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### Leaving Fossil Fuels Underground

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# 1. Leaving Fossil Fuels Underground

*Joyeeta Gupta, Barbara Hogenboom, Arthur Rempel, Carolina Valladares and Hebe Verrest*

## Abstract

How do different actors engage with fossil fuel phase-out? Which arguments and approaches are successful in dealing with the multiple trade-offs involved in the fossil fuel discussion, and how can these be scaled up? And, most fundamentally, how can societies move away from a global system based on fossil fuels and its deeply vested economic, financial and political interests and achieve energy transition, inclusive development and socio-environmental justice? This introductory chapter points at the academic, societal and policy importance of understanding and engaging with leaving fossil fuels underground (LFFU) initiatives. It presents the knowledge gap regarding the ways in which different actors, ranging from investors to social movements and from state to non-state actors at all levels of the geographical scale, use and develop different arguments and approaches in phasing out fossil fuels at multiple levels of governance. Finally, it explains how the other chapters in the book examine the potential of LFFU within a global framework of North–South studies, with special reference to Africa and Latin America and case studies on South Africa and Ecuador.

**Keywords:** fossil fuel phase-out, inclusive development, socio-environmental justice, governance, energy transition

## 1.1. The purpose of this book

In order to address the global climate emergency (European Parliament, 2019), it is increasingly important to bring net greenhouse gas (GHG) emissions to zero by 2050. The Paris Agreement on Climate Change (Paris

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Agreement, 2015) (see 1.5) has been ratified or acceded to by almost all countries (190 states, including China and the United States, and the EU). It calls for: (a) the limitation of global temperature rise to a maximum of 2° above pre-industrial levels, and if possible to be kept as low as 1.5 °C; (b) the strengthened capacity of countries to manage the impacts of climate change; and (c) the alignment of financial flows with these goals to support the mitigation of climate change and the actions of developing countries (Paris Agreement, 2015). This science-based target of the Paris Agreement supports grassroots action against fossil fuel extraction and use because of the local-level challenges associated with fossil fuels. At the same time, it requires that actors, at all levels of governance, take action to jointly work toward leaving fossil fuels underground (LFFU)—up to 60% of proven oil and gas reserves and 90% of coal reserves to comply with the 1.5 °C goal (Welsby et al., 2021). At the same time, taking measures in relation to the Paris Agreement raises all kinds of important justice issues—justice issues in relation to extraction, climate impacts, stranded resources and assets, affordable energy, contract and investment law and so on. We explore these justice issues throughout the book and return to the broader question of what climate change implies for development in the final chapter.

Against this background, this book examines the role of key actors, arguments and approaches in promoting the rapid phase-out of fossil fuels. Since these LFFU actors, arguments and approaches can be found at and across all geographical levels, this book has a multi-level perspective, with a special focus on South Africa in Africa and Ecuador in Latin America. A key factor is those who resist the use of fossil fuels for varying reasons. While most of the early resistance against fossil fuel extraction happened at the local level by affected groups, increasingly, these actors have collaborated with other groups and institutions as well as scholars at the national and transnational level. Further, with climate change impacts and knowledge expanding, national and global action have expanded too. Other actors include those who invest in fossil fuels and have major vested interests in the sector; those who use, consume and depend on fossil fuels for their livelihoods and businesses and these investment, production and consumption actors are also major players.

Despite 30 years of international climate negotiations and the Paris Agreement, numerous national policy reforms and the start of a global energy transition, the current pace of phasing out fossil fuels is far too slow to limit global temperature rise to 1.5–2.0 °C (Aengenheyster et al., 2018). In fact, industrialised countries have continued to exploit new fossil fuel reserves and many countries in the Global South follow suit by engaging in large

new fossil fuel projects and related debts, with the support of institutions from the Global North, instead of developing new economic and energy strategies. In response, non-state actors and social movements are mobilising to address various aspects of the fossil fuel problem. Moreover, social, academic and political debates increasingly question how societies can move away from a century-old global system based on almost unlimited use of fossil fuels, and the deeply vested economic, financial and political interests and patterns. This book contributes to this debate, by exploring proposals and initiatives for new and coherent international policies and financial mechanisms for LFFU.

## 1.2. Scientific relevance: Why leave fossil fuels underground?

A key question is: Why are we focusing on LFFU as opposed to a more general narrative on how does one promote the energy transition? This is because we have identified a set of important knowledge gaps around four interrelated areas: First, the difficulties and opportunities in phasing out fossil fuel extraction; second, the need for coherence in related international financial flows; third, while there is considerable discussion on the North–South dynamics of emission sharing, there is very little that examines this from the perspective of who is allowed to use the remaining fossil fuel and the right to development; and fourth, the fact that in a globalised world, decisions to phase out fossil fuels involve actors from all continents and at all levels of governance. We argue that there is little comprehensive analysis of how different actors, ranging from investors to social movements and from state to non-state actors at all levels of the geographical scale, use and develop different arguments and approaches in phasing out fossil fuel at multiple levels of governance. We briefly explain these gaps in knowledge below.

First, we aim to address the “background” difficulties and opportunities in phasing out fossil fuels, which have not received sufficient scholarly attention. The Paris Agreement implies a global energy transition to renewables and non-fossil energy. Considerable work is taking place worldwide to assess the potential of such a transition (see Chapter 2). In order to promote such a transition, fossil fuels and the fossil fuel economy have to be phased out to make space for a new and revamped renewable and non-fossil-fuel energy economy and this can possibly only happen within a very different development context (see 1.4). Such an energy transition requires, on the one hand, losing revenues from stranded assets and resources (see Chapter 2) of €14.27 (\$16) trillion to €263 (\$295) trillion (Liquiti & Cogswell, 2016) (depending

on the methods used to compute the losses) globally while requiring an investment of \$115 trillion in low-carbon and renewable energy technologies by 2050. This also implies phasing out all existing fossil fuel infrastructure (e.g. pipes for transporting gas by electricity lines) and technology and replacing that with new approaches—for example, removing all fossil fuel-based cooking by electric cooking, or all fossil fuel-based transport by electric transport.

However, while there is considerable research on the energy transition and the shift from coal to oil to gas, there is inadequate research on why it is so politically and economically difficult to globally leave fossil fuels underground at the fast pace that the climate emergency requires: the abundance of global fossil fuel reserves; the substantial financial resources invested in the sector; the nature of infrastructural and technological dependency on the fossil fuel sector; the political, financial and technological lock-in; and how these all interact. Phasing out fossil fuels could lead to major risks for the financial sector as the European Investment Bank has shown and even the collapse of the financial sector (Clark, 2020, citing Mike Carney, former governor of the Bank of England). This is because the fossil fuel enterprise is valued at a higher than realistic price, creating a carbon bubble (Carbon Tracker Initiative, n.d.). This carbon bubble implies that the economic value of fossil fuel assets is considerably more than it would be if the implications of the Paris Agreement had been factored in. Those who see these assets on their balance sheets are unwilling to see them evaporate if they were to become stranded assets or stranded resources (Bos & Gupta, 2019; see Chapter 2 for explanation of stranded assets).<sup>1</sup> Many individuals, companies and governments are still hedging their bets and hope that they can maximise their individual profits before a fossil fuel phase-out becomes legally mandated. Ongoing investments in fossil fuels today may lead to emissions that result in average global temperatures to rise to 1.5 °C above preindustrial levels by 2040 (Millar et al., 2018), while more recent projections see us crossing 1.5 °C by 2030.

It is important to point out that the Paris Agreement does not mention the word “fossil fuel” and thus does not directly address these actors and interests. In a way, the global economics and politics of a fossil fuel phase-out

1 For an individual, a stranded asset (e.g. a fossil fuel-using car) implies the costs of replacement or the lack of employment for those employed in the sector. For a company, a stranded asset implies loss of shareholder value (Carbon Tracker Initiative, n.d.). For an economy, a stranded asset implies the potential risk of economic collapse (Mercure et al., 2018). These costs lead to resistance from fossil fuel users, producers and investors from household to global level (Bos & Gupta, 2019).

is the *background* against which decisions are made in international treaty negotiations and national governments. This crucial background, however, has been inadequately studied in the scholarly literature, which has mostly focused on the *foreground* of the climate negotiations and the implementation challenges of the individual articles (Gupta, 2014). At the same time there are many opportunities to phase out fossil fuels, which have created major environmental, economic, social and political externalities, not only at the global and national level—massive pollution, Dutch disease, boom–bust development and corruption, to name a few—but also at the local level, from extraction processes in rural areas to use in urban areas. This has mobilised large groups of actors against the use of fossil fuel, in particular at the local level; but equally at the local level there are actors that resist the phase-out of fossil fuel since they depend on it for their livelihoods.

Second, a related gap in knowledge concerns the incoherence of fossil fuel-related international financial flows with the Paris Agreement and climate change mitigation. The fossil fuel sector is a global sector. There are huge global financial flows with respect to it. There is *prima facie* evidence that these flows are not consistent with the mitigation of climate change. Massive financial resources continue to be used to discover new sources of fossil fuels and to invest in them (Carbon Tracker Initiative, 2019; Gupta et al., 2020). The G20 governments have been noted to continue supporting the fossil fuel sector, and even propping up the sector during the COVID-19 crises (Geddes et al. 2020; Rempel & Gupta, 2021). This is happening probably because those who are divesting their investments are selling these to the Global South (see Chapter 2). It may also happen because the industry is sensing a crisis in the Global North and is finding ways to shift the responsibility to the Global South, but these hypotheses need testing. This is why the Paris Agreement of 2015 called for coherence in financial flows, as the lack of consistency further entrenches fossil fuel interests and creates new vested interests.

Third, and in relation to the above two gaps in knowledge, is the North–South dimension of the global fossil fuel dilemma. The literature has identified the tensions in globally sharing the carbon budget (the maximum amount of carbon that can be emitted if we want to achieve a certain temperature level) in a fair way, in relation to the size of the budget, the link to development levels, the temporal aspect of whether one can postpone decision-making in the hope of new technologies resolving these tensions, the question of how to share the budget between countries and peoples, the impact of trade on the budget (should one focus on production-related emissions or consumption-related emissions) and the issue of whether such a transition is actually possible given the limits and challenges to

non-fossil-fuel-related emissions (Gupta, 2014). However, the literature has not covered the relationship between (a) sharing emissions and sharing the right to use natural resources within one's own country; (b) the tensions between the right to development and the right to (promote) sustainable development (see Chapter 2); and (c) how the incoherence in financial flows affects North–South relations. While there is a huge literature focusing on the issue of dividing or sharing emission rights between countries, these are not embedded in an understanding of the global fossil fuel dilemma and its different North–South dimensions (see 1.3). Achieving the 1.5 °C goal will alter global, national and local financial and energy sectors and thereby hinder the development prospects of the developing world, undermining their ability to ensure sustainable livelihoods unless they can redefine their development paradigm and internalise ecological damage (Gupta, 1997; Hicks et al., 2008; Okereke & Coventry, 2016).

Climate change, therefore, is not just a serious environmental issue, but it is, in essence, a development issue (Gupta & Van der Grijp, 2010, p. xiv). Climate change shows us that we need to live within planetary boundaries and thus fundamentally questions our understanding and definition of development. The North–South tensions have been exacerbated by the fact that although the original idea of the UN Framework Convention on Climate Change (UNFCCC, 1992) was that the rich countries would reduce their emissions to make space for the developing countries, over the years from 1990 to 2020, there has only been a period of five years (2008–2012) during which some of the rich countries (excluding the US and Canada) had legally binding targets. The Doha Amendment to the Kyoto Protocol (2012) only entered into force on the last day of the 2020, thus undermining its effectiveness. The Paris Agreement has in turn entered the post-equity stage where every country individually does what it can and has come under much critique from equity scholars (see 1.5.1). This is all the more poignant given that a substantial part of the remaining fossil fuel reserves is in the Global South. These countries will de facto be left with stranded resources and assets as the bulk of the carbon budget has been used up by the major industrialised countries, with China and India trying to catch up (Bos & Gupta, 2018). It is possible that the Global South will not only have to face the heaviest impacts of climate change to which their contribution has been relatively small; but I can also not use the same development path as used by the Global North, nor can it aspire to the production and consumption patterns of the Global North, which are completely unsustainable (Gupta, 2014). Equitably phasing out fossil fuels thus requires reimagining alternative pathways to development beyond the orthodox growth paradigms.

Fourth, and following from the above, while there is vast scholarship on the role of states, leaders, businesses and non-governmental organisations (NGOs) in the area of climate change, there is very little dedicated scholarship on the role of those actors that are critical for phasing out fossil fuels and that function in the “background.” For example, there is growing evidence that about half of the large (parent) companies along the global coal value chain plan to start new coal mines, plants and infrastructure, and will be expanding their operations as long as shareholders and institutional investors continue to offer the financial resources to do so (Urgewald, 2020). More generally, fossil fuel interests are promoted by fossil fuel companies and those who invest in them, including the aid and export credit agencies (Gupta et al., 2020), pension funds (Rempel & Gupta, 2020), development and commercial banks and philanthropic foundations. Some multilateral institutions such as the European Investment Bank have pledged to phase out fossil fuel investments by 2021 (EIB, 2019) and the World Bank has promised to stop investments in oil and gas exploration (World Bank, 2019). However, most other banks across the world have not.

It is not just the big investors that are not covered adequately by the literature; it is also the social movements. These are growing worldwide and range from those opposing fossil fuel extraction because of the local impacts to those opposing climate change (Fridays for Future, Extinction Rebellion). Coal, oil and gas extraction is facing opposition because of the multifaceted problems it propagates in addition to climate change: water and land grabbing, local water, soil and air pollution, deforestation, health damage, unfarmable land and famine, and repression via neocolonialism and environmental racism (Urgewald, 2020). Focused on the oil sector, Watts (1999) has coined this multifaceted destruction and damage as “petro-violence.” The system of the extraction, transport, refining and consumption of oil and other fossil fuels that directly and indirectly causes widespread damage has relevant similarities to the fast and slow violence and the widespread harm of the system of colonialism (McDermott Hughes, 2017).

While there is substantial literature on individual case studies of individual social movements resisting fossil fuel industries, there is little that presents an overview of the different actors, their arguments and the approaches to promote or hinder the process of leaving fossil fuels underground. This is all the more important as halting climate change and leaving fossil fuels underground is a “super wicked” problem: the gains and losses faced by different actors vary, the stakes are very high and those who bear the costs define the problem differently from those who benefit.

Thus, the above four interrelated gaps in knowledge—the huge financial aspects of the fossil fuel sector, the incoherence in funding flows, the evolving



North–South dimensions and the role of actors, arguments and approaches in this context are the major focus of this book. All these approaches imply huge trade-offs for the different actors engaged in the debate and this has implications for how they engage. A key challenge is whether we can move beyond these trade-offs to identify successful LFFU strategies that are socially, ecologically and politically inclusive (see 2.2).

### **1.3. Research focus and limits**

Given the above gaps in scholarship, this book focuses on the question: How do different actors use different arguments and approaches to engage with fossil fuel phase-out? Which arguments and approaches are successful in dealing with the multiple trade-offs involved in the fossil fuel discussion for which actors and why? And how can these be scaled up? Embedded within a global framework of North–South studies, these questions are answered with special reference to Africa and Latin America (see Chapters 4–8). We examine LFFU potential and problems from a bottom-up approach and top-down approach. By partly focusing on the cases of South Africa and Ecuador, we can include insights from dynamics at the local and national levels into our analysis. We look at the social movements that are protesting the fossil fuel sector locally as well as nationally, regionally and globally. Then we zoom into the role of states who are often caught between their responsibilities to respond to contestation of existing policies and practices, and their fear that alternative approaches may impact on their economic growth and the vested interests. Next, we look at the actors who invest in the fossil fuel sector. An assessment of the actors, arguments and approaches within the fossil fuel sector itself (private fossil fuel companies and state-owned fossil fuel companies) is beyond the scope of this book. Being the world's largest industry (Ross, 2012, p. 3), and given its vast vested interests in business as usual, the role of the fossil fuel sector is worthy of full attention in another study.

### **1.4. Societal relevance: The climate change problem**

The climate change problem refers to the cumulative emissions of GHGs resulting from the energy, food and other development sectors that cause global warming. The societal dimension is on the impact side but also on the emission side. The impact side refers to the impacts of climate change—which include rising temperatures, melting glaciers, rising sea

levels, changed precipitation patterns, ocean acidification and potentially irreversible changes such as impacts on ocean circulation patterns and polar melting (IPCC, 2014, 2019, 2021). The global temperatures have already risen by 1.2 °C over pre-industrial levels. If they rise beyond 2 °C, they will reach a level that has never been experienced in the Holocene and could have major impacts on society. These are levels that bring us into a no-analogue zone—where we have absolutely no idea how and if we can survive as a human species or what the impacts will be on other ecosystems.

Climate change has already advanced to such an extent that it is seen as a driver of all other ecosystem challenges—whether in relation to oceans, land, fresh water and biodiversity (Ekins et al., 2019). It thereby impacts on the lives and livelihoods of billions of people who depend directly on nature for their survival (i.e. about 70% of the world's poor depend directly on nature). It will and does disproportionately affect developing countries and poor and vulnerable people (Gupta et al., 2020). It is impacting on water systems, food systems, housing and infrastructure. It is already leading to extreme weather events, including droughts and disasters, and such events affect millions annually (Ekins et al., 2019). It is no wonder that the European Parliament now sees climate change as an “emergency” (European Parliament, 2019). This clearly means that action needs to be taken urgently and yet democratically to address the problem.

This brings us to the issue of mitigation: the need to mitigate the emissions of GHGs. The 1.5–2 °C objective requires transformative changes in the way societies develop and produce (IPCC, 2014), especially massive reductions in their GHGs (IPCC, 2013, p. 19). This implies decarbonising electricity generation and energy supplies in the industry and transport sector (IPCC, 2014). This is because the bulk of GHGs comes from the use of fossil fuel (IPCC, 2014). There is no alternative to phasing out fossil fuels. Some argue that bio-energy with carbon capture and storage (BECCS) technology can help us buy time. These options have been included in scenarios prepared by or for the Intergovernmental Panel on Climate Change (IPCC). However, there is growing evidence that bio-energy at the scale required is not possible (because we do not have the land and other resources to grow the required amount of bio-fuels) and carbon capture and storage is very expensive and risky (Ekins et al., 2019).

This brings us back to the issue of (equitably) replacing fossil fuels with energy sources that are clean and do not emit GHGs. Clearly this also requires us to rethink the continuing and growing demand for energy. Phasing out fossil fuels brings with it some major challenges. First, fossil fuels are asymmetrically distributed globally and therefore embody spatial

implications. Second, fossil fuel production and consumption are the driver of most economies worldwide and phasing out fossil fuels is seen as a major risk to economies (see Chapters 4 to 7). Third, since many sectors of the economy including households are using fossil fuels—changing the system leads to huge costs to everyone and this also leads to social movements resisting policies to phase out fossil fuels or make them more expensive as was the case when the public protested the rising price of fuels in France. At the same time there are other social movements that object to the way the extractive industries function and to climate change. Unpacking this narrative is what this book aims to do.

## **1.5. Policy relevance: The climate change regime and Agenda 2030**

### **1.5.1. The climate change regime and fossil fuels**

This book is policy relevant at the international level as it aims to support the implementation of the climate change regime (for details of its history, see Gupta, 2014) and Agenda 2030. The two regimes are briefly explained below as well as their implications for this book. (It is also policy relevant at country level, as the empirical chapters show.)

We believe that the history of the negotiations is critical to understanding the temporal dimension of the politics, economics and environmental aspects of the problem. With the General Assembly adopting an intergovernmental negotiating process on climate change in 1989, negotiations on the United Nations Framework Convention on Climate Change (UNFCCC, 1992) began leading to its adoption in 1992. This convention specified the urgency of the problem, recognised the differentiated responsibilities and respective capabilities of rich and poor countries and outlined a list of targets, policies and measures for all countries. It proposed a financial mechanism where industrialised countries would provide “new and additional” resources to enable developing countries to address mitigation and adaptation challenges and thereby promote the implementation of the convention. It also proposed market mechanisms. The convention recognised that rich countries would have to reduce their GHGs emissions to make space for the legitimate increase in the emissions of developing country. However, there was also discussion about whether the oil-rich developing countries should be compensated for the loss of revenue they might face if they were to phase out their emissions and this resulted in the

inclusion of Article 8.<sup>2</sup> In fact, over the next 10 years, this debate on whether industrialised countries should compensate members of OPEC (Organization of the Petroleum Exporting Countries) for their loss of income (Gonn, 2009) hampered other discussions on the financial mechanism. This might provide some background to new demands to compensate developing countries to leave their fossil fuels underground (see Chapter 4).

In 1997, a follow-up protocol—the Kyoto Protocol to the United Nations Framework Convention on Climate Change—was adopted (Kyoto Protocol, 1997). It specified GHG emissions targets for the industrialised world for the period from 2008 to 2012, which would have, if achieved collectively, amounted to a 5.2% reduction in relation to 1990 levels. However, the US and Canada did not participate. The US claimed that the protocol was “fatally flawed” as it exempted developing countries from quantitative targets (White House, 2001, cited in Byrne et al., 2007; Harris, 2009). Moreover, the achievement of the targets of other industrialised countries was facilitated by the use of market mechanisms (e.g. the Clean Development Mechanism, Joint Implementation, Emissions Trading) and so this did not really cause a major dent in fossil fuel use in these countries or in the developing world (e.g. Sinn, 2012). While the market mechanisms were meant to unleash a major process of decarbonisation worldwide, this did not eventually occur, not least because of the non-participation of North America, but also because the project-based approach did not lead to programmatic change. Furthermore, although the protocol indicated that the industrialised countries would provide “new and additional” financial resources to enable developing countries to implement the protocol, which was meant to be over and above the 0.7% of gross domestic product (GDP) that was being used for development assistance, industrialised countries interpreted this as over and above the actual development cooperation resources which was significantly below 0.7% (Gupta & Van der Grijp, 2010; Stadelmann et al., 2013, p. 1; Josephson, 2017). Such new and additional finances remain a hot issue even today as this book demonstrates. In 2012, the Doha Amendment to the Kyoto Protocol was agreed; it aimed at identifying targets for as many countries as possible to continue the momentum of the Kyoto Protocol for the period from 2012 to 2020. Despite the fact that Barack Obama was at

2 “[T]he Parties shall give full consideration to what actions are necessary under the Convention, including actions related to funding, insurance, and the transfer of technology, to meet the specific needs and concerns of developing countries arising from ... the impact of the implementation of response measures, especially on: ... Countries whose economies are highly dependent on income generated from the production, processing and export, and/or on consumption of fossil fuels and associated energy-intensive products.”

that time president of the US and despite the large-scale ratification of the amendment by developing countries, the Doha Amendment only entered into force on the last day of 2020—and much of the momentum was lost.

It is then logical that the Paris Agreement (2015) was greeted with so much acclaim. It tried to re-energise the legal momentum in the climate change-negotiating process. Finally, after 23 years, it identified an overarching objective, thereby articulating clearly in quantitative terms the long-term objective of the agreement and the need for financial coherence in Article 2.<sup>3</sup> This book will focus on these two issues because they provide the international context for phasing out fossil fuel use and because they highlight the need for financial coherence. As mentioned above, the Paris Agreement does not mention fossil fuels or establish any targets relating to fossil fuels. However, achieving the long-term objective is only possible by phasing out net fossil fuels by 2050 (see 1.5.1).

The Paris Agreement set up a process for implementation and monitoring of the implementation. But it gave up the idea that the industrialised countries should lead first and make space for developing countries; rather, *all* countries were required to identify targets for themselves in nationally determined contributions (NDCs)—thus moving away from an equitable allocation to a post-equity narrative where everyone does what they want to and can, and the equity narrative shifted from common but differentiated responsibilities to respective capabilities in the light of different national circumstances; and assistance from industrialised countries to developing countries is now more or less equivalent to “capacity building” and loans within the Green Climate Fund. The lofty ideals that had brought 193 countries together to adopt the UNFCCC in 1992 and ratify it rapidly by 1994 have been watered down over the years. For example, calls for self-determined NDCs as a non-legally binding component of the Paris Agreement is problematic; this concession was made to enable President

3 “This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by: (a) Holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognising that this would significantly reduce the risks and impacts of climate change; (b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; and (c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development. This Agreement will be implemented to reflect equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.”

Obama to bypass the US Senate and ratify the agreement. However, bypassing the Senate was also possible for President Trump, who then withdrew from the Paris Agreement (effective from 4 November 2020). Member of the House of Representatives Alexandria Ocasio-Cortez proposed a Green New Deal though it was met with Trump's opposition. And shortly after his inauguration, President Biden again bypassed the Senate to rejoin the Paris Agreement (20 January 2021). But the bottom line is that the way the Paris Agreement is designed does not guarantee US participation and, worse still, by excluding the national commitments and the financial promise of an extra \$100 billion annually to finance developing countries from the legally binding part of the Paris Agreement text, it has watered down the commitments even further. This has also meant that the \$100 billion to be provided annually to address climate change is not yet on the table even though the European Parliament has urged the European Union (EU) to double its contributions to the Green Climate Fund (European Parliament, 2019). There is also increasing evidence that development assistance money is being re-labelled as climate money.

The first set of NDCs under the Paris Agreement aim to reduce global emissions by 40% by 2030 in relation to 1990 levels (Paris Agreement, 2015). Some NDCs include bans and moratoriums on specific types of fossil fuels (e.g. China, India, and Spain focus on coal) and some focus on specific locations (e.g. the US moratorium on "oil and gas exploration in some areas of the Arctic and Atlantic" [SEI et al., 2019, p. 43]). The NDCs include conditional and unconditional commitments and studies show that these reductions are likely to be 50% higher than what is necessary to limit average global temperatures by 2 °C, and 120% higher than what is needed for a 1.5 °C rise (SEI et al., 2019, p. 2; WRI, 2019). In fact, the ambitions in the NDCs have to be ratcheted up by five times to achieve the 1.5 °C goal (UNEP, 2019; King & Van den Bergh, 2019) and this does not even address the fact that many countries are falling short in achieving their NDC GHG pledges (Aldy et al., 2017; Roelfsema et al., 2020). It should be noted that shipping and aviation emissions as well as those from defence activities are not explicitly included in this.

At the 26th Conference of the Parties of the UNFCCC in November 2021 (COP26), for the first time, an express objective towards achieving net zero emissions and the goal of 1.5 °C, by accelerating the phase-out of fossil fuels, in particular coal, was articulated (Carver, 2022), correcting the omission to mention fossil fuels explicitly in the Paris Agreement (Harvey, 2021). It called for the "phase down of unabated coal power and phase out of inefficient fossil fuel subsidies, while providing targeted support to the poorest and most vulnerable in line with national circumstances and recognising the

need for support towards a just transition” (UNFCCC, 2021). A total of 190 countries agreed to phase down coal power, which could decrease new coal power plants by 76%, and over 40 countries supported the Global Coal to Clean Power Transition Statement (Carver, 2022). They also agreed to reassess and strengthen their NDCs up to 2030 (Danaher, 2021). The newer submissions could lead to a combined increase in GHG emissions of 13.7% in 2030 above 2010 (Coleman, 2021), while a 1.5 °C target would require reducing emissions by 45% by 2030 (Coleman, 2021).

A critical reflection of the climate change regime shows that it has taken a symptomatic approach to addressing climate change focusing primarily on emissions, but scarcely questioning the production, distribution and consumption patterns or the underlying neoliberal capitalist paradigm that is responsible for the current rapacious growth model. Its focus on technology transfer, market mechanisms and financial mechanisms tends to reproduce Western lifestyles in the Global South rather than questioning its fundamental premises (Gupta, 2014; Chapter 2). This is a point we return to in the last chapter.

### 1.5.2. The 2030 Agenda and fossil fuels

This brings us to a discussion of the global 2030 Agenda and fossil fuels. This agenda has been initiated by member states of the United Nations and consists of a long list of development targets that are headed under 17 Sustainable Development Goals (SDGs), which have been internationally adopted (UNGA, 2015). This successor of the Millennium Development Goals has been praised for its transformation potential and critiqued for not having sufficient ambition and “teeth” and insufficiently addressing the fundamental sources of inequality in the international political and economic system (Bond, 2018). Despite these reservations, from the perspective of this book, Agenda 2030 is important for four reasons. First of all, for the first time in human history, social goals such as poverty eradication have been put on par with ecological and economic goals at the global level—a remarkable achievement. We have had treaties on trade, investment and the environment, but we have never had treaties on social issues such as poverty reduction, energy access and so on. Agenda 2030 corrected this by outlining 17 goals for the global community and clearly prioritising poverty reduction.<sup>4</sup> In addition to poverty, the goals of Agenda 2030 emphasise access to water,

4 “We recognise that eradicating poverty in all its forms and dimensions, including extreme poverty, is the greatest global challenge and an indispensable requirement for sustainable development” (UNGA, 2015, para. 2).

food, energy, infrastructure, housing, education, health and so on, and it focuses on reducing inequality. It thus articulates a commitment to justice at a global level, which goes beyond a conservative commitment to a human rights-based approach. However, the agenda fails on corrective justice (Gupta & Schmeier, 2020). Agenda 2030 is strongly embedded in human rights law and in the Rio Declaration on Environment and Development (UNCED, 1992).

Second, the 2030 Agenda not only prioritises poverty as the greatest challenge, but it also emphasises that all goals have to be treated in an integrated and indivisible manner.<sup>5</sup> This is remarkable because it basically argues that achieving one goal at the cost of other goals is not possible, that synergies have to be sought between different goals; something this book tries to assess. Third, the SDGs require that *all* countries become sustainable, seeing also industrialised countries as unsustainable (Hajer et al., 2015). The SDGs require significant change in consumption patterns and reduction in resource use in the Global North (Leal Filho et al., 2019). There is also a call for participation by the private sector (Scheyvens et al., 2016) and other non-state actors. Fourth, the 2030 Agenda is the result of breakthroughs in international negotiation requiring countries from the Global North and South to share one of 30 “seats” and to come up with a common position before negotiating internationally (Chasek & Wagner, 2016). It is the world’s largest crowdsourcing event where 7 million people, especially those in the developing world, were consulted (through fax, interviews, telephone calls, etc.) with 58% of the respondents aged between 16 and 30 (Gellers, 2016).

Clearly the document is the result of negotiations and hence embodies some incoherence within it, which results from the compromises reached. Two key issues here are: (a) its focus on “partnership” and collaboration while calling for “full permanent sovereignty,” which developing countries wanted as a way to protect their rights over their resources and policies (Gupta & Ceylan, 2020); and (b) its focus on “growth” (mentioned 16 times), reflecting the wishes of those who see GDP growth as an imperative while using the adjective “inclusive” (41 times), reflecting the wishes of critical thinkers (Gupta & Vegelin, 2016). The compromise was that “growth” is almost always prefixed by “inclusive” and is often in relation to small-scale enterprises or least developed countries.

Two of the 2030 Agenda’s 17 goals are central to this book: the climate change goal (#13) and the energy goal (#7). The climate target aims to “[i]ntegrate climate change measures into national policies, strategies and

5 “We are announcing today 17 Sustainable Development Goals with 169 associated targets which are integrated and indivisible” (UNGA, 2015, para. 18).



planning” (Target 13.2) and “[i]mprove education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning” (Target 13.3). It requires a joint effort by both the public and the private sectors (Target 13.2) and enables reducing impact (Target 13.3) and calls for generating \$100 billion annually (Target 13.A). However, the climate change goal is deliberately vague, deferring to the UNFCCC regime. (It was included, because the negotiators wanted to ensure that climate change was seen as a top global priority.) The energy goal focuses on universal access to affordable, reliable and modern energy services and calls for increasing the share of renewables in the global energy mix. However, it also calls for “cleaner fossil fuel technology” (Target 7.A).

Access to energy is linked to reducing poverty (#1), reducing hunger (#2), enhancing health (#3), the water goal (#6), sustained, inclusive and sustainable economic growth and employment (#8), resilient infrastructure (#9), reduced inequality (#10), sustainable cities (#11), sustainable production and consumption patterns (#12), sustainable use of land (#15), and peace (#16). This implies that in analysing fossil fuel phase-out, we need to consider a number of related issues: (a) socio-ecological issues—(i) access to income/jobs; (ii) access to services of food, water, land, energy, infrastructure, housing; (iii) access to nature’s contributions to people; and (iv) procedural rights of non-discrimination, information, decision-making, recognition, courts (Gupta & Lebel, 2020); (b) economic issues—impacts on the economy, infrastructure; (c) broader justice issues—impacts on inequality, production and consumption patterns, and peace; and (d) in relation to North–South issues—impacts on least developed countries, small island states and the right to development (see Table 1.1).

**Table 1.1. How two of the Agenda 2030 SDGs link to the phasing out of fossil fuel**

Central SDGs	Issue clusters	Synergies & trade-offs
Climate change (Goal 13): Implicitly phase out fossil fuel; Energy (Goal 7): Promote affordable, reliable modern energy; increase renewables and clean fossil fuels	Socio-ecological access	Jobs/income (energy related) Services (affordable, reliable, modern energy) NCPs (energy extraction, production, use and impacts on nature) Procedural rights (rights related to energy)
	Socio-ecological allocation	Inequality (energy-related inequalities) Production/consumption patterns (and use of energy)
	North–South	Issues of developing countries vis-à-vis energy Right to development and energy
	Economic	Economy (link between energy and economy) Infrastructure (energy related)

This discussion has two implications for our analysis in this book: (a) Any analysis of the issue of LFFU needs to take the other goals into account (see Table 1.1); and (b) the issue of dividing responsibilities between states on fossil fuels remains contested as states are seen to have full sovereignty over their fossil fuel resources. Despite calls for global solidarity, the 2030 Agenda does not call for liability or responsibility from those who caused harm to others.

## **1.6. Focus on Africa and Latin America**

While this book takes a global perspective it pays special attention to Africa and Latin America, with case studies on South Africa and Ecuador. This focus is valuable because the negative current and future effects of fossil fuels particularly harm vulnerable groups in low- and middle-income countries, such as Indigenous peoples, peasant communities, poor families and women. By doing so, the extraction and use of fossil fuels is a major source of socio-environmental and climate injustice (cf. Bond, 2016; Pearse, 2016; Vásquez, 2014), and this has sparked various LFFU initiatives in these regions. However, as mentioned above, leaving fossil fuels underground also involves major trade-offs for different actors in such countries, ranging from very vulnerable to very powerful groups. This complexity is especially clear in countries with large fossil fuel reserves. While the empirical findings and analysis of the case studies on South Africa and Ecuador evidently cannot be generalised to Africa, Latin America and the Global South as a whole, they offer important insights and pointers to our understanding of the global dynamics of LFFU, including North–South interactions.

### **1.6.1. South Africa**

Africa has an estimated 126 billion barrels (Gbbbl) of proven oil reserves and 647 trillion cubic feet (Tcf) of proven natural gas reserves, equivalent to roughly 7.5% and 9% of global reserves, respectively. Across the continent, almost 85% of produced crude oil and petroleum products and 41% of natural gas is exported. Coal is less ubiquitous but undoubtedly relevant, with South Africa, Zimbabwe, Botswana, Mozambique, Tanzania and Nigeria's proven reserves combining to 14.8 billion tonnes of coal, or roughly 1.4% of global reserves (computed using data from BP, 2020).

Within Africa, South Africa is a key case to consider in the LFFU narrative as it is home to one of the world's most carbon-intensive economies.

Coal continues to be the mainstay of the South African energy system, supplying as much as 70% of installed power-generation capacity (IEA, 2021). Simultaneously, South Africa is one of the world's most unequal societies, with a national unemployment rate of 30–35%. South Africa's coal sector generates an estimated 90,000 direct jobs (e.g. mining) and 170,000 indirect jobs (e.g. equipment manufacturing) while also being responsible for considerable local pollution (Res4Africa, 2021).

Phasing out fossil fuels in the South African context calls for revamping the minerals–energy complex (MEC) (Fine & Rustonjee, 1996), a long-standing legacy from the apartheid era that has evolved into the existing, carbon-dependent national regime. Restructuring the MEC into a climate-friendly configuration faces a multitude of challenges that extend far beyond those of employment—as was just alluded to—including but not limited to: energy access, health and safety, international trade, racism, sexism and gender-based violence, and colonial and imperial legacies.

South Africa's proposed modification through the NDCs have been labelled as highly insufficient, with both policies and actions and fair share targets estimated to lead to warming over 2 °C and up to 3 °C (Climate Action Tracker, 2022). One contributing factor to this misalignment stems from South Africa's plan to remain 51% coal dependent in installed power capacity by 2030 (DMRE, 2019). South Africa's government is clearly focusing on economic growth and does not appear to take alternative development paths into account. South Africa's MEC and NDCs and the responses of social movements and their intricacies are further explored in Chapters 5 and 6.

### 1.6.2. Ecuador

Latin America has 337.7 billion barrels of proven oil reserves and 7,954 billion cubic metres of proven natural gas reserves. This is equivalent to 19% and 4% of global reserves, respectively. Venezuela alone holds 17% of oil reserves and 3% of natural gas reserves worldwide. The region's coal proven reserves account for 1.5% with 16,118 Mt with Brazil and Colombia as the main producers (OLADE, 2021). Moreover, 40% of the world's unconventional oil reserves are in Latin America (Valdivia & Lyall, 2018, p. 464). In 2020, the region's CO<sub>2</sub> emissions amounted to 1,435 Mt, equivalent to 4.5% of global emissions (OLADE, 2021).

Ecuador is among Latin America's largest oil exporters. After Venezuela and Brazil, it has the region's third-largest oil reserves (8.3 billion barrels) and is the fifth-largest oil producer in the region, producing 534,000 b/d in 2019.

In 2020, 70% of its oil production was for export, accounting for almost half of its export earnings and a fifth of public sector revenues (EIA, 2021). Oil is the main source of primary energy consumption (around 75%), but since 2010 Ecuador's hydroelectric capacity has surpassed the national demand and has become progressively the main source of electricity production (CELEC, 2021). Still, Ecuador's economy remains highly dependent on oil exports and oil extraction continues despite being the cause of several socio-environmental conflicts. The arrival of the oil industry in the 1970s to the Amazon—where its oil reserves are located—meant an abrupt incursion into the territories of many Indigenous nationalities (Quintero & Silva, 1991; Sawyer, 2004).

Oil extraction in Ecuador is a deeply politicised matter, which for years has triggered the contestation of civil society. On the one hand, the experiences of oil exploitation include human rights violations related to the colonisation of Amazon territories and the pollution of livelihood means as oil spills pollute water and soils, and ever-burning torches taint the air. The Amazon populations close to the extraction sites are among the poorest and have the highest cancer rates in the country. The lawsuit that 30,000 Amazon Indigenous people and peasants filed against Texaco, now ChevronTexaco, for the impacts generated during its operations is an iconic case of Ecuador's history of social organisation vis-à-vis the oil industry (Beristain et al., 2009). On the other hand, Ecuador's economy still depends on the revenue generated by oil exports, making its economy vulnerable to price fluctuations (Andrade, 2016; Fontaine, 2007). Moreover, its fossil fuel subsidies are among the highest in Latin America, and their elimination is a matter of contention. Even when the subsidy has regressive distributional effects, it plays a politically symbolic role on the imaginary of revenue redistribution in the energy and production sectors. Moreover, the precarious job opportunities and compensations of the oil industry has led to clientelism for the Amazon populations who live amid unemployment and poverty.

Ecuador's society has pioneered important organisational efforts to contest fossil fuels. Next to the above-mentioned trial against Texaco—in 2011 a court ruled that the company should pay \$9.5 billion (Lu et al., 2017), but the company has contested the ruling ever since—Ecuadorian civil society groups were among the first to call for leaving fossil fuels underground in international fora, as part of the organisation Oilwatch. These calls became the seed to what later took the form of the Yasuni-ITT Initiative launched by the Ecuadorian government in 2007 to prevent oil extraction from Yasuni National Park in exchange for the compensation from industrialised countries amounting to half the revenues Ecuador

would otherwise receive from extraction (see Chapter 8). The constitutional enactment of the rights of nature (Espinosa, 2019) and critiques of the model of development under the concepts of *buen vivir* are part of wider ongoing debates among social environmental movements and scholarship in Latin America and beyond (Radcliffe, 2012; Svampa, 2019). Chapter 4 examines the way civil society actors in Latin America and in Ecuador continue to mobilise ideas to phase out fossil fuel extraction, as well as the challenges and opportunities to achieve this goal.

### 1.7. Transdisciplinary methodology

This research is based on a transdisciplinary methodology. It combines different academic disciplines and approaches—namely law, politics, policy sciences, anthropology, sociology and engineering. It merges these different disciplines in the identification and analysis of actors, arguments and approaches. Moreover, our understanding of LFFU actors, arguments and approaches has been informed by in-person and online meetings and discussions about our research findings with a variety of practitioners—activists, governmental and NGO experts—from different countries and generations.

In terms of methodological steps, this research is based on (a) a combination of rapid and systematic literature reviews on a number of theoretical and conceptual issues (see Chapter 2). It has used (b) systematic content analysis to assess the laws and policies of different actors—at the inter-governmental level, at the state level, at the level of different actors and at the level of non-state actors and civil society. Social movements are rather varied and flexible, and it can be laborious to assess their main arguments and approaches (for instance, requiring interviews). Non-state actors (such as NGOs) are sometimes easier to analyse, more willing to be interviewed and their extensive documentation enables content analysis. Hence, we have also analysed news clippings and other sources of information (checking for legitimacy in order to screen out fake news) to assess the role and impact of social movements. We have then used (c) quantitative data analysis of relevant data collected from a range of different sources. Finally, we have focused on (d) two major case studies (of Ecuador and South Africa). The single case study approach in the two continents is embedded in an understanding of regional dynamics and we hope to be able to draw lessons from each case study that are relevant for other similar countries in the same or different continents.

## 1.8. Structure of this book

This book is structured as follows. Chapter 2 reviews the theoretical and conceptual strands that have been used in the process of the research work. It brings these strands together in a coherent conceptual framework. Chapter 3 examines the role of social movements worldwide and the way in which they have used direct action, including the courts, to stop fossil fuels or promote renewables. Chapter 4 looks at social movements in Latin America with a special focus on Ecuador. Chapter 5 examines the arguments of different actors with respect to LFFU in South Africa. Chapter 6 explores the social movements in South Africa. Chapter 7 assesses the role of investors in the fossil fuel sector with a special focus on aid and export credit agencies, pension funds, banks and philanthropy. Chapter 8 looks at supply-side measures and Chapter 9 concludes the book by bringing the different storylines together.

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