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Climate change, fossil fuels, and the energy transition in the Global South

Governance pathways to leave fossil fuels underground

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2 Ethics, theoretical framework and methods

2.1 Introduction

In order to address the overarching question of the thesis (1.3.1), this chapter briefly outlines the theory and methods used in this thesis, answering CSQ1 (Table 1). Section 2.2 discusses the ethical aspects of CLIFF and this sub-project within CLIFF; Section 2.3 explains my ontological and epistemological positionings; Section 2.4 outlines the theoretical approaches used, while Section 2.5 illustrates the conceptual scheme of the research. Section 2.6 details the data and methods employed, before concluding (2.7).

2.2 Ethical considerations

2.2.1 CLIFF Ethics

The CLIFF project, being an ERC-Advanced Grant, has been extensively and thoroughly reviewed regarding ethics, data, and data management. As part of these discussions, the CLIFF project has:

- a) been approved and contracted after months of rigorous ethical considerations and deliberations with the ERC.
- b) drafted a comprehensive ERC Ethics Document (approved by UvA's Ethics Review Board on October 12, 2022), including a revised ethical reflection in an ERC Ethics Supplement.
- c) an independent ethics advisor who received a self-appraisal and discussed ethical issues with the team.
- d) a Data Protection Impact Assessment (DPIA) and Data Management Plan (DMP), approved by the UvA Data Protection Officer on October 23, 2022.

CLIFF designed its research focus and methods to minimise the potential harm or danger to researchers and participants on a politically charged topic. Thus, the team chose interviewing experts (e.g., government officials, policymakers, NGO employees, journalists, academics) focusing on broader trends and taking extensive measures to protect participants.

When researching the North-South dynamics of climate change mitigation and the energy transition, which involves phasing out fossil fuels, another ethical consideration is worth sharing. To avoid benefiting at the expense of participants in the Global South, CLIFF developed a plan for benefit sharing, including encouraging collaborations, disseminating research results, and working with participants to develop research products most beneficial to them (see 2.4.1.2).

2.2.2 Individual sub-project Ethics

Following UvA's and ERC's regulations, I undertook an individual ethical reflection, applying CLIFF's considerations (2.2) to the specific topic (LMICs). The document includes reflections and issues related to research participants, data storage, protection and privacy. In addition, UvA's Ethics Review Board requested a further analysis of fieldwork sites' contexts (2.6.2) to assess the ethical implications and safety of potential

participants (see Annex 1). The Ethics Review Board of the Faculty of Social and Behavioural Sciences approved the ethical reflections and the local context analysis on February 15th, 2024.

Interview participants (see 2.6.2.5) were recruited through purposive and snowball sampling strategies, based on their expertise. Participants were informed about the research's purpose orally and with a project information sheet (Annex 2). If they agreed, they filled and signed a consent form (Annex 3). The interviews were guided by the main RQ and the research objectives, focusing on general trends.

To minimise risks to potential participants, the team chose interviews with experts, who are not vulnerable *per se*, but may be perceived as such in certain contexts. The research could have negative consequences for participants if they are identified and face negative impacts due to their opinions, which may contradict their organisation's view (e.g., employment, reputation, safety). I thus took a precautionary approach with certain interviewee categories (Annex 1), conducting an additional risk assessment before contacting potential participants (Annex 4). Participants deemed at high risk were not contacted, while those deemed safe, depending on the specific context, underwent modified interview practices to protect privacy and data (e.g., verbal consent). I did not provide any monetary or other compensation to participants, but they can stay informed about the research results if interested through CLIFF's website and LinkedIn.

In managing data, I followed CLIFF-developed DPIA and DMP. I limited personal data collection to names and contact details, minimising as much as possible the collection of other personal data. Irrelevant personal data shared during interviews were redacted and not used for research or processed in any way. Except for publicly available information, participants remain anonymous in written work, taking care with descriptive data (e.g., job description) which can lead to their recognition.

Interviews were pseudonymised with my initials, with recordings, transcripts and the key code stored in encrypted folders on UvA's Research Drive, using a password-protected computer. In the field, I conducted the interviews with a password-protected voice recorder, and the audio files were removed from the recorder as soon as possible and uploaded in the encrypted cloud via a secure internet connection. Interview transcripts were not shared with participants (to avoid a paper trail) unless specifically requested. Physical consent forms were stored in a locked safe, digitalised and encrypted on a Research Drive folder. For the virtual interviews and when a participant was reluctant to sign, I recorded their verbal informed consent in an encrypted and password-protected logbook stored on Research drive. The key code will be destroyed at the end of the project, anonymising research data.

2.3 Ontology, epistemology and paradigms of social research

This research relies on a realist ontology, close to critical realism (CR) (Corbetta, 2003; Gorski, 2013). This positioning acknowledges that reality, the only one that exists, is subject to change as our understanding and description of it evolve (Moon & Blackman, 2014). CR posits that reality can be layered into three strata: the empirical, observable events through our experience and interpretation; the actual, independent events from human experience; and the real or causal structures, the inherent properties of objects that cause events at the empirical level (Fletcher, 2017).

In this study, structure and agency are seen as distinct but interconnected concepts from a post-positivist perspective. The research assumes a material-ideational position (Knio, 2022), where material and ideational aspects are separate but have a dialectical relationship. However, materiality takes precedence as it is a natural necessity, anterior and causal. Following neo-Gramscian scholarship (see 2.4.2), ideas are encased in material practices, as extra-discursive, relational and causally constitutive: they imbue meaning and legitimacy into the material from which they emerge and prompt the (contingent) building and organisation of the material (Knio, 2022). In this sense, ideas are not instrumental.

From this position, my epistemological stance avoids the epistemic fallacy (i.e., not all that is real can be known) and understands our knowledge of reality as partial, fallible, and subject to change. Therefore, the research is deeply theory-laden (but not theory-driven), using various theorisations to reach generalisations, and open to revision (Corbetta, 2003; Fletcher, 2017). Some events are empirically observable (e.g., fossil fuel flows, infrastructure, employment, energy generation), while others (e.g., vested interests, power structures) are not but drive the former and resonate at the empirical level.

The study is therefore post-positivist, employing multiple methods and deductive reasoning to contribute to critical theory (Cox, 1995). It aims to understand the origin of the existing fossil order and explore the possibilities for its transformation, unlike “problem-solving theories” (Cox, 1995), which take the world as given and provide incremental measures within capitalism. The research is also pragmatic, as its knowledge can be used to transform development trajectories, produce research-based policy recommendations and advocate for collective action on social problems (Fletcher, 2017), like climate change and fossil fuels. The theoretical perspective is ultimately anti-capitalist and inspired by the philosophy of praxis (Gramsci, 1971), theory-laden but oriented towards pragmatism, collective organisation, strategy, and transformation.

2.4 Theoretical and conceptual frameworks

I combined the CLIFF-proposed model (ICID, Institutional analysis and a Theory of Change to promote Inclusive Development) with critical IPE applied to energy transition studies, drawing from neo-Gramscian literature (Newell, 2019; Van de Graaf et al., 2016;

Winkler, 2020). Building on neo-Gramscian understandings of the political economy of energy transitions, the thesis aims to reveal the politics of vested interests of key actors at the subnational, national, and global levels and the potential for transformation (Ford & Newell, 2021; IPCC, 2022a).

2.4.1 CLIFF's ICID model

CLIFF originally developed the ICID model to analyse the actors and the evolving North-South dimensions in LFFU. It integrates approaches from legal pluralism and governance fragmentation (Bavinck & Gupta, 2014; Biermann et al., 2009) to evaluate the coherence of the LFFU governance regime. Operationalising institutional analysis and a Theory of Change (ToC) for Inclusive Development, ICID builds on the institutional work developed by Oran Young and colleagues in the International Human Dimensions Programme and Earth System Governance projects (Biermann et al., 2010; Young et al., 1999).

2.4.1.1 Institutional analysis

Young's institutional theory, focusing on the institutional dimensions of climate change, advances a broad understanding of institutions as "social practices consisting of easily recognised roles coupled with clusters of rules or conventions governing relations among the occupants of these roles" (Jönsson & Tallberg, 2001; Young, 1989, p. 32). In this context, institutional theory in international regimes claims that the design of multi-level institutions (instruments, policies, and norms) can lead to a variety of problems (Young, 1989, 2002).

Therefore, institutional analysis allows for a systematic examination of policy instruments' effectiveness on actors in terms of drivers and incentives, as well as how to redesign these tools. In assessing these, it focuses on *causation* (the degree to which weak institutions create a specific problem; Underdal, 2008), *performance* (the extent to which various institutional incentives operate or do not work in a certain setting and specific criteria; Mitchell, 2008), and *design* (how new and functioning institutions can be redesigned based on the performance of institutional incentives in a specific context; Young, 2008). As a result, redesigning institutions may aid in the resolution of the problems they produced (Young, 2002). Institutions in a given environment (resources, network, and the actor's objectives) shape actor behaviour, which is influenced by actor-specific drivers. These can be direct or indirect (Gupta et al., 2013) and local, national, and international (i.e., demographic, economic, political economy, social and natural; Hurlbert & Gupta, 2019). To change an actor's behaviour to achieve certain goals, the institutional setting must change through incentive redesign.

In this context, institutional analysis may present drawbacks, namely inappropriate redesign and overlooking power. First, in climate change governance, economic rationales such as cost-effectiveness tend to override social and ecological criteria because these are quantified in monetary terms, resulting in inadequate redesigns that

exacerbate inequality and unsustainability (Gupta et al., 2020). Second, it often assumes that contextual power dynamics are given and focuses on redesigning instruments to indirectly reshape power. However, redesigns may be overlooked by policy procedures, especially when powerful actors are involved, as in the case of fossil fuels. To address these shortcomings, ICID includes a ToC to analyse vested interests against LFFU, countervailing powers, and potential agents of change to modify power relations. CLIFF-proposed redesigns prioritise inclusive development over ‘limitless’ and short-term growth (see 2.4.1.4).

2.4.1.2 Theory of Change (ToC)

A ToC can be created for any level of intervention, such as a project, programme, policy, or strategy. In general, it describes how actions are perceived to produce outputs that contribute to the intended outcomes (Rogers, 2014). In policy planning, it can identify the current context (needs, drivers, and opportunities), the desired scenario, and the steps needed to transition between the two. Thus, it helps envision more achievable goals, ensure accountability, and foster a shared understanding of strategies to achieve them (Rogers, 2014).

To tackle LFFU and assess initiative for change (Rogers, 2014), we must map how uncertainty is perceived by different actors, what assumptions underpin it, and how it shapes problem framing and risk evaluation. We should also include diverse perspectives, values, and backgrounds to provide a more accurate representation of the issues at hand. Therefore, CLIFF’s ToC draws on the post-normal perspective of science (Ravetz, 1999), making use of international networks to engage stakeholders, identify issues and potential solutions, co-create knowledge, and maximise dissemination.

The project undertook this task in a variety of contexts, including the UN Science, Technology and Innovation Forum, the World Economic Forum (WEF), and other international and national contexts producing policy briefs and discussing with development practitioners (CLIFF, 2024; Gupta, Chen, de Morrée, et al., 2024, 2025). The project’s ToC reached its peak with a large international conference in November 2025, where results and implications of LFFU were discussed.

2.4.1.3 Social movements

CLIFF’s ToC investigates change agents, their tools and strategies, and the conditions under which they work. CLIFF identified three potential change agents for investigation: leaders, policy entrepreneurs, and social movements. This thesis focuses on the latter and civil society at large involved in climate and energy.

Social movement theory examines the importance of framing, resource mobilisation, ideology, identity, and effective tools (Leach & Scoones, 2007; Piggot, 2018). Mobilisation occurs most often when people actively participate in the formation of specific ideas, meanings, and values about an issue (Delina, 2022; Marquardt & Delina, 2019) and interact within a civil society-friendly context (Gupta, Rempel, Hillson, et al.,

2024; Leach & Scoones, 2007). Recent approaches focus on the origins and processes of how common identities are produced, disrupted, and reformed through movement processes, rather than assuming shared identities among participants (Leach & Scoones, 2007).

Mobilisation in energy politics requires an integrated perspective that considers social movements' social and geographical context, dynamic alliances, evolving forms of social solidarity and identification, and a vision and strategy for such a transition (Leach & Scoones, 2007; Piggot, 2018). In LFFU, social movements and civic mobilisation have gained global traction, aiming to reshape the energy system (Finkeldey, 2022; Gupta, Hogenboom, Rempel, et al., 2024; Temper et al., 2020). Indeed, movements are emerging and succeeding in curbing fossil fuel energy projects, including related infrastructure such as pipelines (Finkeldey, 2022; Hess, 2023; Temper et al., 2020). Various movements employ diverse tactics and instruments, such as litigation and network integration, to promote and mobilise for change in specific areas (Feoli, 2023; Finkeldey, 2022; Gupta, Rempel, Hillson, et al., 2024). However, mobilisation face challenges, particularly in energy politics. Incumbents' repression narrows energy decision-making spaces (Newell, Shankland, et al., 2022), just transition is a challenging process (Ciplet, 2022; Kalt, 2021), and building effective coalitions across scales and movements is crucial (Newell, Shankland, et al., 2022; Newell & Mulvaney, 2013; Swyngedouw, 2004). Labour movements are particularly important (Piggot et al., 2019), since stranded jobs in the fossil fuel industry further complicate the picture (see 2.4.1.4; Kalt, 2021). These are concentrated and often offer formal, better working conditions (D. Saha et al., 2023). Thus, coalition building for transformation beyond extractivism requires justice considerations and workers participation (Aklin, 2024; Fernandes, 2024; Stevis & Felli, 2015).

2.4.1.4 Inclusive development and justice

Following the ICID model, this study adopts an inclusive development approach (Gupta, Hogenboom, & Rempel, 2024; Gupta & Pouw, 2017). In LFFU, inclusive development acknowledges that action may lead to economic and financial losses but contends that these losses will be less than those of inaction (see 1.3.2).

The concept was initially defined in contrast to growth, pro-poor growth, and inclusive growth (Rauniyar & Kanbur, 2010) and subsequently refined when considering that sustainable development often involves trade-offs that prioritise economic growth over social and environmental considerations (Gupta et al., 2015; Gupta & Pouw, 2017; Gupta & Vegelin, 2016). Shifting the focus away from income, it emphasises the inclusion of “marginalised people, sectors and countries in social, political and economic processes for increased human well-being, social and environmental sustainability, and empowerment” (Gupta et al., 2015, p. 546; Rauniyar & Kanbur, 2010). It assesses access to and allocation of rights and responsibilities, as well as hazards associated with social

and ecological resources like social infrastructures, biodiversity, and ecosystem services (Gupta & Pouw, 2017). Inclusive development involves three components: social, ecological, and relational.

- a) Social inclusiveness prioritises the poorest, most vulnerable, and marginalised, affordable access to basic infrastructure and services, and equitable participatory governance (Gupta et al., 2015). It also involves including Global South countries in global sharing of resources (see Chapter 3).
- b) Ecological inclusiveness entails identifying resource limits, nature's carrying capacity and planetary boundaries, and understanding their impact on rights, risks, and responsibilities among peoples and governments (Gupta et al., 2015; Rockström et al., 2023). At the national level, it focuses on sustainable management of resources and ecosystem services, while on a global scale, it means not causing harm to other countries and addressing global concerns through CBDRRC (Gupta & Vegelin, 2016).
- c) Relational inclusiveness examines the power dynamics between actors who establish, perpetuate, or challenge multi-level inequality, and how these levels interact (Gupta et al., 2015; Gupta & Pouw, 2017). It thus acknowledges that poverty and environmental degradation often result from the actions of the powerful, and tackles the multi-level drivers of inequality, exclusion, and vulnerability (Gupta & Vegelin, 2016). A relational approach then focuses on empowering the poorest, making development and governance processes more inclusive, and minimising exclusion through power distribution (Gupta et al., 2015).

Inclusive development invites for rethinking development, redefining its content away from the notion of infinite growth (Rammelt & Gupta, 2021) and towards development that promotes social well-being for all while respecting the planet's carrying capacity (Gupta & Pouw, 2017).

In this context, applying an inclusive development lens to LFFU entails focusing on Climate System Justice (Gupta, Liverman, et al., 2023; Gupta, Chen, McDonnell, et al., 2025). This framework includes recognition and epistemic justice and reflect substantive and procedural justice, incorporating interspecies, intergenerational and intragenerational justice (Gupta, Liverman, et al., 2023). For the climate system, integrating justice considerations further constrains the safe boundary (Rockström et al., 2023) (while 1.5°C prevents irreversible damage to the climate system, only the just boundary, 1°C, prevents significant harm to people; see 1.2.1 and Chapter 3) and posits the goal of meeting minimum needs for all within these boundaries (Gupta, Liverman, et al., 2023; Gupta, Prodani, et al., 2023). In terms of means, this justice narrative is also about equitably redistributing resources and sharing a limited ecospace, including the carbon budget, stranded assets and resources, and responsibilities (Gupta, Prodani, et al., 2023; Gupta, Bai, et al., 2024). Chapter 3 substantially discusses this justice framework, which is

adopted in this thesis and integrates the conceptual scheme below (see 3.2.2 and 3.4). The justice and sharing narrative must address the power relations embedded in such transformation, and to this end I combine the ICID model with a neo-Gramscian lens.

2.4.2 (Critical) IPE in the energy transition

Given the importance of power relations in LFFU and institutional redesign, which represent a major knowledge gap (1.2.2), the ICID model is complemented by a critical neo-Gramscian IPE lens on energy transitions.

The global political economy is predicated on a fossil fuel energy system that grants some nations and companies economic and political power (Van de Graaf & Bradshaw, 2018). In this context, IPE can be useful in investigating the interdependence between public and private power in allocating scarce resources at multiple levels (Van de Graaf et al., 2016; Goldthau et al., 2020). Energy transition studies usually rely on theoretical approaches informed by the multi-level perspective in socio-technical transitions, which often fail to appropriately account for power (Geels, 2010, 2014; Geels & Schot, 2007). Since energy systems are also political, IPE can help answer Susan Strange's question, 'who benefits?' (Strange, 1988; Van de Graaf et al., 2016).

IPE approaches are typically categorised into three theoretical schools: mercantilism/realism, liberalism, and Marxism, although recent scholarship research aims to break this 'trichotomy' (Van de Graaf et al., 2016; Goldthau et al., 2020), for example adopting a geopolitical economy lens (Kuzemko et al., 2024). IPE has often reduced energy to oil and conducted fragmented studies without a defined set of theories and concepts, failing to develop an integrated research agenda (Babić & Sharma, 2023; Kuzemko et al., 2019; Van de Graaf et al., 2016). Furthermore, it has failed to grasp the transformative change required to address climate change and the catastrophic consequences of inaction (Paterson, 2021). However, critical IPE can provide insights into the *interregnum*, between transformation and collapse, the power dynamics, the political nature of climate solutions, and its implications for an emancipatory praxis (Babić & Sharma, 2023; Paterson, 2021). In global climate politics, critical IPE is concerned with the classical issues of political economy (who wins, who loses, how and why) while also considering environmental institutional arrangements within broader social relations and power structures (Newell, 2020, pp. 57–58). In these institutional, material and discursive power structures (Ford & Newell, 2021), pivotal is IPE's focus on the interplay between states, capital, and society.

Early critical approaches to energy (in the 1980s and 1990s) emphasised the role of fossil fuel in the construction of global political, economic, and ideological orders, defining East-West and North-South as international dividing lines in the political economy of energy (Kuzemko et al., 2019). Current critical IPE approaches argue that the complex challenge of addressing energy poverty, energy security, and climate change simultaneously has the potential to reshape inter-state relations and the deeper structure

of the world economy, calling capitalism into question (Newell, 2019, 2020; Van de Graaf et al., 2016). It therefore explores whom the State serves and whose interests it prioritises, as the interaction of economics, politics and power explains why some Global South countries could achieve low-carbon pathways, avoiding carbon lock-in and stranded assets, yet frequently adopt the opposite stance (IPCC, 2022a; Newell, 2019).

To unpack the political economy of just transition, critical neo-Gramscian IPE focuses on the contingent sources of institutional, ideational, and material power in energy governance, driven by the emergence of potential change agents and social pressures in energy politics (Kuzemko et al., 2019; Newell, 2019; Newell & Mulvaney, 2013). Gramsci (1971) analyses the material forces behind large-scale transitions, highlighting intra-state power dynamics between social blocs, where the ruling class's supremacy is defined as hegemony, mixing coercion (i.e., enforcement through rules, institutions, or force) and consent (i.e., power maintained through ideas, norms and culture) (Goldthau et al., 2020). Gramscian accounts are particularly useful when discussing the climate crisis and the global energy transition (Goldthau et al., 2020; Phelan et al., 2013). Chapter 5 extensively analyses the main neo-Gramscian concepts used in this thesis (hegemony, historical bloc, war of position, passive revolution, and *trasformismo*; Ford & Newell, 2021; Woolcock, 1985) and their application to supply-side climate policy and fossil fuels (see 5.2). Here is a brief overview to inform the conceptual scheme of this thesis.

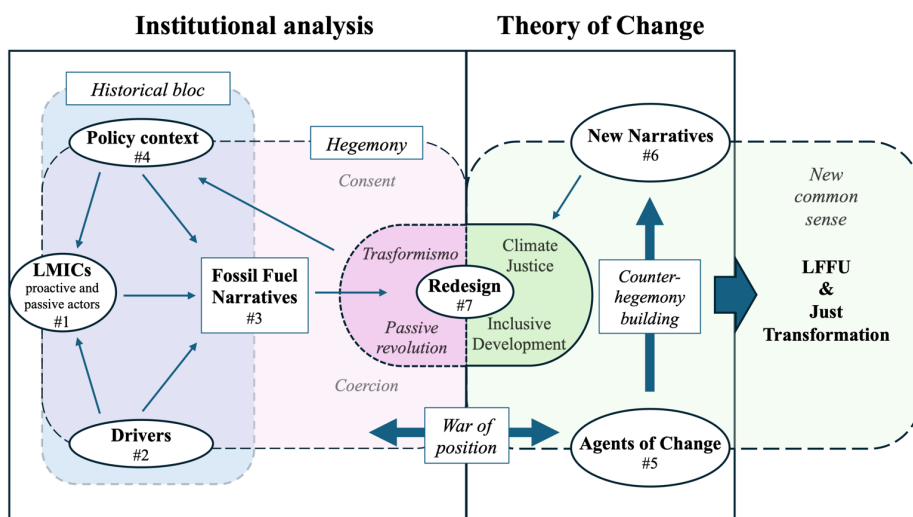
Neo-Gramscian literature links production, power, and global order (Bieler & Morton, 2004), focusing on historical bloc's (i.e., incumbents) role in preserving specific energy orders and its reaction to transformative possibilities (Newell, 2019). The energy transition is contested (war of position), with intra- and trans-state power imbalances between contending social forces, as climate governance shows: the Global North sets the policy agenda and defines how to address climate change compatibly with capitalism, and co-opts the Global South in agenda's implementation (see Chapters 3 and 5). On the other hand, hegemony sheds light on the contestations surrounding material and discursive transformations in energy systems, focusing on the role of the State and its intra-relations among social blocs (see Chapter 7) (Goldthau et al., 2020; Newell, 2019; van Vliet et al., 2025). These tensions may lead to new counter-hegemonic movements for a just energy transition (Ciplet, 2022; Winkler, 2020). The emergence of potential change agents forces the historical bloc to resist or accommodate pressures to maintain its hegemony, using tactics such as '*trasformismo*' and '*passive revolution*'.²⁰ This leads to a protracted war of position between the status quo and greater structural transformation (Goldthau et al., 2020; Newell, 2019).

²⁰ Passive revolution is the adoption of reformist measures implemented without popular participation that accommodate pressures while preserving power relations. *Trasformismo* is a related strategy that co-opts subaltern leaders into hegemonic frameworks. In the broader sense used here, it also relates to taming potentially disruptive ideas by aligning them with the policy agenda of the dominant coalition (see 5.2.1; Cox, 1983).

2.5 Conceptual scheme

After having summarised the concepts and theories used in this study, Figure 8 depicts the conceptual scheme that orients the research project (Kivunja, 2018), readapting the ICID model to the neo-Gramscian perspective on energy transitions, and showing how the different concepts relate and guide the analysis. The left side focuses on institutional analysis, and the right side integrates the ToC. While ICID’s concepts are in normal font, neo-Gramscian concepts are in italics (see 5.2). Step 1 identifies the actor in the research, namely LMICs being non-Annex I, and identifies proactive and passive countries/governments (Chapters 3, 5 and 6). Step 2 identifies the main drivers acting on LMICs in the energy transition and fossil fuels (Chapters 3-7). The historical bloc (light blue dotted cloud), through coercion and consent, maintains its hegemony (pink cloud) based on the centrality of fossil fuels (Step 3, Chapter 5 and 6). Step 4 examines the policy context in climate governance, identifying the policy incentives that operate on LMICs and, through a fragmentation lens, identifies policy instruments at the horizontal and vertical level of energy governance (Chapter 7). Through the material, ideational and discursive mobilisation of resources, the historical bloc engages a war of position with agents of change, who mobilises their resources in counter-hegemony building (green dotted cloud) and new narratives (Steps 5-6, Chapter 7). Step 7 assesses how the redesign of instruments feed back into the policy context or redirects towards transformation (Chapters 7 and 8). Indeed, the redesign may remain within the historical bloc’s hegemonic position through resistance and accommodation via tactical readjustments (passive revolution and *trasformismo*, Chapter 5). Or, if agents of change establish a new common sense, based on climate justice and inclusive development, and mobilise material resources to inclusively redesign instruments, this may lead to LFFU and transformation.

Figure 8 – Conceptual scheme



Source: Author.

2.6 Data and Methods

This study is multidisciplinary and qualitative in nature but uses mixed methods. I primarily used CLIFF's methodological framework, adopting a case study approach. I identify the cases in multiple steps and applied five methods to gather my primary and secondary data: (1) systematic literature review (2) content and policy analysis, (3) descriptive quantitative analysis (4) fieldwork and (5) interviews. Here are concise descriptions of the methods used, with references to the published papers that explain them in detail. See Table 4 for the methods and type of data used in each chapter.

2.6.1 Case study approach

A case is an analytical construct that highlights certain features of empirical reality while leaving others in the background. Thus, it is not 'natural', but a representation of a researcher's efforts to generalise, abstract and theorise from the empirical phenomena (Lund, 2014). Case studies can refine theories and concepts, and document processes, given the topic and theoretical framework informed by critical IPE of this thesis (Odell, 2001). A case study approach to analysing energy governance, transition and potential for transformation offers an analytical lens to study changes in structures and institutions, understanding their causes (Odell, 2001).

There is a great variety of cases (Bryman, 2016; Gerring, 2006; Yin, 2018). The overall case of this thesis are LMICs, that exemplifies the development and energy dilemmas in LFFU in the context of climate change (Chapter 1). Following CLIFF proposal, the research design is at the same time idiographic, aiming at elucidating LMICs' unique features, and nomothetic, since it is also concerned in producing generalisations (Bryman, 2016; Flyvbjerg, 2006).

The cases selection process followed a funnel approach. I started with LMICs and then narrowed down my definition of Global South overlapping income with the non-Annex I status to the UNFCCC. At this step, the case study (Global South) sought to be exemplifying (Bryman, 2016), capturing the context, circumstances and conditions of the Global South in climate governance and the energy transition (see Chapters 3 and 4).

As a second step, I chose 14 countries for content analysis of policy documents, considering income, geography, and fossil fuel (see Table 3 and 2.6.2.2). Among these 14 countries, I included four countries that CLIFF originally proposed (Uganda, Kenya, Ghana and Mozambique; Menas Associates, 2017), which are analysed in Chapters 5 and 6.²¹

²¹ Chapter 5's publication does not feature Bangladesh, Colombia, Indonesia and Mexico (see 2.6.2.2).

Table 3 – Selected countries from the inventory

Countries	Income group (descending order)	Sub-sample	Geography
Argentina	upper middle	LMIC	Americas
Brazil (OPEC+)	upper middle	LMIC	Americas
China	upper middle	LMIC	Asia
Colombia	upper middle	LMIC	Americas
Mexico (OPEC+)	upper middle	LMIC	Americas
South Africa	upper middle	LMIC	Africa
Algeria (OPEC)	lower middle	LMIC	Africa
Bangladesh	lower middle	LDC	Asia
Ghana	lower middle	LMIC	Africa
India	lower middle	LMIC	Asia
Indonesia	lower middle	LMIC	Asia
Kenya	lower middle	LMIC	Africa
Mozambique	low	LDC	Africa
Uganda	low	LDC	Africa

Source: Author, based on World Bank (2022b).

Through an inventory exercise developed in Chapter 6 (see 6.2), I further narrowed the sample to obtain a critical case study that better captures the circumstances of LMICs given the theoretical approach (Bryman, 2016). Finally, I chose my fieldwork cases, which are analysed in Chapter 7 (Argentina, Brazil and Colombia). I abandoned the originally proposed countries for four main reasons: ethical considerations made CLIFF change focus (2.2); extremely time-consuming research visas procedures, ethically complex and problematic if government approval was needed, and for some countries not advisable (e.g., Mozambique); my expertise in Latin America led the research towards that region; and the original countries were ranked lower in the inventory exercise compared to other LMICs. The selection of the three case studies was guided by feasibility and to have a comparative design in LFFU (Bryman, 2016). Indeed, following Gerring (2006, p. 89), Argentina is a typical case, Brazil a deviant one, and Colombia an extreme/influential case (see Annex 1).

2.6.2 Qualitative and quantitative methods

2.6.2.1 Systematic literature review

The first method I adopted is the systematic literature review of academic and grey literature (Galvan & Galvan, 2017; Page et al., 2021). I analysed 96 peer-reviewed publications and 15 reports (see 4.2 for the research protocol). The review provided background information on the energy transition in the Global South, helping me understand key problems with energy, development, and climate change. Before

conducting desk and fieldwork, the systematic literature review identified the primary research gaps (see 1.2.2), assisting me in designing the interview questions (see 2.6.2.5).

2.6.2.2 *Content and policy analysis*

In Chapter 5 I conducted a qualitative and deductive content analysis (Bryman, 2016) to examine how Global South countries address climate change and LFFU in their NDCs and National Communications (NCs). See 5.3 for a brief but comprehensive discussion of the method, how I assessed the documents, and how I addressed the method's strength and limitations. In total, 75 documents were analysed: 50 in the published chapter and 25 to integrate four additional countries' perspectives (Bangladesh, Colombia, Indonesia and Mexico; see Annex 5), which all feature in Chapter 6, and Colombia also in Chapter 7.

Chapter 7 analyses the vertical level of climate-energy governance situated in the case studies (Newell & Carter, 2024), to identify policy instruments and their possible redesign (Hurlbert & Gupta, 2019). I collected data from interviews (see below) and climate policy databases (see 7.2). Adopting a critical-material perspective (see 2.3) and a mainstream and interpretive orientation (Browne et al., 2019), I bridged the analysis of the policy development process with the policy issues framed by different actors, to understand LMICs governments' priorities and critically investigate policy instruments and outcomes (van Hulst et al., 2024; B. Yang et al., 2025; Y. Yang et al., 2023).

2.6.2.3 *Descriptive quantitative analysis*

Economic indicators help address the political economy of energy transitions but are not comprehensive (Alarcón, 2024). I used quantitative data to support and integrate the analysis (see 5.3 and 6.2). The socioeconomic data, relevant financial flows, fossil fuel data I used are mostly publicly available from international agencies (IMF, World Bank, etc.) or partially available datasets (IEA, BP Statistical Review of World Energy, WID – World Inequality Database, etc.). Public data availability is limited, especially for coal, infrastructure and LDCs. The only database not publicly available, for which CLIFF paid a subscription for one year, is Rystad Energy database (Rystad, 2023). With Dr. Yang Chen's help, maps were created using data from the databases (see 6.3).

2.6.2.4 *Fieldwork*

As mentioned in 2.6.1, I focus on three countries for fieldwork (Argentina, Brazil, and Colombia). The multi-sited fieldwork phase ran from February 2025 until June 2025 and focused on the cities of Bogotá, São Paulo, Brasília, and Buenos Aires. In accordance with the ERC and ethics (see 2.2), research visas for Brazil and Colombia were obtained. I adhered to the requirements of the relevant national authorities on the ground to register the visa with public authorities. As a dual citizen, I was not required to obtain a research visa for Argentina; however, I did secure an invitation letter from a university to provide institutional backing and support. In addition to conducting in-depth interviews (2.6.2.5), I took field notes when attending symposiums about the energy transition in LMICs.

A series of contextual to more fundamental limitations need to be considered. The case studies focused on relatively democratic contexts, leaving authoritarian or hybrid regimes unexamined (Gonda & Bori, 2025; Larsen, 2024). During fieldwork in Colombia, ministerial reshuffles limited engagement with government representatives, while, more generally, restricted access to economic actors led to greater reliance on policy documentation. While informants were sensitive to younger generations' education, youth perspectives remain underrepresented. Within CLIFF, earlier MSc theses informed the design for Colombia and Argentina (Boogard, 2022; Ceballos Jimenez, 2024; Haasloop Werner, 2022; Hids, 2022) while the findings of this thesis contribute to the CLIFF-IA (Y. Chen & Gupta, 2024) and could inform the application of CLIFF's Stranded Asset Index.

2.6.2.5 Interviews

The primary data for analysing the role of LMICs in the energy transition and LFFU comes from semi-structured interviews conducted during fieldwork and deskwork. Semi-structured interviews are a useful method in multiple-case studies to ensure comparability, address specific issues based on informant expertise, and have flexibility in conducting the interview (Bryman, 2016).

Data was gathered from experts on energy, climate change and fossil fuels, including government officials, public officers, policymakers, businesses, NGOs, academics, civil society organisations and activists. The participants included elite informants (decision-makers with exclusive information and the power to influence outcomes; see 2.3; Solarino & Aguinis, 2021). I followed best-practice recommendations for designing, preparing, and conducting the interviews, considering the uneven power distribution between myself and the interviewee (Liu, 2018; Solarino & Aguinis, 2021). In addition, to detect and/or counter to the extent possible misinformation (false but shared in good faith), disinformation (false and knowingly deceptive) and malinformation (true information used to cause harm) (CSI Library, 2025), while no formal protocol was adopted, the interview material was triangulated with peer-reviewed literature and official statistics to qualify rather than amplify contested claims.

Since the concepts orienting the research process elucidate certain dynamics while blocking others (Lund, 2014), reflexivity is an essential methodological dimension of this thesis's critical approach, to clarify how my standpoint, access to information and interpretive lens shaped the findings and theoretical contributions (Christley et al., 2025). My positionality as a European white male researcher studying fossil political economies in the Global South shaped data collection. Fluency in Spanish and Portuguese and previous experience in Latin America facilitated contact with governmental and expert circles, yet the perception of being an outsider occasionally surfaced. This awareness guided my restraint from making overt prescriptive statements, instead focusing on documenting and analysing the conditions under which actors in the Global South shape

transitions, in an ethical effort to de-silence and avoid the erasure of the Other (Icaza, 2022).

I conducted 96 interviews between November 2024 and June 2025, following the ethical procedures outlined in 2.2.2. Two group interviews were held, involving a total of 9 participants (see Annex 6 for the anonymised interview log). For logistical reasons 2/3 of the interviews were conducted virtually on MS Teams, while the rest were in person and recorded using a password-protected recorder. Interviews were conducted in Spanish and English. I then transcribed them, using MS Teams for the virtual ones or manually for in-person interviews, and uploaded the transcripts to Atlas.ti for inductive thematic coding and analysis. Guided by the identified knowledge gaps (1.2.2) and the theoretical framework (2.4), the interviews focused on the collective and multiple impacts of phasing out fossil fuels, analysing the policy environment surrounding climate and energy policy (see 7.3 and Annex 7 for a sample questionnaire).

Table 4 – Chapters, methods and type of data

Chapter	Methods	Data
Chapter 3 (North-South)	Review of literature	Academic and grey literature Publicly available reports and publications
Chapter 4 (State of the Art)	Systematic Literature Review	Academic and grey literature
Chapter 5 (Narratives)	Content analysis	NDCs and NCs Data on fossil fuel projects from publicly available databases and Rystad
Chapter 6 (Inventory)	Quantitative analysis (descriptive)	Academic and grey literature Policy documents Numerical data from publicly available databases and Rystad
Chapter 7 (Case study, energy policy, coalitions and redesign)	Interviews Policy analysis	Academic and grey literature Interview data Policy instruments and Policies Publicly available reports and publications

Source: Author.

2.7 Conclusion

After outlining the theory, conceptual scheme and methods of this study, three conclusions are drawn, each emphasising the combined potential of CLIFF’s ICID model and a neo-Gramscian approach. The integration of these frameworks helps shed light on institutional redesign, relational inclusiveness and a ToC for LFFU, presenting a robust analytical model for inclusively LFFU. I conclude that (a) the synthesis of ICID and neo-Gramscian IPE offers a sound framework for institutional redesign. This incorporates agency, endogenous change, and power into institutional analysis, providing a model to

redesign actors' incentives towards LFFU; (b) ICID's relational component in inclusive development, coupled with neo-Gramscian focus on historical bloc's tactics and strategies to maintain hegemony, advances a better conceptualisation of the power dynamics in energy transitions. Analysing CLIFF's actors from this perspective sheds light on their power, resistance and accommodation (Ford & Newell, 2021); and (c) innovative ICID's ToC explores the feasibility of changing the current energy system, the narratives that resonate with actors, and which institutional redesigns are better placed for LFFU. By incorporating insights from neo-Gramscian IPE, its focus on possible change agents, their narratives, and counter-hegemonic projects (Haas, 2019), this combination develops an original ToC for LFFU, exploring the conditions for a shift from transition to just transformation (Newell, 2019; Winkler, 2020).