for outlining the depth of change in transformations (Anonymous, personal communication, January 30, 2024; J. Tschersich, personal communication, February 6, 2024). As a starting point, the critical approach emphasizes the interdependencies between society and the natural world which could advance our understanding of the most important challenges regarding transformations (Görg et al., 2017). Social relations to nature show in resource use patterns and their impact on ecosystems which are, according to the authors, historically crisis driven. Thus, a more relational approach to nature is the most important direction of change in a deliberate transformation. This would involve processes that reconfigure structures in political, cultural, socioeconomic, and individual spheres for a harmonic social metabolism with nature (spheres of change). For this, power relations and hegemonic structures need to be directly impacted which reinforce and reproduce unsustainable resource use patterns over time (depth of change). Bottom-up processes are especially important to disrupt such hegemonic societal structures as negatively affected local communities can reimagine social relations with nature. In this sense, the diffusion of such practices on the ground across wider scales is an important consideration in this approach (scales of change). Regarding the temporal scale of change, the authors draw attention to the non-linearity of transformation processes: the interplay between spheres and scales of change, disturbances, and discontinuities. Finally, the plurality of pathways and knowledge is another important consideration in this approach. Therefore, it is argued that the

direction of change can only be specified in a transdisciplinary process where stakeholders exchange their perspectives on the complex change dynamics of social relations to nature (Görg et al., 2017; Sievers-Glotzbach & Tschersich, 2019).

Notably, *resistance* approaches to transformations are also concerned with SESs and have been linked to the activities of EJ movements that aim to address SECs and injustices (Temper et al., 2018b). With its roots in social movement theory and political science (Feola et al., 2021), this approach explicitly engages with the role of citizen-led activities in transformation processes (Temper et al., 2018b). Social movement theory explains the causes and forms of the emergence, development, and expansion of social mobilization across space, society, and time (scales of change) (Tarrow, 1998; Tilly, 1993). It encompasses the various repertoires of contention that social movements utilize to fulfil their goals and disrupt powerful actors (Martínez-Alier et al., 2016). Social movements can manifest in "bodies, symbols, identities, practices, and discourses to pursue or prevent changes in institutionalized power relation" (Taylor & Van Dyke, 2007, p. 268). Thus, deep changes within, against and beyond hegemonic and oppressive structures are central in resistance approaches (Angel, 2016; Feola et al., 2021; Hollander & Einwohner, 2004; Temper et al., 2018b). Such a power perspective is valuable in understanding how transformations strategies at lower levels facilitate concrete processes of change in SESs (spheres of change) (Rodríguez & Inturias, 2018; Temper et al., 2018b). Consequently, the role of resistance is key in the 'unmaking' of exploitative structures harmful to communities and nature as well as the 'making' of collective alternatives (Feola et al., 2021; Kothari et al., 2023; Temper et al., 2018b). This approach suggests that SECs can be viewed as productive, rather than issues to be avoided, and thus, it can help to address the root causes of underlying injustices in our quest for sustainability transformations. Through resistance and the creation of alternatives, societies can move from place-based struggles and conflicts towards greater social and environmental justice (direction of change) (Kothari et al., 2023; Temper et al., 2018b). Overall, this approach will be integral in the conceptual framework of this thesis given its focus on social movement activities and EJ objectives.

The resistance approach has also been enriched with perspectives from other fields such as *decolonial theory* and *degrowth* (Rodríguez & Inturias, 2018; Velicu, 2019). Insights from these schools of thought provide guidance for critically assessing the direction of changes in transformations processes. The former is particularly important for decolonizing power, knowledge, and the self which can have important implications for the conceptualization and enactment of justice (Rodríguez & Inturias, 2018). Decolonizing can happen in various forms such as refusal of imposed ideas or delinking from colonial ways of knowing and being (Feola et al., 2021; McGranahan, 2016; Mignolo, 2007) which can indicate more critical and alternative normative orientations of sustainability transformations. Regarding the field of degrowth, the aspect of decolonization of the imaginary as a form of resistance or contestation has been highlighted both as a means and an end goal of transformations (Feola, 2019; Feola et al., 2021). Although it has been argued that the concept lacks analytical depth and breadth, it can serve as a source of inspiration when complemented with other approaches (Feola, 2015; Feola, 2019). Therefore, insights from these two fields will be mostly used for providing a critical understanding of the direction of change in transformations; that is the pursuit of EJ objectives (see next section).

It is important to note the plurality and variety of transformation approaches and the scope of this thesis to review the ones that provide important insights into the criteria outlined in the previous section. Allowing for such plurality in the conceptual framework through the inclusion of complementary insights from each of the above approaches is thus a deliberate and vital research choice. Overall, the components of the transformation approaches serve as the foundation of the developed conceptual framework and are used for the operationalization of the analytical framework.

2.1.3. The meaning of justice in just transformations

This section is important for sketching the direction of JT in the conceptual framework which entails the pursuit of EJ objectives. Therefore, we aim to define the concept of justice as well as its dimensions to adequately operationalize just processes of change at various levels. EJ theory is particularly useful for providing further guidance to understanding justice in sustainability transformations (Bennett et al., 2019). This body of literature encompasses critiques and empirical evidence of racial and social injustices due to development projects and the produced dangerous waste and pollutants. EJ studies show the disproportionate impact of environmental pollution on different social classes and marginalized groups (Mohai et al., 2009). However, it is important to draw insights from the contextual and critical EJ research agenda to provide a framework for fully JT (Holifield et al., 2009). This is to ensure that the geographical and conceptual hegemony of Western political ideals for addressing injustices, often referred to as the coloniality of justice, does not trigger new injustices in non-Western contexts (Álvarez & Coolsaet, 2018).

Politically, EJ has had its roots in the inequalities of power leading to injustices in environmental consequences for marginalized and deprivileged groups (Álvarez & Coolsaet, 2018; Mathewson & Harvey, 1997). The concept was conceived in the United States with the rise of numerous political movements that emphasized that class, race, culture, and gender play an important role in the unequal distribution of environmental harms (e.g., Bryant & Mohai, 1994 in Álvarez & Coolsaet, 2018). Therefore, EJ has historically put a large focus on aspects of distribution, especially the maldistribution of environmental benefits and costs (Schlosberg, 2007). While it is essential to address issues of distribution, the processes that lead to such problems must also be recognized. Hence, EJ scholarship generally refers to two other dimensions next to *distribution* to encompass the notion of justice: *procedural justice* which describes equal and inclusive participation in decision-making processes and *recognitional justice* which concerns political and cultural diversity and the recognition, misrecognition, or non-recognition of social groups (Schlosberg, 2004; Walker, 2012).

Over time, EJ has moved beyond its political notion and has become an important field of inquiry for activists, academics, movements and policymakers with various extensions and additions to the original concept (Walker, 2012). Mainstream EJ literature, which is dominated by Western contexts and concepts, was challenged by alternative notions of environmentalism, methodologies, geographical diversity, and importantly, principles, dimensions, and roots of (in)justice (Álvarez & Coolsaet, 2018). Second generation EJ scholarship revealed more critical perspectives on what constitutes injustices and proposed new frameworks for tackling them. For instance, due to critical insights from theorists such as Fraser (2000) who stresses the significance of structural conditions for the emergence and persistence of injustices, the

dimensions of EJ were further developed to include distribution, recognition, capabilities, and participation (Schlosberg, 2007; Walker & Bulkeley, 2006). Similarly, the notion of just sustainabilities also emerged as a critical thread of EJ scholarship and highlights an "equity deficit" in EJ debates (Agyeman, 2005). To overcome this, four important justice considerations were proposed: improving the quality of life and well-being, intra- and inter-generational justice, living within ecosystem limits, and lastly, justice and equity in recognition, process, and outcomes (Agyeman, 2012). Moreover, other recent and alternative contributions have been made to the EJ theory such as emancipatory EJ (Temper, 2018), decolonial EJ (Álvarez & Coolsaet, 2018), multi-scalar intersectional decolonial EJ (Menton et al., 2020), and the link between EJ and sustainability transformations (Temper et al., 2018b).

EJ is therefore a vast field in which justice remains a multifaceted and complex concept and where one aspect of justice is highly intertwined with other aspects (J. Tschersich, personal communication, February 6, 2024; Schlosberg, 2007; Walker, 2012). The variety of approaches has led to the plurality and multivalence in our understanding of EJ in both theory and praxis (Schlosberg, 2007). As contributions have been made from all around the world, the relative and contextual nature of EJ has become more prevalent, rather than the attempts to seek a universal meaning (Walker, 2012). Embracing this plurality is one of the essences of this research, and thus, dimensions are derived from critical EJ theory that integrates place-bound perspectives about what constitutes (in)justice. The perspectives will also be balanced with praxis (empirical data from the case study analysis). Such a need for balance between theory and praxis was also expressed by one of the experts interviewed: "*What we need to do is not necessarily theorize justice more but engage with the difficult realities*" (J. Patterson, personal communication, January 23, 2024).

Hence, the purpose of such a contextual approach is twofold: first, it is crucial for breaking free from the "coloniality of justice" as coined by Álvarez and Coolsaet (2018) which entails the conceptual dominance of 'Western' ideals in justice scholarship, and second, for recognising that context-specific knowledge is needed for all geographical contexts (periphery, semi-periphery, and core). This was also shown by the study of Coolsaet and Deldrève (2023) which revealed that contextual nuances also exist within 'Western' knowledge when it comes to the conceptualization of EJ. Most importantly, however, a more tailor-made approach can be proposed for the often-understudied CEE context. EJ in the CEE context requires equal attention to social well-being, citizen-engagement, non-polluting economic production, and environmental protection (Costi, 2012).

The following central aspects of justice are thus derived from critical EJ literature. As mentioned in the previous section, decolonial theory is particularly important for outlining the EJ objectives for JT as it heavily draws on place-based perspectives (Álvarez and Coolsaet, 2018; I. Rodriguez, personal communication, January 16, 2024). In the context of EJ, decolonial theory calls for the need to decolonize concepts, meaning and epistemologies prevalent in the field to fit non-Western contexts (Ramcilovic-Suominen, 2022; Rodríguez, 2020; Temper et al., 2018b). The application of a decolonial approach to the CEE context could also bring valuable insights for a more context-bound conceptualization of EJ (Müller, 2018).

The first dimension derived from decolonial EJ literature concerns the need to ***move beyond the nature-human dichotomy and extractive relations*** (Álvarez & Coolsaet, 2018; Biermann, 2020; Ramcilovic-Suominen, 2022; Rodríguez & Inturias, 2018; Rodríguez, 2020;

Temper et al., 2018b). This justice objective would reach beyond the notion of distributive justice as it challenges the idea of humans distributing environmental costs and benefits between themselves which ultimately implies the separation of society from nature (Ramcilovic-Suominen, 2022). Instead, achieving the objective of co-living with nature could contribute to greater ecological and social well-being and solve major socioecological crises evoked by human domination over nature. Such a relinking between nature and humans has been emphasized by various critical EJ approaches; decolonial theory refers to it as moving away from the nature-human dichotomy (Álvarez & Coolsaet, 2018; Ramcilovic-Suominen, 2022; Rodríguez, 2020; Temper et al., 2018b), the approach of just sustainabilities calls for respect of ecological limits and the so-called one planet living (Agyeman, 2013), degrowth scholars describe it as reciprocal and regenerative nature-human relations (Hickel, 2020; Ramcilovic-Suominen, 2022;), and similarly, critical theorists from social and political ecology term it as a relational approach to nature (Görg et al., 2017).

Second, decolonial EJ encompasses *epistemic justice and the right to self-determination* (Álvarez & Coolsaet, 2018; Ramcilovic-Suominen, 2022). This expands the notion of recognitional justice beyond state-based solutions towards cultural and political recognition of and reliance on own norms, structures, and ways of knowing the world (Álvarez & Coolsaet, 2018; Rodríguez, 2020). Recognition thus must include self-recognition; that is the revalidation of one's modes of life (Coulthard, 2016). This is in contrast with the original notion of recognitional justice which entails the mere inclusion of 'voices' in dominant political and cultural structures (Fraser, 2000). This aspect is especially relevant in the CEE context where societies often commit a form of epistemic self-colonization (Kovács, 2021).

Lastly, the third dimension of decolonial EJ is *self-governance* which refers to the reach beyond participation in existing political and legal structures (in line with procedural justice) towards local autonomy, governance, and institutional strengthening to avoid political assimilation and co-optation (Ramcilovic-Suominen, 2022; Rodríguez, 2020). This would be important for ensuring a more decentralized and bottom-up governance of environmental issues (Ramcilovic-Suominen, 2022). Achieving local autonomy and direct democracy is also a crucial consideration in degrowth for determining autonomous and collective norms, values, and modes of life in a democratic way (Kallis, 2013; Ramcilovic-Suominen, 2022).

2.1.4. Environmental justice movements as forces of just transformations

Citizen-led movements are especially important for achieving the above justice dimensions through the diffusion of transformative change across various scales (scales of change) and through capturing a deeper engagement with identities, cultures, and practices (depth of change) (Temper et al., 2018b). As section 2.1.2 demonstrates, there are multiple approaches to transformations and some of them are deeply engaged with the transformative potential of action on the ground (for instance, critical approach, resistance and decolonial theory). Various initiatives and social movements are displaying alternative socioeconomic, cultural, and political modes of knowing and living (Tschersich et al., 2023). The importance of social movements for sustainability transformations was emphasized by all the experts (Appendix A). They can ensure a healthy balance between bottom-up and top-down environmental governance. EJ movements are especially important considering their primary focus on achieving environmental justice (Temper et al., 2018b).

EJ movement is a form of social movement that was originally conceptualized as "a political movement against uneven burdens of pollution and other industrial wastes" (Banerjee et al., 2015, p. 42). They can take many forms (petitions, demonstrations, blockades, etc.) and can appeal to various stakeholders (civil society, media, public, public administration, or business corporations) to halt or prevent existing or anticipated environmental damage to nature and communities (Temper et al., 2018a). EJ movements are sources of inspiration for transformative actions that tackle the root causes of current socio-environmental problems (Rodríguez-Labajos et al. 2019). As a result, new subjectivities, power relations, values and institutions can be created leading to deeper and more radical transformations (Temper et al., 2018b).

Importantly, the strategies of social movements can be entirely shaped by political, social, historical, and cultural contexts (Huff & Kruszewska, 2016; Larson, 2013). This is particularly important in CEE as the socialist history greatly impacted the development of movements (Špirić, 2017). In the case of EJ movements, strategies are further shaped by the properties of the extraction processes and the induced SECs (Martínez-Alier et al., 2016). Such contextual factors can impact the internal and external dynamics of social movements (Huff & Kruszewska, 2016).

Notably, while factors affecting tactical choices of social movements have been studied extensively, research on their effects remains underexplored (Huff & Kruszewska, 2016). Given that, by definition, the aim of social movements is social transformation (Temper et al., 2018b), their role as transformative agents for sustainability is well-suited. Through the demands and strategies of EJ movements, these sites of contestation challenge academic and institutional notions of EJ (Schlosberg, 2004). Justice is treated as a more fluid concept that movements continuously define, embody, and perform in historically and geographically distinct ways (Velicu & Kaïka, 2017). Therefore, unveiling their strategies for JT and complementing current theory with empirical notions of justice are the essences of this study.

2.2. Conceptual framework

Building on the theoretical background, the conceptual framework is specifically developed for movement-induced just transformations along the four criteria (direction of change, spheres of change, scales of change and depth of change). The framework builds on, combines, and expands the social-ecological transformation (SET) framework by Sievers-Glotzbach and Tschersich (2019) and Tschersich et al. (2023), and Lulla et al.'s (2023) conflict transformation framework (CTF) and alternatives transformation framework (ATF).

The SET framework has been regarded as one of the most comprehensive and all-encompassing frameworks to support a multi-level analysis of transformations (Feola et al., 2021). The framework integrates perspectives from a great variety of transformation approaches including threads of transition and resilience literature as well as the critical approach based on social and political ecology (Sievers-Glotzbach & Tschersich, 2019). Importantly, the framework links power agency with structure (adapted to hegemonic power in this thesis) to better assess change processes (Tschersich et al., 2023). For this, three levels are outlined in the framework, namely, the micro, meso and macro levels, which are also the organizing levels of this study's conceptual framework. The applicability of the SET

framework was also proven in empirical research regarding agri-food systems (Tschersich et al., 2023).

However, to develop a framework more descriptive of movement-induced transformation dynamics, insights were derived from CTF and ATF (Lulla et al., 2023). Both provide guidance for EJ movements to analyse their force as transformative agents. Finding a way to combine the frameworks into an integrated whole is crucial to capture the entirety of JT (Lulla et al., 2023; I. Rodriguez, personal communication, January 16, 2024). CTF involves two phases: (1) the transformative character of strategies employed by movements to impact on hegemonic power structures and (2) the long-term outcomes of the strategies. However, to better understand the second phase, that is the transformation from conflict towards certain objectives, the spheres of change in ATF become highly relevant. This framework helps movements assess their contribution to 'spheres' or areas of justice. Therefore, by combining CTF and ATF, we can better outline the process of moving from conflicts towards alternatives. Importantly, both frameworks are greatly influenced by insights from resistance and decolonial EJ scholarship which will provide complementary insights to the SET framework.

Therefore, the developed framework is illustrated in Figure 4. The *macro level* shows the normative orientation of transformation processes: the overarching EJ objectives derived from decolonial EJ literature (as seen in 2.1.3) as the directionality of change to challenge incumbent paradigms. The *meso level* outlines whether the normative EJ objectives are reflected in JT pillars (spheres of change) and the configuration of hegemonic power (depth of change) for niche activities to achieve wider transformative impact (scales of change is shown as the shift from the micro level to the meso level). The niche activities take place at the micro level; their transformative character is determined by the dimensions of power the movement strategies target. Further operationalization of the transformative character of EJ movement strategies and their transformative impact is provided in the next section.
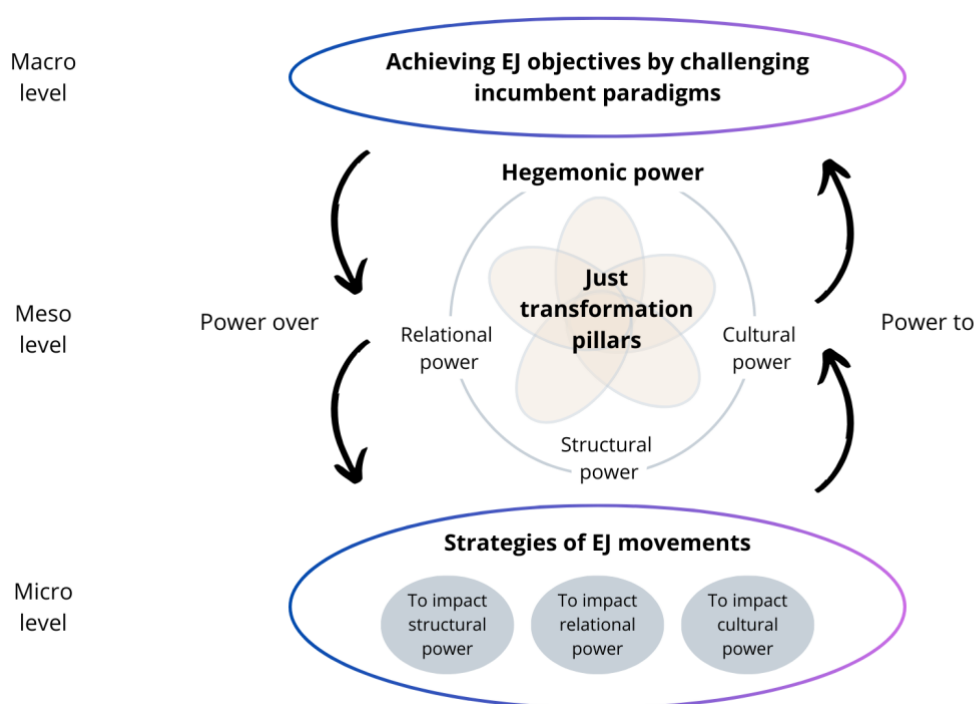
Figure 4. Conceptual framework of Just Transformations.

2.3. Analytical framework

The analytical framework further delineates the force of EJ movements for JT. Therefore, processes at the micro level are linked to wider transformations at the meso level and orientation towards EJ objectives at the macro level. To analyse this, evaluation principles are provided for the micro and meso levels, which at the same time operationalize the macro level. It is important to note, however, that while the thesis aims to evaluate the overall contribution of movements to transformations, a greater focus is devoted to exploring the drivers of such transformations in the CEE context.

2.3.1. Micro level: transformative character of movement strategies

The incumbent paradigms at the macro level are embedded in power structures (Tschersich et al., 2023), and thus, processes on the ground have a transformative character when they impact different forms of hegemonic power to challenge the paradigms (Rodríguez & Inturias, 2018). Power is a deep leverage point which facilitates niche processes with a transformative character to upscale and gain transformative power (power to) (Rodríguez & Inturias, 2018; Tschersich et al., 2023). Hence, power links the micro and meso levels. Impacting power is especially central for EJ movement strategies as they can advance their goal of EJ this way (Temper et al., 2018b).

EJ movements can take many forms to counteract dominant powers and achieve their goals (Temper et al., 2018b). The strategies of EJ movements can be defined as a "recurrent, predictable, and fairly narrow 'toolkit' of specific protest tactics used by a set of collective actors in a particular campaign" (Taylor & Van Dyke, 2007, p. 266). The dimensions of hegemonic power targeted by the strategies of EJ movements is summarized in the following table:

TABLE 1. TRANSFORMATIVE STRATEGIES OF EJ MOVEMENTS TO IMPACT HEGEMONIC POWER TYPES.

Hegemonic power type	Aim of EJ movement strategies
Structural power	Strategies to impact and change institutional, legal, and economic frameworks to acknowledge human and political rights, culture, nature, etc. (Rodríguez & Inturias, 2018; Temper et al., 2018b).
Relational power	Strategies to impact and produce changes in people's interactions to create conditions for dialogue (Rodríguez & Inturias, 2018; Temper et al., 2018b.
Cultural power	Strategies to challenge incumbent paradigms and unmask institutional neutrality ('unmaking'), while creating social consensus over new meaning and alternatives ('making) (Feola et al., 2021; Rodríguez & Inturias, 2018; Temper et al., 2018b; Tschersich et al., 2023).

The operationalization of key strategies that are commonly employed by movements in each of these power dimensions is shown in Table 3. Importantly, movements are context-dependent and evolving phenomena (Schlosberg, 2004), and thus, this framework is neither exhaustive nor indicative of the strategies movements should adopt. It rather serves as a guiding framework to study effective tactics in the CEE context which will be further enriched with empirical insights from the case study analysis.

2.3.2. Meso level: just transformative impact of movement strategies

The pursuit of EJ objectives at the macro level must ensure social-ecological harmony and foster deep changes in hegemonic power structures at the meso level. As explained above, the meso level encompasses power as a deep leverage point in transformation processes (depth of change). The transformative impact of EJ movement strategies is expressed in their configuration of the different types of hegemonic power to unmake incumbent paradigms (Rodríguez & Inturias, 2018; Tschersich et al., 2023; Feola et al., 2021). Therefore, considering that incumbent paradigms are embedded in institutional, cultural, and relational power, impacting hegemonic power at the meso level links processes at the micro and macro levels (Sievers-Glotzbach & Tschersich, 2019; Tschersich et al., 2023). Hence, this level also reflects the scales of change in transformations as it shows how on-the-ground processes can amplify to have large-scale societal, spatial, and temporal impacts.

The impacts on hegemonic power manifest in just and democratic transformation pillars in line with the overarching EJ objectives at the macro level (see Figure 5). These JT pillars operationalize the EJ objectives to achieve multi-dimensional and intersectional harmony in the SES under consideration (spheres of change) (Temper et al., 2018b). The pillars are the following and are adapted from the CTF and ATF (Lulla et al., 2023):

(i) *Ecological integrity and resilience* pertain to the conservation of ecosystems, species, functions, and cycles, as well as maintaining the natural world's resilience and respecting ecological limits at various levels.

(ii) *Quality of life and social well-being* entail ensuring fulfilling and satisfactory lives in physical, social, cultural, and spiritual aspects. This includes social justice, equity among communities and individuals in socio-economic and political rights, benefits, and responsibilities, and promoting communal and ethnic harmony.

(iii) *Economic democracy* refers to local communities having control over production, distribution, exchange, and markets, with a focus on localization and respect for ecological limits, while larger trade and exchange build upon this foundation.

(iv) *Direct and delegated democracy* emphasizes bottom-up decision-making, beginning at the smallest human settlement unit, ensuring everyone has the right, capacity, and opportunity to participate. This approach respects the needs and rights of marginalized groups, such as minorities, as decision-making progresses to higher governance levels.

(v) *Cultural diversity and knowledge democracy* are achieved when plural ways of living, ideas and ideologies are respected and utilized, and when knowledge generation, transmission, and use are accessible to everyone.

Importantly, these JT pillars significantly overlap and should be viewed as an integrated whole, with each pillar contributing to more than one EJ objective (Kothari et al., 2023; Lulla et al., 2023; Temper et al., 2018b). This helps to assess transformations as a dynamic and evolving phenomenon where change can emerge in any of the pillars leading to transformations in other spheres (Kothari et al., 2023).
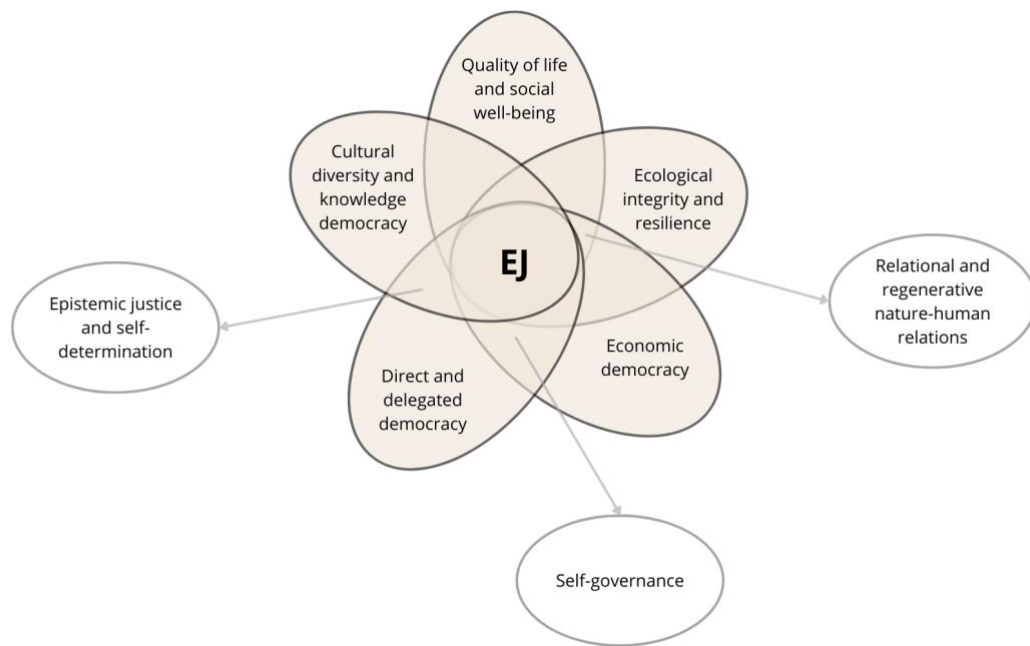
Figure 5. Link between just transformation pillars at the meso level and the overarching EJ objectives at the macro level.

The indicators of transformative impact at the meso level are shown in Table 3 with power as a cross-cutting theme (Burch et al., 2019; Lulla et al., 2023; Temper et al., 2018b). This demonstrates the crucial interlinkages between JT outcomes and the configuration of hegemonic power types.

2.3.3. Macro level: environmental justice objectives of just transformations

Building on Sievers-Glotzbach and Tschersich (2019), the macro level reflects the normative orientation of JT towards achieving the overarching EJ objectives as introduced in section 2.1.3 (directionality of change). The three main EJ objectives are (1) ***relational and regenerative nature-human relations***, (2) ***epistemic justice and the right to self-determination,*** and (3) ***self-governance*** which assure wider environmental sustainability and social justice. These objectives are often intertwined, and they should be regarded as an integrated whole, rather than separate dimensions. Importantly, these objectives also capture alternatives to incumbent paradigms (embedded in hegemonic power) in the global SES that reinforce unsustainable and unjust system structures (Görg et al., 2017; Ramcilovic-Suominen, 2022; Sievers-Glotzbach & Tschersich, 2019; Tschersich et al., 2023). Challenging these dominant paradigms reflects the long-term objective of EJ movements (Kothari et al., 2023).

TABLE 2. EJ OBJECTIVES AS ALTERNATIVES TO INCUMBENT PARADIGMS (RAMCILOVIC-SUOMINEN, 2022; SIEVERS-GLOTZBACH & TSCHERSICH, 2019; TSCHERSICH ET AL., 2023).

Incumbent paradigms in the global social-ecological system	Alternatives to these paradigms as expressed in the EJ objectives
'Materialistic culture and economic growth'	Beyond extractive nature-human relations and the distribution of economic and environmental benefits between humans toward a relational approach ensuring social and ecological well-being as well as local and ecologically sensitive means of economic production
'Control and autonomy of humans over nature'	Beyond nature-human dichotomy toward reciprocal and regenerative relations and the respect for diverse and plural cultures and knowledge
'Expert knowledge and specialization'	Beyond participation and recognition in existing structures toward epistemic justice and the support of self-determination and self-governing authorities

(i) The 'materialistic culture and economic growth' paradigm is manifested in two important ways in society (Sievers-Glotzbach & Tschersich, 2019). At the individual level, it is assumed that increased consumption leads to happiness and well-being, while at the societal level, continuing economic growth is assumed to bring about greater social welfare (e.g., Escobar, 2015; Göpel, 2016, as cited in Sievers-Glotzbach & Tschersich, 2019). Such a development trajectory can lead to greater environmental damage and worsened quality of life and social well-being (Sievers-Glotzbach & Tschersich, 2019). Therefore, revealing alternative means of economic production and ways of improving social well-being in line with ecological limits and health is one of the goal dimensions of JT.

(ii) The 'control and autonomy of humans over nature' paradigm refers to the increasing disconnection of humans from nature reflected in the treatment of nature as a resource and service provider (Ramcilovic-Suominen, 2022; Sievers-Glotzbach & Tschersich, 2019). Such a dualist nature-human relation also reflects Eurocentric worldviews while disregarding other forms of culture and knowledge (Rodríguez, 2020). Moving beyond this dichotomous and extractive relation and the notion of distributing nature between humans could overcome various conflicts both socially and ecologically. This would involve the respect for cultures and knowledge systems that view humans as embedded in nature, rather than separate (Ramcilovic-Suominen, 2022).

(iii) Another paradigm in the global social-ecological system expresses in 'expert knowledge and specialization'. This entails that Western scientific knowledge is often regarded as the most dominant and specialized over other local or indigenous knowledge systems (Sievers-Glotzbach & Tschersich, 2019; Tschersich et al., 2023). As an alternative, epistemic justice and the revitalization of cultural and knowledge diversity could contribute to greater social and environmental justice (Lulla et al., 2023; Temper et al., 2018b).

Therefore, to analyse the macro level, (i) the presence of incumbent paradigms needs to be examined in the SES under investigation, and (ii) the emergence of alternatives (as expressed in the EJ objectives) that challenge these paradigms needs to be outlined. This goal

dimension at the macro level is operationalized by the processes that take place at the micro and meso levels.

Below, the analytical framework of this thesis is provided organized across the three levels: micro, meso and macro levels. To sum up, the micro level entails the transformative character of EJ movement strategies which fosters just transformative impacts at the meso and has a normative orientation towards the macro level. The meso level encompasses just transformative impacts in terms of *depth, spheres,* and *scales* of change, while the macro level outlines the *directionality* (also referred to as normative orientation) of change towards EJ objectives. The indicators laid out in the analytical framework are not exhaustive and are treated as examples to guide the analysis. Therefore, additional and/or different indicators might be revealed from the empirical data that fall under the dimensions of each level. This approach is further explained in the methodology of the research, along with the operationalization of the analytical framework (section 3.2.4. and Appendix D).

TABLE 1. ANALYTICAL FRAMEWORK.

MICRO LEVEL -Transformative character of EJ movement strategies				
Strategies	**Strategies to impact structural power**	**Strategies to impact relational power**	**Strategies to impact cultural power**	Key sources

Indicators	• Institutional forms of mobilization such as lobbying, public hearings, campaigns, testimonies, petitioning and political pressure during elections
	• Resistance action: such as protest, demonstrations, boycotts, denunciations, shaming, strikes, or more violent tactics such as sabotage.
	• Create new institutions: autonomous governments and forms of territorial control.
	• Participation in existing structures: local government, customary institutions, assemblies, committees
	• Create new modes of production and alternative technologies
	• Advocacy, lobbying
		• Local organization strengthening
		• Producing and disseminating new knowledge
		• Capacity and alliance building on conflict: extra-movement alliances (e.g., with other civil society movements, the state, the church, the corporate sector, etc.) and/or intra-movement alliances (e.g., with other environmental groups, within the country or across borders, etc)
		• Sensitize decision-makers
		• Contribution to plural forms of knowledge through participatory engagement
		• The creation of physical, social and virtual spaces for sharing experiences
			Making of alternatives:
			  • Reconstruction of local history
			  • Local knowledge revitalization
			  • Local management plans
			  • Collectively building alternative future visions
			Unmaking of dominant paradigms:
			  • Territorial self-demarcation
			  • Resisting and challenging dominant knowledge systems
				(Feola et al., 2021; Fitzgerald, 2022; Kothari et al., 2023; Martínez-Alier et al., 2016; Rodríguez & Inturias, 2018; Sievers-Glotzbach & Tschersich, 2019; Steinberg & VanDeveer, 2012; Tschersich et al., 2023; Temper et al., 2018b)

MESO LEVEL – Just transformative impact by dimension of power				
	Forms of hegemonic power			
Just transformation pillar	**Structural power (visible power)**	**Relational power (hidden power)**	**Cultural power (invisible power)**	Key sources
Quality of life and social well-being	• Integrative governance where social well-being considerations are combined, integrated, and coordinated with other governance instruments (institutions, policies, laws, regulations). • Fair compensation and mitigation mechanisms for environmental and social harms • Equity in distribution of environmental costs and benefits over time, space and between groups	• Emergence of networks that safeguard social well-being. • Communal and ethnic harmony (non-exploitative, non-hierarchical, and non-discriminatory relations). • Equity between communities and individuals in socio-economic and political entitlements, benefits, rights, and responsibilities	• Social consensus about achieving physical, social, cultural, and spiritual well-being without materialistic culture and growth	(Agyeman, 2013; Lulla et al., 2023; Visseren-Hamakers et al., 2021, as cited in Tschersich et al., 2023; Temper et al., 2018b)

Ecological integrity and resilience	• Integrative governance where environmental considerations are combined, integrated and coordinated with other governance instruments (institutions, policies, laws, regulations). • Conservation and protection of the natural world (ecosystems, species, functions, cycles)	• Emergence of networks that safeguard environmental protection and restoration. • Nature-human harmony • Capacity of local actors to monitor environmental impacts	• Shift in social values regarding nature. • Respect for ecological limits at various scales (local, regional, national, global).	(Agyeman, 2013; Lulla et al., 2023; Visseren-Hamakers et al., 2021, as cited in Tschersich et al., 2023; Temper et al., 2018b)
Economic democracy	• Strengthening of communal principles and systems of alternative production, distribution, market and/or technology • Integrative governance where local economic production methods are combined, integrated and coordinated with other governance instruments (institutions, policies, laws, regulations).	• Increased local control of the means of production over commons as a result of the struggle. • Equity in the access and use of natural resources	• Mainstreaming and recognition of local means of production and technology in the economy system • Mainstreaming and recognition of alternatives that stress equitable distribution of resources. • Deepened resistance against extractive methods of production	(Lulla et al., 2023; Visseren-Hamakers et al., 2021, as cited in Tschersich et al., 2023; Temper et al., 2018b)
Direct and delegated democracy	• Local institutional strengthening: local autonomy and control in territorial planning and management • Inclusivity: Integration of local claims in environmental governance and decision-making • Participatory: Supported local capacity for participation and co-management • Transparent: transparency and accountability of decision-making processes	• Strengthening of collective action and the robustness of individual initiatives to withstand external incumbent forces. For instance, through processes of critical dialogue, learning and experimentation. • Connecting vertically (local, regional, national, European/transnational, international) and horizontally (cross-sectoral)	• Transferring the initiative to a similar context or replicating it in another context. • Deepening resistance, preventing co-optation by the regime.	(Bennett et al., 2019; Lulla et al., 2023; Sievers-Glotzbach & Tschersich, 2019; Tschersich et al., 2023; Temper et al., 2018b)
Cultural diversity and knowledge democracy	• Inclusive governance: institutions, policies, laws, etc. encourage and strengthen diverse participation. • Pluralist governance: institutional, legal and economic arrangements that respect and incorporate plural practices, knowledge systems and institutions	• Equal access to the generation, transmission, and use of knowledge • Respect of and reliance on plural ways of living, ideas, and worldviews.	• Mainstreaming and recognition of counter-narratives of development, environmental change and well-being. • Acknowledge pre-existing rights, culture, practices, and knowledge in public discourse • Collective awareness of the underlying injustice	(Lulla et al., 2023; Sievers-Glotzbach & Tschersich, 2019; Tschersich et al., 2023; Temper et al., 2018b)

MACRO LEVEL – *Normative orientation of Just Transformations*			
Normative orientation	**Achieving EJ objectives**	**Challenging incumbent paradigms embedded in hegemonic power**	Key sources
Indicators	EJ objectives • Relational and regenerative nature-human relations • Epistemic justice and the right to self-determination • Self-governance	Incumbent paradigms: • Materialistic culture and growth • Control and autonomy of humans over nature. • Expert knowledge and specialization	(Álvarez & Coolsaet, 2018; Biermann, 2020; Kothari et al., 2023; Ramcilovic-Suominen, 2022; Rodríguez & Inturias, 2018; Rodríguez, 2020; Sievers-Glotzbach & Tschersich, 2019; Tschersich et al., 2023; Temper et al., 2018b).

3. Methodology

The above-outlined research goal required an interpretivist research approach due to the novelty and context-dependent nature of this emerging field (Saunders & Tosey, 2013). This includes a combination of deductive and inductive reasoning to build on existing theory and generate hypotheses from specific observations. To answer the research question, two main research strategies were employed. The theoretical contribution of the research was provided by conducting desk research, while the empirical insights were generated through a case study analysis.
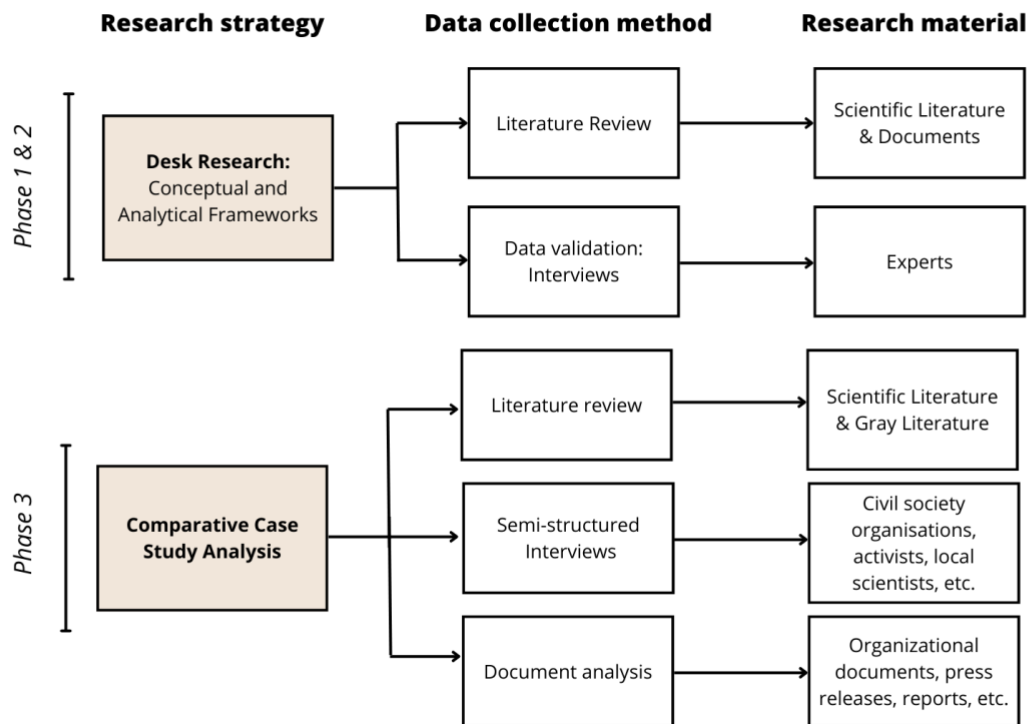
Figure 6. Research strategies and the respective data collection methods and materials.

3.1. Desk research

Desk research enables the researcher to classify data based on literature or secondary materials (Verschuren et al., 2010). This was necessary for completing the conceptual and analytical frameworks of the thesis.

For this, an effective search method was utilized to identify the relevant literature on Google Scholar, Web of Science and Scopus as outlined by the research framework (Figure 2). The goal of applying this research strategy was to map out the relevant theories, concepts and operationalizations pertaining to EJ movements and JT. Two methods were used: consulting literature by applying search indices and the snowball principle (Verschuren et al., 2010). The former entails the use of keywords to look for relevant literature. Some examples of the keywords used are 'just transformations', 'just transitions', 'transformation to sustainability', 'societal transformation', 'environmental justice AND sustainability transformation', and the combination of these with the CEE context. While the snowball principle refers to literature search from bibliography to bibliography. The required methods to gather and access the sources are illustrated in Figure 6. Importantly, the gathered data was validated by 5 expert

interviews to refine the framework (see Appendix A). Their expertise varied from EJ movements, JT to the context of CEE. Hence, gaining insights from them ensured that the components of the conceptual and analytical frameworks are complete and valid. The interview guides were tailored to the expertise of the interviewees (see Appendix A for an example).

3.2. Comparative case study

3.2.1. Research strategy

As discussed, context plays a significant role in the strategies of EJ movements and the way they can foster JT. The interpretation and enactment of EJ can greatly vary across contexts (Martinez-Alier et al., 2016; Temper et al., 2018b). For this research, contextual variables are particularly relevant considering the dominance of Western concepts and organizational models in EJ frameworks and the marginalization of alternative modes of knowledge. Case studies are the most suitable research strategy for understanding such complex phenomena (Gerring, 2004; Verschuren et al., 2010). According to Yin (2009), a case study is "a contemporary phenomenon in its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (p. 59). When analysed, "an intensive study of a single unit for the purpose of understanding a larger class of (similar) units" is performed (Gerring, 2004, p. 342).

Besides, the JT framework is still in the development stage as well as its relationship with EJ movements, and thus, a qualitative multiple case study design can explore emerging patterns in this context and their causal mechanisms (Gerring, 2004; Yin, 2009). As this research attempts to contribute to the development of a context-bound conceptual framework, the *generalisability* of the findings to the CEE context is crucial. Thus, multiple case studies are more applicable than single case designs (Gerring, 2004; Yin, 2009). Importantly, comparing multiple cases has other key advantages (Burnham et al., 2008): *contextualizing knowledge* of sustainability transformations in CEE, *improving classifications* by revealing additional empirical information about EJ movements and JT to refine their conceptualization and operationalization, and *formulating hypotheses*. To formulate hypotheses about the relationship between the variables, a most similar multiple case study design was chosen to minimize uncontrolled and confounding variables (Burnham et al., 2008). This design is suitable for exploratory research as it allows for descriptive assertions and explanations of the links between phenomena (Verschuren et al., 2010). The similarity will be observed in the contextual factors, while the cases will be different in terms of the EJ movements. Therefore, any observed difference between the cases can be attributed to the movement strategies.

3.2.2. Case selection

Cases for this research are strategically sampled from a most similar contextual background. This ensures that geographic, historical, political, and socio-economic contextual variables are controlled. The geographic context refers to CEE countries in the European semi-periphery. Regarding the historical context, post-socialist countries are included that had a later accession to the European Union (EU) (from 2004 onwards). Importantly, such factors also have current political and socio-economic implications. The fact that these countries are now EU members not only shapes movements but also entails policies and values to align with (e.g., European Commission, 2021; European Commission, n.d.; Hicks, 2004). For instance, the European

Green Deal, and within that, the Just Transition Mechanism outline pathways for a just transition in EU member states (European Commission, n.d.). Besides, the context and resources for collective action, referred to as 'political opportunity structures', can also vary across contexts (Temper et al., 2018b). Although most socialist governments committed to environmental protection beginning in the 1970s, centralized economies constrained public participation (Harper et al., 2009). However, social movements and civil society organisation started to become more prominent in the transition phase which altered social metabolisms in these countries (Špirić, 2017). Lastly, the commodity of the ecological conflict also impacts movement strategies (Martínez-Alier et al., 2016), and thus, cases that concern climate justice and energy are selected.

Importantly, the cases are EJ movements which also serve as an important selection criterion. The cases were selected from the EJ Atlas which is a global inventory of such movements (Temper et al., 2015). However, in line with the most similar multiple case study design, the cases aim for high variance in the independent variable (Burnham et al., 2008). Hence, selected movements must differ in terms of their strategies and the countries they emerge in. To further narrow down the search, practical considerations were also accounted for that constitute the final selection criteria: movements have stopped and have had certain outcomes and there is a considerably high availability of resources accessible in English (or translation can be obtained). After reviewing the cases in the EJ Atlas, two EJ movements in Poland and Romania were selected for an in-depth case study analysis.

Case 1: Movement against the North (Północ) coal-fired power plant in Rajkowy, Poland. The first case under investigation is the Polish campaign for climate protection that emerged as a response to the planned project of one of the biggest coal-fired power plants in Europe (EJ Atlas, 2022). The first resistance movement emerged in 2011, however, it consisted of only a few residents. After this, the movement developed quickly and employed various strategies ranging from legal to educational activities. Consequently, the investor stopped the project in 2019.

Case 2: Movement against Chevron Shale Gas Fracking in Pungesti, Romania. The energy company Chevron was given permission by the Romanian government in 2010 to explore areas for shale gas fracking (EJ Atlas, 2021). One of the exploration sites, however, showed great resistance to the project through protests and blockades. This led to suspension of the plans in 2015 which also marked the end of the company's shale gas exploration in Europe.

A more detailed description of the cases can be found in section 4.

3.2.3. Research materials and data collection methods

The triangulation of methods ensured that various and intensive data collection methods are used for acquiring an in-depth understanding (Verschuren et al., 2010). For this, different qualitative research methods were used to analyse the materials.

Firstly, semi-structured interviews with civil society organizations, communities, local researchers, and other relevant mobilizing actors for the selected movements were conducted. The data obtained from the interviews were used to outline the micro and meso levels of transformation processes and the overarching EJ objectives at the macro level (see Appendix B for the interview guide). Besides, their insights were also used to get a better understanding

of the empirical case studies which are cited in the case description section (see section 4). Interviewees were strategically sampled and contacted based on their extensive involvement in and knowledge about the movements. Additional interviews were conducted with civil servants, policymakers, and academics in the studied countries to gain a better understanding of the macro level: the expression of incumbent paradigms in the SES. Therefore, their insights were sought to assess the state of JT in the respective countries and the paradigms that facilitate or hinder their move away from fossil fuels at various levels. Most of the interviews were recorded online on Microsoft Teams and transcribed with the software Amberscript. In some instances, interviewees did not consent to recording, and thus, notes were taken and utilized for data analysis. Plus, some interviewees provided their answers in a written format via email. A total of 17 interviewees participated in the study for which an overview can be found in Table 4. The participant IDs are referred to in the results section to reveal patterns in the data.

TABLE 4. PARTICIPANTS IN THE DATA COLLECTION INTERVIEWS.

Participant ID	Time and place of interview	EJ movement	Name (in case of acknowledged contribution)	Organization and, in case of acknowledged contribution, role	Transformation level assessed with the acquired data
P1	14/02/2024, online	North coal-fired power plant, Poland	Anonymous	WWF Poland	Micro, meso and macro levels
P2	26/02/2024, online	North coal-fired power plant, Poland	Anonymous	ClientEarth	Micro and meso levels
P3	05/03/2024, online	North coal-fired power plant, Poland	Jakub Gogolewski	Banktrack, Currently Greenpeace Poland; Lead Campaigner	Micro, meso and macro levels
P4	05/03/2024, online	North coal-fired power plant, Poland	Anonymous	Now freelancer, at the time of the movement: ClientEarth	Micro and meso levels
P5	12/03/2024, online	North coal-fired power plant, Poland	Anonymous	Journalist at OKO press	Micro and meso levels
P6	17/03/2024, via email	North coal-fired power plant, Poland	Anonymous	Workshop for All Beings	Micro, meso and macro levels
P7	20/03/2024, online	North coal-fired power plant, Poland	Miłosława (Miłka) Stępień	Bankwatch Network	Macro level
P8	12/02/2024, online	Anti-fracking movement, Romania	Cristian Jura	Professor at Christian University „Dimitrie Cantemir"	Micro, meso and macro levels
P9	21/02/2024, online	Anti-fracking movement, Romania	Anonymous	West University Timisoara	Micro and meso levels

P10	26/02/2024, via email	Anti-fracking movement, Romania	Anonymous	SOS Rosia Montana	Micro, meso and macro levels
P11	07/03/2024, online	Anti-fracking movement, Romania	Anonymous	West University Timisoara	Micro and meso levels
P12	16/03/2024, online	Anti-fracking movement, Romania	Dan Trifu	Vice president of Eco-Civica	Micro, meso and macro levels
P13	16/03/2024, online	Anti-fracking movement, Romania	Anonymous	National Institute for Lasers, Plasma and Radiation Physics, Romania Fara Ei	Micro and meso levels
P14	22/03/2024, online	Anti-fracking movement, Romania	Anonymous	Jounalist at Green European Journal	Micro, meso and macro levels
P15	29/03/2024, online	Anti-fracking movement, Romania	Anonymous	Greenpeace Romania	Micro and meso levels
P16	24/04/2024, online	Anti-fracking movement, Romania	Anonymous	At the time of the movement: Eco Ruralis, currently: Alpa	Micro, meso and macro levels
P17	20/05/2024, online	Anti-fracking movement, Romania	Oana Preda	CeRe	Micro and meso levels

Data collection was complemented with visual data and relevant organizational documents, websites, legal and procedural documents, and press releases (see Appendix C for the list of documents). The assigned document IDs are used to cite sources in the case description and results sections for revealing patterns in the data. This further helped to analyse the micro, meso and macro levels. The documents only available in Polish and Romanian had to be translated with the use of a reliable and accurate software DeepL. Additionally, further literature review was performed to sketch the macro level. Hence, scientific and grey literature helped to assess the way paradigms and hegemonic power express in the countries' energy system and just transition efforts.

The utilization of the method greatly depended on the studied case as access to people and language barriers posed challenges to conducting interviews. In that case, document analysis proved to be a more suitable data collection method. These methods collected data on all the three levels (micro, meso and macro levels) of JT processes. This was part of an iterative research process to contextualize and enrich the operationalization and assessment of EJ movements and JT.

3.2.4. Data processing

The acquired qualitative data was thematically analysed through the combination of deductive and inductive coding in the software NVivo. Thematic analysis concerns a qualitative search for meaningful themes in the data (Bryman, 2016). The understanding of a theme is

multifaceted in the literature, and thus, the following notion is used in this study to identify them: a theme "builds on codes identified in transcripts and provides the researcher with the basis for a theoretical understanding of his or her data that can make a theoretical contribution to the literature relating to the research focus." (Bryman 2016, p. 584).

A general strategy for conducting a thematic analysis starts with a framework (Bryman, 2016). Thus, first, a deductive coding process was applied to the interview transcripts, interview notes and the documents in NVivo, guided by the analytical framework (Table 3). A deductive approach to coding entails a top-down approach where intitial structuring and interpretation of the data is based on an existing theoretical or conceptual framework (Braun & Clarke, 2006; Elo & Kyngäs, 2008). Therefore, themes were deductively created following the dimensions of the micro, meso, and macro levels outlined in the analytical framework. However, to allow for insights unique to the CEE context that are not predicted by theory, this coding process was complemented with inductive reasoning. The inductive approach is data-driven and exploratory which allows for the emergence of patterns, themes and codes from the data and reflect unique contextual experiences (Naeem et al., 2023; Thomas, 2006). Therefore, additional themes and codes could be created to allow for a more contextual and holistic understanding of JT. The codes refer to the indicators in coding. Importantly, since the indicators in the analytical framework serve as examples, inductive reasoning was essential for an open and flexible approach. Thus, indicators can emerge for the micro and meso levels that deviate from the example indicators in the analytical framework. Overall, this coding process was iterative; additional revealed categories and codes were continuously compared to the analytical framework of the study, opening the possibility for extension and/or adjustments (sub-question 1).

The interpretation and coding of the data was highly qualitative, supported by the quantification of indicators (codes) to weigh patterns in the data. The operationalization of the analytical framework is provided in Appendix D. The evaluation of the just transformative character of strategies at the micro level (sub-question 2) combined these quantitative and qualitative approaches. The indicators (strategies in this case) under each theme were qualitatively revealed and then quantified according to the reference counts across data sources. The themes refer to the strategies to impact the three types of hegemonic power: structural, relational, and cultural power. Importantly, this quantification process of the data is paired with contextual and in-depth insights of qualitative data. Thus, the nature of these strategies on the ground and their directionality towards EJ objectives at the macro level were assessed qualitatively.

To assess the just transformative impacts of movement strategies on the cross-cutting dimensions of JT pillars and hegemonic power types (sub-question 3), a similar approach was used. The nature of the impact was qualitatively determined which was complemented with the quantification of empirical counts and the following evaluation categories for the meso level:

TABLE 5. EVALUATION CATEGORIES.

	Just transformative impact	Rationale behind the assessment
	High level of impact	Assigned when indicators can be found in the data for all sub-dimensions.
	Medium level of impact	Assigned when indicators can be found for a few sub-dimensions.
	Low (or negative) level of impact	Assigned when indicators did not emerge from the data or only to an insignificant extent. Negative impact is assigned when the indicators counteract just outcomes.
	Insufficient data	Assigned when there was no sufficient data to determine the level of impact.

The assessment of the macro level is twofold. First, the presence of global incumbent paradigms in the CEE energy sector is sketched. Second, the normative orientation of EJ movements is assessed interpretatively based on data linked to their transformative character (at the micro level) and their just transformative impacts (at the meso level). Taken together, it can be outlined how EJ objectives are expressed in the transformation process and how incumbent paradigms are challenged (sub-question 4). Overall, the extensive evaluation of transformation processes including the macro level will guide the researcher in providing recommendations for JT in the CEE context (sub-question 5).

3.3.   Ethical considerations

Regarding the ethical considerations, it was important that informed consent for the participation and recording of the expert and data collection interviews is received. When interviewees did not consent to recording, only notes were taken during interviews and used for data analysis. Furthermore, it was ensured that data storage and management are in line with GDPR regulations. Interviewees were given the right to review the transcription of their interviews and request anonymity until the end of May 2024. Collected data was erased upon the completion of the master thesis.

3.4.   Reliability and validity of methods

Regarding the external validity of the research, explorative and qualitative methods are generally less generalizable. While the strength of this thesis lies in its exploratory nature and in providing insights into the CEE context, it risks the generalizability of the findings to wider contexts. Besides, EJ movements are selected based on specific criteria which cannot encompass the diverse manifestations of movements all around the world. On the other hand, the strict strategic sampling strategy ensures low variance in the contextual factors across cases, increasing internal validity. Thus, the potential mechanisms behind the causal relationships can be attributed to the movement strategies. It is important to note, however, that causal effects are difficult to assess with the case studies; it is more suitable for exploratory knowledge revealing driving mechanisms and patterns (Elman et al., 2020). Moreover, to increase the validity of the research, data collection methods and data sources were cautiously triangulated.

Additionally, there are various uncertainties surrounding transformations regarding their spatial and temporal demarcation, making assessment and governance rather difficult (Patterson et al., 2017). Although this was minimized by strategically selecting cases that ended years ago, the end of the movements' transformative impacts could not be exactly demarcated.

Lastly, semi-structured interviews are difficult to reproduce and are highly susceptible to factors external to the research, lowering reliability. The provision of a detailed coding scheme aims to assist the reproducibility of the research regardless of its qualitative nature. Besides, the selected cases have been covered extensively aiding access to research materials on the topic.

4. Description of the cases

The following chapter includes further description of the selected EJ movements, the underlying conflicts in the SES (the energy sector), and key stakeholders. This serves as an introduction to the case study analysis in the next chapter. Importantly, data sources (interviews, documents, etc.) used for the analysis also provided key insights into the background information of the empirical case studies and are cited similarly to the results section. Notably, the Romanian case relies on data collected by interviews to a greater extent.

4.1. Movement against the Północ power plant, Poland (StopEP movement)

The EJ movement to stop Elektrownia Północ (StopEP), the North Power Plant, addressed various complex social-ecological injustices within and beyond Poland. The North power plant in Poland was planned to be the largest greenfield coal-fired power plant in Europe, with a capacity of 2000 MW (D1; D2; D15; D18; EJ Atlas, 2022). The plant was to be located in Rajkowy, North Poland in close proximity to a Natura 2000 site, the Lower Vistula Valley. The design was later changed to 1600 MW, still making it one of Poland's largest coal plants. It was designed to meet the energy demands of 750,000 households. The main buildings would have covered approximately 90 hectares, and the project involved reclaiming over 56 hectares of fertile agricultural land. The plant's technology was outdated compared to other facilities at the time, with yearly CO_2 emissions of over 13 million tonnes. It was scheduled to be operational after 2016 and run for at least 35 years.

The Północ power plant project had various negative **social impacts**. Health problems would have arisen from coal ash and air pollution. Besides, the region would have remained dependent on coal energy for 40-50 years, hindering a shift to renewable energy. Water pollution, particularly mercury, from plant sewage into the Vistula River threatened long-term health and violated the Water Directive. Air pollution and an 8.5 km pipeline would have affected surrounding agricultural lands, which also led to growing opposition from local farmers. Residents also faced restricted access to information and were misled into signing documents (D1). The project would have disproportionally benefited already privileged segments of society, such as the beneficiaries of the company and the Kulczyk Investments Group, while harming nature and local communities (P6; D6; D7).

Moreover, the power plant project also raised significant **environmental concerns.** Burning coal leads to severe air and water pollution, impacting regional and global climates (D1). The site faced threats from runoff and dumping, turning the Vistula River into a sewage conduit. Mercury and heavy metal emissions degrade water quality, affecting local flora and fauna and raising water temperature and salinity. The Regional Environmental Protection Authority in Gdansk highlighted numerous ecosystem risks, with omissions in the EIA report failing to address all impacts. Additionally, the effects on nearby Natura 2000 sites were not fully considered, which posed further environmental threats (D1; D2). Polnoc power plant presented a unique problem for Poland and Europe as it was one of the first so-called greenfield power plants; it was supposed to be built in an area that had no such infrastructure before, in an area that is known for its ecological worth (P2).

Importantly, the project also entailed **economic injustices.** There were attempts to pressure local farmers into signing a petition to the Ministry of Environment to request the

reclassification of their land. Some residents also claimed they were misled about the content of the conditional land sale agreement prepared by the investor (D1). Furthermore, the Polnoc Power Plant posed a significant threat to Pomerania's sustainable development, potentially hindering renewable energy initiatives for at least three decades. This could have prevented the creation of green jobs and prolonged technological backwardness, requiring substantial financial investment to overcome. Constructing this coal plant in a clean, agricultural region with some of Poland's best soils raised concerns among residents and civil society organizations about risks to human health, cultural heritage, and the natural environment (D26).

4.1.1. Timeline of key events

As a result of the underlying injustices, the Północ Power Plant faced opposition since its inception in 2009 (EJ Atlas, 2022). Initially supported by local authorities, the project began without significant public awareness. Given the underlying SEC, there was quickly growing local opposition to the construction of the power plant despite the huge PR effort by the investor Polenergia, part of Kulczyk Investments Group. Resistance grew in 2011 with the Eco-Kociewie Association, founded by local farmers, leading the charge. They were later joined by ClientEarth and other NGOs, forming the StopEP coalition. The coalition engaged in legal and educational efforts, highlighting environmental and health risks. This resistance grew over the years and became the movement to stop the Elektrownia Północ (StopEP).

Legal battles ensued, with courts overturning permits due to flaws in environmental impact assessments (EIA) and concerns over species in the Vistula River (EJ Atlas, 2022). Public awareness campaigns reached the media, organized by local and international organizations like WWF Poland. By 2017, due to legal setbacks and changing market conditions, Polenergia shifted focus to offshore wind farms. The Provincial Administrative Court in Gdańsk and the Supreme Administrative Court in Warsaw ultimately revoked the building permits. In June 2019, the Supreme Administrative Court upheld the revocation, ending the project's viability. This marked a significant victory for environmental advocates and the local community, safeguarding Pomerania's environmental and sustainable development goals.

The below timeline summerizes the key events and milestones in the StopEP movement, showing the progression from initial investment to the ultimate halting of the project through legal, public awareness, and community action. The information is primarlily based on data about the case in the EJ Atlas (EJ Atlas, 2022). A more detailed discussion about the strategies and activities of the movement is provided in the results section. Relevant dates related to the movement are highlighted in red:
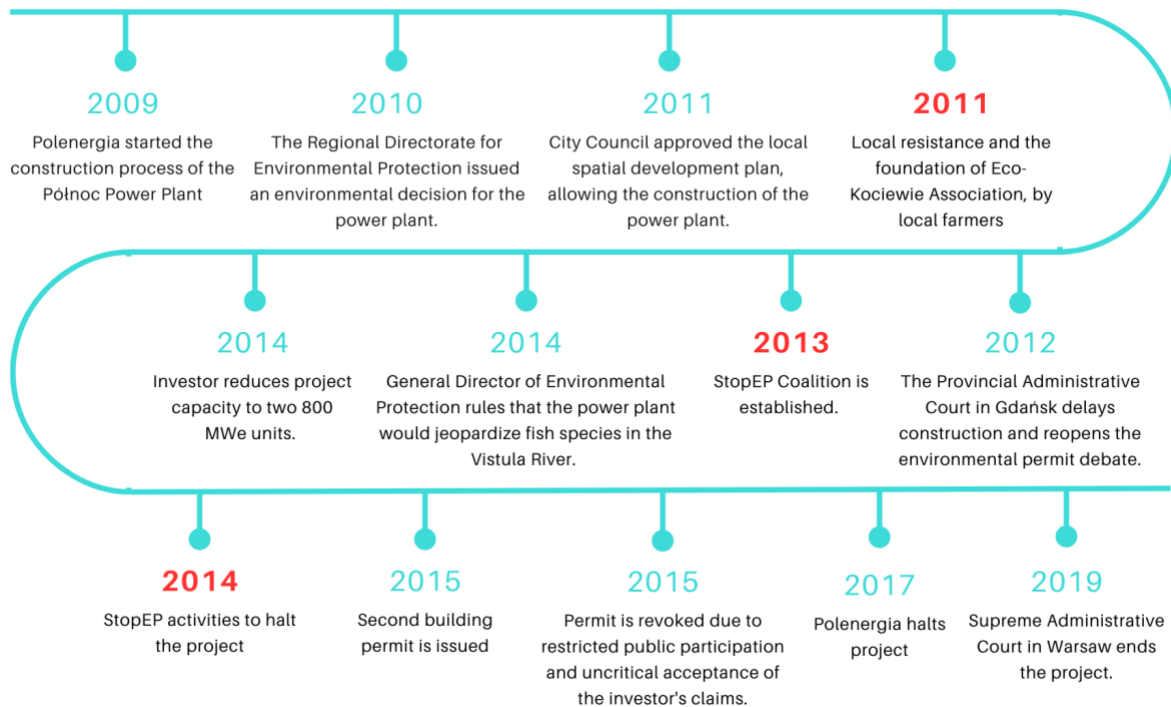
Figure 7. Timeline of key events in the Polish case.

4.1.2. Stakeholder analysis

A wide range of stakeholders was involved in the conflict both for (marked with red) and against (marked with blue) the realization of the Północ power plant. Their position on the power-interest grid is presented in Figure 8.

The StopEP movement involved local residents, environmental organizations (Workshop for All Beings, ClientEarth, Eko-Kociewie, Wspólna Ziemia, Greenpeace Poland, WWF Poland, etc.), scientists, and legal entities working together to protect the environment and public health from the impacts of the proposed coal-fired power plant (D21; EJ Atlas, 2022). Importantly, all these stakeholders are subjects to the conflict considering their low power but high interest in the environmental, social, and economic impacts of the project. Nature also belongs to this category, represented by conservationists and NGOs. The more powerful actors against the power plant were concerned with environmental protection. This included the EU through environmental regulations and funding across member states, with a high interest in compliance with EU directives and sustainable development. Besides, the Directorates for Envrionental Protection also had a high interest in environmental compliance, however, discrepancies in the actions between the regional and general bodies make their position more ambigious.

Resistance action by the above stakeholders faced powerful actors, with a high interest in the realization of the power plant. The Polish government and private investors (such as Polenergia) deemed this investment important for economic and energy security reasons, especially in the Northern region of the country which lacked such infrastructure for energy generation before (D2). The state had high power in regulatory and policy decisions and the investor - part of the Kulczyk Investment Group – had high power due to financial and project control. The company was owned by the richest investor in Poland, Jan Kulczyk, which ultimately meant greater resources (P6). The project would have also been beneficial for the

commissioned contractor and the local communities that favored large-scale development projects over local economic and environmental protection. However, this group was less vocal and organized compared to the opposing local community.

There were stakeholders that were less united in their position or were bounded by neutrality. Regarding the former, local authorities had high power and interest in local development, but their stance could be swayed by local or state interests. Other legal institutions held great power in legal rulings of the conflict, however, their sole interest was jurisdisction. The media was also powerful in shaping public opinion, but had no direct interest in the outcome of the conflict.
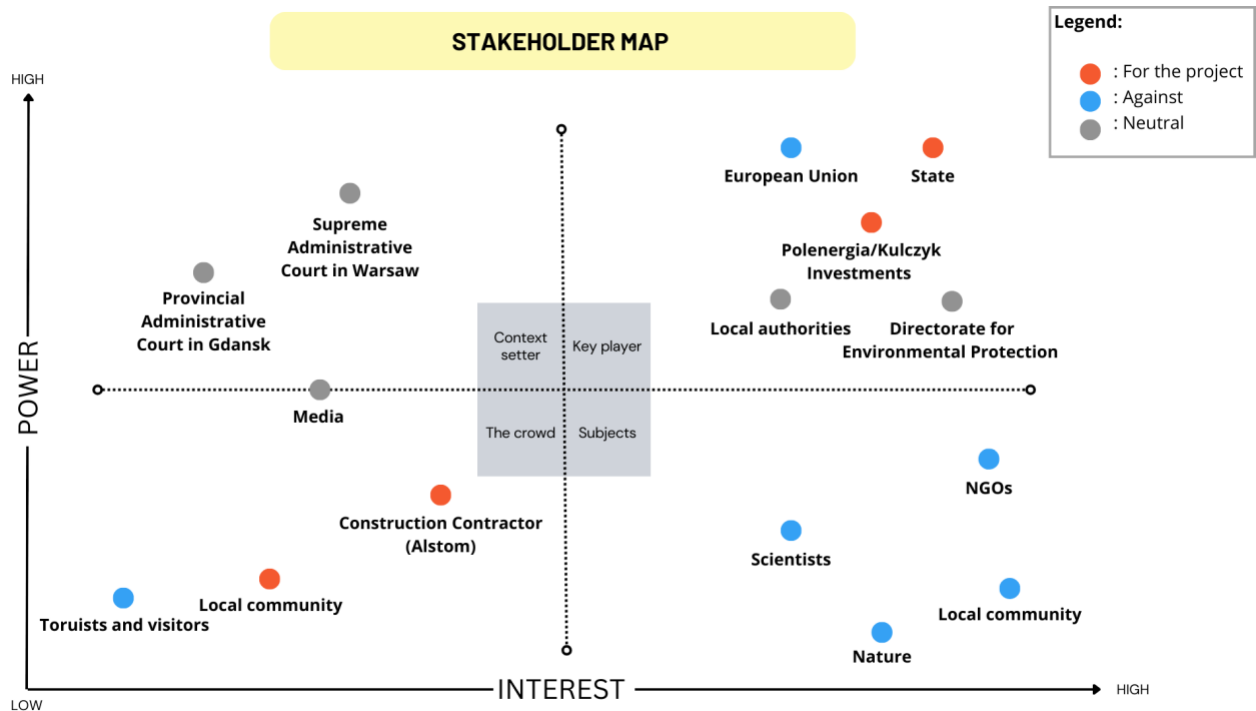
Figure 8. Power and interest grid of stakeholders in the Polish case.

4.2. Anti-fracking movement, Romania

The second EJ movement under investigation, the anti-fracking movement in Romania, also emerged as a form of contestation to a highly controversial energy production method at the time. In 2010, the Romanian government signed an agreement with Chevron, a US oil corporation, granting Chevron ownership of over 800 thousand hectares of land in Romania (D29). On October 3, 2013, Chevron secured all necessary authorizations to begin shale gas exploration in the village of Pungesti, Eastern Romania. This raised a complex socio-ecological conflict for Romania, which was tied with other environmental conflicts at the time, such as gold-mining in Rosia Montana. Shale gas fracking, a form of unconventional gas extraction, employs a combined technique of hydraulic fracturing and vertical drilling (British Geological Survey, 2022; D28). The shale gas industry created a new technonature, altering social and economic relations with the environment, externalizing costs onto society, and normalizing risks under a neoliberal regime (D27).

Hydraulic fracturing has several **environmental impacts** (D28; D31; D36; D39). It requires large areas of land for drilling, equipment, gas processing facilities, and access roads. The process generates air and noise pollution due to emissions from machinery and hazardous

fluids. It also consumes significant amounts of water. There's a risk of water and soil contamination from chemicals used in fracturing and wastewater, which can include heavy metals and radioactive particles (D27; D28). Vaslui County is a region that lacks water, and with the large quantities of water needed for shale exploitation, communities and nature would have been threatened (P12). Hydraulic fracturing and the injection of high volumes of wastewater can also increase seismic activity (P12; D28; D30). This was especially a great risk in the Vaslui region, where Pungesti is located, as it is a seismically active and earthquake-prone area (P12). Additionally, the process can negatively impact local biodiversity and ecosystems.

The above impacts are not only harmful for the environment, but also for the local communities and their economic activities (**economic injustice**). The local communities *"had heard and understood what the impact could be of just allowing fracking, not even on their own territory, but in the proximity of their land. So they knew that the impact could really prevent them from living the way that they were. So working the field, plowing, water could no longer be drinkable. They were aware of those factors, and that's why they decided to stand up."* (P14, personal communication, March 22, 2024). Thus, it posed a threat to local well-being and living conditions closely tied with their self-sufficient agricultural activities. Besides, shale gas fracking also had economic risks at the national level. Key risks included basing decisions on overly optimistic or pessimistic projections and ignoring the costs of externalities (D30). Potential benefits, such as increased natural gas supply and reduced imports, may not compensate for the associated environmental damages. The Romanian government was inclined to support investors and open exploitation without thorough economic assessments or necessary legislative amendments. Overall, this situation entrenched already existing economic injustices stemming from neo-liberal development projects and the expansion of agricultural monocultures in the region at the expense of locals and nature (P16; D27).

In terms of **social impacts**, many of the local residents would have been displaced without adequate compensation for their sacrifices (P8; P11). Besides, *"productive lands would no longer have been able to be used for agriculture purposes. And the population would have lived in a risk throughout various generations. And this only to obtain an insignificant production of shale gas. For instance, if we would have placed, photovoltaic panels, solar panels or wind energy structures, we would have obtained more energy."* (P12, personal communication, March 16, 2024). This shows the communities' reliance on local economic production methods for social well-being which was greatly threatened by the planned project. The method also has impacts on human health due to the chemicals used which include "toxic, allergenic, mutagenic, and carcinogenic substances" (D31).

4.2.1. Timeline of key events

As a consequence of the conflict, local resistance grew to prevent the project. In October 2013, Chevron planned to start exploration in Pungesti, a village with 947 residents (EJ Atlas, 2021). The local community, supported by Orthodox priests, blocked Chevron's trucks and protested peacefully. Various NGOs joined forces with the local community and it quickly gained national solidarity (P8; P12; P13; P14; P15; D27). Tensions escalated when police forcibly cleared the road, leading to violence and detentions. Despite winter conditions, villagers continued their protests, and on December 2, 2013, the Romanian gendarmerie secured the

area, restricting access and detaining protesters. The protests upscaled to various other locations in Romania, including the capital, Bucharest (P13, P15). Human rights organizations criticized these actions, while Chevron claimed commitment to community dialogue. In 2015, Chevron ended its operations in Romania due to poor exploration results and prolonged protests (EJ Atlas, 2021).

This timeline, mostly based on information in the EJ Atlas (2021), unless stated otherwise, captures the major events and developments in the movement against Chevron's shale gas exploration in Romania. Dates linked to the anti-fracking movement are highlighted in red in Figure 9. The strategies and activities of the movement are further explained in the results section.
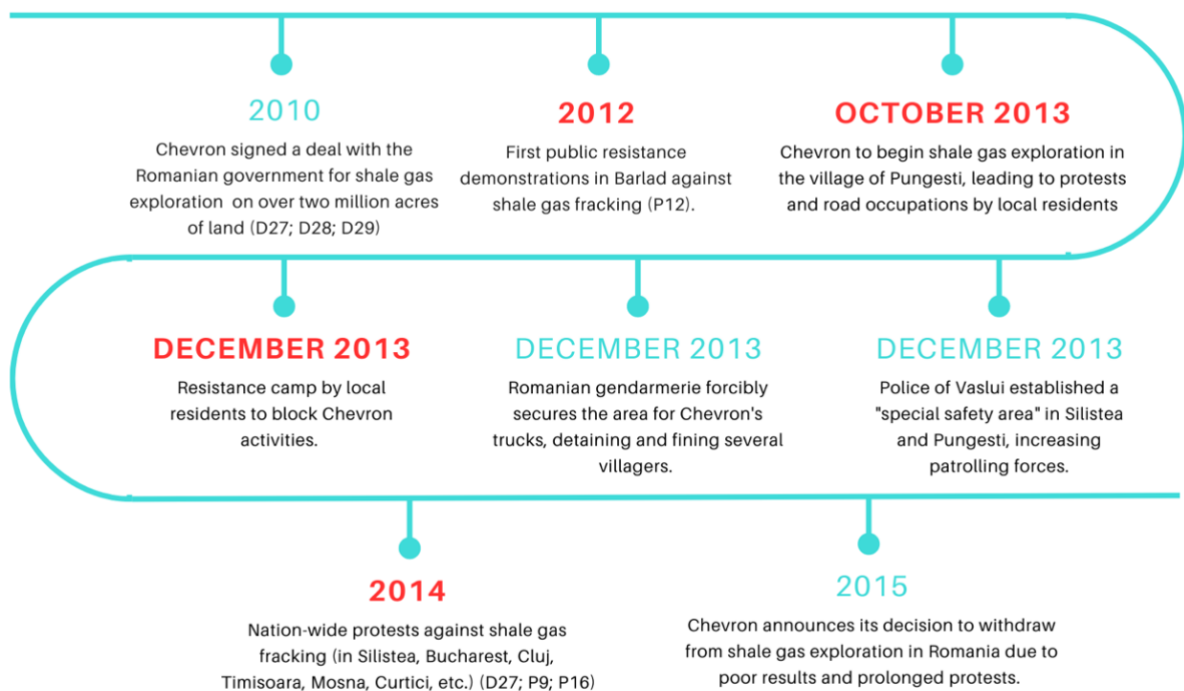
Figure 9. Timeline of key events in the Romanian case.

4.2.2. Stakeholder analysis

Various stakeholders were involved in the conflict both for (marked with red) and against (marked with blue) the exploration and exploitation of shale gas in Romania. Figure 10 illustrates their power and interest linked to the case.

The anti-fracking movement emerged from a place-based struggle around which the local community and environmental and human rights organizations coalesced (EJ Atlas, 2021; P9, P14; D27). The local community had limited power, but significant interest in the outcome of Chevron's shale gas exploration as it would have directly impacted their land, livelihoods, and environment. They were joined by environmental NGOs and activists that advocated for the protection of the environment and opposed activities that pose risks to ecosystems and public health (for example, Greenpeace Romania, ALPA, Vira, Romania Fara Ei, Eco-civica, etc.). These actors had a high interest in stopping Chevron's shale gas exploration with the use of their resources and knowledge. However, their power was disproportianally less than state and corporate actors' (P12; P13). Besides environment-focused actors, human rights organizations also supported the activities of the anti-fracking movement for the protection of

civil liberties and the rights of individuals impacted by Chevron's operations (for example, Friends of the Earth Europe, CeRe, Helsinki Committee for the Defence of Human Rights in Romania) (EJ Atlas, 2021). They had a high interest in ensuring that the protests are conducted peacefully and that human rights abuses are addressed. Importantly, political activists - for example, from Save Bucharest Union - also participated in the movement and had a high interest in mobilizing the public for upscaling their political desires (P16). They also had low power at the time as they only operated as civil society. Overall, these stakeholders were the subject of the conflict impacts due to their low power, but high interest. Additionally, the Orthodox church and priests played a supportive role in the local community's protests against Chevron's operations. While they did not wield significant power individually, their influence and mobilizing capability within the community were prominent (EJ Atlas, 2021).

Similarly to the Polish case, the media also had a role in shaping public opinion, especially on social media platforms such as Facebook. However, it had no interest in the conflict outcome. There were other stakeholders involved with low interest, however, they had greater power, making them context-setters. For instance, other energy companies in Romania may have had an interest in the outcome of Chevron's operations. Depending on their stance on fracking, they could either support or oppose the project, with the power to influence policies and investment decisions in the energy sector. In addition, the decisions by the National Agency for Mineral Resources are highly influenced by the government which explain the licenses they granted to Chevron for shale gas exploration (D28; D30; D32; D36).

The most powerful actors in the country were the state and Chevron corporation, with their mutual agreement for shale gas exploration (D27; D30). The Romanian government held regulatory power over energy exploration activities as they owe all groundwater resources in the country (P15; D27). It had a high interest in the project's success, as it could contribute to energy independence and economic development. For this, they granted licenses to Chevron through the National Agency for Mineral Resources for shale gas exploration (D28; D30; D32; D36). Hence, Chevron held significant power as the operator of the shale gas exploration project. Their interest lied in successfully conducting exploration activities to assess the potential of shale gas reserves (D27; D30). Importantly, the EU had an important role in the conflict as it sets environmental and energy policies that member states, including Romania, must adhere to (P11). While the institution was not directly involved in granting permits for shale gas exploration, the EU could exert influence through regulations, funding programs, and environmental assessments. It also has an interest in promoting sustainable energy practices and ensuring compliance with environmental standards.

Lastly, local authorities were the bridge between governmental decisions and local implementation (D30; D34). Notably, they benefited less from shale gas exploration than the Romanian government, indicating a lower level of interest. Thus, their opinions could be swayed and pressured from both higher and lower levels, with the power to ban fracking locally.
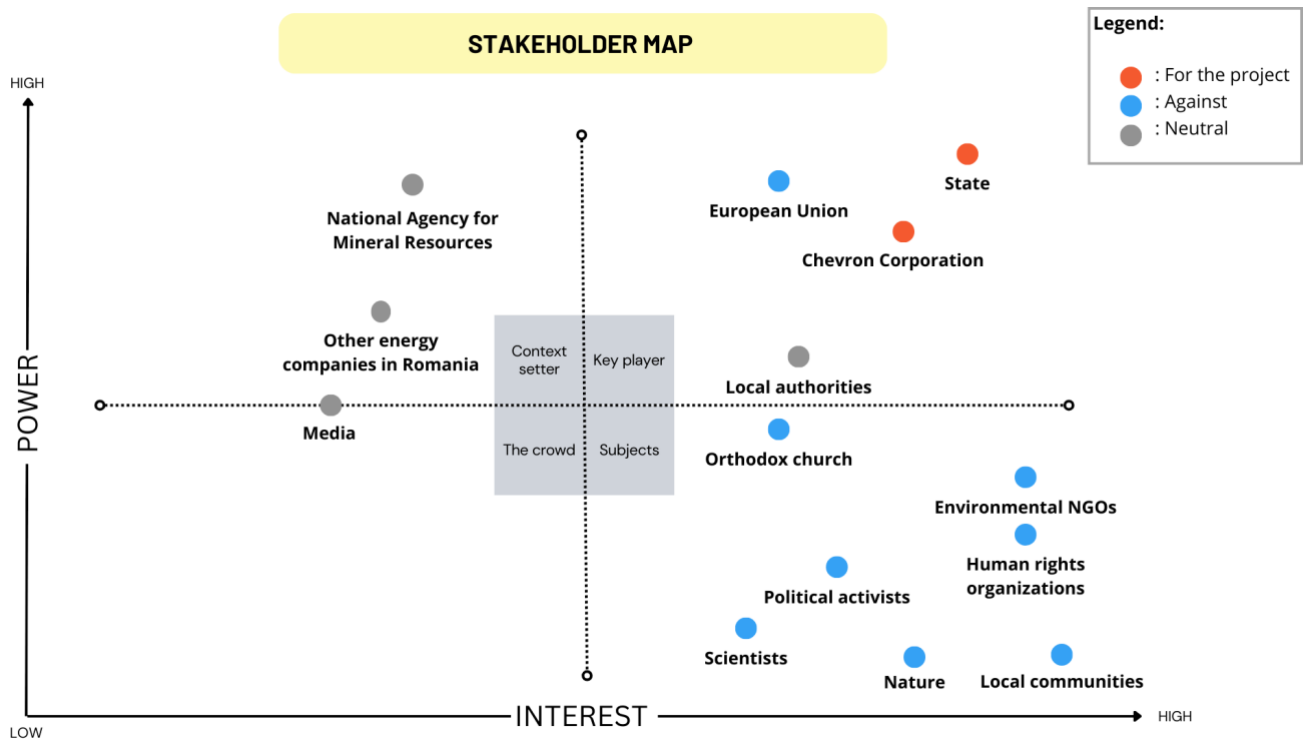
Figure 10. Power and interest grid of stakeholders in the Romanian case.

5. Results

Now, we turn to the results of the thesis. In the following chapters, transformation processes across the three levels (micro, meso and macro) are examined. This follows the organization of transformation processes in the conceptual framework.

5.1. Micro level: transformative character of movement strategies

This chapter explores the strategies employed by both the StopEP movement in Poland and the anti-fracking movement in Romania. The transformative character of the strategies is studied based on how they target different types of hegemonic power. Therefore, this chapter will answer sub-question 2: *What is the transformative character of the strategies employed by the movements in Central and Eastern Europe?* By revealing the strategies' transformative character, drivers of just transformations in this context can be identified.

5.1.1. Strategies of the StopEP movement, Poland

Following the study's analytical framework, three hegemonic power types need to be impacted by EJ movements for deep changes to occur (Rodríguez & Inturias, 2018), indicating the transformative character of movement strategies. The three main themes of hegemonic power types are cultural, relational, and structural power, and they were all targeted by the strategies of the StopEP movement.
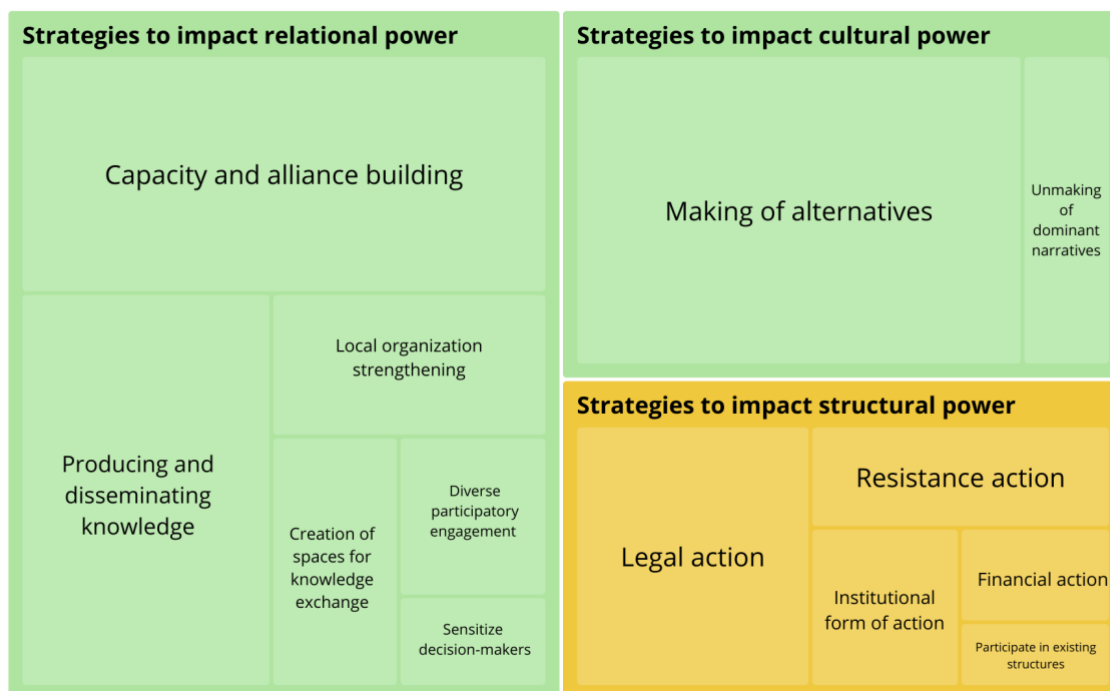
Figure 11. Overview and weight of StopEP movement strategies to impact the three types of hegemonic power. Colours are indicative of transformative character.

Overall, as shown in Figure 11, strategies to impact on relational power were the most widely utilized. Capacity and alliance building was the most cited strategy in the data, indicating its great importance. Besides, producing and disseminating knowledge was also important in configuring relations for the prevention of the power plant. The data revealed that making of alternatives to impact cultural power and reach social consensus over new social, economic, and ecological trajectories was also quite prominent. Lastly, targeting structural

power mostly expressed in legal action to challenge procedural and environmental aspects of the project. Importantly, we can see that each power type was targeted by at least one main strategy which was accompanied by various other repertoires of action to complement its effects.

Strategies to impact structural power
The collected data revealed five distinct strategies for impacting structural power (see Table 6), aiming at changing institutional, legal, and economic frameworks to acknowledge human and nature rights (Rodríguez & Inturias, 2018; Temper et al., 2018b).

The most important strategy by the movement to impact structural power was legal action (P2; P3; P4; P5; P6). This involved challenging both the investor's EIAs and the proceedings linked to the EIA permits (P2; P4). The legal action therefore mostly concerned the omission of insights from the NGOs in these assessments and the refusal of local participation to the proceeding, who were in close proximity to the site and claimed to have been affected by the power plant. NGOs with legal expertise, such as ClientEarth, engaged in strategic litigation for the whole duration of the process and provided support for local community members to be involved in environmental decision-making processes (P2; P3; P4; P5; D4; D21) (for reference, see Table 6).

ClientEarth led the legal aspect of the campaign and raised legal arguments against the power plant making sure that the administrative authority applied the law correctly (P2). The applicable law was the building code for the building permit in connection to the EIA. This building permit had an environmental justice element which meant there must be public participation in environmental decision-making. Therefore, NGOs have additional rights and can be parties to proceedings. However, at first, these rights were not given both to NGOs and local residents, which meant a window of opportunity to challenge these procedures. Besides, the StopEP coalition conducted an EIA of the power plant, concluding that the investor's EIA was not thorough enough (P2; P4). Importantly, the scientific reports by the NGOs were not considered by the administrative authority in issuing a decision, and thus, this procedural error was also challenged by ClientEarth in court (P2). Overall, this strategy was emphasized by many as one of the most effective for achieving the goal of the movement (P2; P3; P4; P5; D4).

Besides legal action, resistance action was also revealed in the data as an important indicator for impacting structural power (see Table 6). This ensured visible mobilization of the public to showcase local opposition to the project. Repertoires of action involved protests (P3; P6; D25), joining bigger climate marches and demonstrations (D17), and organizing street actions to present arguments for renewables and against coal projects (D11).

The movement also employed institutional forms of action to exert pressure on the investor and decision-making bodies. For instance, various petitions and letters were signed as part of an international campaign addressed both to the investor and the government to halt the project (P3; P5; D13; D16; D18; D22). Moreover, the StopEP coalition engaged in continuous advocacy work to raise awareness about the environmental and financial risks of the power plant, targeting shareholders of the company, governmental bodies in Warsaw, and the European arena (P3; D6). This also involved exerting pressure on decision-making bodies such

as the General Director of Environmental Protection to withdraw its decision for the construction of the power plant (D20).

Notably, financial action was also utilized by some coalition members to exert direct pressure on the investor's activities. The aim of these actions was to prevent funding for polluting projects and to internally participate in shareholder meetings to influence decisions (P3; P5; P6). By becoming shareholders in the company, NGOs could attend general shareholder meetings and scandalize greenwashing internally. Besides, it was also important to scandalize greenwashing by banks and investment insurers externally by protesting in front of institutional buildings (P6). Moreover, one of the coalition members was specialized in financial tracking of investments and funding for extractive projects in Europe (P3). Therefore, they also focused on the prevention of funding for coal projects from the European Investment Bank.

Lastly, another strategy was to participate in existing structures to increase the visibility of the issue. This entailed participation in larger conferences such as the UN Conference of Youth as part of COP19, held in Warsaw (D19). Here, coalition members presented the case and the surrounding risks of the Polnoc power plant. Additionally, the coalition participated in parliamentary committees and administrative proceedings to foster compliance with environmental requirements (P1; D21).

Overall, various strategies were employed by the movement to impact structural power, however, not all of them were practiced to their full potential. Legal action was the most outstanding and effective strategy, complemented with resistance and institutional forms of action. The last two strategies enriched the movement; however, their presence was quite low in the overall repertoire of action. Thus, based on the findings, strategies to impact structural power had a moderate to high transformative character (see Table 6).

TABLE 6. STOPEP MOVEMENT STRATEGIES TO IMPACT STRUCTURAL POWER. INDICATORS MARKED WITH * WERE EMPIRICALLY REVEALED IN THIS STUDY.

THEME: Strategies to impact structural power				
Indicators	Description	Sources (No. of data files)	Empirical count (No. of references)	Example references
Legal action*	Providing legal support for local communities and challenging administrative documents at court.	10	26	*'The EIA report was challenged several times. So I think the whole legal procedure last for like six years or longer, because every time we challenge something then the investor has to change. But the final complaint, like the last one, which was a kind of final victory because the investor after this withdrew from the project because of economical reasons. But we know that, because the permitting of the project was so long-lasting and we challenge everything, so economically it was less viable."(P4)*
Resistance action	Local mobilization such as protests, demonstrations, marches, and other street actions.	10	13	*"We also organized protests together with local residents. Plans to turn the site into an industrial region with a coal-fired power plant have encountered local resistance. However, the opponent was the investor, who was the wealthiest Pole (the late Jan Kulczyk). Nobody believed 10 years ago that investments could be stopped." (P6)*
Institutional form of action	Formal actions such as advocacy,	8	10	*"More than 3000 people have signed the Stop Elektrowni Północ petition on the 350.org*

	petitions, letters, and political pressure on decision-making bodies.			*"campaign platform. Together with 350.org we appeal to the investor that he withdrew from building the Elektrownia Północ coal power plant."* (D16)
Financial action*	Preventative actions such as pressuring funding institutions of the project and becoming shareholders in the company.	4	6	*"And at the same time, we were trying to understand where the funding would come from, who would potentially be involved and make it as unlikely as possible."* (P3)
Participation in existing structures	Participation in administrative proceedings and wider scale conferences for climate action.	4	4	*"And in the past, we were involved, for example, in the parliamentary committees. So, as the civil society, we are sometimes allowed to take the floor and say what we think about certain acts and certain things."* (P1)
Transformative character of strategies:	5 strategies	58 empirical counts	Moderate to high	

Strategies to impact relational power

Relational power was highly targeted by the strategies of the StopEP movement, with the goal to produce changes in people's interactions and create conditions for dialogue (Rodríguez & Inturias, 2018; Temper et al., 2018b). With 6 strategies under this theme and a high empirical count in the data, this hegemonic power type was the most impacted by the movement (see Table 7).

Firstly, capacity and alliance building were key in creating and strengthening the own network of the movement. This happened at two levels: first, through local community organizing and empowerment and second, through the establishment of a national coalition of NGOs to halt the investment (P1; P2; P3; P4; P5; P6; D4; D21; D24). It was crucial for the legitimacy of the movement's organizational structure to build on existing local opposition (P3). Local opposition emerged from the start of the project which later was embodied in the Eco-Kociewie Association, founded by local farmers (P4; EJ Atlas, 2022). Their resistance was later joined and reinforced by the StopEP coalition which consisted of local residents and Polish organizations with specialized backgrounds, namely, ClientEarth, WWF Poland, Workshop for All Beings, Wspólna Ziemia, Greenpeace Poland, FabLab Elbląg and Eco-Kociewie (D21). For this coalition to take place, it was essential to fist identify and engage local oppositional voices and build capacity on an existing local conflict, rather than inventing a problem and consolidating local opposition around it (P3; P4). Local community engagement was thus key throughout the whole movement (P1; P3; P4). After the initial phase, NGOs devoted great focus to building trust and relationships with the community members for long-term cooperation (P1; P3). Besides, all other strategies were tailored towards empowering the local community, for example, by providing them expert knowledge, strategic litigation assistance, and resources to continue voicing their concerns and defending their rights (P2; P4; D24). Therefore, capacity building on local opposition links to another important strategy of local organization strengthening (Table 7). Establishing a local oppositional base went in parallel with wider capacity and alliance building (P6).

Moreover, capacity building also took place through the involvement of experts, which was one of the assets of the coalition (P3; P4; P6). Experts from diverse fields worked closely with the local community which provided a unique opportunity for citizens and experts to develop relations and engage in mutual learning (P3). Even within the coalition, the

organizations presented specialized knowledge ranging from health expertise, energy transformations, water protection, finance, and legal expertise (P6). Therefore, building on expert knowledge was crucial for advancing the coalition's capacity to create dialogue with administrative authorities and legal bodies. All in all, aligning diverse stakeholders and expertise (both local and wider) around the issue and building alliances and capacity on the case were expressed as crucial strategies for the success of the movement (P2; P3; P5; P6). NGOs played a key role in capacity building in the Polish context as they bridged all the different opposition actors and empowered the local communities.

Given the NGO's focus on local and expert knowledge to challenge the investor, it was also important to produce and disseminate their joint knowledge to adequately address the risks of the proposed project (see Table 7). Conflict at the local level often stems from the lack of unbiased information related to development projects (Kothari et al., 2023). Therefore, the dissemination of expert knowledge is key in reducing uncertainties about the risks of such projects, which in turn, could empower locals to voice their perspectives more effectively and freely about the issue (D23). This was a prominent component of the movement's tactics as the provision of an unbiased EIA and the linkage of the case to a wider systemic transition strategy were central to the goals (P2; P3; P4; P5; D12; D15; D20; D26).

The generated knowledge was then shared at workshops, debates, and other online platforms. Hence, the creation of physical, social, and virtual spaces was also essential for sharing perspectives and empowering coalition members (P3; P6). For example, the StopEP website was created as a platform to share reliable information and experiences related to the environmental, economic, and social risks of the planned power plant (P6; D21; D23). Besides, public debates and workshops were organized by the StopEP coalition both as individual events and as part of conferences and municipal initiatives (P3; D12; D17; D19; D23). Importantly, all these events were public, inclusive, and participatory contributing to diverse participatory engagement (Table 7). This enabled the representation of diverse voices from both the economic and environmental sides and reinforced a mutual learning process between more resourceful actors and the local community (P3).

Lastly, relational power was also impacted through sensitizing decision-makers at local, regional, and national scales (P1; P3). Important connection point was the local authority, which could bridge national policies with local implementation. Therefore, exerting pressure on the local mayor was also present, but to a less significant extent.

In sum, a high transformative character can be observed for strategies targeting relational power (see Table 7). Various effective strategies were employed and coordinated by the StopEP movement for configuring networks. Notably, each strategy was the foundation of other strategies, reflecting the importance of linking them together for desired greater impact. For example, the strategy of capacity building was inherently based on other strategies such as local organization strengthening and producing and disseminating new knowledge. Similarly, diverse participatory engagement and the creation of virtual and physical spaces were the foundation of reliable knowledge dissemination. Overall, the movement exhibited an integrated strategy for impacting relational power.

TABLE 7. StopEP MOVEMENT STRATEGIES TO IMPACT RELATIONAL POWER.

THEME: Strategies to impact relational power				
Indicators	**Description**	**Sources (No. of data files)**	**Empirical count (No. of references)**	**Example references**
Capacity and alliance building	International, national, and local capacity and alliance building through empowerment, trust, and resources (e.g., experts)	18	47	There was a coalition of NGOs. ClientEarth was involved in the campaign, but the campaign was led by other NGOs who were more closely involved with the individual residents of the area where the power plant was supposed to be built. (P2, based on notes taken by the researcher)
Producing and disseminating knowledge	Producing expert and local information about the environmental, social, and economic impacts and disseminating it to various societal groups.	17	37	*"The court basically agreed with the NGOs and ClientEarth that the power plant is bad for climate and is bad for the immediate natural environment. So it will be problematic for the Vistula River. And also the NGOs and ClientEarth pointed out several formal mistakes in all the paperwork that the investor had to do."* (P5)
Local organization strengthening	Institutional, financial, and expert support from organizations to strengthen local resistance against conflicts.	7	15	*"If there is a local movement against any project, then NGOs are supporting them a lot. But if local people are for the project and there is no local opposition, then NGOs are somehow respecting this decision and do not act against the local community. So they have to work together. There is no other chance to build a campaign. But usually if there is local opposition then locals are really fighting and they really need institutional support from NGOs."* (P4)
Creation of physical, social, and virtual spaces for sharing experiences	Organizing debates, meetings, websites, workshops, and meetings for sharing knowledge.	7	12	*"A recently launched website provides information on risks associated with the Północ (North) Power Plant in Poland to offer a critical balance to the so far rather promotional debate about the project."* (D23)
Diverse participatory engagement	Enabling participation of diverse stakeholders in knowledge exchange.	5	9	*"And opening a space and inviting was a possibility for people to come, ask questions, and just figure that they could debate. But it's not all good. But you can have doubts and you can ask questions and think of it more was quite important."* (P3)
Sensitize decision-makers	Connecting to local, regional, national, and supranational decision-makers to impact on decision-making processes.	2	5	*"The local mayor was quite supportive of the project, and of course, he was getting pressure from both sides. Then he changed and a new one had to be established. So it's maneuvering the existing, local, regional, etc. politics."* (P3)
Transformative character of strategies:		6 strategies	124 empirical counts	High

Strategies to impact cultural power

Long-term transformative impacts can be achieved when movements manage to impact values and narratives embedded in cultural power (Kothari et al., 2023). For this, in line with the analytical framework, strategies need to unmake incumbent paradigms and unmask institutional neutrality, while making new meanings and alternatives (Feola et al., 2021; Rodríguez & Inturias, 2018; Temper et al., 2018b; Tschersich et al., 2023). Importantly, both

sub-themes of 'making' and 'unmaking' were discovered in the data under the main theme of strategies to impact structural power (see Table 8).

The most important strategy for facilitating **the making of alternatives** was the years-long campaign by the StopEP coalition, led by organizations on the ground (P2; P3; P4; P5; P6; D4; D11; D12; D14; D21; D23). The campaign's goal was to raise consensus about alternatives to coal production and the benefits of renewable energy, energy commons and protection of local rights, while building opposition to the coal power plant (thus, also contributing to unmaking of dominant narratives). The leading organization of the campaign was Workshop for All Beings, from which a representative defined the goal of making alternatives and unmaking dominant paradigms as follows:

> *""Workshop" launched a climate campaign in 2013, which resulted from the understanding that there is no nature protection without climate protection. In the years 2013-2021, "Workshop" activities were focused on stopping new coal-fired power plants, specifically the Północ power plant and the Ostrołęka C power plant. We work for civic, grass-roots distributed energy. We want energy to get into people's hands. We are scandalizing the activities of energy and fuel companies. In our campaigns and advocacy activities, we talk about the rising costs of centralized energy and promote an energy system based on energy efficiency, renewable sources, smart grids, storage and energy demand-side management.The aim of the North campaign was to build opposition to conventional coal energy and to build support for renewable energy." –* P6, personal communication, March 17, 2024

Media campaigning including social media was also essential in the strategy to shape public opinion and create consensus over the detrimental effects of the planned power plant. This meant cooperation with local and national media to get wider coverage of the issue (P5; P6) and utilization of participating NGO's own communications channels such as news outlets and social media (P6). Shaping public opinion through the media was stressed as another highly effective tactic employed by the movement (P5).

In the making of alternatives, it was also important to exchange diverse perspectives, visions, and experiences (see Table 8). This ensured that, while the coalition managed to establish a common vision of resisting the power plant, the trajectories towards this alternative remained diverse (P3; P4; P6). This was due to the varied base of the coalition which consisted of environmentalists, naturalists, farmers, scientists, experts, and specialists in diverse fields (D11; D12). Importantly, the coalition members also engaged in dialogue with locals who were supporting the power plant to understand their values and perspectives as well (P3; P4). This established a culturally diverse and inclusive foundation for the creation of transformation pathways (P3). These alternative visions ranged from energy-oriented narratives such as renewables and energy democracy, through agricultural ideas such as ecological farming and food industry as the new asset of the Polish economy, to social and ecological aspects such as the protection of local communities and nature-human interconnectedness. Yet, they were all united in their action, aiming for a united objective of coal phase-out. Importantly, having such a united front was also an important strategy in creating visibility for the alternatives (P1; P2; P3; P5). For this unity, three important insights were shared. Firstly, one of the organizations mentioned the importance of moderate views and action for consensus-building around the

overarching objectives (P1). Secondly, the movement was focused on a clear-cut conflict in terms of the nature of the project, the affected region, and the population (P3). Achieving unity on a more complex conflict might have been more difficult. And thirdly, the objective was linked to existing wider social problems such as coal dependence, centralized energy production, and environmental and health risks of development projects (P1; P3; D11).

The alternatives were also based on local views and values which were revitalized and amplified by the movement (Table 8). These values revolve around local agricultural activities and connection to nature (P4; P4; P6). Therefore, the movement first provided an opportunity for these values to resurface in the local community and then amplified them in public narratives.

Regarding the **unmaking** of dominant narratives, two strategies were employed. First, the protection of local rights such as real estate and public participation was used to contest the values on which the planned investment lied (P2; P3; P4; P6). Therefore, protecting the rights and interests of locals also meant that conventional and monopolist investments could be challenged. Second, the movement also challenged dominant knowledge providers for energy projects (P6; D26). It did not only question the knowledge provided by the investor's EIA, but also addressed biases in sustainability knowledge production that would not minimize the impacts of human activities (see reference in Table 8).

Overall, the movement strategies aimed to facilitate both the making of alternatives and the unmaking of dominant paradigms that are further substantiated in the directionality of the movement at the macro level (see section 5.3). With 7 strategies in total to impact cultural power of which campaigning was quite substantial, the strategies have a high transformative character. Notably, the strategies (indicators in Table 8) are unique to the CEE context considering that the majority was empirically revealed and not theoretically derived from literature.

TABLE 8. STOPEP MOVEMENT STRATEGIES TO IMPACT CULTURAL POWER. INDICATORS MARKED WITH * WERE EMPIRICALLY REVEALED IN THIS STUDY.

THEME: Strategies to impact cultural power					
Sub-theme	Indicators	Description	Sources (No. of data files)	Empirical count (No. of references)	Example references
Making of alternatives	Campaigning*	Coordinated series of action in person, through media, or online to achieve an alternative to the project.	13	22	*"This is the culmination of a multi-year court battle following our initial legal complaint and is a major victory for the climate but also for local residents and environmental organisations like Workshop for All Beings, who have campaigned against the project for years."* (D4)
	Collectively building alternative visions	United front in outlining the actions and objectives of the movement for the achievement of alternatives.	6	13	*"We are not doing something against the local communities. That's against the principles of the organization. We have to actually engage the local communities and build a consensus view and understanding."* (P1)
	Exchange of diverse visions and experiences*	Enabling the vision of different trajectories towards achieving the alternative objectives.	6	9	*"And in this case, there were issues that were converging, but some weren't. But even after a certain moment, you don't necessarily have to repeat all of them, all of you. And that's also the beauty of the very varied base, because if you're having different values and if you're having*

					different aspects and languages, you're also able to work with different local forces." (P3)
	Amplification of local views*	The interests, concerns and views of the local community is amplified by NGOs and activists.	5	7	"In each campaign we show that we depend on the natural world. That there are no healthy, productive people in a degraded environment. That is why we must protect air, soil, water and biodiversity. The local Pomeranian community understood this. People knew that the Północ power plant would radically change their agricultural region into an industrial one. We amplified this voice." (P6)
	Local culture revitalization	Opportunity created for the local community to rediscover their values and interests.	6	6	"I should say that for those who were opposing the power plant, it was not really environmental or climate issues, but because this is a very rich agricultural region. So the soil is really good quality there, so they didn't want to skip their agricultural activities." (P4)
Unmaking of dominant narratives	Protection of local rights*	Providing support for protection local rights such as real estate, knowledge, and public participation.	5	7	"Local communities, lacking in factual knowledge, lacking in legal expertise and lacking money to act, are unable to effectively defend their rights and interests. The current knowledge and experience with regard to environmental organizations is, for me, the only positive aspect of the project called North Power Plant." (D24)
	Resisting and challenging dominant knowledge	Questioning mainstream knowledge providers for energy projects and sustainable development	4	4	"We listen to the voice of experts - but not experts in sustainable development, but experts in the protection of water, air, soil, finance, law, etc. We always try to identify greenwashing." (P6)
Transformative character of strategies			7 strategies	66 empirical counts	High

5.1.2. Strategies of the anti-fracking movement, Romania

As explained before, the three hegemonic power types to be impacted by EJ movement strategies are structural power, relational power, and cultural power. All three themes were identified in the data regarding the prevention of Chevron's shale gas exploration in Romania.

As shown in Figure 12, strategies to impact relational power were employed the most, particularly in terms of capacity and alliance building. Besides, producing and disseminating knowledge and local organization strengthening were also prominent in targeting relational power. Importantly, structural power was the second most targeted by resistance action. While for the strategies to impact relational power, a proportionate weight of strategies can be observed, strategies to impact structural power were mostly dominated by resistance action. Lastly, to impact cultural power, the movement enabled the creation of alternatives to the planned shale gas exploration. This was also accompanied by strategies to challenge dominant paradigms, however, that was less present.

Overall, the movement employed strategies to impact all three hegemonic power types, which were necessary for the initiative to upscale. However, the most present theme was strategies to impact relational power with the highest empirical count and diversity.
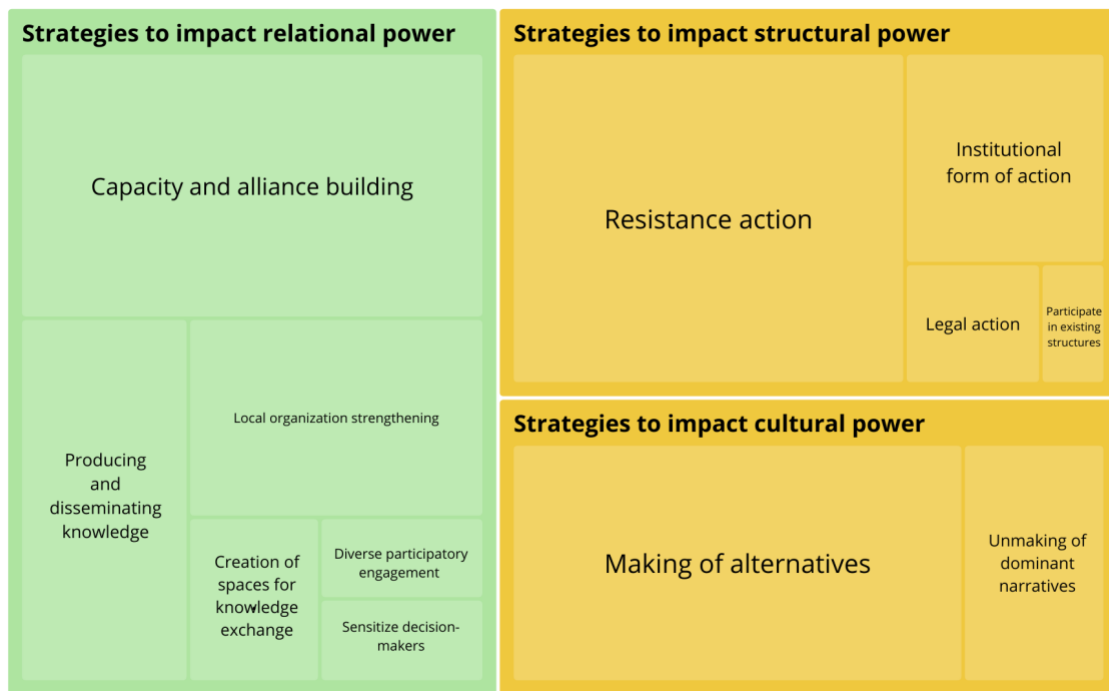
Figure 12. Overview and weight of anti-fracking movement strategies to impact the three types of hegemonic power. Colours are indicative of transformative character.

Strategies to impact structural power

The movement targeted structural power by four different strategies as summarized in Table 9, with the aim to configure institutional, legal, and economic frameworks (Rodríguez & Inturias, 2018; Temper et al., 2018b).

The most prominent strategy under this theme and in the whole movement was resistance action, involving visible mobilization of the public in the form of protests, resistance camps, hunger strikes, and sabotage. The anti-fracking movement embodied the evolution of the Romanian protest culture along with the simultaneous Rosia Montana protests against gold mining (D27). Prior to these two conflicts in the country, protests were not embedded in the national milieu for collective action (P14; P17). Many of the protest tactics were adopted from other countries with a longer history and experience with this strategy and were organized by NGOs on the ground with international resources (P10; P11; P12; P15; P16; P17; D27). This created a fertile environment for the development of resistance action and the adaptation of protest culture to the Romanian context. Mobilization for anti-fracking protests started in Bârlad in 2012 and attracted 5000-8000 people (P13; D27). National solidarity and awareness quickly grew which resulted in the dispersion of protests within and beyond the country (P9; P16; D27). This involed Bucharest, Timişoara, Cluj-Napoca, Sibiu, Craiova, Arad, Mosna and Curtici (P9; P10; P16; D27). It was important to demonstrate public resistance both in the conflict areas of villages where exploration sites were set up and the decision-making centers such as national and EU capitals (P10; P14; P15). The protests in Pungesti were the ones where resistance manifested the most (P12; P13; D27). Chevron, the company responsible for shale gas exploitation, attempted to start the shale gas exploration in Vaslui county, around the village of Pungesti (D27; D28; D29). As a result, local opposition with the help of NGOs was quickly solidified. Next to several protests in Pungesti, road blockades and a resistance camp on a private field near the exploration site were also established (P11; P12; P13; D29; D32;

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D36; D38; D44). Importantly, all protests started as peaceful demonstrations of local opposition, however, this was quickly overrun by the brutality of the riot police ordered by the government, which escalated these protests and awakened violence (P11; P12; P13) (see section 5.2.2 for top-down measures). After such a violent confrontation, protesters also started employing more extreme tactics such as sabotage and hunger strikes. In Pungesti, fences of the Chevron site were taken down and the locals collectively entered a hunger strike as part of a second resistance camp (D32; D49). While in other villages of Romania, local groups sabotaged the exploration sites by removing cables and dynamites from the fields and placing them in front of the offfices of local mayors (P16). Notably, through the expansion of resistance and spread of protests, the opposition extended beyond shale gas towards conventional gas exploration sites in the country.

Furthermore, institutional forms of action were also employed to impact structural power at local, regional, national, and supranational levels. Considering that there was often a clash between national and local political interests regarding shale gas exploration, an important tactic was to exert pressure on local and regional governments and mayors (P8; P11; P14; P15; P16; P17; D27). This happened through direct advocacy to local and regional authorities and sending letters to local mayors to ban fracking in their respective communities (P8; P14; P15; P17; D49). Moreover, various petitions were signed, and open letters produced to showcase the magnitude of opposition to shale gas fracking (P9; D27; D31; D32; D33; D40). These were also used to exert political pressure on national politics through European bodies and international organizations (D40; D42). Various human rights organizations and European Parliament representatives used these petitions and letters to call on the Romanian government to halt the exploration and the EU institutions to denounce the ongoing injustice in Romania (D33; D38; D40; D42). Another institutional form of action was the proposal of a moratorium on shale gas fracking in Romania by multiple NGOs and European Parliament representatives (D27, D28, D38). This would have followed the trajectory of various other European countries, such as Bulgaria and France, putting a ban on shale gas exploitation (D27; D28).

Another effective way to impact laws, regulations and policies is through legal action. This was also present in the anti-fracking movement, however, to a smaller extent (see Table 9). Various organizations, such as Greenpeace, Eco-Civica and Save Bucharest, challenged the administrative documents and environmental agreements for shale gas exploration in court (P12; P13; D36; D44). Importantly, NGOs managed to introduce an agreement between local communities and Chevron for the protection of water resources in the village (P12). However, this agreement was continuously violated by Chevron, also attacked in court by NGOs. Other organizations sued the National Agency for Mineral Resources for withholding public information about the permits (P15). Overall, various attempts were made to bring the case of shale gas exploration to court, however, due to the ad-hoc nature of the movement and the limited resources, it was difficult to build effective capacity for strategic litigation (P16).

Lastly, locals and organization members also participated in existing structures to exert pressure on decision-making processes. Multiple organizations participated in consultations with Romanian agencies regarding environmental agreements (P12; P13; P15). However, these procedures were often biased towards the company, without openly inviting the public and NGOs (P13). At the local level, public assemblies were organized with the local authorities where community members could express their opinions about the project (P17). Referendums

were also held by the local councillors of Vaslui county to consult the locals about their perspectives on shale gas exploration in their communities (D27; D31; D45).

All in all, four major strategies were employed to impact structural power for the halting of shale gas fracking. Resistance action was particularly relevant in the overall repertoire of action of the anti-fracking movement at various scales (local, regional, national, and international). Although there was a significant dispersion of strategies to impact structural power beyond and within Romania, these tactics were characterized by low coordination (P16). The strategies taken reflect the urgency of action needed to prevent shale gas exploration, however, they could not be strategically synthesized for targeting structural power. Therefore, the strategies to impact laws, regulations and frameworks have a moderate transformative character.

TABLE 9. ANTI-FRACKING MOVEMENT STRATEGIES TO IMPACT STRUCTURAL POWER. INDICATORS MARKED WITH * WERE EMPIRICALLY REVEALED IN THIS STUDY.

THEME: Strategies to impact structural power				
Indicators	**Description**	**Sources (No. of data files)**	**Empirical count (No. of references)**	**Example references**
Resistance action	Visible mobilization of the public through protests, resistance camps, hunger strikes, and sabotage.	28	103	*"So basically the people from this village started to protest against the possible exploitation using this kind of method. It's rather spectacular, from the point of view, of this unbalanced fight. So you have, on one hand, the company with a lot of lawyers with funds, huge investments all over the world, etc., etc.. and on the other hand, you have just a couple of people from a really, really small village, starting to protest against this exploration or mining in Pungesti area."*(P8)
Institutional form of action	Institutional forms of mobilization through lobbying/advocacy, open letters, petitions, political pressure, and proposal of laws.	18	28	*"The Romanian Coalition for the Environment (Coaliţia pentru mediu), including 69 NGOs, produced an open letter requesting the end of any shale gas operations on Romanian territory, and initiated the moratorium on fracking from June to December 2012."* (D27)
Legal action*	Challenging administrative documents and environmental agreements in court.	4	13	*"But the legal part and the specific legislation and trials and so on, actions in injustice were a different approach. And we start this fight on two levels, attacking the administrative documents and introducing regulations in environmental agreements"* (P13)
Participation in existing structures	Participation in consultations, citizen assemblies and referendums.	7	9	*"We would participate in the environmental impact assessment consultation process done by the Environmental Agency."* (P15)
Transformative character of strategies:		4 strategies	153 empirical counts	Moderate

Strategies to impact relational power

Strategies to impact people and their networks behind decision-making processes to create conditions for dialogue were the most substantial in the anti-fracking movement.

The most emphasized strategy to relational power was capacity and alliance building (see Table 10). Several NGOs reacted to the government's plan to give licenses to Chevron for shale gas exploration, resulting in ad-hoc coalitions and the creation and strengthening of local organizations (P15; P17; D27). Networking began prior to the first protest in Barlad which continuously grew afterwards to build resistance (P12; P13). There were various organizations

participating from diverse backgrounds and locations (D27). In 2012, a coalition of 69 NGOs formed to call on the halt of shale gas exploration through open letters and moratoriums (D27). However, NGOs' work on the ground was more scattered, involving a lot less organizations. Most of the capacity building was centred in Pungesti, while in other parts of Romania, it remained more fragmented (P16).

Overall, the following components were important for capacity and alliance building, taking place in parallel: (1) local capacity building on the conflict, (2) intra-movement alliance building with NGOs to help organize local resistance, (3) the identification of leaders, and (4) extra-movement networking and capacity building internationally and on other national movements. Regarding the first point, the grassroots focus of the movement was emphasized by many interviewees as an important aspect (P9; P11; P14; P16; P17). This meant that the capacity of the movement was directed towards and built on place-based conflicts, which ensured that affected communities remained the core focus of the movement. Considering intra-movement alliances, it was crucial to create networks against the conflict of shale gas fracking. This involved various NGOs, joining forces with local communities to reinforce their resistance (P11; P12; P13; P14; P15; P16). For this, building trust and relationships with the local communities were essential (P11; P15; P17). Importantly, many of the NGOs formed separate clusters in helping the local communities: although they managed to build alliances with local communities, they did not manage to build alliances with each other (P15; P16). This resulted in the creation of 'parallel movements' within the anti-fracking movement itself. This reflects a true bottom-up capacity building: starting from local opposition, joined by organizations that build on the conflict and connect to more experienced NGOs to provide expertise and resources (P12; P13; P15; P17). Despite the separate coalitions, their trajectories crossed for the identification of leaders. While the organization of the whole movement was decentred, NGOs soon realized that for further capacity building, leaders need to empower the locals (P12; P13; P15). There were several key actors in mobilizing the local communities: the Orthodox church and the local priest played a key role (D27; D32), presidents of NGOs such as Romania Fara Ei also became significant (P12; P13), while other NGOs such as VIRA association and Greenpeace empowered local farmers to lead the movement (P15; D33).

The movement also established extra-movement networks with other national movements and international organizations to raise greater awareness about the local and global aspects of shale gas fracking. This involved the organization of protests in several countries (P12; D36; D49), and alliance building in Bulgaria (P12), Brussels (P10; D32; D33; D36), the USA, London (P14; P15), and many more. Bulgarian activists were key in the initial phase of capacity building as they faced the same problem in 2012 and managed to put a ban on fracking activities in their country (P12; D31). The most important component of capacity building, however, took place within the country. The anti-fracking movement used the momentum of another environmental movement in the country happening at the same time: the movement against gold mining in Rosia Montana (P8; P9; P11; P13; P14; P15; P16). This was a long-lasting and organized fight for the protection of the environment with the involvement of various NGOs and communities. The Rosia Montana movement managed to secure more resources and international support, which the anti-fracking movement could also capitalize on (P16).

Another strategy under this theme was local organization strengthening (see Table 10). NGOs provided resources, support, and logistics for the local organization of the movement (P12; P13; P15; P16; P17; D27). Organizations also worked closely with the Orthodox church to mobilize the population and strengthen collective action (P15; D27; D49). This organization was crucial since rural communities in the Eastern part of Romania lacked experience in direct action against companies and the government (P15; D49). This involved a great level of voluntary work considering the lack of financing and resources for the anti-fracking movement (P12; P13; P15; P16). The attitude of the local community to organize and take a strong stand against the injustice was emphasized as a vital element of the movement (P12; P13).

Notably, producing and disseminating knowledge about shale gas fracking was also crucial in mobilizing the local population (P12; P13; P15; P17). The local communities lacked reliable information about this method prior to the conflict, which resulted in uncertainties and susceptibility to biased information about economic and social benefits promoted by the company (P13; P15). Therefore, organizations collected data, information, and reports about the social, environmental, and economic risks of the method (P12; P15; P17; D27). The dissemination of this knowledge took place at two levels: to the general public in Romania through media, mass protests, and Facebook groups (P8; P14; D27; D49) and to the affected local communities through information campaigns, in-person discussions, and community meetings (P12; P13; P15; P17; D32; D49). The national discourse was quickly heated by the politics of shale gas fracking, and thus, it was essential for the NGOs to produce scientific and expert arguments against the method (P12; P13; P15; D27).

For the dissemination of the produced knowledge, organizations also had to create virtual, physical, and social spaces (P8; P9; P14; P15; P17). Regarding physical spaces, various public debates were organized by NGOs to share perspectives about the environmental and economic dimensions of shale gas fracking (P16; P17; D27). Moreover, documentary evenings and screenings of the movie Gasland were organized to introduce the issue to the public (P15; P16; D27; D49). In Pungesti, various meetings and workshops were set up with the local community, particularly with the help of the local priest after Sunday church visits (P15; P17). With regards to virtual spaces, multiple Facebook groups and websites were created for people to join and share their experiences and knowledge about shale gas fracking (P8; P14; P15; P16; P17). This also enabled a quick and effective outreach to the Romanian population considering the importance of the platform in the country.

The strategy of sensitizing decision-makers at local, regional, national, and international levels was also present in the movement (see Table 10). Their goal was to impact governmental decision-making from bottom-up and top-down directions. Regarding the former, sensitizing local mayors to support the movement and ban shale gas exploration in their communities was important as local authorities were the closest to the conflict (P8; P11; P16; P17; D27). Besides, in terms of top-down configuration of relations, letters were sent, and meetings were organized with EU Parliament representatives and Commission members to denounce the injustice in Pungesti, and in turn, exert pressure on the Romanian government to halt shale gas exploration (P10; D33; D42). NGOs also called directly on the government to put an end to the conflict, however, this was less effective (D32).

With the expansion of the movement, participants and their demands also grew to be heterogenous and diverse (D27). At grassroots levels, various organizations coalesced around

the local conflict with the aim to empower those with less resources (P12; P13; P14; P15; P16). Besides, while the movement emerged from local communities, it also managed to involve more cosmopolitan and international participants through its evolution (P9; D27). Such a diverse representation of participants was crucial in configuring the networks of locals and organizations. This way, various societal groups could identify with the movement and contribute through groups that they aligned with the most. Overall, although the movement can be characterized by a de-centred organization and diverse participatory engagement, it did not achieve collaboration between these diverse groups. Therefore, there was a low level of connection between the organizations and societal groups within the movement (P16). This was emphasized as a crucial barrier to upscaling the movement, also demonstrated by the following quote:

> *"But one of the lessons that I learned by being involved in different movements is the fact that we always need to have the maturity to connect even if we don't perfectly align. If you don't perfectly align with our mentalities and where we are at stage of life. And that's a very important lesson for me to learn, that they were too radical and maybe too segregated, while now we learn to be more approachable with each other. Let's find the middle way where we can work together, not the things that divide us. And there is one always. And if we have a common ground then we will have a common legacy. That's why the anti-fracking movement did not manage to produce much of a legacy."*
> - P16, personal communication, April 24, 2024

Overall, impacting relational power was the most substantial in the repertoire of strategies of the anti-fracking movement, exhibiting a high transformative character. From the onset of the conflict, through the organization of local opposition, to the expansion of public mobilization, configuring people and their networks was a key component. The strategies employed also targeted various scales (local, regional, national, and international) of hegemonic power to extend the societal base of the movement. Although the network was not entirely connected and synthesized, strategies to impact relational power were crucial throughout the whole movement to create, mobilize and engage oppositional forces to shale gas fracking. The above strategies are also the most effective in the absence of extensive resources and financial background, as in the case of the anti-fracking movement (P16).

TABLE 10 ANTI-FRACKING MOVEMENT STRATEGIES TO IMPACT RELATIONAL POWER.

THEME: Strategies to impact relational power				
Indicators	Description	Sources (No. of data files)	Empirical count (No. of references)	Example references
Capacity and alliance building	Networking and building the capacity of the movement on the conflict within and beyond its organizational boundaries.	19	91	*"And many NGOs started to be involved in this protest because it was not fair for the local people to move to other areas, or if they did not want to move, they had to stay with a lot of shale gas in their gardens, which is not pleasant and it's pollutant. That's why this anti-fracking movement started."* (P11)
Local organization strengthening	Logistics, organizational and resource support from organizations to strengthen local	13	44	*"It was very important to identify leaders in the communities that could go forward with the movement. And this was also one thing that I learned during my internship in the United States. I've been in an internship for six weeks in Midwest in the United States, going through*

	resistance against the conflict.			*different parts of Ohio State and interacting with communities affected by fracking in the US. So that's why when I came back, I realized it's very important to identify leaders and to start to build a movement.”* (P15)
Producing and disseminating knowledge	Producing expert and local information about the environmental, social, and economic impacts and disseminating it to various societal groups for mobilization.	12	45	*“We had quite a good strategy in regards to the anti-fracking movement. We studied everything that fracking meant and the impact it had on the environment. And all this knowledge, we transmitted to the populations, to the communities that were affected by the fracking. This gave us an advantage, especially in Pungesti, which was actually the area where the community took a stand.”* (P12)
Creation of physical, social, and virtual spaces for sharing experiences	Organizing debates, meetings, websites, social media groups, workshops, and meetings for sharing knowledge.	8	16	*“Both of them were very active on Facebook because Facebook at the time was one, still an important social media platform. So you had 'Get the frack out of Romania'. I thought it was so creative. 'Frack off Romania'. Just very original. But these were sort of different groups where the movements coalesced separately.”* (P14)
Sensitize decision-makers	Connecting to local, regional, national, and supranational decision-makers to impact on decision-making processes.	8	10	*“There were also meetings with EU Commission employees and MEPs”* (P10)
Diverse participatory engagement	Enabling participation of diverse stakeholders in knowledge exchange.	5	10	*“But we were like be polite, people are contributing and so it wasn't a top-down organization. There were people coming in and they were bringing their inputs and everybody was doing whatever they could in order to stop this from happening.”* (P15)
Transformative character of strategies:		6 strategies	216 empirical counts	High

Strategies to impact cultural power

As explained before, long-term transformative impacts can be achieved when movements unmake dominant paradigms in public discourses and make alternatives to impact values and narratives embedded in cultural power (Feola et al., 2021; Rodríguez & Inturias, 2018; Temper et al., 2018b; Tschersich et al., 2023). The anti-fracking movement contributed to both sub-themes of unmaking and making. However, it also reinforced extreme voices of civil society and created unjust narratives.

Regarding the sub-theme of **making of alternatives** to extractive methods of energy production, there were several strategies that facilitated the emergence of new narratives and values. The conflict in Pungesti awakened and revitalized the collective place-based identity of the local population (P9; P11; P14; P16). In this vein, communities reinforced their connection to nature, religion, and their self-sufficient lifestyles in the countryside of Romania. The affected population mostly consisted of farmers, greatly dependent on the natural resources in their region, especially water and agricultural lands. The local population in the Eastern part of Romania is also culturally and ethnically homogenous and united in their Orthodox religion, which facilitated the establishment of collective values and identities (P11; P14; P15; P16). This revitalized culture served as the foundation of a collective objective and unity on the ground: a united front for the prevention of significant changes to local lifestyles. Hence, the

goal of the locals was regaining their land and continuing their agricultural activities, undisturbed by major development projects (P11; P14).

With growing national solidarity for these values and objectives, the movement also gained more supporters and participants. This resulted in an increased diversity in ideologies, cultures and societal groups associated with the movement (see Table 11). The movement became a platform for citizens to explore, express and share their political ideologies and voices (P14; P16). The anti-fracking movement, along with the Rosia Montana protests, provided opportunities for citizens to impact decision-making after a long time of political dissatisfaction and inertia. However, due to the local scope of the anti-fracking movement in terms of religion and belonging to land, it attracted various conservative and nationalistic voices at the national level (P16; D27). While more moderate and inclusive organizations contributed to the movement at local levels (P15; P17), extremist voices quickly hijacked the movement and derailed it into a nationalistic corner of civil society at the national level (P16). The following quote also shows this:

> *"And it really quickly had been overrun by political activists who started to protest against Chevron or to stand up for local communities with a very right-wing nationalist, populist agenda. And so, for instance, nobody was rising up when areas in gypsy communities were prospected for shale gas and dynamite was put on the ground. But everybody protested when male orthodox, patriarch farmers were rising up saying, our lands are being bombed. Then suddenly all the Christian nationalists swarmed there to save this farm"* – P16, personal communication, April 24, 2024

This led to different repertoires of action by different groups depending on their ideologies. Overall, although the diversity of visions, experiences and action was enabled by the movement, the different groups that coagulated on the conflict did not exchange their perspectives, resulting in the separation of participants while fighting for the same objective. This posed a barrier to the making of long-term alternatives beyond the prevention of shale-gas fracking (the directionality of the movement is explained more in-depth in section 5.3.).

Importantly, another strategy for impacting narratives about the shale gas industry was campaigning through media, social media, and in-person (Table 11). With this, the movement aimed to mainstream the dangers of fracking activities. This took the form of media campaigning, for example, by participating in TV programmes and debates (D27) and broadcasting events on the movement's own TV Pungesti channel (D32). Besides, social media campaigning was also important, particularly on Facebook where citizens could freely share real-time information (P14; P15; D49). Lastly, NGOs conducted information campaigs in villages to consult and educate the local population about shale gas fracking (P12; P13; P15; P16; P17).

Considering that the protest culture was new in Romania, adopting organizational structures and cultures of bottom-up movements from other European countries and international organizations was important in creating alternative values and views of civil society initiatives (see Table 11). The arrival of Greenpeace in Romania was especially important for reenergizing local and organizational opposition to shale gas fracking (P11).

Furthermore, there were also strategies for resisting and **unmaking dominant narratives** in economic and political frameworks. The most emphasized strategy was territorial

self-demarcation through resistance camps and human chains near the Chevron site (see Table 11). This was important for creating visibility of the resistance and for reshaping narratives about economic development in the countryside of Romania. With this action, locals clearly demonstrated their resistance to extractive energy production methods and to local rights violation. Hence, this strategy went hand in hand with the protection of local rights for the unmaking of dominant narratives. This involved the protection of real estate, local ownership of natural resources and the right to live in good ecological and social conditions (P11; P12; P13; P14; P15). The locals understood this and fought for these rights with the help of NGOs.

The strategies employed to impact narratives, values and worldviews exhibit a great diversity. While various strategies were used to create alternatives and challenge dominant paradigms, they were not integrated within the movement which resulted in the creation of parallel (and often, extreme) visions, actions, and trajectories for achieving the common objective. Hence, despite the high number and count of strategies under this theme, a moderate transformative character can be attributed.

TABLE 11. ANTI-FRACKING MOVEMENT STRATEGIES TO IMPACT CULTURAL POWER. INDICATORS MARKED WITH *
WERE EMPIRICALLY REVEALED IN THIS STUDY.

THEME: Strategies to impact cultural power					
Sub-theme	Indicators	Description	Sources (No. of data files)	Empirical count (No. of references)	Example references
Making of alternatives	Diversity of visions, experiences, and action*	Movement as a platform for diverse visions, experiences, and action to achieve the common goal.	12	44	*"But some of the people that were more radicals in the sense that they were having this nationalistic background, which we didn't quite make a clique with. With their speeches and how they were dealing with the problem."* (P15)
	Collectively building alternative visions at the local level	Uniting on place-based identities for the achievement of a common goal.	12	30	*"They were very united, the whole community. And I think this is maybe a crucial point, being united against the company. Because let's say, if half of the village decided to leave or the other half decided to stay. It's like divide and conquer. They were really sticking together and really united."* (P8)
	Local culture revitalization	Awakening and reappreciation for the place-based identities and values of the local communities.	10	25	*"I think definitely the farmers themselves were just trying to protect their land. So simple as that. They had heard and understood what the impact could be of just allowing fracking, not even on their own territory, but in the proximity of their land. So they knew that the impact could really prevent them from living the way that they were. There's another just overall motivation for some Romanians, maybe not all. There's a connection with nature that I would say Romanians have always claimed to have."* (P14)
	Campaigning*	Coordinated series of action in person, through media, or online to achieve an alternative to the project.	11	23	*"We were in constant communication with VIRA throughout the campaign and try and help them out, acting as an advisor. Trying to answer questions or just discuss to help them sort out the organiation and decide on different issues."* (P17)
	Adopting culture of bottom-up organization*	Gaining inspiration from other countries and international organizations for	4	4	*"Then the next step was Greenpeace came to Romania. And some small NGOs from Romania learn a lot from Greenpeace, a lot of aspects of protest. So*

		protest culture and bottom-up initiatives.			*the culture of protest was new in Romania at that time. And they learn from those who know better from Greenpeace."* (P11)
Unmaking of dominant narratives	Territorial self-demarcation	Occupying lands and roads to showcase resistance to extractive methods of energy production.	12	13	*"The locals were organizing shifts to come and stay at the site and there were kids sleeping in a covered horse cart, who were refusing to go home. For more than one month and a half, the presence of the antifracking camp, set up on a private land opposite Chevron's pad, prevented them from starting their work at the site."* (D49)
	Protection of local rights*	Fighting against the abuses to human rights posed by the shale gas industry.	6	13	*"They told the people that they have to fight for their rights. That the right to have ecological things to live in, in good conditions without pollution and fresh food and nobody have to enter your house, your backyard to destroy your things."* (P11)
Transformative character of strategies:			7 strategies	152 empirical counts	Moderate

5.1.3. Discussion and cross-case comparison of movement strategies

To conclude the micro level for both movements, it can be observed that all types of hegemonic power were targeted by the movement strategies (see Figure 13). In both cases, there was a predominant strategy for impacting each power type, complemented with various less extensive strategies.

Interestingly, targeting relational power was the most prominent in both movements. This power type is exercised behind visible decision-making processes and is embedded in the networks and relations between more powerful actors (Rodríguez & Inturias, 2018). Capacity and alliance building from local opposition were the most highly present in both cases, however, they manifested differently. In the Polish movement, a strongly connected and integrated network of NGOs coalesced around the local community to support and upscale their resistance. This coalition was then linked to broader environmental and legal movements in the country. While in the Romanian case, the network that emerged against shale gas fracking remained more dispersed and segregated. This resulted in various parallel movements within the main anti-fracking movement. Although the objective was the same in terms of preventing the extractive energy production method, the participating groups took different trajectories. Importantly, the nature of the underlying SEC plays an important role in this. The Polish movement coagulated on a clear-cut issue with a specific location, economic problem and affected population. This facilitated the capacity building of local and national actors. Whereas the shale gas industry posed a more fragmented challenge for Romania, where several communities would have been affected around the country by a lot more controversial energy production method. Nevertheless, this strategy was crucial for the transformative character of the movements in both countries.

Another vital insight is the importance of actors to empower locals for resisting unsustainable development projects. By providing resources, expertise, and a platform for the reinforcement of local voices, communities were more encouraged to voice their interests and participate in decision-making processes. Interestingly, while NGOs could fulfil this role in the Polish case, it was important to identify and appoint leaders in the Romanian case. In contexts where civil society is still developing, locals can benefit a lot from these actors in initiating and

strengthening the existing but not yet fully organized local resistance. Furthermore, producing and exchanging knowledge about the energy production methods was crucial in reducing uncertainty among the local communities. In both cases, knowledge sharing was also a way to establish trust and connections with the locals, as they only had access to the investors' one-sided information about the planned projects prior to the appearance of NGOs.

Regarding strategies to impact cultural power, both movements employed a diverse set. Interestingly, most of the revealed strategies deviate from the initial analytical framework of the study, indicating their important contextual implications for CEE. Strategies to facilitate the making of alternatives to extractive and polluting energy production were more present in both cases. This happened through the establishment of a collective objective around which diverse voices and visions emerged. Importantly, the exchange of diverse perspectives and knowledge was more prominent in the StopEP movement than the Romanian anti-fracking movement, where groups with certain visions and ideologies remained separated. Besides, the Polish movement embedded the conflict in wider social-ecological problems in the country such as coal dependence, air pollution, and centralized energy production. Contrary to this, the anti-fracking movement could not couple the shale gas issue with other societal problems which was emphasized as an important barrier to the movement's transformative character. The higher-level objective in the Romanian case was the removal of the prime minister who supported shale gas fracking, however, other crucial issues affecting the local communities such as agricultural monocultures and the resulting land-grabbing, poverty and outmigration were unheard of. With this, the Polish movement could contribute to a long-term narrative formation for JT in the country, while the Romanian case highlighted a more short-term objective beyond the prevention of shale gas fracking. On the other hand, in terms of unmaking dominant paradigms, the anti-fracking movement employed more strategies. With the scale of resistance, territorial self-demarcation and protection of local rights, the movement constantly challenged dominant narratives about economic development and energy production imposed on local communities. Overall, the StopEP movement still had a higher transformative character in terms of impacting cultural power considering its integrated and long-term strategy to configure values and views about energy production (see Figure 13).

Lastly, the two movements' strategies to impact structural power greatly differed. Resistance action was the most prevalent in the Romanian anti-fracking movement ranging from peaceful protests to sabotage. This demonstrated a visible public opposition to the proposed shale gas project and exerted pressure on local, regional, and national authorities. This strategy proved to be the most effective to impact on political and economic structures considering the limited resources and time participants had to work with. Whereas in the Polish movement, this strategy was less widely used. Instead, specialized legal action was more important through strategic litigation and challenging administrative, procedural, and environmental documents in court. In the latter case, locals were more indirectly involved in impacting structural power through the NGOs' work, while in the anti-fracking movement, they were the core participants in such strategies.

Overall, the StopEP movement exhibited a higher level of maturity and coordination between participants, while the anti-fracking movement in Romania remained more segregated and cornered in more extremist segments of civil society. Notably, it could be observed in both movements that strategies impacting on relational power, especially through capacity and

alliance building, are the most widely and effectively used, indicating their high transformative character in the CEE context. To conclude, the repertoire of strategies is greatly dependent on the underlying social-ecological conflict and the complexity of challenge it poses for society.

The overall weight and comparison of strategies to target hegemonic power types is illustrated in the figure below:
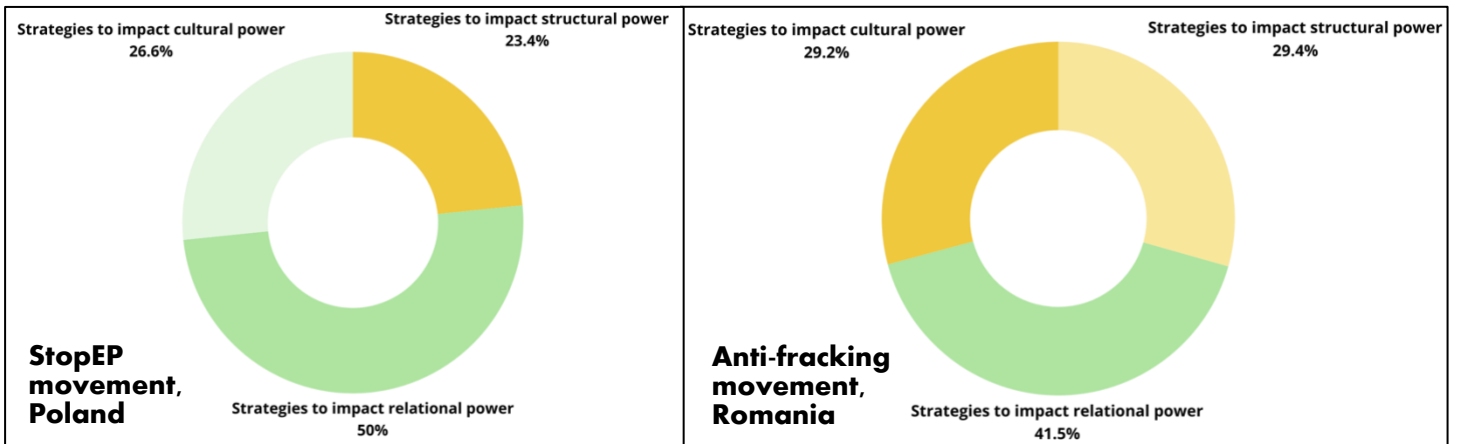
Figure 13. Comparison of movement strategies at the micro level. Colours are indicative of transformative character.

5.2. Meso level: just transformative impact of movement strategies

This chapter examines the meso level which encompasses the just transformative impacts of movement strategies: scales of change (upscale of strategies from the micro level to the meso level through targeting and impacting hegemonic power), depth of change (impacting hegemonic power types) and spheres of change (JT pillars).

Therefore, the chapter describes the transformative impact of EJ movement strategies on the five JT pillars: quality of life and social well-being, ecological integrity and resilience, economic democracy, direct democracy, and cultural diversity and knowledge democracy. These impacts are explained by their intersection with the three power types (through the configuration of cultural, structural, and relational power), shaped by both bottom-up and top-down processes. The scales of change are demonstrated by the upscale from micro to the meso level and are further explained in relation to the pillars of change. First, the StopEP movement's just transformative impact is evaluated, followed by the anti-fracking movement in Romania. Overall, this chapter assists the answer to sub-question 3: *How and to what extent do the selected environmental justice movements foster just transformative impacts in the Central and Eastern European context, and how do these impacts compare across the movements?*

5.2.1. Just transformative impact of StopEP movement, Poland

Bottom-up processes: movement challenges hegemonic power for just transformative impact
This section is structured around the just transformation pillars, which are explicated by their intersection with impacts on hegemonic power types in each sub-section (structural, relational, and cultural power).

Quality of life and social well-being
This pillar entails the achievement of physical, cultural, social, and spiritual social well-being and justice (Kothari et al., 2023). All in all, the StopEP movement had a low impact on this JT pillar. The underlying social injustice of the conflict was resolved for the local community,

however, only a few additional impacts could be achieved for greater social well-being in each power dimension, indicating a medium just transformative impact.

To better demonstrate this, first, the just transformative impacts through **cultural power** are explained. Quality of life and social well-being for the local community are embedded in resistance to change and their connection to nature and their agricultural fields which nurture them (P2; P3; P4; P6). In this vein, quality of life and social well-being were achieved as the movement prevented major industrial changes to local agricultural and natural areas that ensure the well-being and health of locals. Likewise, a strong connection to local agricultural production could be observed for ensuring social well-being (P3; P4), reflecting an economy-based understanding of quality of life. This observation is illustrated by the following quote:

> *"It was much more that they valued or they were attached to the way they live and the way they produce and how agriculture has another rhythm to it, or basically the society and relations have a different meaning. And for opposing this drastic change which would naturally go into change of the workforce structure, change of the way the region would function. It was in a sense, like we tend to say that we need a well-being, but there's a lot of well-being, but that resists being changed."* - P3, personal communication, March 5, 2024

Moreover, regarding the impacts on social well-being through cultural power, it was important to mainstream the movement's narrative that links the underlying conflict to wider social-ecological issues (P3; P4). In such instances, movements identify and pick up local struggles and situate them in wider regional, national, and global problems (expressed in incumbent paradigms in section 5.3.1). Therefore, this movement (along with other anti-coal movements) could contribute to greater societal awareness of steps required for local, regional, and national social well-being, health, and quality of life (e.g., the need for a transition away from coal, energy commons, protection of local rights, nature-human harmony, etc.). These objectives are further explained in section 5.3.2.

Regarding the impacts on quality of life and social well-being through **relational power,** a network emerged through the coalition of NGOs and Pomeranian citizens for the protection of local rights (P2; P3; P5). This, for example, meant the right of the local population to the access and dissemination of unbiased information about the social and health impacts of the Polnoc power plant (D11).

Lastly, **structural power** was impacted through court rulings that increased equity in the distribution of environmental harms and benefits between groups (D5). This required the investor to provide a detailed assessment of the power plant's impact on the neighbouring properties and the admission of local residents as parties to the proceedings. This way, locals could raise their objections and provide their arguments for the unfair distribution of environmental damage that affected them. Besides, the most positive impact on social well-being stems from the prevention of the investment, ensuring the maintenance of the state of quality of life in the region (P3; P5). However, no additional measures or policies were introduced as a result of the movement for the integration of social considerations in environmental governance.

Overall, indicators were observed for each hegemonic power type under this JT pillar, however, the changes were small due to low empirical count of the indicators. Besides, it is important to note that there was no information available from more reliable and directly affected local sources which could help assess the transformation of relational and cultural power in more depth.

TABLE 12. STOPEP MOVEMENT'S IMPACTS ON QUALITY OF LIFE THROUGH HEGEMONIC POWER TYPES. INDICATORS MARKED WITH * WERE EMPIRICALLY REVEALED IN THIS STUDY.

JT pillar: Quality of life and social well-being					Assessment
Impact through forms of hegemonic power	Evaluative question	Indicators	Sources (No. of data files)	Empirical count (No. of references)	Just transformative impact
Structural power	How much did the movement impact regulations, laws, policies, etc. to improve people's lives and social well-being?	Resistance to structural change for social-well-being*	5	5	**Medium impact:** The movement reinforced existing laws for greater equity and halted the project for social well-being, however, no other structural change was achieved beyond these impacts.
		Equity in the distribution of environmental harms and benefits	1	4	
Relational power	How much did the relations between societal groups change to improve social well-being?	Emergence of networks to ensure social well-being	4	4	**Low impact:** The coalition protected local rights and safeguarded their well-being. No data was acquired of long-term impacts and the state of well-being after the movement.
Cultural power	How much did the movement offer alternative ideas for achieving physical, social, cultural, and spiritual well-being without relying on economic growth?	Social consensus about preservation of nature and private property for quality of life	5	5	**Medium impact:** The movement revitalized already existing values about social well-being and resisted changes to these. However, awareness of quality of life remained economy oriented.
		Connecting impact to wider societal issues*	2	2	

Ecological integrity and resilience

Ecological integrity and resilience refer to the conservation of nature and respect for ecological limits (Kothari et al., 2023). The movement fostered changes in all types of hegemonic power for the achievement of ecological integrity. Therefore, this JT pillar was highly impacted.

Firstly, ecological integrity through **cultural power** was affected by mainstreaming the negative impacts of the potential investment and increasing societal environmental awareness (P2; P3; P4; P5; D14). It is important to note that increased environmental awareness cannot be attributed solely to this movement, but to the cumulation of various anti-coal campaigns at that time. Consequently, the narrative from a decade ago shifted to how transformations should take place from whether they should take place at all (P3). This is particularly important considering Poland's coal dependence, and the power of movements like StopEP to mainstream alternatives to coal production and deepen societal resistance to such methods. This increased environmental awareness is tied with two other changes in dominant narratives. The revitalization and strengthening of local values relating to respect for nature is the first (P2; P3; P6; D7). In this respect, human-nature interconnectedness was realized by both the local communities and the NGOs, serving as key foundations for raising environmental awareness

at the societal level. Second, it was also important to link the movement to wider ecological and social movements in Poland and succeed in various aspects. The NGOs that joined the movement embedded the collective environmental objective of coal phase-out in other broader long-term movements specific to the activities of the organizations. These include the deep ecology movement which promotes the idea that humans are dependent on the natural world (P6), legal activism which is tailored to strategic litigation for social, economic, and environmental matters (P2), and financial activism to prevent funding for polluting and extractive projects (P3). Therefore, there were multiple parallel objectives besides the overarching goal which the movement managed to achieve in the end. For instance, the movement also exerted pressure on the European Investment Bank to stop funding coal power plants (P3). These additional successes also showcased the complexity of coal investments to the public and highlighted the importance of bridging these sectors for the achievement of the common goal.

Importantly, regarding changes through **relational power**, societal relations were also configured by the StopEP movement to bring about ecological integrity and resilience. With the creation of the StopEP coalition, an outstanding network was established consisting of local citizens and organizations for environmental protection, with active organizations in the field up until this day. Notably, the creation of such coalitions has become prominent in Poland; they created a powerful network that continuously monitors projects harmful to the environment and provides legal and organizational help to local communities (P1; P5). Besides, the legal work of these organizations also increased the capacity of civil society actors to monitor environmental impacts and decision-making processes (P2; D5). ClientEarth provided EIAs and legal support for local communities to challenge administrative proceedings. Thus, through their efforts, civil society actors could participate in proceedings and hand in their claims to the court for environmental protection. As a result, the Supreme Administrative Court ruled in favour of the local community and increased their capacity to monitor the project's impacts on their land and environment (D5). This entailed the inclusion of locals and their claims in the proceedings prior to the EIA confirmation by the Administrative Authorities.

Notably, the most emphasized impact was through **structural power** for the conservation and protection of the natural world (P2; P5; P6; D3; D4; D5; D15; D25; D26). The years-long campaign and the repeated court challenges led to the cessation of the project that would have been detrimental to the environment within and beyond national borders. With the employed strategies, the investor decided to withdraw from the power plant. One of the interviewees expressed the success in the following way:

> *"The primary mission of "Workshop" is nature conservation. This mission results from deep ecology and the understanding that we, as humans, depend on nature. When dealing with climate protection, we always show the connections between energy and nature. For example, in the campaign we talk about how a given coal/gas power plant destroys rivers or how burning wood biomass destroys forests and biodiversity. The goal of the Północ campaign was to stop the construction of a coal-fired power plant. Nature conservation in Pomerania. The effect of the campaign is that the environment of Pomerania has retained its character, the river has not been destroyed by the power*

plant and the air has not been polluted." – P6, personal communication, March 17, 2024

Besides nature conservation, the movement also enhanced compliance with environmental regulations (D5; D15; D24; D26). First, the Provincial Administrative Court in Gdansk invalidated the power plant's construction permit due to economic considerations (D26). The Supreme Administrative Court of Poland required the company to substantiate claims that environmental requirements will be met, including soil quality requirements for agriculture (D5). Even before this decision, the General Director of Environmental Protection ruled that the power plant would pose a threat to the water quality in the Vistula River and the fish that reside in it (D15). Therefore, the partial invalidity of the investor's EIA was confirmed by the Director. Overall, the legal proceedings and the provision of environmental assessments by the NGOs strengthened compliance with environmental requirements.

In the long term, the movement had an important transformative and environmental impact considering that no other new coal power plants were built afterwards in Poland (P2; P3; P5). The movement successfully upscaled and employed similar strategies to prevent the expansion of a state-owned coal-fired power plant in Ostroleka. Although the case has not been officially halted, the movement is delaying the project, similarly to Polnoc power plant, and has forced the investor to shift from coal to gas production (NS Energy, 2020).

TABLE 13. STOPEP MOVEMENT'S IMPACTS ON ECOLOGICAL INTEGRITY THROUGH HEGEMONIC POWER TYPES. INDICATORS MARKED WITH * WERE EMPIRICALLY REVEALED IN THIS STUDY.

Ecological integrity and resilience					Overall assessment
Impact through forms of hegemonic power	Evaluative question	Indicators	Sources (No. of data files)	Empirical count (No. of references)	Just transformative impact
Structural power	How much did the movement impact institutional, legal, and economic frameworks to account for environmental health and resilience?	Conservation and protection of nature	9	18	**High impact:** The movement conserved and protected the natural world and reinforced environmental regulations through legal activism. This also had long-term impacts on transition away from new coal projects.
		Strengthened compliance with environmental regulations*	4	8	
Relational power	How much did the movement change the connections between different groups in society to protect and restore the environment?	Emergence of networks for environmental protection	6	6	**Medium impact:** Networks within the civil society emerged and reinforced long-term environmental protection in Poland. However, the weight of the indicators in the data was moderate.
		Capacity of civil society to monitor environmental decision-making	2	4	
Cultural power	How much were people's beliefs and understanding of the relationship between nature and humans changed and become widely accepted?	Mainstreaming and raising awareness of environmental matters	5	11	**High impact:** The movement increased societal environmental awareness and respect for nature to counteract coal dependence in the country. By linking social-ecological movements, the complexity of crisis could be conveyed to society.
		Respect for nature	4	4	
		Connecting impact to wider social-ecological movements*	4	4	

Economic democracy

Considering the movement's objective of coal phase-out, it needed to impact existing economic production methods. Economic democracy encompasses the control of local communities over the means of economic production, distribution, etc. with a key focus on localization and respect for nature (Kothari et al., 2023). The data revealed a medium just transformative impact on economic democracy; the movement fostered major cultural changes in dominant narratives about energy production, however, these cultural changes were not extensively realized in relational and structural changes.

In line with the increased environmental awareness explained in the previous section through **cultural** impacts, alternative and local economic production methods were also mainstreamed and recognized due to the movement (P3; P4; P5; P6). Such alternatives were made by the promotion of (1) renewable energy as a cheap and safe energy source based on wind and sun available in Poland (P6), (2) prosumerism where the producer of the energy is also the consumer (D11), and (3) energy democracy, entailing a decentralized local community ownership of renewable energy production instead of giant monopolists (P3). At the same time, resistance against extractive methods of economic production such as coal also greatly deepened in the common cultural beliefs, and thus, contributed to the unmaking of coal-based economy in Poland (P3). Overall, both processes of making and unmaking of dominant economic narratives took place due to the movement. The most active organization in the campaign 'Workshop for All Beings' summarized it as follows:

> *"We work for civic, grass-roots distributed energy. We want energy to get into people's hands. We are scandalizing the activities of energy and fuel companies. In our campaigns and advocacy activities, we talk about the rising costs of centralized energy and promote an energy system based on energy efficiency, renewable sources, smart grids, storage and energy demand-side management. The aim of the North campaign was to build opposition to conventional coal energy and to build support for renewable energy."* – P6, personal communication, March 17, 2024

On the other hand, economic democracy through **relational power** was less impacted by the movement. The StopEP coalition was created and besides environmental and social considerations, it also safeguarded local economic production methods (P2; P3; P4; P5; P6). By preventing the coal-fired power plant, the region also managed to have a larger dispersion of renewable energy projects reflecting greater local and regional equity in the acces and use of natural resources (P3; P6). Therefore, more opportunities opened up for local communes and municipalities for energy investements, although that could not ensure an increase in local ownership (P3). Overall, the North of Poland currently produces a lot more energy in a dispersed, connected and owned way than the power plant would have. However, national energy production is still heavily dependent on centralized coal production, making the transformative impact of this and other anti-coal campaigns for economic democracy less significant in the country (P1).

In terms of just transformative impacts on economic democracy through **structural power**, the StopEP coalition managed to nudge the company towards renewable energy production through financial and shareholder actvisism. However, this trajectory change was also due to European level regulations which are explained in the section of top-down

processes. All in all, the movement contributed to changes in higher economic frameworks, pushing companies in the direction of alternative economic production systems such as renewables (P3; P5; D25; D26). The following quote demonstrates this:

> *"After the investor figured out it would be too expensive for them to run this power plant, they have switched to cleaner energy since then. They're involved in offshore wind power, then involved in onshore wind power. They're involved in hydrogen production. But they don't seem to be doing any of these conventional energy projects. They're into solar. They're into electric cars, heat pumps and so on. So at the time, it was sort of the moment they acknowledged that it just wouldn't make sense. There's no point in doing them. But also definitely, the pressure from the NGOs because the pressure didn't begin only two years before, when the company itself decided that the project was problematic. The pressure from NGOs started before that."* – P5, personal communication, March 12, 2024

Moreover, local economic rights were also acknowledged in the final ruling of the Supreme Adminsitrative Court (D4; D5). The potential of soil contamination, noise pollution and lowered air quality on locals's properties due to the investment served as key arguments for the admission of local community members to the proceedings. This reinforced the norms of civil law in relation to this case which also involves the law of property ownership, and thus, justifies the recognition of locals as parties (D5).

TABLE 14. STOPEP MOVEMENT'S IMPACTS ON ECONOMIC DEMOCRACY THROUGH HEGEMONIC POWER TYPES. INDICATORS MARKED WITH * WERE EMPIRICALLY REVEALED IN THIS STUDY.

Economic democracy					Overall assessment
Impact through forms of hegemonic power	**Evaluative question**	**Indicators**	**Sources (No. of data files)**	**Empirical count (No. of references)**	**Just transformative impact**
Structural power	How much did the movement impact institutional, legal, and economic frameworks to include local claims over managing shared natural resources?	Strengthening of alternative economic production methods	4	7	**Medium impact:** The movement fostered renewable energy production and legally strengthened local economic rights. This contributed to the protection of nature and localization of the local and regional energy market. However, at the national level, energy production is still highly centralized.
		Legal recognition of local economic rights*	2	6	
Relational power	How much did relationships between groups change in terms of who can access and use natural resources?	Equity in the use and access of natural resources	2	2	**Medium impact:** The emerged network out of the movement also safeguarded local economic production methods and regional dispersion of energy projects. However, national relations in terms of access and use of natural resources remained mostly centralized. Besides, equity mostly concerns distribution among humans and not between humans and nature.
		Emergence of networks that safeguard local economies	6	6	
Cultural power	How much did the movement encourage and	Mainstreaming and recognition of alternative	8	16	**High impact:** Both the making of alternatives (e.g., renewables, prosumerism, energy democracy)

mainstream non-extractive methods of production and resource management?	production methods				and the unmaking of dominant narratives (resistance to conventional energy projects) were fostered by the movement at various scales.
	Deepened resistance against extractive methods	3	4		

Direct and delegated democracy

The movement had the greatest just transformative impact on direct and delegated democracy with various changes in all hegemonic power types. This JT pillar entails bottom-up decision-making with the right, capacity, and opportunity for all citizens to participate (Kothari et al., 2023).

Regarding impacts on direct democracy through changes in **cultural power**, a notable effect of the movement was that the same strategies were replicated against the state-owned Ostrołęka C coal-fired power plant (P4; P5; P6). This reflected the amplification of the movement and its impact on NGOs' idea about how to fight polluting projects. The movement also configured NGOs' approach to such campaigns in encouraging the connection of various similar-focus cases, such as anti-coal campaigns, for wider impact (P4; P6). With such an integrative approach, they managed to deepen resistance against the fossil fuel-based economy, which is also reflected in the NGOs' shift to anti-gas campaigns after the prevention of coal power plants (P6). With regards to impacts on the local communities' values and narratives, the movement also reinforced locals' sense of political agency (P5; D24). In this sense, they feel more empowered to voice their concerns either by setting up their own organizations or networking for wider support. At the same time, this agency also strenghtened their perception of bottom-up organizing and their hope for securing a better future (D24).

Direct democracy was also affected through **relational power** by the movement. Firstly, the strategic capacity and alliance building greatly contributed to the strenghtening of collective action and identity within and between local communities and NGOs (P2; P3; P4; P5; D11; D21; D24; D25). This solidified a long-term network between NGOs and local residents to stand up against powerful actors such as investors and the state. However, it is important to mention that this collective action could not be upscaled to the societal level, it remained in a more niche environment (P4; D24). It was nevertheless a great contributor to a certain segment of society, the civil society. These succesful cases are seeds of hope and strength for NGOs across Poland, which in the end solidified their status and network for greater influence (P3; P4; P5; D24). One participant also attributed this effect to the movement's impact in the following terms:

> "I think somehow it was a symbolic end of coal in Poland. And although it was not a final fight, we knew that no new coal power plant can be built in Poland. So it was maybe not so much known in Poland, but for ecological NGOs it was quite a symbolic victory." – P4, personal communication, March 5, 2024

Besides, through capacity and alliance building, the movement connected vertically with various organizations, diverse experts, activists, and local actors to establish long-term relations (P3; P6; D11; D16; D21). This also configured networks within civil society and presented an example of organization for other initiatives such as the movement against the

Ostroleka power plant. The importance to build vertically from grassroots opposition and existing SECs became a guiding principle for movements, as described by the following participant:

> "I would be able to pick up a lot of those absolutely successful mega campaigns, let's say, against lignite or against shale gas, when actually, it started with the people and bottom-up organization in opposition, and then NGOs joined." -P3, personal communication, March 5, 2024

There were also considerable impacts on direct democracy through **structural power**. The most important one related to the impact on increasing compliance with the public participation law in Poland (P2; D3; D5; D7; D24; D26). Based on the Code of Administrative Procedure, public participation must be assured in cases with EJ elements (P2; D5). In these cases, environmental NGOs and local residents have additional rights and can be parties to proceedings to voice their concerns and interests. Since these rights were not given to residents by the regional authority (Starosta Tczewski), legal organizations in the coalition appealed this case to the Provincial Administrative Court, and in the end, to the Supreme Administrative Court. Both rulings were in favour of local residents; they should have been given the party status to the proceedings (P2; D5). First, the construction permit was withdrawn, but by the second court ruling, the project got delayed by so many years that it also meant its termination by the investor (P2; P4). Overall, the biggest mistake that administrative authorities can make is deciding who should be a party to the proceedings. At that time, this mistake was quite common. Now, it is less frequent which also reflects the impact of legal activism in encouraging administrative authorities to comply with procedural laws (P2). This legal impact also had two other crucial effects on environmental governance: it ensured that decision-making was inclusive of all stateholders (P2; D5; D7; D8) and more transparent and accountable in their procedures by giving the same weight to evidence provided by both sides (D5; D7; D8).

Overall, impacting on direct democracy was not only crucial for delegated and bottom-up decision-making, but it also contributed to ecological integrity and economic democracy by fostering more inclusive and transparent environmental governance. Therefore, the movement had a high transformative impact on this pillar, as demonstrated in Table 15:

TABLE 15. STOPEP MOVEMENT'S IMPACTS ON DIRECT DEMOCRACY THROUGH HEGEMONIC POWER TYPES. INDICATORS MARKED WITH * WERE EMPIRICALLY REVEALED IN THIS STUDY.

Direct and delegated democracy					Overall assessment
Impact through forms of hegemonic power	Evaluative question	Indicators	Sources (No. of data files)	Empirical count (No. of references)	Just transformative impact
Structural power	How much did the movement change laws, institutions and economic systems to support direct and delegated democracy?	Participatory: compliance with public participation law	7	29	**High impact:** The movement supported greater bottom-up environmental decision-making processes, starting from local residents.
		Inclusivity in environmental governance	4	7	
		Transparency and accountability	3	10	

Relational power	How much did the movement configure relations between groups for more democratic environmental governance?	Strengthened collective action	8	13	**High impact:** Relations were greatly configured between and within locals and organizations for stronger collective action. While this could not be upscaled to the societal level, it greatly reinforced civil society.
		Strengthened civil society*	4	8	
		Connecting vertically	4	4	
Cultural power	How much did the movement impact cultural beliefs about bottom-up decision-making?	Replication of initiative in another context	3	4	**Medium impact:** The movement fostered an integrative approach of NGOs for tackling complex challenges related to the fossil fuel-based economy. The cultural amplification of the movement also contributed to improved perception of bottom-up initiatives and local agency in the country. But overall, the empirical counts were lower than the other dimensions.
		Deepened resistance through connecting cases	2	2	
		Sense of local political agency*	2	4	
		Positive perception of bottom-up organizing*	1	1	

Knowledge democracy and cultural diversity

The last just transformation pillar is knowledge democracy and cultural diversity in environmental governance. This involves reliance on plural ways of living and knowing which can be generated, accessed, and transmitted by all (Kothari et al., 2023). The movement had just transformative impacts on all types of hegemonic power in this respect, however, these impacts were more minor, indicating a medium impact (see Table 16).

Considering impacts on knowledge democracy and cultural diversity through **cultural power**, the movement managed to mainstream counter narratives to the power plant (which are explained more in depth in section 5.3.1 about the movement's orientation). However, solely the narrative of coal phase-out could be upscaled to shift societal paradigms, which was a result of connecting various anti-coal movements (P3; P4; P6). Other narratives regarding nature-human relations, energy commons, local community protection and systemic transformation were only reinforced within civil society. However, even if it remains in that segment, it has the effect to empower local communities and organizations in their way of thinking (P3). The movement also acknowledged the main values of local communities such as the protection of their rights, real estate, and the natural world (P3; D3). The abstract nature of the power plant was emphasized as a potential barrier to wider upscaling as the power plant was never built, potentially portraying the resistance as less tangible to wider publics (P3; P4).

Importantly, a common respect and reliance on plural ways of living and knowing the world was established within the organizational structure of the movement (P3; D23; D26). This impact was achieved through **relational power** in terms of collective action between diverse societal groups and the representation of diverse perspectives in movements. Another important just transformative impact of the movement was its contribution to equal access to the generation, transmission, and use of knowledge (P3). By fostering constant knowledge exchange between experts, organizations and the local community through workshops, debates, and fieldwork, all coalition members engaged in mutual learning from and with each other. These are notable changes in relational power for knowledge democracy and cultural diversity, however, they only had an impact at the local level and not the societal level.

Finally, impacts on knowledge democracy and cultural diversity through **structural power** stem from court decisions enforcing compliance with public participation law. This legal decision also fostered pluralist environmental governance in the sense that knowledge from all stakeholders needed to be considered in issuing a building permit and accepting the power plant's EIA (D5; D26). Although this decision was ruled by both the Provincial and the Supreme Administrative Courts, it was not implemented in practice as the investor had withdrawn from the project.

Overall, a positive low to medium impact could be observed on this JT pillar through the hegemonic power types, with impacts mostly present at the community and organizational levels (Table 16).

TABLE 16. StopEP MOVEMENT'S IMPACTS ON KNOWLEDGE DEMOCRACY AND CULTURAL DIVERSITY THROUGH HEGEMONIC POWER TYPES. INDICATORS MARKED WITH * WERE EMPIRICALLY REVEALED IN THIS STUDY.

Knowledge democracy and cultural diversity					Overall assessment
Impact through hegemonic power types	Evaluative question	Indicators	Sources (No. of data files)	Empirical count (No. of references)	Just transformative impact
Structural power	How much did the movement bring about changes in laws, institutions, and economies to include diverse perspectives and various forms of knowledge in environmental governance?	Pluralist governance	2	4	**Low impact:** Impact is intertwined with the positive changes in public participation. While conditions were provided by this impact for knowledge democracy and cultural diversity, it was not realized in practice.
Relational power	How much did the relationships between groups change to allow for cultural diversity and knowledge sharing?	Respect of and reliance on plural ways of living and knowing	3	5	**Medium impact:** The configuration of relations for knowledge democracy and cultural diversity were achieved at local and organizational levels but could not be upscaled to the societal level.
		Equal access to the generation, use and transmission of knowledge	2	2	
Cultural power	How much were pre-existing local rights, culture, practices, and knowledge acknowledged and mainstreamed?	Mainstreaming of counter-narratives	2	3	**Medium impact:** The movement mainstreamed alternatives, however, only the narrative of coal phase-out was extensive. Other counter-narratives remained in the discourse of civil society.
		Acknowledgment of local rights, culture, and knowledge	2	2	

In conclusion, a medium to high just transformative impact can be attributed to the movement. A summary of the intersecting dimensions of power and JT pillars is provided in Appendix E.

Importantly, strategies on the ground targeting hegemonic power types could be upscaled to the meso level and foster a medium impact across all three power types. Power is cross-cutting with the JT pillars of which direct democracy and ecological integrity were achieved to the greatest extent. The other pillars showed a positive, but medium just transformative impact.

Top-down processes: hegemonic power over grassroots activities

It is important to recognize the role of top-down processes as contributors and/or barriers to just transformative impacts related to the Polish case. This section discusses relevant top-down processes identified in the data.

Firstly, various top down-processes in **structural power** facilitated the upscaling of the movement strategies. The EU climate policy and its local implementation were credited as one of the most influential top-down facilitators of the just transformative impacts (P3; P4; P5; P6). The empirical data revealed the following relevant European bodies and policies that supported the StopEP movement's objectives: (i) the Industrial Emissions Directive provided by European law that regulates and provides more rigorous emission standards (D6), (ii) the Emission Trading System of the EU which makes polluters pay for emissions (P5), (iii) the Water Framework Directive for the protection of rivers such as the Vistula River in Europe (P3), and (iv) the partnership principle in European legislation which requires the inclusion of civil society representatives within various bodies (P7). These facilitators were a few of many within the EU's efforts to transition away from coal (P2; D25) that complemented the movement's bottom-up strategies with top-down frameworks to pressure national environmental governance for JT.

Regarding facilitators in national structural power, the Code of Administrative Procedure provided a framework for public participation in environmental governance which was the foundation of the NGOs' legal claims in the StopEP movement. Besides, Poland ratified the Paris Agreement in 2016 with the commitment to reduce emissions and invest in clean and renewable energy (D6). Consequently, financial institutions started withdrawing from coal funding, posing challenges to the realization of the coal power plant.

However, withdrawal from funding coal projects was not the case for every institution, posing barriers to the movement. The investor of the power plant sought funding from the European Bank for Reconstruction and Development and the European Investment Bank (D2). This financial source was also one of the main targets of the StopEP movement (P3).

Contrary to structural power, top-down **relational power** posed constraints to the achievement of just transformative impacts. The first constraint in relational power concerns power dynamics in procedural decision-making. Administrative decisions regarding the power plant were biased towards the investor (D1; D24; D25; D26), disregarding information provided by NGOs on the power plant's environmental, social, and economic impacts. Moreover, information was denied from local communities, increasing inequalities between societal groups in environmental decision-making processes (D1). The second constraint related to the disproportion of resources between different groups, where the state and company are always better resourced than NGOs and the local communities (P2; P3; P5; P7).

Higher-level **cultural power** also entailed constraints and facilitators of just transformative impacts. Narratives about both the positive and negative implications of the power plant were present in local authorities' decisions (D24). Hence, local decision-makers were divided in their views, posing barriers to the granting of construction permit for the power plant. In terms of the constraint, climate denialism still exists in Poland at the societal level along with populist and disinformation campaigns about climate change (P1; P7). Such higher-level cultural power embedded in society was difficult to challenge by the movement.

Overall, there were various top-down facilitators of the just transformative impacts, especially in structural power. On the other hand, processes in relational power constrained the work of the StopEP movement, while cultural power involved both facilitative and constraining elements.

5.2.2. Just transformative impact of anti-fracking movement, Romania

Bottom-up processes: movement challenges hegemonic power for just transformative impact
Similarly to the previous case, this section is structured around the JT pillars, which are achieved through the movement's impacts on hegemonic power types (structural, relational, and cultural power).

Quality of life and social-well-being
This JT pillar refers to the achievement of physical, cultural, social, and spiritual social well-being and justice (Kothari et al., 2023). Insights from the data revealed a low to negligible impact on this pillar by the anti-fracking movement.

Similarly to the other case, locals wished to maintain existing lifestyles for social well-being. This meant the undisturbed continuation of agricultural activities and self-sufficient lifestyles in the region (P11; P12; P13; P14). This had an impact on quality of life through **cultural power** as it challenged the narrative that social well-being can be achieved through economic growth and development (see section 5.3.1 for further explanation about dominant paradigms). Besides, the movement contributed to an increased societal awareness about human rights that local communities are entitled to (P11; D32). In this sense, they were aware of the dangers of fracking and how it could affect the surrounding nature, their lands, and the resources (such as water) that they heavily rely on. By mainstreaming these concerns, the dependence of humans on nature was also more highlighted in the public discourse. However, the narrative did not shift towards the further improvement of quality of life and social well-being in the affected rural communities. These populations are one of the poorest in Romania and most affected by the effects of climate change in the country (P15; P16). Since they are heavily dependent on the surrounding natural resources, any change to their environment due to the climate crisis or development projects can worsen their quality of life. One of such developmental projects was prevented, but many other problems they face with growing monocultures, land-grabbing, poverty, and outmigration were disregarded by the anti-fracking movement (P16). Therefore, it could not contribute to major configurations of views and narratives about quality of life and social well-being.

Regarding impacts through **relational power,** resistance to the planned shale gas fracking strengthened the harmony between and within local communities and nature (P8; P15). Their natural environment was not disturbed by a major development site, and they could resume their agricultural activities for the time being. In the long term, however, agricultural monocultures and land-grabbing from locals still threaten this harmony (P16). In addition, political networks also emerged out of the movement for ensuring social justice and well-being (P14). Stemming from a public discontent with the political system, heightened by the environmental movements at the time, two centre-right political parties were created which later merged into the Save Romania Union Party (USR). The party's primary focus is on social justice through which they ended up governing and appointing the mayor of Bucharest.

Regarding improvements of quality of life and social well-being through **structural power,** changes due to the movement were minor. Besides resistance to shale gas fracking, no major changes took place in laws, policies, or economic frameworks to integrate social considerations and improve other issues in the region.

Therefore, the movement had a low just transformative impact on quality of life and social well-being. The low number of indicators and their counts also demonstrate this. While crucial values could be preserved about local lifestyles, the major societal problems that the region faces were not coupled and tackled by the movement, only one of their many problems could be prevented.

TABLE 17. ANTI-FRACKING MOVEMENT'S IMPACTS ON QUALITY OF LIFE THROUGH HEGEMONIC POWER TYPES. INDICATORS MARKED WITH * WERE EMPIRICALLY REVEALED IN THIS STUDY.

Quality of life and social well-being					Assessment
Impact through forms of hegemonic power	**Evaluative question**	**Indicators**	**Sources (No. of data files)**	**Empirical count (No. of references)**	**Just transformative impact**
Structural power	How much did the movement impact regulations, laws, policies, etc. to improve people's lives and social well-being?	Resistance to change for social-well-being*	3	3	**Low impact:** The movement halted the project for social well-being; however, no other structural change was achieved beyond this impact.
Relational power	How much did the relations between societal groups change to improve social well-being?	Communal and nature harmony	3	3	**Low impact:** The movement protected local rights and connection to nature and safeguarded their well-being. Wider networks also emerged for broader social justice. No data was acquired of long-term impacts and the state of well-being after the movement.
		Emergence of networks to ensure social justice	1	2	
Cultural power	How much did the movement offer alternative ideas for achieving physical, social, cultural, and spiritual well-being without relying on economic growth?	Social consensus about preservation of nature and self-sufficient agricultural activities for quality of life	4	4	**Low impact:** The movement protected already existing values about social well-being and resisted changes to these. However, no alternative was provided beyond resistance. Awareness was raised about basic human rights, but they continued to be violated.
		Societal awareness about human rights*	2	6	

Ecological integrity and resilience

The anti-fracking movement managed to achieve the biggest just transformative impact on ecological integrity and resilience; that is the protection of the natural world (ecosystems, species, functions, cycles) and its resilience and the achievement of respect for ecological limits at various levels (Kothari et al., 2023). Changes occurred through all three hegemonic power types at various societal scales.

Firstly, for the protection of the environment, changes through **cultural power** had to take place. For this, it was important that the movement mainstreamed the environmental risks of shale gas fracking (see Table 18). First, knowledge about the environmental risks was distributed to the local populations and then mainstreamed on social media and national communications channels (P8; P9; P11; P12; P13; P14; P17). This was crucial considering the

government's lack of transparency and information regading the shale gas exploration projects (D31). This created solidarity with affected local communities and opposition to the method within and beyond the country which also helped with establishing a wider network of opposing actors. This is demonstrated by the following quote:

> *"I think Facebook at the time ironically played a very important role in coalescing these movements and connecting them to wider movements as well. Fracking, this was connected, not the Romanian topic itself in other countries, but because the same thing was happening in France, in the UK, in Poland, that created a network, a European network where people were aware. So I think it fed into the energy and knowledge of people. But obviously these platforms were not just for the transnational coordination, it was also for national coordination and local coordination. So they're very useful and important." –* P14, personal communication, March 22, 2024

The mainstreaming and scandalizing of extractive economic methods and the neo-liberalization of natural resources also fed into an increased environmental consciousness at the societal level (P14; P17; D27; D39). However, this impact was achieved in conjunction with the Rosia Montana movement against gold mining. This period therefore was the prime of environmental movements in the country, which strengthened environmental awareness (P9). With this awareness came a greater respect for nature and ecological cycles at the societal level, which was already present and intrinsic in rural communities (P8; P14; P17).

As highlighted by the quote above, the mainstreamed knowledge and energy by the movement also encouraged actors to form networks and coordinate actions for environmental protection at transnational, national and local levels (P11; P12; P13; P14). Various networks of ENGOs emerged due to the anti-fracking movement. This shows the just transformative impacts on ecological integrity through **relational power**. Besides, wider-scale nature-human harmony was strengthened by the movement, already evident on the ground (P11; P16). This entailed an intrinsic belonging to nature and the respect of limited natural resources. However, this harmony remained rather human-centred: locals claimed more equitable distribution and use of natural resources as opposed to the protection and conservation of nature.

Lastly, the biggest impact through **structural power** links to the conservation and protection of nature by preventing shale gas fracking in the country (see Table 18). Although prospections for shale gas started with exploratory drilling, large-scale destruction of the environment could be halted. Chevron decided to pause activities and withdraw from the country due to the movement, with the aim to conduct activities in an environmentally friendly manner according to their press release (D40; D45). However, it was stressed by an interviewee that Chevron retreated from the project and its agreement with the state due to low levels of shale gas prospection, and not as a result of movement strategies (P16).

To conclude the movement's impact on ecological integrity and resilience, the data revealed that this JT pillar was the most positively affected by the movement. It mostly contributed to the configuration of narratives and values, but it also impacted relational and structural power to some extent for greater respect and protection of nature. However, the causality between the movement strategies and the just transformative impact through structural power remains unclear.

Ecological integrity and resilience					Overall assessment
Impact through forms of hegemonic power	Evaluative question	Indicators	Sources (No. of data files)	Empirical count (No. of references)	Just transformative impact
Structural power	How much did the movement impact institutional, legal, and economic frameworks to account for environmental health and resilience?	Conservation and protection of nature	13	27	**Medium impact:** The movement prevented large-scale destruction of the environment and conserved nature; however, this impact might not be due to the anti-fracking movement.
Relational power	How much did the movement change the connections between different groups in society to protect and restore the environment?	Emergence of networks for environmental protection	6	9	**Medium impact:** Numerous networks emerged for environmental protection, amplifying existing nature-human relations and values on the ground. However, the improved nature-human relation still mainly concerned ownership of resources, just in a more democratic and localized form.
		Nature-human harmony	2	2	
Cultural power	How much were people's beliefs and understanding of the relationship between nature and humans changed and become widely accepted?	Mainstreaming environmental risks	10	15	**High impact:** The environmental risks of the method could be widely mainstreamed, relying on local values about respect for nature. This was a join impact of the anti-fracking movement and the Rosia Montana movement.
		Societal environmental consciousness	5	7	
		Respect for ecological cycles	4	6	

Economic democracy

Economic democracy is achieved when local communities have control over the means of production, distribution, and exchange, and when localization and the respect for ecological limits are key principles, and larger exchange is built on it (Kothari et al., 2023). Importantly, the movement fostered these changes through all hegemonic power types.

The first step in achieving higher economic democracy was through the configuration of narratives, views, and values about economic production methods (**cultural power**). This mostly manifested in resistance against extractive and unconventional methods of economic production and technology (see Table 19). Through information campaigns, people became more aware of the costs and benefits of gas production and the environmental, ecological, and social price of unconventional methods such as shale gas fracking (P8; P11; P14; P16; P17). However, conventional gas production was not challenged in the public narrative (P16), which is still embedded in the country's dominant paradigms such as energy security and independence. Problems that are more out of sight and concern conventional gas production as in the case of the recent Neptune project for natural gas extraction in the Black Sea, resistance is scarcer (P9; P11). This can also be explained by the fact that resistance was mostly place-based and strengthened at the local level: local communities felt more united and empowered to oppose major industrial projects in their affected areas (P11). Due to vocal local resistance, the movement achieved to scandalize shale gas fracking in the national discourse and mainstream the idea of anti-fracking nationally and internationally (P8; P11; P16; P17; D29;

D49). This also ensured that shale gas fracking has not been proposed in the country ever since this movement. Besides resistance, the movement also fostered alternative economic production methods to some extent (P16; P17). Interestingly, these alternatives emerged both for the energy and the agricultural sectors, which also reflects the polycentricity of the underlying conflict. At the local level, some civil society groups coupled the fracking issue with other regional agricultural problems and started developing permaculture and alternative organic farming methods to boost the local economy and tourism (P16). However, this only happened in a few communities with a long history of farming and organic practices. At broader societal levels, the collective impact of the environmental movements at the time contributed to the public discussion about renewables and sustainable development opportunities (P17).

Economic democracy was also impacted by the anti-fracking movement through **relational power**. Due to the long-lasting resistance in the Vaslui county of Romania, the company announced that they will remain committed to building positive relationships and creating dialogue with local communities and authorities within their operation sites (D34; D37; D45; D47; D49). Although this promise could be identified as a positive impact for inclusive relations, no data could be obtained to acquire the current state of dialogue between companies and local communities for regional energy projects. Regardless, local economic production methods were maintained due to the movement as farmers could keep their lands and use them for their intended purposes (P11; P14; P16; D32). This prevented land-grabbing by companies and the contamination of agricultural soil by shale gas fracking. Overall, although local control was retained, it was not necessarily improved.

With regards to just transformative impacts through **structural power,** local economic production methods were also financially and legally strengthened temporarily. A few participating organizations pushed for an environmental regulation concerning water resources and the strengthening of local economy (P12; P13). Since one of the main risks of shale gas fracking was water contamination, the company was required by this regulation to continuously monitor ground water quality. Besides, they were not allowed to extract groundwater; they were obliged to purchase it from the local water company. The NGOs, however, tracked the activities of Chevron and challenged the company in court when they witnessed the violation of the environmental agreement. Moreover, according to the agreement between the state and the company, Chevron had to provide financial compensation for relinquishing the project (P14). This funding was an added benefit for farmers and their activities. However, the final recipients of this financial compensation could not be tracked. Overall, even though further shale gas exploration could be prevented in the country, the movement could not achieve broader legal strengthening against extractive economic methods (P11; P16). Underground natural resources remain state property (P8; P11; P15; D28), thus, leaving local communities and nature susceptible to the activities of the state and energy companies. This counteracts the just transformative impacts of the smaller-scale achievements of the movement.

In sum, while narratives and values about economic production were configured at local and societal levels, changes in decision-making processes and outcomes were less present.

Economic democracy					Overall assessment
Impact through forms of hegemonic power	Evaluative question	Indicators	Sources (No. of data files)	Empirical count (No. of references)	Just transformative impact
Structural power	How much did the movement impact institutional, legal, and economic frameworks to include local claims over managing shared natural resources?	Strengthening of local economic production methods	4	4	**Low impact:** Short-term financial and legal strengthening of local economic production. No broader structural change could be achieved beyond the prevention of the project.
		Halt of unconventional energy production methods*	2	2	
		Counter-effect: Lack of legal strengthening of non-extractive methods*	2	4	
Relational power	How much did relationships between groups change in terms of who can access and use natural resources?	Dialogue with locals for energy projects*	5	6	**Medium impact:** Local control of means of production was retained, but not improved. Improved relations between companies and locals for energy projects could not be identified beyond promises.
		Increased local control of means of production	4	4	
Cultural power	How much did the movement encourage and mainstream non-extractive methods of production and resource management?	Resistance against extractive economic methods	8	13	**High impact:** Societal resistance against unconventional energy production methods was deepened due to the movement, along with increased awareness of alternatives (e.g., renewables, sustainable development). However, conventional methods such as natural gas extraction are still dominant.
		Mainstreaming and recognition of anti-fracking	6	8	
		Fostering alternative economic production methods*	2	3	

Direct and delegated democracy

The pillar of direct and delegated democracy was greatly impacted by the movement, however, both in positive and negative ways. Direct and delegated democracy entails a bottom-up decision-making process, in which every citizen has the right and capacity to participate (Kothari et al., 2023).

There were various just transformative impacts through **cultural power** for direct and delegated democracy. Considering the high levels of public discontent with the political system and non-transparent environmental governance (P14; P16; D27), various counter-narratives and demands emerged in the public discourse for more democratic decision-making. Therefore, the most fundamental impact was the deepened national resistance against undemocratic environmental decision-making (see Table 20). The public opposed the deregulated manner of resource exploitation by both the state and big corporations at the expense of local communities and the environment (D27). Protests that started on the ground in rural areas quickly turned into a nation-wide movement and solidarity (P9; P11; P16; D27; D32; D49). This raised national and international awareness about the neo-liberalization of natural resources for the benefit of corporations and the government, while putting powerless actors at risk (as demonstrated by the stakeholder map in Figure 10). With this, both the shale gas industry and

the governmental decision-making process were scandalized. Deepened resistance also ensured that the local communities could not be co-opted by the regime and displaced to another region of Romania (P8; P12; P13; D43; D49). Consequently, their voices and concerns had to be considered by decision-making bodies. This underpins the perspective of some interviewees that authorities fear public resistance and reaction the most (P12; P13). In addition to resistance, the movement also contributed to an improved public perception of bottom-up organizing and individual worth of participants (P11; P14; P16). Many of civil society groups that participated in the movement became more established as an organization and gained maturity out of the anti-fracking movement (P16; P17). As a result, demands for direct democracy also grew and diversified (D27). These demands revolved around public participation, environmental rights, and transparency in environmental decision-making. Overall, the movement had a high just transformative impact on direct democracy through the configuration of narratives, values, and views.

The movement also had great impacts on direct and delegated democracy through the configuration of **relational power**. Firstly, the anti-fracking movement achieved strong connections vertically; it upscaled from local populations and organizations to national and international networks (for example, P9; P11; P14; P16; D27; D31; D32; D34; D36; D37; D38; etc.). Together with the Rosia Montana protests, Romania witnessed its golden age of environmental movements. ENGOs strengthened their networking and collaborative capacity against the government (D27), as expressed by one of the interviewees in the following quote:

> *"In 2013, it was the largest protest in Romania against Rosia Montana and most of the NGOs who were at Rosia Montana were also in connection with this aspect of anti-fracking. So, it was a motorization of Romanian NGOs. They became to know how to fight against the state. 2013 was the peak of Romanian protests"* – P11, personal communication, March 7, 2024

Furthermore, the movement also strengthened collective action at local and national levels (see Table 20). After creating an extensive network, it was also important to fight for a common and collective objective. Due to the coagulation of various conflicts in the country - including shale gas fracking, gold mining and the corrupt political system - numerous civil society groups coalesced and found their collective objective in environmental protection and the sacking of the prime minister at the time, Victor Ponta (P9; P11; P12; P13; P14; P16). Hence, for the wider uptake of the anti-fracking movement, it was crucial to connect its impact to other environmental initiatives in the country. The Rosia Montana movement was emphasized by many interviewees as a significant momentum that the anti-fracking movement could also join and capitalize on (P9; P10; P11; P14; P15; P16; P17). The joint power of the two movements created the largest-scale environmental action in the country's history. However, in the case of the anti-fracking movement, its ideological trajectories constrained and weakened collective action between different sectors of society, while having a common objective (P16).

Notably, there were various visible just transformative impacts of the movement on direct and delegated democracy through decision-making processes and bodies (**structural power**). The most emphasized impact of the movement on direct democracy was upscaled local political agency (P11; P14; P16; P17). Local communities managed to exert pressure on local

authorities for their voices and interests to be included in decision-making processes (P11; P16). The fact that local authorities took the side of local communities was key in upscaling their political demands considering their position between citizens and state institutions. They are also responsible for implementing policies on the ground, and thus, opposition can play a huge role in boycotting development projects and governmental decisions. The upscale of local political agency manifested in the sacking of the prime minister (P14; P16). With the growing local and cosmopolitan discontent with the political system at the time, a critical mass emerged from the environmental movements, demanding greater transparency and justice in environmental governance. In line with growing political agency, the anti-fracking and the Rosia Montana movements also provided a fertile ground for the formation of political parties (P9; P14; P16). This led to a bigger political movement explained by the quote as follows:

> *"Already the involvement that people had from the first environmental protests like the anti-fracking and the Rosia Montana combined with this new protest, essentially they said this is enough of the same political behaviors that have enabled these types of environmental damaging projects to take place or to be envisioned, and also these kinds of corruption related acts to take place. We're going to do something about it. And so, some of the protesters actually ended up being part of these new political parties that were formed."* – P14, personal communication, March 22, 2024

Besides these two parties that later merged as USR, a more radical right-wing party also emerged. The leader of the Alliance for the Unification of Romanians (AUR), George Simion, participated in the Rosia Montana and the anti-fracking movements which provided him with a network and platform for his popularity that followed (P9; P16). This political movement, however, was emphasized by many as a source of hijacking the initial environmental movements (P9; P10; P16). Political leaders thus capitalized on the anti-fracking and anti-mining movements and instrumentalized people for their political ambitions at the national and EU levels: for instance, *"the current MEP Ramona Strugariu (Renew), who built political capital from these struggles by mainly conveying an anti-state, near-libertarian message"* (P10, personal communication, February 26, 2024). This process reinforced more radical and populist voices in civil society ranging from anti-state and anti-corruption narratives to right-wing populist and nationalist agendas (P9; P10; P16).

In the end, this radicalization and hijacking of the anti-fracking movement resulted in a short-term political and structural impact, mainly fulfilled by the removal of the prime minister (P9; P14; P16; D41). Other short-term impacts on direct democracy through structural power involved transparency, accountability, public participation and inclusivity in environmental governance (see Table 20). Besides the prime minister, the Minister of Internal Affairs was also replaced, indicating some level of accountability from the state (P11; D49). Environmental procedures also became more transparent due to higher national public awareness and regulations by the European Union, constaring the state and neo-liberal investors to exploit natural resources (P11). Moreover, through legal action and court cases, NGOs managed to exert pressure on state bodies such as the National Agency of Mineral Resources to comply with democractic procedures. This entailed the provision of public information about the contracts between the state and the energy company, which the agency initally denied from the NGOs (P15). In addition, public participation in environmental

decision-making was also strengthened to some extent. Public consultations were held by the government regarding the energy strategy for 2020-2035, however, these events were oganized during Christmas holidays to limit participation (D49). On a more positive note, while top-down efforts for public participation were false actions, NGOs did contribute to improved conditions for public participation. For instance, public debates and discussions were oganized that enabled locals to voice their opinions (P12; P13; P15; P17). Lastly, inclusivity in decision-making was also strengthened as a result of the movement (P11; P16; P17). This was a multi-step process: first, local populations were empowered and engaged by organizations on the ground who then either took their concerns to local authorities or formed political parties to represent these concerns directly. Both were successful in representing and including the voices of local communities in political decision-making processes. All in all, while the movement contributed to just democratic processes in environmental governance, more structural efforts are needed to fully provide opportunities, capacity and rights to all citizens to partake.

In conclusion, various just transformative impacts were observed through cultural and relational power, indicating the need of civil society to take environmental decision-making into their hands. While some changes were brought about in political structures, greater support is needed in laws, policies and regulations to enable direct and delegated democracy.

TABLE 20. ANTI-FRACKING MOVEMENT'S IMPACTS ON DIRECT DEMOCRACY THROUGH HEGEMONIC POWER TYPES. INDICATORS MARKED WITH * WERE EMPIRICALLY REVEALED IN THIS STUDY.

Direct and delegated democracy					Overall assessment
Impact through forms of hegemonic power	Evaluative question	Indicators	Sources (No. of data files)	Empirical count (No. of references)	Just transformative impact
Structural power	How much did the movement change laws, institutions and economic systems to support direct and delegated democracy?	Increased local political agency*	7	16	**Medium impact:** Short-term structural impact in terms of the removal of the prime minister and ministers, increasing transparency and accountability. Through NGOs, locals became more empowered to participate in decision-making processes. However, top-down structural efforts to increase direct and delegated democracy were missing.
		Transparency and accountability	4	7	
		Participatory	4	6	
		Inclusivity	3	6	
		Counter-effect: Political hijacking of the movement*	3	14	
		Counter-effect: Short-term political impact*	4	6	
Relational power	How much did the movement configure relations between groups for more democratic environmental governance?	Connecting vertically for coordination	16	32	**High impact:** Long-term impacts through the configuration of relation power were substantial. The movement connected civil society and initiatives to create greater impact on decision-making. However, more extreme groups also coagulated due to the movement.
		Strengthened civil collective action	14	26	
		Connecting impact with other initiatives*	12	23	
Cultural power	How much did the movement impact cultural beliefs about	Deepened resistance against undemocratic environmental governance	9	18	**High impact:** Cultural changes in the national and international discourse about environmental decision-

	bottom-up decision-making?	Prevention of co-optation by regime	4	5		making were substantial. Perception and demands for direct democracy also improved.
		Improved perception of bottom-up organizing*	4	7		
		Demands for direct democracy*	1	4		

Knowledge democracy and cultural diversity

The last JT pillar under investigation is knowledge democracy and cultural diversity. This encompasses the respect and utilization of plural ways of living, knowing, and understanding the world and the equal access to the use, generation, and transmission to knowledge (Kothari et al., 2023). The anti-fracking movement had numerous negative and positive impacts on this pillar which are substantiated below.

Regarding changes through **cultural power** for knowledge democracy and cultural diversity, the most emphasized impact was the mainstreaming and recognition of counter-narratives in the public discourse (see Table 21). This counterbalanced the dominant narrative and knowledge about economic development and energy production in the country and shifted attention towards protection of local rights and respect for natural resources. The extent of mainstreaming is also summarized by one of the participants in the following quote:

> *"In general, we managed to capture the attention of all media in Romania and after April 4th, 2013, everybody in Romania on all televisions, radios, newspaper was talking about fracking. So we managed to break this, it was like a blockade of the media on the subject. So that's why the idea to organize all this. And after that, we were invited in many TV shows, with a huge impact in Romania and in this way, they realize they cannot longer go with all this exploration in all the areas they wanted."* – P12, personal communication, March 16, 2024

Besides, increased awareness also created a collective understanding of the underlying injustice: the social, ecological, and economic risks of shale gas fracking (P8; P11; P14; D39; D49). This enabled the community to have a collective voice and unite against the conflict, which NGOs also amplified (P8; P13; P17). However, these risks were not coupled with other related problems in the economic and social aspects of the region (P16). Additionally, the movement also became a platform for the diverse representation of voices. Various age groups participated ranging from elder generations to children (D49). Women were also part of the protests, in fact, an elderly woman became the symbol and poster face of Pungesti (P14). As the movement expanded, cosmopolitan voices also joined, broadening the diversity of values (P9). Religion was also a core component of the protests, with the Orthodox church and priest as central mobilizing figures (P9; P11; P14; P15).

However, diversity was mostly present in terms of ideologies ranging from centre to extreme voices and from extreme left-wing anarchists to extreme right-wing neo-nazi groups (P9; P16). Eventually, many of the consensus-driven centre and/or left-leaning groups detached themselves from the movement (P10; P16), leaving more extreme groups behind. Conservatism and nationalism were highly present, which also stemmed from the place-based component of the movement (P9). Local identities in this part of Romania are strongly linked to place and agriculture which were perceived to have been threatened by shale gas exploration (D27). Thus, the place-based component did not concern the attachment to nature and land as

an ecological value but expressed a more conservative view of motherland and the soil of Romanians (P9). This led to heightened nationalistic views locally and nationally (P9; P10; P11; P16; D27). Consequently, various international and national organizations discontinued offering legal and financial help due to the growing nationalistic and populist political agenda (P16). On the other hand, there were groups that did not align with these values and isolated themselves from this dynamic, while remaining active in the fight (15). Consequently, the movement had a diverse representation of voices and actors which mobilized diverse segments of society, however, there was no mutual reliance and exchange about these perspectives at broader societal levels (P15; P16). The increased conservative values also led to cultural exclusion within the more conservative groups of the movement (P9; P16). Various Roma minority groups were affected by fracking activities, however, resistance actions mostly helped male, orthodox and patriarch farmers (P16). Considering the strong religious component of the movement, non-Orthodox societal groups were also excluded and underrepresented (P9).

These cultural dynamics also greatly impacted knowledge democracy and cultural diversity through **relational power**. First, the movement provided a platform for diverse actors and voices to come together, which were respected and relied upon in the beginning (P9; P14; P15; P17). In Pungesti, some organizations were particularly concerned with cultural inclusion: *"Knowing the people at Vira and my colleague who was there, I'm sure they were inclusive. They try to include all main stakeholders at local level and they are pretty sensitive when it comes to diversity, inclusion and non-discrimination."* (P17, personal communication, May 20, 2024). This positively impacted relations between people for greater respect and collective action against shale gas fracking. Besides, the organizations involved also contributed to equal access to the use, generation, and transmission of knowledge about the shale gas industry through workshops, debates, meetings and documentary screenings (P15; P16; D49). Activists from the US, Canada and Australia came to Romania to join public debates and raise awareness about the dangers of frackig (P16). This decreased uncertainty about the method among the local populations empowered them to collectively mobilize against the project. However, with the expansion of the movement to other parts of Romania, the more radical streams of the movement divided the population and polarized civil society (P16; D27; D28). One of the interviewees expressed it as follows:

> *"The problem is that the anti-fracking movement did not reinforce society, it eroded it into something else. It created the seeds for the right wing neo-Nazi political parties that now unfolded in Romania. It was not the only seed, but it was a very important seed, fertile ground there. If Rosia Montana and the whole movement really ignited a genuine civil society movement, that is solidary, inclusive, multipolar, with different factions and groups. If we had that here* [anti-fracking movement]*, that would have built modern civil society in Romania right now."* – P16, personal communication, April 24, 2024

With regards to changes in knolwedge democracy and cultural diversity through **structural power**, the data did not reveal any insights.

Overall, the movement had just and positive impacts on knowledge democracy and cultural diversity at local levels. However, as the movement grew, more radical political agendas hijacked its trajectory. Importantly, no changes in laws, regulations and policies were

made for culturally diverse and inclusive environmental governance. The changes thus had a low and rather negative impact on this JT pillar.

TABLE 21. ANTI-FRACKING MOVEMENT'S IMPACTS ON KNOWLEDGE DEMOCRACY AND CULTURAL DIVERSITY THROUGH HEGEMONIC POWER TYPES. INDICATORS MARKED WITH * WERE EMPIRICALLY REVEALED IN THIS STUDY.

Knowledge democracy and cultural diversity					Overall assessment
Impact through forms of hegemonic power	Evaluative question	Indicators	Sources (No. of data files)	Empirical count (No. of references)	Just transformative impact
Structural power	How much did the movement bring about changes in laws, institutions, and economies to include diverse perspectives and various forms of knowledge in environmental governance?	-	-	-	**Insufficient:** The data did not reveal any impacts on structural power for fostering knowledge democracy and cultural diversity.
Relational power	How much did the relationships between groups change to allow for cultural diversity and knowledge sharing?	Respect of and reliance on plural ways of living and knowing	4	6	**Low and negative impact:** While the movement contributed to local knowledge democracy and cultural diversity, it eroded and polarized civil society nationally as it expanded.
		Equal access to the generation, use and transmission of knowledge	3	3	
		Counter-effect: Polarization of civil society*	3	10	
Cultural power	How much were pre-existing local rights, culture, practices, and knowledge acknowledged and mainstreamed, recognized and respected?	Mainstreaming and recognition of counter-narratives	10	15	**Low and negative impact:** Diverse local voices and perspectives were represented, amplified, and mainstreamed by the movement, contributing to knowledge democracy and cultural diversity. However, with diversity came more extreme views which eventually hijacked the movement from achieving positive changes.
		Collective awareness of underlying injustice	5	7	
		Diverse representation of voices	4	8	
		Counter-effect: Heightened nationalistic views*	5	19	
		Counter-effect: Cultural exclusion*	2	6	
		Counter-effect: Standardization of mobilizing culture*	1	2	

To conclude the just transformative impacts of the anti-fracking movement at the meso level, a low to medium impact can be attributed (see Appendix E for an overview). Importantly, major changes were fostered for direct and delegated democracy, however, that was the only highly impacted dimension. Ecological integrity and economic democracy were also enhanced by the movement to a medium extent, which were most prevalent through the configuration of cultural power. Unfortunately, the pillar of quality of life and social well-being was neglected, reflecting the lack of coupling the issue with wider societal problems in Romania. In a similar vein, the pillar of cultural diversity and knowledge democracy also demonstrate a low just

transformative impact. However, this is not due to the low number of indicators as in the case of quality of life, but the various counter-effects that resulted from the movement, lowering cultural diversity. Therefore, an overall low and negative transformative impact characterizes this pillar in the anti-fracking movement.

Importantly, just transformative impacts could be achieved through the configuration of hegemonic power types. In this case, the movement could foster medium changes in relational and cultural power for just transformative impacts. However, structural power could not be impacted to the same extent, indicating the lack of changes in laws, institutions, policies, and economic frameworks.

Overall, it is also important to note that various just transformative impacts of the anti-fracking movement are coupled with the Rosia Montana protests, especially for ecological integrity and direct democracy. Demands and impacts were achieved as a joint effort of the two EJ movements.

Top-down processes: hegemonic power over grassroots activities

Power over the development of the anti-fracking movement and the achievement of the just transformative impacts was a crucial component. There were various measures taken at the governmental level to counteract the movement. Therefore, this section explains the top-down facilitators and constraints that were imposed on the activities of the anti-fracking movement.

First, the use of **structural power** at higher levels is explained to better understand the evolution of the movement. Regarding the constraints these processes posed to achieving JT, the agreement between the state and Chevron consolidated a framework for the exploitation and neo-liberalization of natural resources in Romania (P11; P12; P13; P14; D27). The government leased three oil concession agreements to Chevron through the National Agency for Mineral Resources for shale gas exploration and exploitation (D28; D30; D32; D36). This covered an overall area of 2.700 km² (D28). Decisions by local authorities also constrained the achievement of the movement's ojectives as they locally granted 30 agreements with oil companies for gas exploration (D30; D34). Consequently, companies illegally demarcated local real estate for gas exploration (P16; D34; D49). They started prospections on private properties by placing dynamites and cables, which resulted in the displacement of locals to other places in Romania (P11). These actions also reinforced other SECs in Vaslui county such as land-grabbing from locals to agricultural monocultures and farm industries (P16). Overall, these agreements were untransparent and undemocratic in many ways, where the government and companies would benefit from shale gas exploration at the expense of local communities and nature (D37; D41; D49).

Once there was opposition and resistance from the local communities, the state violently tried to oppress them by employing the riot police and creating a special security zone in Siliştea and Pungeşti (D27). The Municipal Police of Vaslui ordered patrolling order forces (gendarmes) into these communities and on the road connecting the two villages (D28). These forces violently confronted and harmed a lot of citizens and abused their human rights. The most drastic measures involved the imposition of a special security zone that withdrew locals' rights to free movement (P12; P13; P14; D28; D32; D33; D37; D38; D39; D40; D42; D43; D47; D49). Besides, several other rights were abused, such as rights to private property, physical integrity, rule of law, and press freedom (D33; D42). Therefore, the state and the

company exhibitied a very strong opposition to locals and tried to repress them in a top-down manner.

Notably, the EU acted as a top-down facilitator of just transformative impacts through structural power. Next to the movement, European and global standards of environmental protection also exerted pressure on the government for compliance with EU directives (P11; P12; P13; D31). Additionally, one of the interviewees highlighted that the withdrawal of the company was due to low prospection rates for shale gas (P16). Although this information could not be supported by further data, this would imply that most just transformative impacts were due to a top-down decision, rather than the bottom-up anti-fracking movement.

There were also significant top-down processes in **relational power** that moderated the movement development. Considering the constraints, the work of NGOs was greatly limited by corrupt environmental governance behind visible decision-making processes and the disproportion of resources (P12; P13; P16). One of the participants shared their experience in the following terms:

"In Romania, such decisions are taken by the environmental protection agencies. All of these decisions violate environmental protection or are taken based on a political decision. The directors of these environmental protection agencies are named politically. They are part of political parties. Some are in these positions for 20 years. And all they do is terrorize their employees in order to approve such projects." – P13, personal communication, March 16, 2024

Besides, the continuous human right abuses and the violation of local lives by higher-level bodies configured relations between societal groups to discourage mobilization (D28; D38; D49).

In addition, top-down constraints were also present in **cultural power**. At higher political levels, there was a shift in attitude regarding shale gas. The Social Democrat government initially rejected shale gas exploration. However, after they were elected, they changed their position; Prime Minister - Victor Ponta at the time - described shale gas as a positive solution to increase Romania's energy independence (P15; D31; D33; D35; D49).

Overall, top-down processes mostly favoured the exploitation of shale gas and constrained bottom-up organization that would oppose this. These top-down constraints reflect incumbent paradigms at the macro level of (1) specialized knowledge and institutions embodied by the state, (2) control and autonomy of humans over nature for the exploitation of natural resources and (3) materialistic culture and growth for greater energy independence (further explanation follows in section 5.3.1).

5.2.3. Discussion and cross-case comparison of meso level

This section compares the just transformative impacts of the two EJ movements under investigation. Therefore, three components of JT are examined: depths of change through the configuration of **hegemonic power**, spheres of change on the **just transformation pillars**, and temporal, spatial and societal **scales** of change, shown by the upscale of movement strategies to the meso level. Notably, power is treated as a cross-cutting theme in transformation processes, and thus, just transformative impacts on the pillars can be explicated through the configuration of hegemonic power underlying these processes. Therefore, first, impacts on hegemonic power types are compared across the cases, which connect the micro and meso

levels. This is then followed by the comparison of JT pillars. Lastly, the scales of change are outlined for both cases.

      Impacting Hegemonic Power for Deep Changes. Figure 14 demonstrates the upscale of the movement strategies from the micro level to the meso level through impacting hegemonic power. While the micro level indicates the strategies' transformative character measured by their presence and quality to target hegemonic power types, the meso level outlines the level of impact these strategies could achieve. In both the Polish and Romanian cases, strategies to impact relational power were highly targeted, however, that only contributed to a medium impact on people and their networks behind environmental governance. This can be explained by the movements' limited focus on configuring relations and networks for only a few transformation pillars: while numerous networks and coalitions emerged to improve direct democracy in both cases, efforts to use the power of configured relations and people for enhancing the other pillars were much lower.

      Notably, the medium impact on cultural power should be substantiated for the two cases as there are significant differences. Regarding the Romanian anti-fracking movement, the medium impact on cultural power was achieved by greatly and positively influencing narratives for ecological integrity and direct and economic democracy, while bringing about low (and sometimes negative) changes in values and views about quality of life and cultural and knowledge diversity. Therefore, the average of the two extremes equalled to a medium impact. Whereas in the case of the Polish movement, impacts that occurred in cultural power were more consistently positive in the range of medium and high impact for all JT pillars.

      Regarding the impacts on structural power by the movements, another interesting observation was revealed. While the strategies of both movements had a medium level of transformative character according to the analytical framework, their impacts differed. This reflects the importance of context and quality of strategies at the micro level to foster just transformative impacts at the meso level, rather than the mere quantity of strategies to impact hegemonic power types. Hence, the strategies employed by the Polish StopEP movement to impact structural power (such as legal action) had a greater impact than the ones by the anti-fracking movement (such as resistance action). As a result, the StopEP movement fostered greater changes and compliance with laws, regulations, and policies for the JT pillars.

      Overall, the depth of change induced by the movements was medium in both cases, with lower structural change in the Romanian case. However, it is important to highlight the role of top-down processes that either facilitated or constrained the upscale of the movements. In the Polish case, various European climate policies that the country had to comply with enabled the uptake of the movement's objectives. On the contrary, the Romanian government imposed drastic measures on protesters (such as riot police and special security zones) which counteracted their efforts to impact structural power. Both movements had to face major constraints in relational power in terms of disproportionate resources and biased administrative procedures, favouring corporations over locals. Narratives and views embedded in cultural power were also difficult to impact considering the presence of climate denialism at the time and need for energy security.

      Impacts on Just Transformation Pillars. The data revealed that, through the configuration of hegemonic power, none of the movements could achieve a fully JT across all pillars (see Figure 14). However, the StopEP movement in Poland fostered more changes in

the JT pillars compared to the anti-fracking movement in Romania. Interestingly, both movements highly impacted direct and delegated democracy. This was important for the strengthening of civil society and collective action in both cases, supported by changes in societal views of bottom-up organization, configuration of relations for creating coalitions and networks, and enhancements of laws for bottom-up decision-making processes. Additionally, a positive contribution to ecological integrity and resilience was present in both cases, however, to a greater extent in the Polish StopEP movement. This created a greater respect and harmony with nature, strengthened civil society networks for environmental protection, and reinforced conservation of the natural world. Economic democracy was also impacted to a medium extent in both cases, encouraging societal dialogue and efforts towards local ownership, renewable energies, and sustainable modes of economic production. Interestingly, in the case of the Romanian anti-fracking movement, energy production considerations coupled with discussions about agricultural economic methods. Whereas in the Polish case, the focus remained on the energy sector, even though the affected population consisted of farmers similarly to the Romanian case. Furthermore, quality of life and social well-being was less considered in both cases. The StopEP movement had a low to medium impact on this pillar, while it was negligible in the anti-fracking movement. This reflects the coupling of this pillar with either economic or ecological considerations, and the lack of attention this pillar received individually. Finally, cultural diversity was achieved to some extent in the Polish case, however, this also ranged between low and medium impacts. On the other hand, the anti-fracking movement's impact on this pillar was rather low and negative, polarizing and radicalizing civil society.

Scales of change. The diverse levels of just transformative impacts induced by the movements also indicate the scales of change across space, time, and society in the two cases. In the Polish case, a general medium to high impact on both hegemonic power and the JT pillars shows that transformation was achieved at wider scales. Besides strengthening local JT processes, the movement also upscaled to societal levels, especially in configuring relations, networks, and narratives to boost transition processes and coal phase-out at a national level. However, the greatest societal impact was on civil society, mainly locals and environmental NGOs (societal scale). By coupling the problem with the achievement of broader and long-term alternatives such as systemic transformation, the movement could contribute to Poland's energy transition in the long run (temporal scale). It created a window of opportunity for transitions even beyond coal phase-out, which is now expressed in the move away from all fossil fuels. Furthermore, the initiative was replicated in another case in Poland to prevent the realization of the Ostroleka coal power plant, indicating the movement's impact within the country (spatial scale). Impacts beyond the country were not identified in the data.

On the other hand, the anti-fracking movement did not have such a long-term and systemic objective: the main objectives were the prevention of shale gas fracking and the removal of the prime minister. Therefore, the scale of change was more short-term (temporal scale) as the movement was not coupled with other socio-economic problems. Furthermore, while impacts were achieved across different sectors and societal groups (societal scale) and across and within borders (spatial scale) for direct and delegated democracy, the other pillars were not upscaled extensively.

In sum, various similarities and differences could be observed in the movements' development and just transformative impacts at the meso level. However, for both cases, it was

crucial to link the movement to other environmental movements in the respective countries. The impacts are the culmination of bottom-up initiatives at the time for environmental protection and should not be attributed to the individual movements. The figure below illustrates and compares the movements' contribution to just transformative impacts at the meso level.
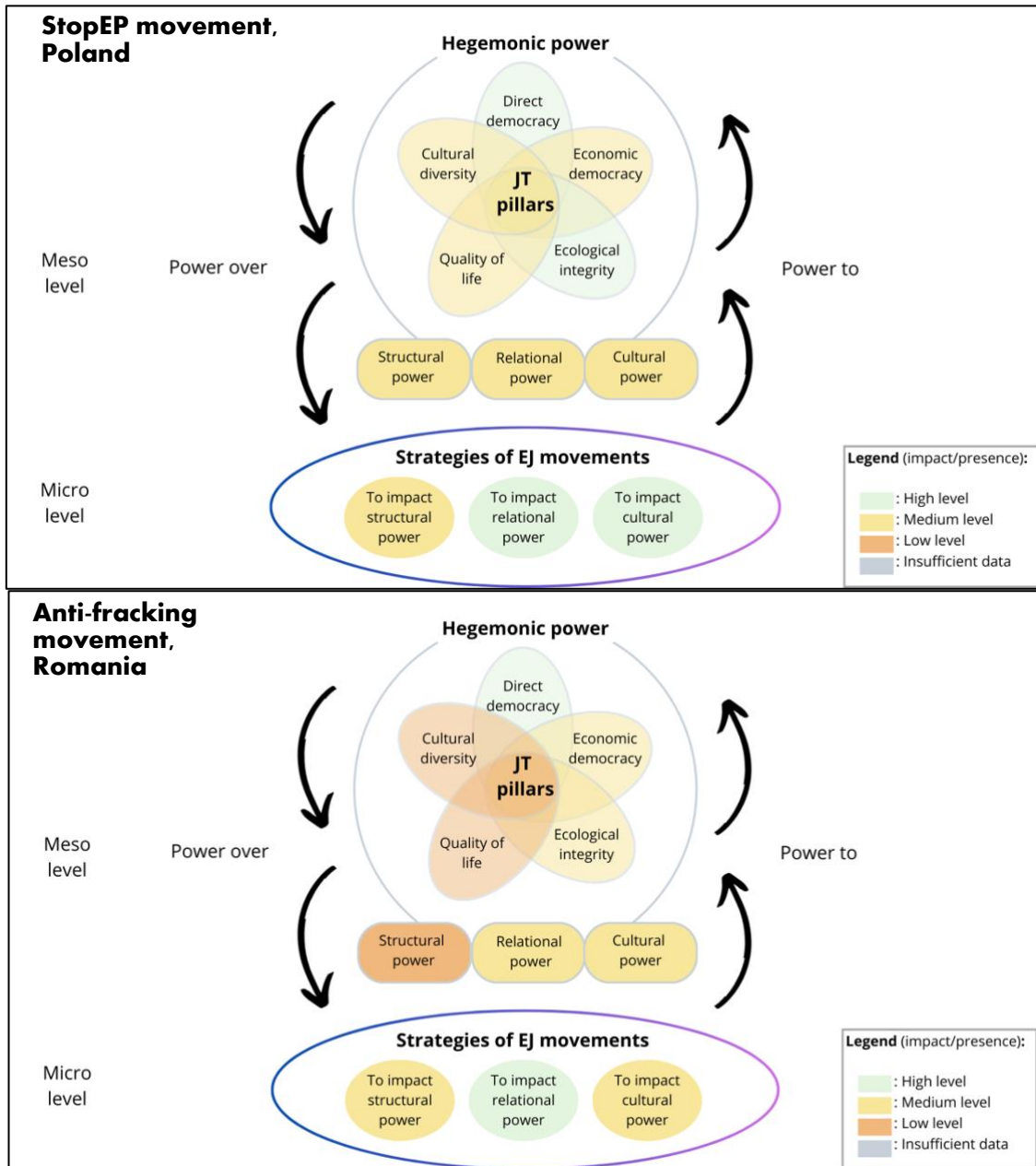

Figure 14. Comparison of just transformative impacts at the meso level induced by movement strategies at the micro level.

5.3. Macro level: normative orientation of just transformations

This chapter explains the normative orientation (directionality) of JT to challenge dominant paradigms embedded in the CEE energy sector and propose alternative objectives (Görg et al., 2017; Ramcilovic-Suominen, 2022; Sievers-Glotzbach & Tschersich, 2019; Tschersich et al., 2023). The macro level thus outlines the final component of JT: directionality. Orienting objectives towards configuring incumbent narratives, worldviews, and values is crucial to achieving long-term transformative impacts (Kothari et al., 2023; Tschersich et al., 2023). After

outlining the macro level, all the four dimensions of JT will be outlined (depth, scales, spheres, and directionality). Hence, first, the presence of incumbent paradigms will be outlined in the region's energy sector (the SES under investigation) followed by the alternatives that the movements articulated to challenge them. This will answer sub-question 4: *How do environmental justice movements in Central and Eastern Europe develop objectives that serve as alternatives to the region's social-ecological system?*

5.3.1. Incumbent paradigms in the Central and Eastern European energy sector

This section outlines the dominant narratives in CEE's energy sector (the SES under consideration), including Poland and Romania. This follows the three incumbent paradigms substantiated in the literature review and sketches their presence in the studied context. Paradigms are embedded in hegemonic power (structural, cultural, and relational power), and thus, the dimension of power in JT connects the macro level to the meso and micro levels (Rodríguez & Inturias, 2018; Sievers-Glotzbach & Tschersich, 2019).

Materialistic culture and growth. The 'materialistic culture and economic growth' paradigm is manifested in two important ways in society (Sievers-Glotzbach & Tschersich, 2019). At the individual level, it is assumed that increased consumption leads to happiness and well-being, while at the societal level, continuing economic growth is assumed to bring about greater social welfare (e.g., Escobar, 2015; Göpel, 2016, as cited in Sievers-Glotzbach & Tschersich, 2019). Historically, economic growth is prioritized in the CEE context over environmental protection (Costi, 2012). The energy sector is particularly dependent on the economy (P7). This tendency was also present in the data both at the individual and societal levels.

At the individual level, consumerism appeared as an important component of this paradigm (P7). Due to the prevalence of capitalism, it is embedded in society that social status (and thus, relational power) is achieved by higher consumption and purchase of goods. Therefore, the understanding of social well-being is highly linked to economic entitlements and the free market in the CEE context (cultural power), subordinating social and environmental considerations (P6; P7; D26; D27).

At the societal level, the materialistic culture and growth paradigm expressed in various ways. The most dominant narrative was the need for energy security and independence in both countries (cultural power). This concerns the geopolitical position of the region as they are heavily dependent on Russian energy resources for their security (D27). Thus, gaining independence from external powers would not only secure domestic demands in Romania and Poland (economic benefit), but also give political freedom and power (geopolitical benefit). This indicates the embeddedness of this paradigm in structural power as well.

In Poland, this reinforced the coal dependence narrative that has locked in the country for decades, reflected in the expression that coal is the Polish gold (P4). The establishment of a new coal power plant would have justified the status quo in the maintenance of coal mines and the employment of miners, a significant part of the Polish population (P1; P4; P6; D3). This requires a complex transition strategy to secure energy while shifting to renewables and other sources of employment for miners. The power plant thus posed a significant challenge for the country with 90 % of its electricity generated from coal at the time (D2). The energy sector was at a crossroad; either diverting resources towards renewables and a greener energy

mix or maintaining the status quo in coal energy (P1; P2; P3; P4; P7; D2; D3). Overall, a slow transition was evident in Poland at the regime level, while the rest of the EU was shifting to cleaner energy (P1; P7; D3; D26).

In the Romanian case, the narrative revolved around gas: gas is the provider of energy security and independence (P12; P13; D27; D28; D30; D32; D35; D40), with Romania producing enough gas to export to other countries (P16; D30; D31; D37). Therefore, this natural resource feeds into national pride (P16). The shale gas industry opened a new possibility for the country to boost economic growth, increase energy security, and ensure political independence from Russia (D27).

Control and autonomy of humans over nature. The paradigm of 'control and autonomy of humans over nature' encompasses the increasing disconnection of humans from nature reflected in the treatment of nature as a resource and service provider (Ramcilovic-Suominen, 2022; Sievers-Glotzbach & Tschersich, 2019). While societies have strong connections to nature in both countries (P5; P6; P14; P16; P17; and so on), the paradigm was prevalent in higher level management of natural resources (embedded in cultural and structural power). Coal production in Poland and shale gas extraction in Romania contribute to the commodification of nature and the neoliberalization and exploitation of natural resources in a deregulated system that favours multinational companies (P9; P11; D27). This unfairly and unequally distributes natural resources between humans, while disregarding environmental protection (relational power).

Expert knowledge and specialization. This paradigm entails the dominance of certain knowledge systems over other local or indigenous knowledge (Sievers-Glotzbach & Tschersich, 2019; Tschersich et al., 2023). This expressed at two levels in the CEE context: (1) the technocratic nature of sustainability solutions imported from Western knowledge and (2) the oppression of local knowledges by governmental institutions. Regarding the former, the technocratic nature of energy issues also prevails in the CEE context (P6; D27). In this vein, energy issues remain technological issues, where the choice is between technology-based fossil fuel or technology-based renewable energy sources (cultural power) (P6). With regards to the internal knowledge dynamics, a centralized investment of the economic sector characterizes the region (P3; P7; D26). Energy investments have long been centralized rather than equally dispersed and owned in the countries (relational and structural power). Consequently, the energy sector has become monopolized by major corporations. Importantly, both investments would have heavily impacted the countries' agricultural sectors as the sites were planned near local farmers' real estate. The same pattern of monopolization can be observed in the agricultural sector, with the creation of monocultures at the expense of local and organic farming (P16). This shows the complexity of the issue, bridging various economic sectors and requiring multifaceted solutions. In sum, the knowledge and interests of the state and major corporations are predominantly overrepresented over more local knowledges.

5.3.2. Development of environmental justice objectives as alternatives to the paradigms

In the following section of the chapter, the directionality of the movement-induced transformations is explained to achieve EJ objectives and provide alternatives to the incumbent paradigms summarized above. The EJ objectives build on the literature review: (1) relational and regenerative nature-human relations, (2) epistemic justice and the right to self-

determination, and (3) self-governance, assuring wider environmental sustainability and social justice. Therefore, their development is studied in the movements and the alternatives they capture to incumbent paradigms for JT. Below, the higher objectives of the StopEP and the anti-fracking movements are explained, reflecting the choice of their strategies at the micro level and desired impacts at the meso level.

Relational and regenerative nature-human relations. This environmental justice objective entails the move beyond the nature-human dichotomy and extractive relations towards harmony and co-living (Álvarez & Coolsaet, 2018; Biermann, 2020; Ramcilovic-Suominen, 2022; Rodríguez & Inturias, 2018; Rodríguez, 2020; Temper et al., 2018b). In both cases, local communities on the ground were highly concerned about environmental health and nature conservation (P3; P6; P14). Thus, environmental protection was an intrinsic motivation for the populations to mobilize.

In the Polish movement, efforts to protect the natural world manifested in diverse strategies on the ground such as capacity and coalition building and the inclusion of voices that promote nature-human harmony. These strategies also upscaled and achieved ecological integrity and resilience at the meso level. Hence, a frame was established to shift quality of life and social well-being from an economy-based narrative towards an environment-oriented understanding. Besides, economic production methods were also impacted by resisting and mobilizing against extractive projects towards coal phase-out and the reliance on greener and renewable energy sources. This anti-coal movement ended the era of new coal in the country and established a frame in society for a holistic transition away from fossil fuels (P3; P4; P6). This way, orienting the movement towards this objective, the movement could challenge two incumbent paradigms: control and autonomy of humans over nature and materialistic culture and growth.

In the Romanian anti-fracking movement, besides the goal to prevent shale gas fracking, underlying objectives were the halting of the commodification of nature and the refusal of neoliberal expansion (D27). The environmental activists were not interested in improving the shale gas industry, their goal was to ban it completely. The political scale of environmental protection covered transnational, national, and local demands against shale gas exploration. These demands were highly concerned with the increased exploitation of collective natural resources in a neoliberal environment. This created the strongest opposition to the post-communist privatization of natural resources in the country (P14; D27). However, these frames still portrayed the environment and its natural resources in a way that can be distributed among humans, and not valued intrinsically, which misaligns with the objective of relational nature-human relations (Ramcilovic-Suominen, 2022). Plus, while the shale gas industry was resisted against, the broader fossil fuel economy, especially natural gas, was not targeted (P16). Overall, while numerous environmental NGOs coalesced around the local community, their demands exhibited a more reformist approach to environmentalism, focused on the maximisation of collective and public benefits from natural resource management, instead of greater nature-human harmony (P9; D27). Therefore, while the movement challenged the paradigms of control and autonomy of humans over nature, it mostly concerned ownership of this control and autonomy.

Epistemic justice and the right to self-determination. This objective refers to the cultural and political recognition of and reliance on own norms, structures, and ways of

knowing the world (Álvarez & Coolsaet, 2018; Rodríguez, 2020). Importantly, in both cases, this objective mainly expressed in local community protection (P3; P6; P12; P13; P15; P16; D11; D27; D28).

The Polish movement relied on the locals' notion of resistance against a deep regional infrastructural change and for the protection of their values, rights, and knowledge (P3; P6; D11). Strategies on the ground were oriented towards this objective through legal action for the empowerment and representation of locals, local organizational strengthening, local culture revitalization, protection of local rights, amplification of local views, and diverse participatory engagement. Additionally, the provision of unbiased expert knowledge was also crucial to rule out greenwashing and biased information about the expected ecological and social risks of the power plant. This reliable information provided by NGOs empowered communities to continue voicing their concerns and objections against the plant. Furthermore, the promotion of the rule of law was also essential to ensure that each stakeholder (including the state and corporations) complies with administrative, environmental, and legal procedures (P2; P6; D7). The rule of law also challenges deregulated and centralized knowledge systems in the energy sector for a more dispersed and community-owned market (P3). Hence, this objective created an alternative to the incumbent paradigm of specialized knowledge and institutions for the reliance on local, expert, and lawful knowledge.

In the transformation process of the Romanian anti-fracking movement, this objective reflected a more conservative understanding of the protection of local communities and their environment and values to resist any external and large-scale project that would disturb their lives (D27). Importantly, this was a coagulation point in the movement and a common objective that united diverse actors and groups. For this, various strategies were employed at the micro level such as resistance action, local culture revitalization, local organization strengthening, protection of local rights and territorial self-demarcation. These strategies fostered greater local political agency and reliance on local knowledge and culture. Therefore, orienting strategies on the ground towards the objective of local community protection challenges the paradigm of specialized knowledge and institution that favours more resourceful and powerful actors such as corporations. Notably, the long-lasting resistance action against extractive development projects across the country showcases the values of local communities to cultivate their self-sufficient lifestyles which challenges another paradigm of materialistic culture and growth.

Self-governance. This environmental justice objective entails the reach beyond participation in existing political and legal structures towards local autonomy, governance, and institutional strengthening to avoid political assimilation and co-optation (Ramcilovic-Suominen, 2022; Rodríguez, 2020). While the democratisation of environmental governance was prominent in the directionality of both movements, it manifested differently in their demands and strategies.

In the StopEP movement, this objective was expressed in the energy commons narrative to promote prosumerism instead of consumerism, where the energy market is dispersed, community-owned, renewable, and participatory (P3; P4; P7; D11). Strategies at the micro level concerning this narrative involved resistance action, capacity and alliance building, institutional forms of action, local organization strengthening and united action and objectives. Overall, self-governance is important for ensuring a more decentralized and bottom-up governance of environmental issues (Ramcilovic-Suominen, 2022), which was also present in

the StopEP movement as an alternative to the paradigms of materialistic culture and growth and expert knowledge and specialization. While strategies were directed towards this objective, impacts at the meso level did not fully realize this, considering the prevailing centralized energy sector in the country.

The democratisation of environmental governance was also key in the anti-fracking movement (D27; D28). This involved demands such as greater transparency and public participation towards governance in decision-making processes (P17; D27). These were reflected in strategies of participating in existing institutions, resistance against the political system, sensitizing decision-makers, institutional forms of action, pressure on decision-making bodies, and territorial self-demarcation. Demands for public participation for governance went hand in hand with the goal of anti-corruption, expressed in the aim to sack the prime minister at the time (P9; P10; P16). However, these demands remained in a more reformist segment of environmentalism preventing wider democratisation, described as follows by one of the interviewees: *"My feeling is that in Romania the movement helped politicise an entire generation of young people. But very few were radicalised towards a coherent critique of capitalism. Most remained stuck in the anti-corruption discourse which is now widely recognised as a tool for shrinking the state, bringing in austerity policies for social services such as health and education, and promoting an ideology that claims that the market together with some rule of law can fix capitalism."* (P10, personal communication, February 26, 2024).

Overall, while all three objectives were present in the directionality of the EJ movements, demands and strategies to achieve them on the ground differed across reformist and radical JT visions. For the Polish StopEP movement, it was important to situate the objectives of the movement in a broader, long-term, and more systemic transformation directionality that couples all the EJ objectives (P3; P4; P6; D11). This ensured that the movement could contribute to longer-term and wider just transformative impacts even beyond the conflict resolution. By integrating the EJ objectives and coupling the initiative with broader ecological and legal movements, a frame could be established for JT beyond coal phase-out, through shift away from fossil fuels towards energy commons and the protection of local communities and the environment. On the other hand, a more reformist environmentalism characterizes the approach of the anti-fracking movement. The movement outlined more short-term objectives that provided solutions to the conflict, however, was not coupled with other related and broader problems for the movement to have just transformative impacts beyond the conflict resolution.

6. Discussion

This thesis investigated just transformations (JT) induced by environmental justice (EJ) movements in the Central and Eastern European (CEE) context. The discussion is manifold: it summarizes the findings and answers sub-questions 1-5, provides theoretical and practical reflections, and delineates strengths and limitations of the thesis while providing directions for future research.

6.1. Revision and contextualization of the just transformations framework

The empirical confrontation of the analytical framework revealed valuable insights into contextualizing our understanding of JT in the CEE context. Numerous indicators were revealed by the data to assist future conceptualization and operationalization, answering sub-question 1.

The revision of the framework is provided for the micro and meso levels as these levels operationalize the whole JT process including its normative orientation at the macro level. The below table explains the legends utilized for the expanded analytical framework:

TABLE 22. LEGEND OF INDICATORS IN THE EXPANDED ANALYTICAL FRAMEWORK.

	Indicator derived from literature.
	Revealed indicator from empirical data.
	Revealed counter-effect indicator from empirical data.
*P	Revealed indicator based on the Polish case.
*R	Revealed indicator based on the Romanian case.
*	Revealed indicator based on both cases.

Regarding EJ movement strategies across the cases, the indicators shown in Table 23 emerged in the data, either supporting theoretically derived insights or showing novel empirically revealed strategies. Empirically derived indicators were particularly relevant for contextualizing strategies that target structural and cultural power in CEE. This expands the repertoire of strategies found in predominantly decolonial threads of literature (Rodríguez & Inturias, 2018). The transformative character of strategies is further discussed in section 6.2.1.

MICRO LEVEL -Transformative character of EJ movement strategies		
Strategies	**Strategies to impact structural power**	**Strategies to impact relational power**	**Strategies to impact cultural power**
Indicators	• Legal action such as strategic litigation and challenging administrative procedures* • Institutional forms of mobilization such as lobbying, public hearings, campaigns, testimonies, petitioning and advocacy • Resistance action: such as protest, demonstrations, marches, denunciations, shaming, strikes, or more violent tactics such as sabotage. • Financial action such as funding prevention and shareholder activism*P • Participation in existing structures: local government, assemblies, committees	• Local organization strengthening • Producing and disseminating new knowledge • Capacity and alliance building on conflict • Sensitize decision-makers • Diverse participatory engagement • The creation of physical, social, and virtual spaces for sharing experiences	Making of alternatives: • Campaigning* • Collectively building alternative visions • Reconstruction of local history • Local knowledge revitalization • Exchange of diverse visions and experiences*P • Amplification of local views*P • Adopting culture of bottom-up organization*R Unmaking of dominant paradigms: • Territorial self-demarcation • Resisting and challenging dominant knowledge • Protection of local rights*

Regarding the meso level, novel indicators were found empirically for each JT pillar (see Table 24). For quality of life and social well-being, resistance to change proved to be a key indicator of JT in the CEE context, in line with resistance approaches to transformations in the literature (Angel, 2016; Feola et al., 2021; Hollander & Einwohner, 2004; Temper et al., 2018b). Furthermore, the importance of embedding impacts in wider social-ecological issues and movements emerged in numerous pillars, showcasing the multifaceted nature of underlying conflicts and the solutions needed to overcome them. Importantly, the Romanian case revealed various counter-effects of transformation processes, with cultural diversity and knowledge democracy being affected the most. Hence, the strategies at the micro level require further investigation to unveil their just transformative character and prevent potential negative effects that could counter-act the realization of a fully just transformation. An overview of the revised framework for the meso level is provided in the table below:

TABLE 24. CONTEXTUALIZED AND EXPANDED ANALYTICAL FRAMEWORK OF THE MESO LEVEL.

MESO LEVEL – *Just transformative impact by dimension of power*			
	Forms of hegemonic power		
Just transformation pillar	**Structural power (visible power)**	**Relational power (hidden power)**	**Cultural power (invisible power)**
Quality of life and social well-being	• Integrative governance • Fair compensation and mitigation mechanisms for environmental and social harms • Equity in distribution of environmental costs and benefits over time, space and between groups • Resistance to change for social-well-being*P	• Emergence of networks that safeguard social well-being. • Equity between communities and individuals in socio-economic and political entitlements, benefits, rights, and responsibilities • Communal and nature harmony	• Social consensus about achieving physical, social, cultural, and spiritual well-being without materialistic culture and growth • Connecting impact to wider societal issues*P
Ecological integrity and resilience	• Integrative governance • Conservation and protection of the natural world (ecosystems, species, functions, cycles) • Strengthened compliance with environmental regulations*P	• Emergence of networks that safeguard environmental protection and restoration. • Nature-human harmony • Capacity of local actors to monitor environmental impacts	• Respect for ecological limits at various scales (local, regional, national, global). • Mainstreaming and raising awareness of environmental matters • Connecting impact to wider social-ecological movements*P • Societal environmental consciousness*R
Economic democracy	• Strengthening of communal principles and systems of alternative production, distribution, market and/or technology • Legal recognition of local economic rights*P • Integrative governance • *Counter-effect*: Lack of legal strengthening of non-extractive methods*R	• Increased local control of the means of production over commons • Equity in the access and use of natural resources • Emergence of networks that safeguard local economies • Increased dialogue with locals*R	• Mainstreaming and recognition of alternative economic production methods • Deepened resistance against extractive methods of production • Fostering alternative economic production methods*R
Direct and delegated democracy	• Local institutional strengthening • Inclusivity • Participatory • Transparency and accountability • Increased local political agency*R • *Counter-effect:* Political hijacking of the movement*R • *Counter-effect:* Short-term political impact*R	• Strengthening of collective action • Strengthened civil society • Connecting vertically and horizontally • Connecting impact with other initiatives*R	• Transferring or replicating the initiative in a similar context. • Deepening resistance, preventing co-optation by the regime. • Sense of local political agency*P • Positive perception of bottom-up organizing* • Increased demands for direct democracy*R
Cultural diversity and knowledge democracy	• Inclusive governance • Pluralist governance	• Equal access to the generation, transmission, and use of knowledge • Respect of and reliance on plural	• Mainstreaming and recognition of counter-narratives • Acknowledge local rights, culture, practices, and

		ways of living, ideas, and worldviews. • *Counter-effect:* Polarization of civil society*ᴿ*	knowledge in public discourse • Collective awareness of the underlying injustice • Diverse representation of voices • *Counter-effect:* Heightened nationalistic views*ᴿ* • *Counter-effect:* Cultural exclusion*ᴿ* • *Counter-effect:* Standardization of mobilizing culture*ᴿ*

6.2. Just transformations in Central and Eastern Europe

This thesis found that EJ movements are transformative when they challenge incumbent paradigms in the energy system and provide EJ objectives as alternatives in their organizational structure and impacts (Tschersich et al., 2023). Importantly, these paradigms are embedded in hegemonic power types (structural, cultural, and relational power) that ensure their stability in the SES (Rodríguez & Inturias, 2018; Sievers-Glotzbach & Tschersich, 2019). Therefore, power connects strategies on the ground with higher level objectives to unmake incumbent paradigms. This way, power dimensions and paradigms acted as deep levers of systemic change processes as demonstrated by the findings of this thesis. Thus, through the configuration of power and orientation towards higher-level EJ objectives, movements can foster just transformative impacts across wider scales. These transformation processes in the CEE context are discussed below.

6.2.1. Transformative character of environmental justice movements

Power is a deep leverage point linking different levels of transformation processes. Thus, EJ movement strategies have a significant transformative character when they target three hegemonic power types (Rodríguez & Inturias, 2018). This section explains the movement strategies' transformative character at the micro level, addressing sub-question 2.

The findings show that while targeting all hegemonic power types is essential for broader impacts at the meso level, focusing on relational and cultural power is particularly relevant in the CEE context. Notably, relational power was the most widely utilized by both movements, which contrasts with the common focus on structural power in other contexts (I. Rodriguez, January 16, 2024; Kothari et al., 2023). Various key strategies were employed extensively to target relational power, including capacity and alliance building, local organizational strengthening, and producing and disseminating knowledge. These strategies aimed at local community protection, aligning with the objective of epistemic justice and the right to self-determination at the macro level. Thus, they challenged the incumbent paradigm of expert knowledge and specialization favouring extractive modes of energy production.

Furthermore, strategies that target cultural power were highly present in both movements. These strategies provided a platform for the revitalization and representation of diverse voices and cultures, including local communities, experts, and civil society, which are generally the less powerful voices in society. Creating social consensus around new meanings and narratives was crucial for promoting alternatives to incumbent paradigms regarding nature and economic growth in the countries' energy sectors. In both cases, while there were diverse

visions and pathways, participants worked towards collective higher-level objectives. However, significant differences emerged. The Polish StopEP movement celebrated the diversity of visions and enabled exchanges between participants, whereas the Romanian anti-fracking movement was more ideologically segregated, resulting in parallel movements within the broader movement. Hence, knowledge exchange is a key strategy for targeting cultural power and fostering more positive impacts. Overall, targeting relational and cultural power has the greatest transformative character in the CEE context, marking a unique contextual difference from previous research on the topic (Kothari et al., 2023).

While strategies targeting structural power were present in both cases, they took different forms. In the Polish case, legal action was employed extensively, whereas the anti-fracking movement exhibited a high level of resistance action. The choice of strategies and their transformative character were greatly influenced by top-down facilitating or constraining factors. In Poland, various European and national instruments facilitated NGOs' ability to challenge environmental and procedural decisions in court. Conversely, in Romania, drastic national measures were taken to repress public resistance. These findings highlight the influence of external factors on strategies to impact structural power, reflecting the dominance of the expert knowledge and specialization paradigm in the CEE context. Hence, leveraging windows of opportunity in top-down processes, as demonstrated by Polish legal actions, can be key to effectively targeting structural power. Complementing bottom-up strategies with top-down processes can therefore enhance the transformative character of movement strategies.

6.2.2. Just transformative impact of environmental justice movements

This section discusses the just transformative impacts of the EJ movements in terms of depth, spheres, and scales of change at the meso level. It outlines how and to what extent EJ movements can foster just transformative impacts in the CEE context, providing an answer to sub-question 3.

Depth of change through fundamental impacts on hegemonic power types. The power dimension is central in transformation processes as it connects strategies at the micro level with impacts at the meso level, as substantiated in the analytical framework. This explains the causal mechanisms in bottom-up transformation processes. As shown in Figure 14, most hegemonic power types were impacted to a medium extent, with relational and cultural power being the most affected in both cases. However, structural power impacts showed greater variance. Polish legal actions achieved structural changes, such as compliance with and reinforcement of procedural and environmental laws. In contrast, resistance action in the Romanian case primarily resulted in cultural impacts, such as resistance against the incumbent paradigms of expert knowledge and exploitation of nature for human benefits. Importantly, top-down processes not only influence on-the-ground strategies but also play a key role in scaling them up to the meso level. For instance, the StopEP movement benefited from EU and national instruments, facilitating the end of new coal projects during a broader international and national regime shift towards coal phase-out. Whereas the shale gas industry posed a polycrisis for Romania, with unconventional gas production being highly controversial and polarized both nationally and globally. Overall, for full transformation processes, all three power types need to be configured (Rodríguez & Inturias, 2018), which was only achieved in the Polish case to a medium extent. The two cases convey an important message for the CEE

context: configuring relational and cultural power is crucial for JT and can be achieved even amidst drastic top-down constraints.

Spheres of change in just transformation pillars. Power is a cross-cutting theme in transformations (Burch et al., 2019; Lulla et al., 2023; Temper et al., 2018b), closely linked with the JT pillars that operationalize macro-level EJ objectives. The pillar of direct and delegated democracy for bottom-up environmental governance was most impacted by both movements, fostering a strong and collective civil society with heightened environmental awareness. At their core lied the protection and empowerment of local communities. However, while the StopEP movement successfully amplified and mainstreamed local voices into broader knowledge exchange and mutual learning, certain groups in the anti-fracking movement instrumentalized local voices for political ambitions. Hence, the Polish campaign achieved more positive impacts on the interlinked pillar of cultural diversity and knowledge democracy, while the anti-shale gas campaign led to more negative outcomes including the radicalization and polarization of civil society. These counter-effects highlight the need for greater attention in the CEE context.

Impacts on ecological integrity and economic democracy were closely interconnected. Both movements enhanced environmental respect and consciousness, uniting actors for environmental and local economic protection. This common ground of environmental and economy-oriented voices deepened resistance against extractive and polluting projects, conserving nature and opposing unnecessary economic growth. In both cases, the pillar of quality of life and social well-being was the least considered, with most impacts stemming from changes in ecological integrity and economic democracy, rather than being viewed as a separate dimension. Despite differing trajectories, both movements aimed to preserve the local environment, well-being, and agricultural land from major industrial projects. This overlap between pillars supports the ATF and CTF frameworks, emphasizing the interconnectedness of JT dimensions (Lulla et al., 2023).

Overall, the StopEP movement achieved medium to high impacts across all spheres, fostering more integrated just transformative impacts. In contrast, the anti-fracking movement had mixed results, with high positive impacts in some pillars and negative or no impacts in others. Neither movement achieved full JT in each pillar. This highlights the need for more integrated efforts to improve social, ecological, cultural, and economic dimensions of JT simultaneously, as impacts on one pillar can positively influence others (Kothari et al., 2023; Lulla et al., 2023; Temper et al., 2018b).

Scales of change. Both movements upscaled from micro to meso levels, fostering changes across temporal, societal, and spatial scales. Through impacts on hegemonic power and JT pillars, societal dynamics were reconfigured in both cases. In the Polish case, the movement integrated with broader ecological, legal, and financial initiatives and created networks of NGOs and civil society. This restructured societal relations and narratives related to environmental protection and the energy market, leading to the realization of coal phase-out and the option of a decentralized, democratic, and community-owned energy market. In the Romanian case, the societal transformation was more mixed. While environmental consciousness and public participation in governance were reinforced, negative changes induced the radicalization of civil society. Nonetheless, the anti-fracking movement successfully expanded spatially, preventing shale gas fracking nationwide. The Polish

movement remained more concentrated in the affected region, with limited transfer to other contexts. Importantly, the spatial scale was highly affected by the nature of the conflict: Romania's numerous shale gas sites scattered the conflict nationwide, while Poland's conflict was more clear-cut and localized. Regarding temporal scales, only the Polish movement achieved long-term impact by embedding itself in broader movements, unlike the anti-fracking movement which could not benefit from the maturity of other campaigns.

In sum, neither movement fulfilled all aspects of just transformative impacts. However, with the use of this analytical framework, important implications could be drawn for each dimension. Overall, the StopEP movement had a higher just transformative impact compared to the anti-fracking movement, which also fostered various negative changes.

6.2.3. Normative orientation of environmental justice movements

Long-term impacts are achieved when narratives, worldviews and values are transformed (Kothari et al., 2023; Ramcilovic-Suominen, 2022; Sievers-Glotzbach & Tschersich, 2019; Tschersich et al., 2023). The normative orientation of transformation processes directs strategies on the ground towards higher-level EJ objectives, challenging incumbent paradigms. Analysing this dimension was crucial to understanding movement and transformation dynamics in the CEE context, providing insights to sub-question 4.

The central objectives of the movements were to prevent large-scale development projects and resolve conflicts that could harm the environment, local lives, economic production, and culture. However, JT require deeper and longer-term objectives which were derived from decolonial and degrowth theories (Álvarez & Coolsaet, 2018; Biermann, 2020; Ramcilovic-Suominen, 2022; Rodríguez & Inturias, 2018; Rodríguez, 2020; Temper et al., 2018b). These objectives proved to be highly useful for sketching the normative orientation of transformations in the CEE context and identifying their shortcomings.

Both movements aimed for greater respect and harmony with nature in their strategies, but this was not fully realized in their transformative impacts. The technological nature of energy projects, including alternatives such as renewables, hindered the development of regenerative and relational nature-human relations. Additionally, natural resource management continued to treat nature as a resource for humans, albeit more equitably distributed. Nonetheless, the movements succeeded in framing environmental matters as more important than economic growth, which has historically dominated public discourse in the region (Costi, 2012). The objective of epistemic justice and the right to self-determination was prominent in the orientation of both movements, reflected in their goal to protect the values, views and rights of local communities. Efforts for self-governance were also highly present in the movement strategies. However, the Polish movement had more radical demand, advocating for energy commons and a decentralized energy market. In contrast, the anti-fracking movement had more reformist demands such as anti-corruption and participation in environmental governance, rather than greater autonomy. Interestingly, although the anti-fracking movement's strategies were more radical – such as territorial self-demarcation, and pressure on political bodies – they were linked to more reformist higher-level objectives. This mismatch might have contributed to the derailment of the movement towards the extremes of civil society.

Although the EJ objectives were not entirely aligned with the theoretical ideals, the Polish movement effectively synthesized its goals to challenge incumbent paradigms and

pursue a more systemic transformation beyond mere conflict resolution. This was not realized in the anti-fracking movement as higher-level objectives were more short-term and reformist. Hence, the directionality of movements emerged as a crucial component of JT in the CEE context, as evidenced in the literature (Kothari et al., 2023; Ramcilovic-Suominen, 2022; Sievers-Glotzbach & Tschersich, 2019; Tschersich et al., 2023).

6.3. Lessons for just transformations in Central and Eastern Europe

Here, key insights are derived from the research to inform bottom-up movements and JT processes in the CEE context and answer sub-question 5.

Part of broader change processes. Transformation processes are complex and multi-dimensional. They represent the convergence of broader bottom-up and top-down processes. While they can foster just transformative impacts, demarcating them from other processes remains challenging. Therefore, they should be viewed as seeds of change that can contribute to larger-scale transformations, as demonstrated by the StopEP movement. It is unlikely for a single movement to achieve a fully just transformation across all scales. However, studying these movements can enable us to better understand their contribution to certain dimensions and their potential to complement other transformation efforts towards systemic shifts. The importance of coupling movements with other initiatives and broader societal problems is indeed a key finding of this research. A collection of these seeds of change can challenge hegemonic power types for long-term just transformations. Importantly, creating synergies between grassroots movements and institutional initiatives can enhance the cumulative impact on systemic transformation in CEE.

Positive change by avoiding futures. While most transformation processes are known for planning and designing for desired futures (Bennett et al., 2019), avoidance of negative futures can also induce such processes. Resisting negative futures can serve as a fertile ground for collectively imagining alternatives. The prospect of a harmful project can also unite broader societal groups for collective action and provide a base from which they can build. Therefore, the conflict serves as a catalyser for transformations. This revealed phenomenon resonates with research on environmental movements in the CEE context, particularly in Romania, where place-based struggles spurred the creation of alternative solutions (Velicu & Kaïka, 2017). Hence, recognizing the potential of conflict and resistance in fostering transformative change can leverage these momentums towards just transformations.

Transformations can also be negative. Transformations research is often concerned with the achievement of positive societal change (Kothari et al., 2023; Ramcilovic-Suominen, 2022; Sievers-Glotzbach & Tschersich, 2019; Tschersich et al., 2023). This research, however, demonstrated that transformations can also take more negative and unjust forms as in the cultural impact of the anti-fracking movement. While this finding could suggest limitations in applying the analytical framework to the CEE context, it underscores the importance of anticipating negative outcomes when planning strategies on the ground. The indicators revealed in this research for targeting hegemonic power types delineate strategies with a transformative character within this specific context. Indicators in line with decolonial research on EJ movements (Rodríguez & Inturias, 2018), such as territorial self-demarcation and local culture revitalization resulted in more radicalized and polarized societal change in the CEE

context, calling for caution. Integrating revitalized knowledge into a wider exchange and mutual learning, as in the StopEP movement, could mitigate such negative consequences. For this, further research on transformative and effective strategies in the CEE context is warranted. Nonetheless, the potential of negative impacts requires proactive assessment and mechanisms in movement strategies to steer bottom-up processes towards just outcomes.

Need for an integrative approach. In line with the analytical framework of the research, the findings further highlight the need for an integrative approach to just transformations. The dimensions of just transformations are intricately interconnected, with changes in one dimension resulting in corresponding changes in others (Lulla et al., 2023). Therefore, effective planning for just transformations need to address the dimensions in a holistic and balanced manner, with each dimension receiving the same weight. As the findings showed, certain pillars such as direct democracy were significantly impacted, while others like quality of life and social well-being were neglected, highlighting the need for greater emphasis in the CEE context. Besides, pillars are intertwined with hegemonic power, which also requires coordination for planning. Thus, an integrated approach not only acknowledges these interdependencies but also facilitates comprehensive strategies that can navigate and address complex societal challenges.

The place-based aspect of transformations. The two case studies illsutrate that resistance often centers around localized struggles, highlighting that communities are more easily mobilized when confronted with tangible and immediate threats. The abstract nature of the Polish movement against a non-existent power plant and other Romanian projects for gas extraction far out in the Black Sea prevented them from gathering widespread opposition. Hence, local communities feel more united and empowered to resist extractive projects in their immediate surroundings. Although maintaining a focus on local contexts is crucial for fostering unity and empowerment, it is equally essential to integrate place-based struggles into broader societal frameworks. This approach can mitigate the risk of extreme or negative outcomes, as witnessed in Romania, where conservatism and nationalism were amplified by perceived threats to local identities and agricultural practices. Thus, adopting strategies that couple local empowerment with broader societal engagement can yield holistic approaches to address systemic challenges.

The role of underlying conflicts. The research findings build on conflict transformation theory, highlighting the potential of conflicts in inducing transformation processes (Lulla et al., 2023). The underlying SECs greatly shape the use and choice of strategies adopted by EJ movements (Martínez-Alier et al., 2016), which was also the case in this research. The conflict from the planned coal power plant in Poland was more clear-cut. Whereas the Romanian conflict was dispersed around the whole country, originating from shale gas exploration but expanding to natural gas extraction conflicts. This created a complex crisis with various locations and communities affected. Notably, movements should build on existing conflicts to empower affected local communities, instead of reinventing problems and finding a societal base for that. Besides, conflicts also provide a momentum for movements towards resolution. However, once conflicts settle, movements risk losing momentum unless they aim towards broader objectives beyond immediate resolution. Thus, outlining a normative orientation that

aligns with goals beyond conflict resolution can sustain momentum towards just transformations. For this, integrating the frameworks of CTF (Lulla et al., 2023) and SET (Sievers-Glotzbach & Tschersich, 2019; Tschersich et al., 2023) provided key insights into movements-induced transformation in the CEE context. Accordingly, configuring power (depth of change) and paradigms (directionality) acted as central levers of change in the region, supporting the analytical background of the research. The proposed framework below expands the initial conceptual framework to better illustrate the role of conflict in just transformations. This entails its role in shaping EJ movement strategies to target and impact on hegemonic power and the need to link the objective of conflict resolution to higher-level alternatives to challenge incumbent paradigms that stabilize conflict-prone environments.
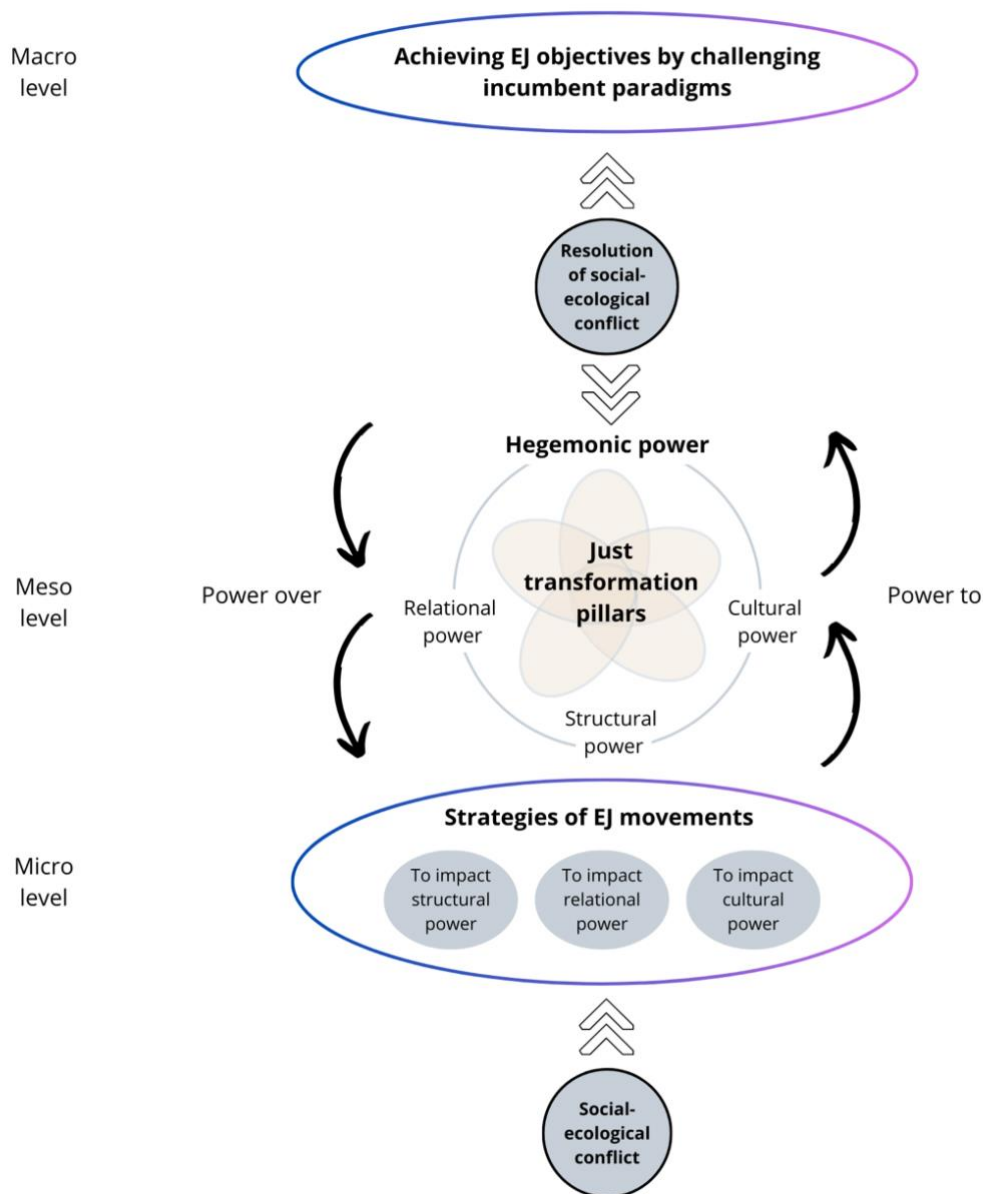

Figure 15. The expanded just transformations framework based on empirical inisghts.

6.4. Limitations and directions for future research

While this thesis offers unique insights, it also has notable limitations. Stemming from the exploratory nature of the study, the reliability and validity of the thesis could be lowered.

Regarding validity, which concerns the accurate representation of findings in real life, there are various limitations. The context and the topic are largely understudied, and thus, an exploratory and in-depth study was needed. This also means, however, that these two cases cannot be generalized to the whole region. Further research applying the framework to other movements in CEE could provide a more comprehensive understanding of JT. The analytical framework delineates a complex approach to studying transformation processes and future studies could test its adequate applicability to the context. Moreover, qualitative studies are less generalizable which also applies to this thesis. To mitigate this, an evaluation measure was provided to assist this thesis and guide future research.

The reliability of the study, reflecting the consistency of the findings, also has its strengths and weaknesses. Triangulation of data types and sources was employed to enhance reliability, but the quality of the data remains a concern. Language barriers posed significant challenges, with most interviews and documents in English, potentially omitting critical information in national languages and biasing the data towards international audiences. For the Polish case, more official documents were acquired such as impact assessments and court rulings, whereas the Romanian case relied more on interview data due to limited access to official documents. Besides, language barriers also hindered the inclusion of local voices, crucial for understanding the pillars of quality of life and social well-being. Only locals involved in NGOs could participate, highlighting the need for more situated research and fieldwork to gather comprehensive and reliable data. Additionally, the retrospective nature of the interviewees' insights, given that the movements ended several years ago, could bias the findings towards personal reflections and lessons learned. Whereas ongoing movements might not yield such perspectives. This aspect may skew the understanding of transformation impacts.

Finally, due to the exploratory nature of the research, the indicators for the cross-dimensions of hegemonic power types and JT pillars were treated as examples rather than fixed measures. Therefore, no set indicators were used for the operationalization of the research, it was mostly based on the combination of qualitative (nature of impact) and quantitative assessment (empirical counts) by the researcher. The need for further research is thus crucial to refine indicators and provide a clear operationalization and evaluation criteria for the analytical framework.

7. Conclusion

This research aimed to provide a deeper and more contextual understanding of movement-induced just transformations in the Central and Eastern European context. The study addressed the following overarching research question: *In what ways do environmental justice movements in Central and Eastern Europe contribute to just transformations when addressing social-ecological conflicts, and how can they enrich our understanding of sustainability transformations in this context?*

The findings reveal various key insights. Environmental justice movements build on existing social-ecological conflicts, coalescing around the affected local communities, involving civil society actors and organizations, and reaching broader publics. The expanded framework (Figure 15) highlights the importance and nature of underlying conflicts to induce resistance and mobilization on the ground and foster change processes at broader scales. Importantly, this study expanded on power-centred approaches such as the frameworks of social-ecological transformation (Sievers-Glotzbach & Tschersich, 2019; Tschersich et al., 2023) and conflict transformation (Lulla et al., 2023). Thus, the strategies of environmental justice movements target hegemonic power types simultaneously to upscale and foster deep changes. The research showed that strategies to configure relational power, such as capacity and alliance building, have a particularly high transformative character and impact in the Central and Eastern European context. Impacting on cultural power took different shapes across the two movements. However, when mutual learning and exchange between diverse voices, knowledges, and perspectives were enabled, powerful alternatives like those seen in the StopEP movement emerged to challenge dominant narratives within the social-ecological system. Structural power impacts were more significant in Poland through legal actions, but overall, impacts in both cases were linked to top-down measures at the EU and national levels, limiting or enabling grassroots action scalability. Nevertheless, the configuration of all hegemonic power types is needed for movements to induce multi-dimensional and intersectional just transformative impacts. In both cases, direct and delegated democracy was impacted the most and quality of life and social well-being were the least considered, highlighting the need for greater attention. The movements also contributed to ecological integrity and economic democracy to some extent, however, impacts on cultural diversity varied greatly.

A vital element of just transformations was the normative orientation of environmental justice movement strategies. Higher-level objectives beyond conflict resolution guided movements towards long-term transformations and provided alternatives to incumbent paradigms in the social-ecological system. This was clearly reflected in the normative orientation of the StopEP movement to contribute to a broader and more systemic transformation by integrating various societal problems and their alternatives. On the contrary, the anti-fracking movements' objectives could not reach far beyond the conflict resolution which resulted in a shorter-term legacy. Notably, these bottom-up movements were part of broader change processes which they could either successfully (StopEP movement to wider anti-coal, ecological and legal movements) or unsuccessfully couple with (anti-fracking movement to other national environmental movements).

Overall, this study addressed scientific and societal knowledge gaps regarding just transformations in Central and Eastern Europe. Considering the scientific knowledge gap, a context-specific just transformations framework was developed. Based on theoretical and empirical findings, an extensive and detailed analytical framework was contextualized and expanded in this thesis. The decolonial and degrowth theories contributed to unique insights and shed light on the negative impacts of environmental justice movements evoked in the Romanian context. The potential of negative impacts therefore requires greater consideration within the Central and Eastern European context. Hence, future research is needed to test the applicability of the developed framework and make necessary adjustments to fit the region better.

The findings of this research also filled societal knowledge gaps to assist policymakers, practitioners, activists, and local communities when designing and implementing strategies on the ground for environmental justice and sustainability transformations in the region. Although the decolonial and degrowth environmental justice objectives were not fully present, elements of (1) regenerative and relational human-nature relations and (2) epistemic justice and the right to self-determination were highly relevant. Findings revealed, however, that orienting movements towards (3) self-governance can elicit more extreme actions on the ground and lead to negative impacts. Further research to better understand environmental justice in the Central and Eastern European context is thus crucial. Regarding transformation processes, by focusing on the configuration of all types of hegemonic power and integrating higher-level normative objectives, environmental justice movements can more effectively contribute to long-term, systemic transformations. Findings also call for an integrative approach when planning for transformations to link and tackle all dimensions simultaneously. Investigation of further cases could delineate the most transformative strategies and induced impacts. It would also be essential to extend the scope of movements that build on more diverse conflicts as the cases presented here are solely linked to the energy sector. Ultimately, embracing the power of avoiding detrimental futures is essential for creating alternative pathways towards sustainable and equitable societies.

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Appendix

Appendix A: Expert interviews

I. List of experts who participated in the data validation interviews

Interviewee	Expert background	Date of the interview
Iokine Rodriguez Fernandez	Professor in Environment and Development with a great knowledge about decolonial theory and environmental conflict management and transformation	16/01/2024
James Patterson	Professor at Copernicus Institute of Sustainable Development. Expertise in political science and environmental studies with research areas of multi-level environmental governance and transformations towards sustainability	23/01/2024
Julia Tschersich	Assistant professor of transformative governance and democracy at the Copernicus Institute of Sustainable Development. Expertise in social-ecological transformations, justice and democracy.	06/02/2024
Anonymous	Expertise in social-ecological change for sustainability primarily in Europe and Latin America.	30/01/2024
Anonymous	Expertise in climate justice and social-ecological transformations in CEE.	02/02/2024

II. Expert Interview Guide Example (semi-structured)

Introduction

Thank you so much for your time and willingness to help me with my thesis project, I am beyond grateful for every insight you can give me. To introduce myself, my name is Greta Kalman and I'm a second-year master student in Sustainable Development at Utrecht University, with a specialization in Earth System Governance. To finalize my studies, I am currently completing my thesis which focuses on the role of environmental justice movements in fostering just transformations.

The studied context is a rather underexplored region, the European semi-periphery. Importantly, various Central and Eastern European countries are part of this region which is also the focus of this research. For this, I am analysing movements in Poland, Romania and (Hungary) relating to just energy transitions.

Overall, the goal of this expert interview is to further develop and validate the analytical framework of my research project. The analytical framework aims to explain the diverse strategies environmental justice movements employ and their unique contribution to just

transformations in the studied context. Your insights will be crucial in (1) outlining a comprehensive overview of the notion and conceptualization of just transformations, (2) distilling the role of grassroots initiatives in such transformations and (3) exploring the implications of contextual factors.

I will start the recording of the interview now and I will take notes during the interview if that is okay with you.

- The interview will take approximately 1 hour.
- Your responses are confidential, and your contribution will be either anonymous or acknowledged as you wish. You can let me know about your preference either now or at the end of the interview.
- You can stop or withdraw from the study anytime without giving a reason to do so.
- Please feel free to skip questions you do not feel comfortable answering.

Do you have any questions about the topic and/or the procedure? Then I suggest we begin and please don't hesitate to ask any questions you might have during the interview.

Topic 1: Just transformations

In my research, I focus on just transformations which place justice considerations at the heart of transformations. So, the first part of the interview will cover this very dynamic concept.

1. From your perspective, what defines justice in sustainability transformations?
   a. What key principles or processes contribute to ensuring justice in sustainability transformations? Probing questions: e.g., in terms of rights, access to resources, distribution of environmental costs, (self-)governance processes, human-nature relationships, etc.
2. Which conceptual approach(es) to transformations do you think includes justice considerations the most? Why?
3. In your view, how can the different conceptual approaches complement each other to facilitate more just transformations towards sustainability?
4. From your perspective, does the achievement of justice require more radical and systemic approaches to sustainability transformation?
5. What are some of the challenges associated with just transformations?

Topic 2: The role of environmental justice movements

6. How crucial do you believe grassroots initiatives are (especially movements) in fostering transformations towards sustainability?
7. In what unique way do environmental justice movements contribute to sustainability transformations? How do these movements differ from other grassroots initiatives?
   a. How do they challenge dominant paradigms and worldviews?
   b. What alternatives to capitalist modernity have you observed emerging?
8. What strategies have you observed social movements employing that successfully contributed to societal transformations?

       c. From your experience, which strategies have the biggest transformative impact?

       d. What are the most important contextual factors that can impact which strategies are employed by movements (opportunities, challenges, etc.)?

9. How do movements relate to and define environmental justice in transformation efforts? Is the practical notion different from the theoretical notion?

Topic 3: Implications of context for just transformations

10. How does context (geographic, political, economic, cultural) influence the definition of and approach to just transformations?

The studied context is the European semi-periphery which comprises countries that are in an intermediate position in the core-periphery hierarchy (Martin et al., 1998). They are geographically, economically, and politically positioned between core and periphery regions. This covers various CEE countries that underwent complex transitions from socialism to capitalism including shifts to constitutional democracy, market economy, and the organization of civil society (Baker & Jehlička, 1998).

11. From your perspective, could processes of unmaking and making of capitalist modernity in the 'semi-periphery' differ from 'core' and 'periphery' regions? How?
12. What unique challenges and opportunities could there be in such semi-peripheral societies regarding justice and sustainability transformations?

Closing questions

13. Do you have any recommendations for further reading or additional experts in the field who could provide valuable perspectives and insights on this topic?
14. Do you have any final remarks in regards to this interview, the procedure or the topic?
15. Would you like to remain anonymous?

Appendix B: Data collection interview guide (semi-structured)

Introduction

Thank you so much for your time and willingness to participate in this interview, I am beyond grateful for every insight you can give me. To introduce myself, my name is Greta Kalman and I'm a second-year master's student in Sustainable Development at Utrecht University, with a specialization in Earth System Governance. To finalize my studies, I am currently completing my thesis which focuses on the role of environmental justice movements in fostering just transformations.

The studied context is Central and Eastern Europe, and for this, I am analysing movements in Poland and Romania. The goal of this interview is to seek your insights into ___ movement in ___; its overall goal, mobilizing strategies and transformative impacts.

Most important points summarized:
- The interview is expected to take approximately 1 hour.
- Your responses are confidential, and your contribution will be either anonymous or acknowledged as you indicated in the consent form.
- I will start the recording of the interview now. Your responses will be transcribed and processed for data analysis.
- You can stop or withdraw from the study anytime without giving a reason to do so.
- Please feel free to skip questions you do not feel comfortable answering.

1. Can you briefly introduce yourself and your background?
2. What was your involvement in the ___ movement in ___?

Topic 1: Goals of the movement
3. Could you describe the overarching goal of the movement, and what injustice did it seek to address?
4. How was the movement aiming to bring about greater justice?

Topic 2: Strategies of the movement
1. What strategies were used by the movement to influence institutional, legal, and economic frameworks (laws, regulations, norms)? Examples would be lobbying, visible social mobilization such as protests, creation of new institutions, participation in local governments, etc.
2. How did the movement challenge common cultural beliefs about (economic) development, nature, and knowledge?
   Follow-up questions/examples:
   a. Did the movement challenge the idea that material wealth and economic growth ensure happiness and societal well-being?
   b. Did the movement challenge the notion of humans dominating nature for their benefit? This means treating nature as a resource and service provider for humans (e.g., extraction of fossil fuels), who are seen as separate from nature.
   c. Did the movement question mainstream expert knowledge about sustainability and development? For example, development policies are often shaped by

Western scientific knowledge (e.g., economic green growth and technoscientific solutions).

3. What strategies were used to change social interactions and encourage dialogue? Examples would be forming alliances, local organization strengthening, media campaigning, etc.

Topic 3: Transformative impact of the movement

<u>Quality of life and social well-being</u>

4. How much did the movement improve the quality of life and social well-being?
5. How did the movement impact regulations, laws, policies, etc. to improve people's lives and social well-being?
    a. Were measures taken to ensure equity/fairness in how environmental costs and benefits are distributed over time, space and between groups?
6. How did the relations between societal groups change to improve social well-being (e.g., emergence of networks, communal harmony, equity between communities and individuals' socio-economic and political entitlements, benefits, rights, and responsibilities)?
7. Did the movement offer alternative ideas for achieving physical, social, cultural, and spiritual well-being without relying on economic growth?
    a. How did these ideas become widely accepted and integrated into society?

<u>Ecological integrity and resilience</u>

8. How much did the movement contribute to greater environmental integrity and resilience? This means conservation of the natural world (ecosystems, species, functions, cycles) and its resilience, and respect for ecological limits at various levels (local, national, to global).
9. How did the movement impact institutional, legal, and economic frameworks to account for environmental health and resilience?
10. How did the movement change the connections between different groups in society to protect and restore the environment? (e.g., emergence of networks/coalitions, conservation of areas used by marginalized groups).
11. How did people's beliefs and understanding of the relationship between nature and humans change (e.g., nature as interconnected with human life, respect for ecological limits, planetary boundaries thinking)?
    a. How did these beliefs become more widely accepted?

<u>Economic democracy</u>

12. How much did the movement change local and broader economic production methods and technology (regional, national, etc.)? For example, advocating for renewable energy, community-based renewable energy projects, environmental and economic impact assessments, prioritizing environmental protection and community health.
13. How did the movement impact institutional, legal, and economic frameworks to include local claims over managing shared natural resources?
14. How did relationships between groups change in terms of who can access and use natural resources?

15. Did the movement encourage non-extractive methods of production and resource management? If so, how?
    a. Did local communities strengthen their principles and systems of alternative economic production, distribution, and market? If so, how?
    b. How were these ideas and practices mainstreamed?

Direct democracy

16. How much did the movement contribute to direct and delegated democracy? This means bottom-up decision-making processes in which every human has the right, capacity, and opportunity to participate, and which builds up from local levels to higher levels of governance.
17. Were there changes in laws, institutions and economic systems to support local participation in decision-making?
    a. How were local concerns, rights, and interests included in decision-making?
    b. Did policies or processes emerge to empower local communities in managing their territories?
18. How did the movement build networks vertically (local to international) and horizontally (across different sector) for wider impact?
    a. How did the movement become more widely accepted? Was it adopted or replicated in other places?
19. How did the movement ensure that its organizational structure was inclusive, participatory, and transparent (e.g., through learning, experimenting, critical dialogue)?
    a. How was collective action and identity strengthened?

Cultural diversity and knowledge democracy

20. How much did the movement contribute to the recognition of cultural diversity? That is the plural ways of living and knowing.
21. What changes occurred in laws, institutions, and economies to include diverse perspectives and various forms of knowledge?
    a. Was diverse participation supported in decision-making as a result (e.g., minority groups, elderly, gender)?
22. How did the relationships between groups change to allow for cultural diversity? (e.g., improved conditions for dialogue, safe places and platforms for cultural exchange).
23. How were pre-existing local rights, culture, practices, and knowledge acknowledged and mainstreamed in the public discourse?

Closing questions
24. What do you think led to the success of this movement? What about challenges?
25. How can the impacts of the movement be felt in the long-term?
26. Is there anything else you would like to add after answering the interview questions?
27. Are there people in your network who were involved in this movement and would be open to an interview?
28. Do you have any final remarks about the interview or the procedure?

Appendix C: List of documents collected for data analysis

Document ID	Document type	EJ movement	Reference
D1	Organizational website	Movement against the North coal-fired power plant, Poland	(BankTrack, 2016)
D2	Organizational report	Movement against the North coal-fired power plant, Poland	(Bankwatch Network, 2011)
D3	News item	Movement against the North coal-fired power plant, Poland	(Darby, 2017)
D4	Organizational news item	Movement against the North coal-fired power plant, Poland	(ClientEarth, 2019)
D5	Legal document of Supreme Administrative Court judgment	Movement against the North coal-fired power plant, Poland	(Naczelny Sąd Administracyjny, 2019)
D6	Coalition news	Movement against the North coal-fired power plant, Poland	(StopEP Coalition, 2017)
D7	Coalition news	Movement against the North coal-fired power plant, Poland	(StopEP Coalition, 2016c)
D8	Coalition news	Movement against the North coal-fired power plant, Poland	(StopEP Coalition, 2016b)
D9	Coalition news	Movement against the North coal-fired power plant, Poland	(StopEP Coalition, 2016a)
D10	Coalition news	Movement against the North coal-fired power plant, Poland	(StopEP Coalition, 2014g)
D11	Coalition news	Movement against the North coal-fired power plant, Poland	(StopEP Coalition, 2014f)
D12	Coalition news	Movement against the North coal-fired power plant, Poland	(StopEP Coalition, 2014e)
D13	Coalition news	Movement against the North coal-fired power plant, Poland	(StopEP Coalition, 2014d)
D14	Coalition news	Movement against the North coal-fired power plant, Poland	(StopEP Coalition, 2014c)
D15	Coalition news	Movement against the North coal-fired power plant, Poland	(StopEP Coalition, 2014b)
D16	Coalition news	Movement against the North coal-fired power plant, Poland	(StopEP Coalition, 2014a)

D17	Coalition news	Movement against the North coal-fired power plant, Poland	(StopEP Coalition, 2013d)
D18	Coalition news	Movement against the North coal-fired power plant, Poland	(StopEP Coalition, 2013c)
D19	Coalition news	Movement against the North coal-fired power plant, Poland	(StopEP Coalition, 2013b)
D20	Coalition news	Movement against the North coal-fired power plant, Poland	(StopEP Coalition, 2013a)
D21	Coalition website	Movement against the North coal-fired power plant, Poland	(StopEP Coalition, n.d.).
D22	Organizational news item	Movement against the North coal-fired power plant, Poland	(Bankwatch Network, 2013b)
D23	Organizational news item	Movement against the North coal-fired power plant, Poland	(Bankwatch Network, 2013a)
D24	Organizational news item	Movement against the North coal-fired power plant, Poland	(Śledź, n.d)
D25	News item	Movement against the North coal-fired power plant, Poland	(Gospodarka, D, 2019)
D26	Organizational news item	Movement against the North coal-fired power plant, Poland	(Sawicki & Maciąga, n.d.)
D27	Research paper	Anti-fracking movement, Romania	(Vesalon & Creţan, 2015)
D28	Research paper	Anti-fracking movement, Romania	(Jura, 2015)
D29	Research paper	Anti-fracking movement, Romania	(Coman & Cmeciu, 2014)
D30	Research paper	Anti-fracking movement, Romania	(Papatulica & Prisecaru, 2015)
D31	News item	Anti-fracking movement, Romania	(Besliu, 2015)
D32	Case study	Anti-fracking movement, Romania	(Global Nonviolent Action Database, 2015)
D33	Organizational report	Anti-fracking movement, Romania	(Simon & Heller, 2013)
D34	Organizational news item	Anti-fracking movement, Romania	(Szőcs, 2013)
D35	News item	Anti-fracking movement, Romania	(Ilie, 2013)

D36	Organizational news item	Anti-fracking movement, Romania	(Greenpeace Romania, 2014)
D37	News item	Anti-fracking movement, Romania	(Dale-Harris & Ursulean, 2013a)
D38	News item	Anti-fracking movement, Romania	(Filip & Balaban, 2013)
D39	News item	Anti-fracking movement, Romania	(Popescu, 2013)
D40	News item	Anti-fracking movement, Romania	(McGrath, 2014)
D41	Organizational news item	Anti-fracking movement, Romania	(Olteanu, 2015)
D42	Open letter	Anti-fracking movement, Romania	(Greens/EFA, 2013)
D43	News item	Anti-fracking movement, Romania	(Balaban, 2013)
D44	Organizational news item	Anti-fracking movement, Romania	(Frack Off Romania, 2014b)
D45	News item	Anti-fracking movement, Romania	(AGERPRES, 2013)
D46	News item	Anti-fracking movement, Romania	(Arc, 2015)
D47	News item	Anti-fracking movement, Romania	(Dale-Harris & Ursulean, 2013b)
D48	Organizational news item	Anti-fracking movement, Romania	(Frack Off Romania, 2014a)
D49	Organizational news item	Anti-fracking movement, Romania	(Olteanu, 2014)

Appendix D: Operationalization of the just transformations framework

I. Operationalization of the micro level

MICRO LEVEL -Transformative character of EJ movement strategies				
Strategies	**Strategies to impact structural power**	**Strategies to impact relational power**	**Strategies to impact cultural power**	Key sources
Measurement (questions and examples based on the analytical framework)	To what extent did the movement employ any of the following or other strategies to impact and change institutional, legal, and economic frameworks? • Institutional forms of mobilization such as lobbying, public hearings, campaigns, testimonies, petitioning and political pressure during elections • Resistance action: such as protest, demonstrations, boycotts, denunciations, shaming, strikes, or more violent tactics such as sabotage. • Create new institutions: autonomous governments and forms of territorial control. • Participation in existing structures: local government, customary institutions, assemblies, committees • Create new modes of production and alternative technologies • Advocacy, lobbying • Other.	To what extent did the movement employ any of the following or other strategies to impact and produce changes in people's interactions to create conditions for dialogue? • Local organization strengthening • Producing and disseminating new knowledge • Capacity and alliance building on conflict: extra-movement alliances (e.g., with other civil society movements, the state, the church, the corporate sector, etc.) and/or intra-movement alliances (e.g., with other environmental groups, within the country or across borders, etc) • Sensitize decision-makers • Contribution to plural forms of knowledge through participatory engagement • The creation of physical, social and virtual spaces for sharing experiences • Other.	To what extent did the movement employ any of the following or other strategies to challenge incumbent paradigms and unmask institutional neutrality ('unmaking'), while creating social consensus over new meaning and alternatives ('making')? Making of alternatives: • Reconstruction of local history • Local knowledge revitalization • Local management plans • Collectively building alternative future visions • Other. Unmaking of dominant paradigms: • Territorial self-demarcation • Resisting and challenging dominant knowledge • Other.	Feola et al., 2021; Fitzgerald, 2022; Kothari et al., 2023; Martínez-Alier et al., 2016; Rodríguez & Inturias, 2018; Sievers-Glotzbach & Tschersich, 2019; Steinberg & VanDeveer, 2012; Tschersich et al., 2023; Temper et al., 2018b,
Presence of strategies				

Legend	High transformative character of strategies: assigned when the movement employs multiple strategies to impact on a certain type of hegemonic power.	
	Partial transformative character of strategies: assigned when the movement employs a few strategies to impact on a certain type of hegemonic power.	
	Low transformative character of strategies: assigned when the movement employs strategies to impact on a certain type of hegemonic power, but they are negligible (1 or 2)	
	Insufficient: assigned when the movement does not employ any strategies to impact on a certain type of hegemonic power.	

II. Operationalization of the meso level

MESO LEVEL – *Just transformative impact by dimension of power*				
	Forms of hegemonic power			*Measurement*
Just transformation pillar	**Structural power (visible power)**	**Relational power (hidden power)**	**Cultural power (invisible power)**	Evaluation of the impact on just transformation pillars
Quality of life and social well-being	How much did the movement impact regulations, laws, policies, etc. to improve people's lives and social well-being? Examples: • Integrative governance • Fair compensation and mitigation • Equity • Etc.	How much did the relations between societal groups change to improve social well-being? Examples: • Emergence of networks • Harmony • Equity between communities and individuals • Etc.	How much did the movement offer alternative ideas for achieving physical, social, cultural, and spiritual well-being without relying on economic growth? Examples: • Shift in social values • Mainstreaming • Social consensus about achieving physical, social, cultural, and spiritual well-being without materialistic culture and growth • Etc.	High impact: Assigned when the movement fostered major changes in structural, relational and cultural power for better quality of life and social well-being. Medium impact: Assigned when the movement fostered major changes in one or two types of power or smaller changes in all three power dimensions for better quality of life and social well-being. Low or negative impact: Assigned when the movement fostered minor or negative changes in one or two power types for better quality of life and social well-being. Insufficient data: the acquired data was not sufficient for determining the impact.
Ecological integrity and resilience	How much did the movement impact institutional, legal, and economic frameworks to account for environmental health and resilience? Examples: • Integrative governance • Conservation • Etc.	How much did the movement change the connections between different groups in society to protect and restore the environment? Examples: • Emergence of networks • Nature-human harmony • Monitoring environmental impacts • Etc.	How much were people's beliefs and understanding of the relationship between nature and humans changed and become widely accepted? Examples: • Shift in social values • Respect for ecological • Mainstreaming • Etc.	High impact: Assigned when the movement fostered major changes in structural, relational and cultural power for ecological integrity and resilience. Medium impact: Assigned when the movement fostered major changes in one or two types of power or smaller changes in all three power dimensions for ecological integrity and resilience. Low or negative impact: Assigned when the movement fostered minor or negative changes in one or two power types for ecological integrity and resilience. Insufficient data: the acquired data was not sufficient for determining the impact.

Economic democracy	How much did the movement impact institutional, legal, and economic frameworks to include local claims over managing shared natural resources? Examples: • Strengthening of local economic production • Integrative governance • Etc.	How much did relationships between groups change in terms of who can access and use natural resources? Examples: • Local control of the means of production • Equity in the access and use of natural resources • Etc.	How much did the movement encourage and mainstream non-extractive methods of production and resource management? Examples: • Mainstreaming and recognition • Deepened resistance against extractive methods of production • Etc.	**High impact:** Assigned when the movement fostered major changes in structural, relational and cultural power for economic democracy. **Medium impact:** Assigned when the movement fostered major changes in one or two types of power or smaller changes in all three power dimensions for economic democracy. **Low or negative impact:** Assigned when the movement fostered minor or negative changes in one or two power types for economic democracy. **Insufficient data:** the acquired data was not sufficient for determining the impact.
Direct and delegated democracy	How much did the movement change laws, institutions and economic systems to support direct and delegated democracy? Examples: • Local institutional strengthening • Inclusivity • Participation • Transparency and accountability • Etc.	How much did the movement configure relations between groups for more democratic environmental governance? Examples: • Strengthening of collective action • Connecting vertically (local, regional, national, European/transnational, international) and horizontally (cross-sectoral) • Etc.	How much did the movement impact cultural beliefs about bottom-up decision-making? Examples: • Transferring the initiative • Deepening resistance, preventing co-optation by the regime. • Democratic organizational structure • Etc.	**High impact:** Assigned when the movement fostered major changes in structural, relational and cultural power for direct and delegated democracy. **Medium impact:** Assigned when the movement fostered major changes in one or two types of power or smaller changes in all three power dimensions for direct and delegated democracy. **Low or negative impact:** Assigned when the movement fostered minor or negative changes in one or two power types for direct and delegated democracy. **Insufficient data:** the acquired data was not sufficient for determining the impact.
Cultural diversity and knowledge democracy	How much did the movement bring about changes in laws, institutions, and economies to include diverse perspectives and various forms of knowledge in environmental governance? Examples: • Inclusive governance • Pluralist governance • Etc.	How much did the relationships between groups change to allow for cultural diversity and knowledge sharing? Examples: • Equal access to the generation, transmission, and use of knowledge • Respect of and reliance on plural ways of living, ideas, and worldviews. • Etc.	How much were pre-existing local rights, culture, practices, and knowledge acknowledged and mainstreamed? Examples: • Mainstreaming and recognition of counter-narratives • Acknowledge pre-existing rights, culture, practices, and knowledge in public discourse	**High impact:** Assigned when the movement fostered major changes in structural, relational and cultural power for cultural diversity and knowledge democracy. **Medium impact:** Assigned when the movement fostered major changes in one or two types of power or smaller changes in all three power dimensions for cultural diversity and knowledge democracy. **Low or negative impact:** Assigned when the movement fostered minor or negative

				changes in one or two power types for cultural diversity and knowledge democracy.
			• Collective awareness of the underlying injustice • Etc.	Insufficient data: the acquired data was not sufficient for determining the impact.
Measurement				
Evaluation of the impact on forms of hegemonic power	High impact: Assigned when the movement impacted on all just transformation pillars under a certain form of hegemonic power (for example, laws, policies, economic frameworks, etc. changed (structural power) for all just transformation pillars (quality of life, ecological integrity, economic democracy, direct democracy, cultural diversity). Medium impact: Assigned when the movement impacted on 2-4 just transformation pillars under a certain form of hegemonic power. Low or negative impact: Assigned when the movement had no impact or impacted on 1 just transformation pillar under a certain form of hegemonic power. Negative impact is assigned when counter-effects outweigh the just transformative impacts. Insufficient data: the acquired data was not sufficient for determining the impact.			

III. Operationalization of the macro level

MACRO LEVEL – *Normative orientation of Just Transformations*			
Normative orientation	**Achieving EJ objectives**	**Challenging incumbent paradigms embedded in hegemonic power**	Key sources
Interpretative assessment (guiding questions based on the analytical framework)	How do strategies on the ground (micro level) and just transformative impacts (meso level) reflect the overarching EJ objectives in the just transformation process? • How was the objective relational and regenerative nature-human relations present in the transformation process? • How was the objective epistemic justice and the right to self-determination present in the transformation process? • How was the objective self-governance present in the transformation process? Overall assessment: qualitatively assessed based on processes at the micro and meso levels.	How do the following incumbent paradigms prevail in the social-ecological system? • Materialistic culture and growth • Control and autonomy of humans over nature. • Expert knowledge and specialization ⇨ Assessment through literature review and empirical data. How do the movement-induced transformation processes challenge these paradigms? ⇨ Assessment qualitatively based on the strategies on the ground (micro level) and results at the meso level.	(Álvarez & Coolsaet, 2018; Biermann, 2020; Kothari et al., 2023; Ramcilovic-Suominen, 2022; Rodríguez & Inturias, 2018; Rodríguez, 2020; Sievers-Glotzbach & Tschersich, 2019; Tschersich et al., 2023; Temper et al., 2018b).

I. Just transformative impacts of the StopEP movement, Poland

MESO LEVEL – Just transformative impact by dimension of power				
	Forms of hegemonic power			*Measurement*
Just transformation pillar	**Structural power**	**Relational power**	**Cultural power**	Evaluation of the impact on just transformation pillars
Quality of life and social well-being	Medium impact	Low impact	Medium impact	**Medium impact:** The movement fostered minor changes in all three power dimensions for better quality of life and social well-being. While social well-being was achieved through resistance, no alternative was provided by the movement.
Ecological integrity and resilience	High impact	Medium impact	High impact	High impact: The movement fostered major changes in structural, relational, and cultural power for ecological integrity and resilience.
Economic democracy	Medium impact	Medium impact	High impact	Medium impact: The movement fostered major change in one type of power and smaller changes in the other two power dimensions for economic democracy.
Direct and delegated democracy	High impact	High impact	Medium impact	High impact: The movement fostered major changes in structural, relational, and cultural power for direct and delegated democracy.
Cultural diversity and knowledge democracy	Low impact	Medium impact	Medium impact	Medium impact: The movement fostered smaller changes in all three power dimensions for cultural diversity and knowledge democracy, which were mostly reflected at community level and not societal level.
Measurement				
Evaluation of the impact on forms of hegemonic power	Medium impact: the movement had smaller impacts on structural power which prevented the energy project but could not have many long-term structural impacts.	Medium impact: the movement had major and long-term impacts at various levels for direct democracy, while for the other just transformation pillars, there were smaller impacts through relational power.	Medium impact: the movement had smaller impacts on the just transformation pillars through cultural power.	**Overall:** Medium to high just transformative impact

II. Just transformative impacts of the anti-fracking movement, Romania

MESO LEVEL – *Just transformative impact by dimension of power*				
	Forms of hegemonic power			*Measurement*
Just transformation pillar	**Structural power**	**Relational power**	**Cultural power**	Evaluation of the impact on just transformation pillars
Quality of life and social well-being	Low impact	Low impact	Low impact	**Low impact:** The movement fostered minor changes in all three power dimensions for better quality of life and social well-being. While social well-being was achieved through resistance, no alternative was provided by the movement.
Ecological integrity and resilience	Medium impact	Medium impact	High impact	**Medium to high impact:** The movement fostered major changes in structural, relational, and cultural power for ecological integrity and resilience.
Economic democracy	Low impact	Medium impact	High impact	**Medium impact**: The movement fostered major change in one type of power and smaller changes in the other two power dimensions for economic democracy.
Direct and delegated democracy	Medium impact	High impact	High impact	**High impact:** The movement fostered major changes in structural, relational, and cultural power for direct and delegated democracy.
Cultural diversity and knowledge democracy	Insufficient data	Low and negative impact	Low and negative impact	**Low (and negative) impact:** While the movement fostered some minor positive changes, they were counter-acted by various negative outcomes for knowledge democracy and cultural diversity.
Measurement				
Evaluation of the impact on forms of hegemonic power	**Low impact**: the movement could not configure laws, regulations, institutions, etc. for the just transformation pillars	**Medium impact:** the movement had major and long-term impacts at local and societal levels for direct democracy, while for the other just transformation pillars, there were smaller impacts through relational power.	**Medium impact**: the movement fostered major changes in cultural power for direct democracy, ecological integrity, and economic democracy. However, this was lowered by the negative impacts on cultural diversity and neglect of quality of life.	**Overall:** Low to medium just transformative impact