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# **ASSEMBLING PETROLEUM PRODUCTION AND CLIMATE CHANGE IN ECUADOR AND NORWAY**

Elisabeth Marta Tómmerbakk



# Assembling Petroleum Production and Climate Change in Ecuador and Norway

This book addresses some of the controversies and uncertainties associated with reducing the extensive exploitation of fossil fuels due to their role in global warming.

Elisabeth Marta Tømmerbakk explores why a transition towards a post-carbon society is so difficult to accomplish by examining how the relationship between petroleum production and climate change is politically framed and negotiated in contested cases. This question is approached through a process-oriented comparative case study of Lofoten, located in the Norwegian Sea above the Arctic Circle, and Yasuní-ITT (Ishpingo, Tambococha, and Tiputini) located in the Ecuadorian Amazon: regions that both belong to oil-exporting countries with highly oil-dependent economies. Tømmerbakk draws on rich empirical data that includes qualitative interviews with subjects in both countries and applies an actor-network theory framework to show that oil and climate are intricately entangled in knowledge and policy practices. Overall, *Assembling Petroleum Production and Climate Change in Ecuador and Norway* provides an in-depth examination of how climate science and petroleum extraction are negotiated, adapted, assembled, and coordinated with other national policies and political aims.

This book will be of great interest to students and scholars of petroleum production, climate change, environmental policy, and environmental sociology.

**Elisabeth Marta Tømmerbakk** is an Associate Professor at the University of Cuenca, Ecuador. She holds a PhD in Sociology from Nord University, Norway, and her research interests include petroleum conflicts, climate policies and mitigation mechanisms, knowledge production and knowledge systems, territorializations, and sociomaterial practices.

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# **Assembling Petroleum Production and Climate Change in Ecuador and Norway**

**Elisabeth Marta Tómmerbakk**

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**To my dear father**



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# Abbreviations

ANT	Actor-Network Theory
API	American Petroleum Institute
CCS	Carbon Capture and Storage
CGY	Certificados de Garantía Yasuní
CDES	Centro de Derechos Económicos y Sociales
CDM	Clean Development Mechanism
CEPAL	Comisión Económica para América Latina y el Caribe
CEPE	Corporación Estatal Petrolera Ecuatoriana
CONAIE	Confederación de Nacionalidades Indígenas del Ecuador
COP	Conference of the Parties
DRA	Drag Reducing Agents
ECLAC	Economic Commission for Latin America and the Caribbean
GDP	Gross Domestic Product
GHG	Greenhouse Gas
IEA	International Energy Agency
ILO	International Labour Organization
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
ITT	Ishpingo, Tambococha, and Tiputini
LOVESE	Lofoten, Vesterålen, and Senja
NCS	Norwegian Continental Shelf
NGO	Non-governmental Organization
NICFI	Norway's International Climate and Forest Initiative
NORAD	Norwegian Agency for Development Cooperation
OECD	Organization for Economic Co-operation and Development
OFD	Oil for Development
OPEC	Organization of the Petroleum Exporting Countries
REDD	Reducing Emissions from Deforestation and Forest Degradation
SIL	Summer Institute of Linguistics

SOTE	Sistema de Oleoducto Transecuatoriano
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
WTI	West Texas Intermediate
WWF	World Wildlife Fund
ZITT	Zona Intangible Tagueiri Taromenane



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# 1 Introduction

## **Presenting the problem: The fossil fuels–climate change nexus**

Today, a widespread agreement exists within the scientific community regarding anthropogenic global warming (Chevalier 2009a; Bradshaw 2014; McGlade and Ekins 2014). There is little doubt, in other words, that climate change will constitute the greatest environmental challenge in the years to come. The gradual increase in temperature will most certainly have unprecedented consequences not only for the environment but also for the individual and for society as a whole. Therefore, in recent years, climate change has gone from being a topic among researchers and experts to an important political challenge that requires governance at many levels: International, national, and regional (European Commission 2007). Today, climate change is at the heart of environmental discussions and is increasingly replacing ecology, environment, and sustainable development, as the overarching theme (Lidskog and Sundqvist 2013: 19) when discussing the impacts and implications of human-nature interactions.

Global warming is largely a consequence of the man-made global energy system currently dominated by fossil fuels. The possibility of limiting its impacts in the future “will depend critically on whether energy use can be greatly reduced, dissociated from carbon or both” (European Commission 2007: 13). Accordingly, climate change can be conceived as a new kind of energy crisis that clearly differs from previous conceptions related to scarcity, that is, energy constraints due to high oil prices or depletion of oil and gas reserves (Chevalier 2009a: 1). In the past, many policymakers working with energy security issues were largely concerned with different scenarios and challenges tied to conceptions of “peak oil”. The focus was placed on when oil production was estimated to peak and decline. Accessing new oil reserves was, therefore, considered vital to secure stable energy supplies. Today, these concerns are considered less pressing due to technological innovation, which has improved the resource recovery rate considerably (Chevalier 2009b; Bradshaw 2014). While factors that influence the possibility of accessing particular petroleum resources include both technical and economic viability in combination with geopolitical aspects, there is also an expressed need to take into account possible future “reductions to oil availability arising from constraints placed on

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[carbon dioxide] CO<sub>2</sub> emissions” (McGlade and Ekins 2014: 103). Hence, today’s energy crisis is not directly related to whether the world is approaching peak oil or not, but to the fact that our energy system is no longer sustainable in a 2°C scenario established as a political goal by the United Nations Framework Convention on Climate Change (UNFCCC). From this perspective, the current energy crisis is not primarily about price volatility or exhaustion of petroleum resources but the excess of hydrocarbon reserves available for consumption when the political aim is to maintain the global rise in temperature below 2°C. Hence, “sustaining fossil-fuel production will come at a cost, both economically and environmentally” (Bradshaw 2014: 28). While the exact costs are impossible to calculate, the economic impact of climate mitigation could be high, especially in developing countries, if efficient measures are not agreed on internationally and implemented within a short timeframe. Ever since the international climate negotiations started in 1992 with the Rio Summit, there has been an ongoing debate regarding what constitutes efficient strategies to reverse the gradual temperature rise and how to distribute the costs of mitigation globally. In other words, how to share the burden between countries. This brings us to another related issue, namely, the global imbalance between developed and developing countries when it comes to access and consumption of energy resources. While 18% of the world’s population is responsible for close to 50% of the world’s energy consumption and around 30% of all greenhouse gas (GHG) emissions, many people around the world do not have access to basic services such as electricity or clean water, necessary conditions to achieve economic development and welfare (Chevalier 2009a: 1).

Global warming produced by changes in the chemical composition of the atmosphere is closely related to two important processes: Industrialization and urbanization. Since the Industrial Revolution started in the West, the concentration of GHGs has increased considerably, especially carbon dioxide, which has risen by 30% since 1880 (Giddens and Sutton 2013: 177). From the view of economics, higher levels of GHGs in the atmosphere are conceived as externalities. In *The Stern Review*, climate change is described as “the greatest example of market failure we have ever seen” (Stern 2007: 1). This economic approach towards climate change is also the logic that underpinned the Kyoto Protocol: Through market mechanisms, these externalities could be handled and economically accounted for by turning GHG emissions into a tradable commodity in a market designed for this purpose.

According to climate scientists, higher levels of CO<sub>2</sub> in the atmosphere are mainly caused by the burning of fossil fuels, but industrial production, deforestation, large-scale agriculture, and vehicle emissions also play important roles (Giddens and Sutton 2013: 177). In this context, the International Energy Agency (IEA) has stated that in the absence of large-scale implementation of carbon capture and storage technology (CCS), a considerable part of the world’s known fossil-fuel reserves must be kept in the ground so as not to surpass the 2°C goal (IEA 2012). Similar carbon budgets have been put forward by several environmental think tanks and climate organizations. However, the thesis of “keeping fossil fuels in the ground” (Princen et al. 2015: 7) has not really gained momentum.

## Scope and approach

This book addresses some of the controversies and uncertainties that arise from the extensive exploitation and use of fossil fuels and their role in global warming. The scope is not to discuss climate science *per se* but its implications for political decision-making and the construction of national policies that enable reconciling multiple and often conflicting agendas. Emphasis is therefore placed on how oil and climate change are “entangled” and how this relationship is politically handled and worked upon at different levels. Important points of departure are the various environmental, political, economic, and technological challenges related to climate change and the required transition towards a low-carbon energy system. The book specifically explores the question of why a transition towards a “post-carbon” society is so difficult to achieve by examining how the relationship between petroleum production and climate change is politically framed and negotiated in contested cases. The question is approached through a comparative case study of Lofoten and Yasuní-ITT (Ishpingo, Tambococha, and Tiputini), located in Norway and Ecuador, respectively. The cases constitute relevant sites to empirically study how the relationship between oil and climate change is framed and enacted as they both belong to oil-exporting countries with highly oil-dependent economies and therefore have a strong stake in the issue. It is important, however, to point out that oil exploitation in Norway and Ecuador takes place under very different technological conditions and in very different environments. Norway’s oil production is offshore, which means that petroleum activities do not interfere directly with people’s lives, neither are possible environmental risks tangible in the same way as in Ecuador, where oil extraction is carried out in the Amazonian rainforest. Here, local inhabitants and communities live in close proximity with national and international oil companies and have direct contact with petroleum installations and infrastructure. As a consequence, environmental risk is often directly part of their everyday lives and experiences. This situation has developed into strong opposition and processes of resistance among the local population. In the case of Norway, the condition of operating offshore may possibly explain why the oil industry does not face similar opposition. The petroleum debate in Lofoten, however, is different, as it has a strong local component due to the importance of the fisheries and tourism for the area. Here, contrary to what is the case with offshore petroleum operations in the North Sea, many local inhabitants oppose the possibility of opening up the area for oil activity, as they fear that the incursion of the oil industry will generate territorial disputes with the local fisheries and change the image that outsiders, especially tourists, have of Lofoten. The local opposition is based on concerns regarding the risk petroleum production potentially represents but also on identity matters (see Kristoffersen and Dale 2014).

Despite being two very different cases with different technological, environmental, and political conditions for oil activities, the cases also have certain things in common. Selecting two cases from different parts of the world (one from a developed country and another one from a developing country) enables me to



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examine the research problem from local, national, and global perspectives: In other words, to trace links and connections across borders and scales. However, it is important to emphasize that the cases are not the geographic places themselves but the ongoing political processes and controversies related to the question of extracting oil or not in these environmentally sensitive areas. I also want to emphasize that the scope of this inquiry is not a holistic analysis of the cases, as there are many aspects related to the Lofoten and Yasuni-ITT controversies that I do not investigate.

While the case study literature frequently distinguishes between “holistic” and “embedded” case studies, the meaning of holism seems to vary considerably. According to Bartlett and Vavrus, understandings of holism tend to be based on “a traditional notion of culture and a functionalist theoretical stance” (2017: 37). In the past, ethnographic studies were often concerned with describing a whole culture or way of life, a practice that tended to be underpinned by a bounded understanding of culture (Bartlett and Vavrus 2017: 37), which complicates examining how boundaries are “enacted into being” (Law 2007: 12) in the first place besides diverting our attention away from more processual understandings of the world. Bartlett and Vavrus propose “an iterative and contingent tracing of relevant factors, actors, and features” (2017: 37) to compensate for these methodological shortcomings. In line with their perspective, the aim of this book is not to give a comprehensive or complete account of all the components that comprise the cases but to get close up on certain links, connections, and relationships to understand how they are politically, environmentally, and economically produced and made viable across levels and sites. I chose to work with a science and technology studies (STS)/actor-network theory (ANT) approach to fulfill this purpose, mainly drawing on authors such as Latour, Law, Asdal, and Callon. This framework/method will be further explained in the next section. The idea has been to follow the cases as unfolding processes by focusing on the various ways in which actors, entities, objects, science, and policies are interweaved and circulate. I worked with the following subsidiary research questions to guide the empirical analysis:

1. How are different kinds of knowledge, values, discourses, and policy practices produced and articulated in the two cases?
2. How do stakeholders frame and negotiate environmental risk?

Consequently, this inquiry focuses on different challenges and political strategies related to petroleum production and non-extraction policies in connection with climate change and national fossil-fuel dependency. The aim is specifically to examine how different local and national entities and stakeholders link challenges related to petroleum activity and climate change. Moreover, in our globalized world, there seems to be a contradiction between the desire to guarantee economic growth and development, especially in developing countries, and at the same time preserve the environment, biodiversity, local culture, livelihoods, and indigenous peoples’ territorial rights. These latter concerns, in particular, make it important to try to discover how certain values, knowledge systems, discourses, and policy

practices are produced, circulate, and become legitimate within the petroleum debate.

### **Actor-network theory**

ANT is associated with the work of Bruno Latour, John Law, and Michel Callon. While sometimes referred to as the Paris School of Science and Technology Studies (Hess 1997), an important difference between ANT and other perspectives within STS is the blurring of the ontological divide between human and nonhuman actors. This issue has caused heated debate, especially between advocates of the Strong Programme developed by Bloor (1976) and theorists working within an ANT perspective, as

ANT tends to be seen as an attempt to erode, or at least “bypass”, the barriers between the natural and the social arena. In contrast, through its maintenance of a subject-object distinction, the Strong Programme is sometimes portrayed as protecting those barriers, especially by ANT writers.

(Newton 2007: 28)

This controversy takes us to the core of ANT, that is, how humans and nonhumans are connected and become associates through extended networks. Actor-network theorists often prefer the term “*actant*” instead of “actor”, since “actor” in social sciences is a concept heavily loaded with meanings that vary from the purposive and calculating actor of rational choice theory to the actor guided by social norms and values in Parsons’s structural functionalism. Hence, from a traditional, sociological perspective, the concept of the actor refers to human beings with intentionality and objectives, which consequently motivate their actions. Alternatively, the use of actant, which has its origin in semiotics, is revealing because it illustrates that the actors are not important in themselves but are activated and gain their significance in relation to other entities. Consequently, “ANT adheres to a material, expanded version of semiotics, also called relationism or associationism, which studies how things come into existence as a result of the set of relations of which they are a part” (Asdal et al. 2007: 29). Agency becomes a matter of attribution, as the entities’ ability to act is not an inherent characteristic but depends on their position or location in the network (Hess 1997: 108). From an ANT perspective, sociology’s definition of the social as an exclusively human possibility has generated a reductionist view of both agency and interaction.

What differentiates ANT from previous approaches in STS is the extended applicability of symmetry, as material entities also play a significant role in producing relational effects or outcomes. Law (1987) refers to this process as “heterogeneous engineering”. In other words, this is how a variety of elements and entities with different origins and locations are assembled in and through sociotechnical processes. Facts and technologies circulate and associate with other entities as their networks expand and, thereby, become more robust and reliable. Through translation networks, inscriptions, and inscription devices, technologies

and human actors are brought together and engage in interaction (Callon 1995: 52). When an increasing number of actors and actants are enrolled in the network, it becomes more powerful and less questionable. This is the reason ANT is referred to as a sociology of translation (Callon 1986), emphasizing the relational dimension as to what causes the effects and outcomes. According to Callon (1986), there are four moments in the translation process: problematization, interessement, enrollment, and mobilization of allies. Problematization refers to how a problem is defined and how one can persuade others to accept this problem definition in order to become an obligatory passage point. Interessement is related to a series of actions that impose and stabilize the roles and identities of other actors defined through problematization. Enrollment follows successful interessement, as actors accept the interrelated roles that have been designed and attributed to them. Finally, mobilization has to do with achieving representation by particular spokespersons (Callon 1986).

### **Nature, politics, and science intertwined**

One of ANT's main objectives has been to overcome a series of dichotomies that underpin and guide common understandings of society, nature, and science – facts/values, culture/nature, subject/object, and politics/science – are all productive *hybrids* of the modern world. Latour (1993) argues that this hidden *hybridization* is part of the Modern Project, which has separated humans and culture in one ontological zone and nonhumans and nature in another one. Latour calls this process “purification” (Latour 1993). Translation is seen as a parallel process that generates heterogeneous mixtures that combine elements and entities, in other words, “hybrids of nature and culture” (Latour 1993: 10). Latour maintains that we find the origin of two coexisting, separate worlds (the social and the natural) in circumstances that occurred during the period of the Scientific Revolution. An important element in this analysis is Shapin and Schaffer's (1985) *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life*. The book describes a prolonged dispute in the middle of the 17th century between Robert Boyle and Thomas Hobbes, who were both political and natural philosophers. The outcome of their disagreement, however, was that Boyle ended up being recognized as a natural scientist, while Hobbes is regarded as a political philosopher (Blok and Jensen 2011: 56). Consequently, their story is closely related to the understanding of science and politics as two separate and distinct domains of society. According to Latour, the nature/culture divide is the outcome of a combination of ideas, apparatuses, and procedures that Boyle and Hobbes used to settle their controversies that involved “the distribution of scientific and political power” (Latour 1993: 15). From this perspective, the conflict between them is of particular interest, as it constitutes the origin of modernity and what Latour calls the “modern constitution” for which Boyle and Hobbes play important roles as the “founding fathers” (1993: 28). As seen by Latour, the controversy is primarily about how to establish authoritative knowledge and, thereby, which knowledge systems and corresponding procedures should be considered valid. He further maintains that political and scientific

representations co-constitute each other, even if modern discourse and practice constantly struggle to keep them apart.

### **Ordering and framing multiple realities**

Overall, the material-semiotic identity of ANT has become increasingly important in later developments as it points towards networks as uncertain, precarious, and open-ended processes in which actors and entities and their size and power are relational effects of their mutual encounters and the specific position they hold in the network. This anti-essentialism can also be traced back to Foucault's conception of discursive practices and their physical and material consequences for reality. Thus, discourses are productive; they *do* something that goes beyond simply using signs to represent things and express meaning (Kaarhus 2001: 29). Similar to actor-networks, discursive practices open up and enable some realities while making other options remote or even impossible. Accordingly, Foucault's discourses and ANT are both concerned with the question of representation and *spokespersons*, but, more importantly, the focus is on what is being produced due to a particular kind of material and discursive or epistemic relationality. In *Organizing Modernity*, Law (1994) draws on the Foucauldian notion of discourse when describing the various ways an organization is being patterned and enacted. In his ethnographic study of a scientific laboratory, Law identifies four different logics (administration, enterprise, vision, and vocation) simultaneously at work. These strategies, which he called "*modes of ordering*" (Law 1994), were not just social but materially heterogeneous processes that shaped the organization. Hence, the laboratory was enacted in and through different ordering modes that produced specific forms of organization (Law 2003: 2). While arranging material conditions, knowledge, people, relations, practices, etc., differently, the modes also interacted in what Law describes as a mutual interdependency. In other words, the organization depended on the various modes of ordering for its own continuity and stability. Law's argument is that organization is the outcome of multiple strategies, and there is no single overarching order that holds things together. On the contrary, organizations work and function precisely because of multiple ordering modes and a series of complex relations between them (Law 2003: 2). There is nothing *pure* about modernity, and, therefore, ordering is not pure either but tends to be rather *noncoherent* (Law 2003; Law et al. 2013). The idea of realities as multiple is also extensively developed by Mol, who focuses on how reality is shaped and multiplies in practices. Mol argues that shifting the focus from perspective (seeing from different positions or points of view) to practice allows us to capture the way realities become multiple as the objects that are being manipulated differ along with their practices (Mol 2002: 5). Multiplicity is, therefore, the outcome of several coexisting practices that work and take place simultaneously. This focus on realities as multiple has also generated new ways of approaching policy that question the previous "orthodox and influential notion of policy as a stable object that can be transplanted from one place to another" (Law and Singleton 2014: 381). Instead, from an ANT perspective, "policy is

a set of heterogeneous practices done variably in multiple locations” (Law and Singleton 2014: 381).

Later works within ANT have also fruitfully combined Deleuze and Guattari’s (1987) assemblage thinking with the conception of actor-networks. The reason is that “both approaches are concerned with why orders emerge in particular ways, how they hold together, somewhat precariously, how they reach across or mould space and how they fall apart” (Müller 2015: 27). There are important differences, however, between the notion of assemblage and actor-network. Müller (2015), for example, emphasizes that ANT considers agency a mediated achievement and, therefore, exclusively the outcome of multiple relations and associations, whereas assemblage thinking assumes that the parts that integrate a new association “can have intrinsic qualities outside associations that impact on and shape the assemblage” (Müller 2015: 31). Besides highlighting that ANT researchers have developed a clearer conception of ANT’s relation to politics, Müller also believes the approach offers a more concrete conceptual and methodological framework on how to trace links and associations in empirical studies than assemblage thinking does (Müller 2015: 31). As ANT researchers have ventured into new fields of study, such as public administration, environmental politics, and the economy, the notion of assemblage and actor-networks have been combined in new and interesting ways. Latour’s (2005) *Reassembling the Social* is relevant in this context because it constitutes a movement from ANT focusing principally on the production of science and technology towards focusing on society in general. Using the same ANT principles, the aim is to see how society and, more specifically, how “the social” is being produced as a privileged category and a source of explanation. Hence, what Latour proposes is nothing more and nothing less than a new kind of sociology, not of the social but of associations, as society must be reassembled as a new type of collective based on a more symmetrical relationship between humans and nonhumans. This is a political project, which is much broader than what concerns traditional institutional politics.

In the field of economic sociology, Callon has engaged in studies on the relationship between economy, economics, and markets. Callon’s point of departure is the concept of *externalities*, which economists use when referring to all those relationships and effects that are not accounted for in a market transaction (Callon 1998b: 16). Externalities are negative when they imply additional costs or investments for actors or entities that find themselves outside the transaction. However, externalities can also be positive, such as when external actors in one way or another benefit from market operations in which they are not involved. Overall, “negative externalities imply social costs that are not taken into account by private decision-makers; positive externalities discourage private investment by socializing the benefits” (Callon 1998a: 248). Within economic theory, the notion of externalities is understood as an example of market failures (the market being inefficient) and, thereby, points to the constructed character of markets (Callon 1998b). The concept of externalities is, therefore, based on *framing*, that is, the separation of relations, actors, goods, objects, commodities, etc., that belong to the transaction from those that are to remain outside. Thus, the very existence

of markets and their operability depends on this performative disentanglement. Callon (1998a) explains that he borrows the concept of *frames* from Goffman (1974), and while not employed in economic theory, *framing* is useful to explain a series of investments in “physical and symbolic devices” (Callon 1998a: 252) that are necessary for any kind of performance. Framing, however, can never be complete or totally stable, as it would be too costly to take into account and cover every possible eventuality. It is, therefore, impossible to avoid *leakage*, as the framing process itself constitutes “simultaneously a potential conduit for overflows” (Callon 1998a: 254). Callon sustains that this is not necessarily a negative thing, as overflows participate in circulating and producing new knowledge.

### **Making a case for a case study of Lofoten and Yasuní-ITT**

The ongoing political debate in Norway concerning the possibility of future oil exploitation in Lofoten and an expansion of the petroleum and gas industry in the north presents some elements that are comparable to the Ecuadorian case. The use and the spatial organization of the territory is a major part of the debate in both countries. Many stakeholders in Norway believe that coexistence is impossible between the fisheries, tourism, and the oil industry in the same territory. Similarly, a conflict over land use and territorial rights is also part of the Ecuadorian debate. In the Amazon, the coexistence between indigenous communities, agriculture, logging, and the oil companies has been anything but harmonious. In short, both cases are part of larger national debates related to the expansion of the oil frontier and, consequently, possible social, environmental, and climate implications.

Nevertheless, my decision to select Lofoten and Yasuní-ITT was based on their usefulness as contrasting cases. Furthermore, including a case from a developed country like Norway and another case from a developing country like Ecuador could produce important insights into the challenges of non-extraction policies and place them in a more general global context. What makes Yasuní-ITT and Lofoten contrasting cases is that, among other things, the Norwegian and the Ecuadorian oil histories (and, therefore, also narratives) have produced substantially different outcomes. The two countries are usually placed at different ends of the spectrum in the resource curse literature. The *resource curse hypothesis* sustains that the combination of economic, political, and environmental pathologies that some countries experience can have a cumulatively negative effect on the national economy and, as a consequence, these societies are unable to benefit from the revenues generated by their energy exports (Bradshaw 2014: 157). Norway, together with countries like Canada, is referred to as a country that has managed to avoid *the resource curse* and has used its oil and gas resources to generate economic development (Stevens 2003; Davis and Tilton 2005), while Ecuador’s petroleum experience for several decades has had the opposite effect on its national economy, exhibiting characteristics typically associated with Dutch disease.<sup>1</sup>

Selecting two cases that apparently had little in common (at least, at first sight), other than belonging to oil-exporting countries, offered me the opportunity to

search for similarities that did not necessarily stand out as obvious. However, despite being different, the cases evidently share a broader context that includes, among other things, a common global climate regime and the international oil market. This is important since the dramatic drop in oil prices that started in June 2014 and the signing of a new climate agreement in Paris at the end of 2015 are events that influenced and informed both cases and, therefore, became key variables I had not foreseen when I first wrote my research proposal. However, sampling or selecting cases is also a matter of *making* some relations or links commensurable. As Strathern has pointed out, “comparability is not intrinsic to anything” (2004: 53). Developing a point made by Howe (1987), Strathern emphasizes that comparison is not about finding things that are similar or different in themselves to compare them; instead, it is about acknowledging that the process of selecting and comparing is what produces relations of similarity and difference (Howe 1987 in Strathern 2004: 53).

The complexity of the cases made me realize that a more traditional approach towards comparative case studies would impose certain limitations on the definition of the cases and, thereby, on the analytic possibilities, as most case study literature emphasizes “bounding” as a key requirement for comparison (see Creswell 2013; Yin 2014). Since Lofoten and Yasuní are ongoing and evolving political processes, working with fixed and clearly delimited cases seemed problematic as these controversies are distributed and occur at many different locations simultaneously. I therefore ended up using an approach, which is more in line with what Bartlett and Vavrus refer to as a comparative case study heuristic that draws on both multi-sited ethnographies developed within contemporary anthropology (Bartlett and Vavrus 2017) and on process-oriented qualitative studies (Maxwell 2013 in Bartlett and Vavrus 2017). Accordingly, a *processual* comparative case study allowed me to trace and analyze relationships of similarity and difference between sites, which implied focusing on what Bartlett and Vavrus (2017) call the *horizontal axis*, while simultaneously paying attention to how policies, processes, and events developed across scales, which makes up the *vertical axis*. According to Bartlett and Vavrus, “the vertical axis reminds us to follow the phenomenon itself, be it a practice or a policy, as it enlists and engages actors whom one might otherwise assume operate in bounded spaces” (2017: 74). Finally, a processual comparative case study approach gave me the opportunity to work with a different conceptualization of context, not as a fixed place or location, but “as something spatial and relational” (Bartlett and Vavrus 2017: 47), which operates across scales and is woven into and, thereby, becomes part of the cases in various and shifting ways.

### ***The cases***

The Lofoten Islands, located in the Norwegian Sea above the Arctic Circle, are the center of important cod fisheries that take place every year between January and April. The fisheries and the production of stockfish have historically played a decisive role in the settlement and the local communities along the coast of

northern Norway. The fisheries have generated important economic growth and development in the region. The waters around Lofoten and Vesterålen are the main spawning areas for cod. According to the Norwegian Institute of Marine Research (2019), “the Northeast Arctic cod stock is the largest cod stock in the world”, and an acute oil spill from a major incident would certainly have negative consequences for the marine environment and the fragile ecosystems. Past research suggested that 6% of all cod and herring larvae would disappear with an acute oil spill. The Institute of Marine Research later adjusted its calculations, indicating that as much as 100% of a larvae year-class could disappear in the case of a major spill. The oil industry, however, is rather skeptical of the calculations presented by the institute since they consider them based on a worst-case scenario and therefore not very realistic (Haraldsen 2009).

Disagreements regarding the levels of environmental risk tied to oil activity in the waters of Lofoten, Vesterålen, and Senja (LoVeSe) have also generated considerable political debate. As for today, two of the major Norwegian political parties<sup>2</sup> agree on opening up the area to the petroleum industry. However, several minority parties, together with environmental organizations, are strongly against oil drilling in LoVeSe not only because of the fisheries and the importance of the marine ecosystems but also because of climate change. The argument is that opening up new areas for oil exploitation will increase Norwegian CO<sub>2</sub> emissions and prolong the country’s oil dependency for several decades instead of starting to phase-out the industry. They argue that Lofoten is symbolically important to show that Norway’s true intention is to contribute to an energy shift based on renewables (Hersoug and Arbo 2010: 317). Another element in the extraction or non-extraction debate has been the possibility of getting Lofoten on UNESCO’s World Heritage List as a mixed site due to its natural and cultural values. This process has been stopped, as some actors feared that a UNESCO status could block the possibility of future oil activity in the area.

Yasuní-ITT is located in the western part of the Amazon Basin, approximately 250 kilometers from Ecuador’s capital, Quito. Yasuní National Park, declared a World Biosphere Reserve by UNESCO in 1989, is one of the most biodiverse places on earth, as well as the territory of two uncontacted, indigenous groups, the Taromenane and the Tagaeri, who live in voluntary isolation in the rainforest. During the United Nations General Assembly in 2007, Ecuador’s President Rafael Correa launched a new idea: The country would “leave the oil in the soil” (Martin 2011; Espinosa 2013) in exchange for financial compensation from the international community. In his speech, Correa argued that developing countries with important biological and cultural diversity should be able to leave their petroleum resources underground and receive economic support from industrialized countries. By keeping 846 million barrels of oil in the ground indefinitely, Ecuador would prevent 407 million metric tons of CO<sub>2</sub> from being released.<sup>3</sup> This project, known as the Yasuní-ITT Initiative, became a reality in 2010 with help from the United Nations Development Programme (UNDP). The goal was to receive 3.6 billion dollars over a 13-year period, which Ecuador would use in different strategic areas, such as the



development of renewable energy sources, reforestation, social development programs, research, and technology. After years of campaigning, the initiative failed and, in August 2013, the Ecuadorian government announced that it had decided to end the project due to the lack of contributions and start drilling for oil in the Yasuní-ITT field.

### **Methodology and data collection strategies**

One of the principal strengths of a case study is that it allows the researcher to use many different sources of data and data collection techniques. A single source of information is usually not enough to address the complexities of this kind of inquiry (Creswell 2013; Yin 2014). Accordingly, several sources of data were combined during the data collection process for this project. Before I started fieldwork at the beginning of 2015, I spent several months collecting and reading news articles, documents, reports, and web pages related to the cases to obtain necessary background information. Since the study focuses on current processes, local stakeholders and national actors are constantly positioning both themselves and the perspectives and knowledge systems they consider relevant. Personally, I found this situation challenging. In fact, since a variety of circumstances and political situations changed during the time I was carrying out the research, there was always new information that, in one way or another, was highly relevant for the project. Following these events, however, was vital for several reasons. First, media coverage, reports, and documents helped me keep track of the political processes and, thereby, acquire important background knowledge of how values, facts, arguments, and discourses were produced and circulated among different stakeholders. Furthermore, it also served as an introduction to important themes and their chronological development in both cases. In short, what happened when, and who and what was involved. Second, I also got an overview of relevant actors who participated in the national debate on petroleum and climate issues. This was very useful further down the road when I was making a list of possible informants. Finally, the insights I gained by closely following the debate in the media and through different types of documents directly informed the interview process since part of this information was included in the interview guides. On several occasions, I would specifically refer to or ask about a statement put forward by a politician, an environmentalist, or a government official in order to obtain the informants' perspective on the issue in question. Keeping track of what was happening through media coverage and documents was, therefore, important throughout the whole research process, in other words, before, during, and after fieldwork. Besides fulfilling the role as key sources of information, documents and reports also progressively acquired a more active role during the research process, namely that of "agents in networks of action" (Prior 2008: 822). I was specifically interested in how documents shaped and directly participated in the socioenvironmental conflicts in question. Particular attention was, therefore, given to documents that helped move the processes in a specific direction, worked to constitute realities, or linked actors and sites.

In combination with documentary research, the data material is the result of 50 qualitative interviews carried out with 25 informants in Ecuador and 25 informants in Norway. These interviews were all recorded and later transcribed. According to Berg and Lune, interviews are useful when the researcher is interested in finding out how participants perceive situations and how they “attach certain meanings to phenomena or events” (2012: 115). Moreover, I used an adaptation of what is often referred to as a *semi-structured* format to conduct the interviews. The advantage is that while using a prepared interview guide with planned questions and themes, the researcher also has the opportunity to use probes and follow up on important information that was not necessarily included in the interview guide originally.

Thus, between one interview and another, I constantly modified and updated the interview guide since some questions did not seem relevant or appropriate for certain informants or actually turned out to not be relevant at all, while other questions emerged during the interview process. Some questions and themes were the same for all interviews (just with slightly different wording), while others were deleted as new promising themes were introduced. Since the group of informants included a variety of different actors with very different roles and involvement with the cases, I constantly had to prepare new interview guides with this in mind in order to gain access to specific information that a particular informant was in a position to provide.

The process of interviewing was, therefore, a continuous process. While each interview was a unique event with its own particularities, it was also part of a broader interviewing process. It is fruitful, therefore, to consider the interviews as interconnected in an explorative, dynamic, and cumulative process (Kaarhus 1999: 57). Hence, the interview as data material cannot be looked at in isolation but as part of a series of informational events. This perspective is precisely what allows the researcher to look for common patterns or themes across the interviews or across several cases in a multiple or comparative case study.

Another important aspect that is worth mentioning is the active role the informants played in shaping the research process. Some of the informants who participated in the inquiry generously gave me, after finishing the interview, a variety of documents like books and booklets, flyers, articles, or they would later send me links with information. On other occasions, they would specifically mention publications like research reports, videos on YouTube, and other documents and where I could find them. Evidently, they did this because they thought it was relevant for the project and that I should read the material they gave me. This clearly shows that the informants, besides giving information during the interviews, often actively provided additional sources of information and, thereby, extended their participation beyond the interview situation itself. Evidently, informants also shaped the interviews and interview situation in other ways. On several occasions, I had to abandon the themes that I had prepared in my interview guide because I realized that what the informant was telling me was so important that the best thing I could do was to follow up with exploratory questions and probes. Sometimes, if I had the opportunity, I would

return to the guide later on in the interview if I still felt that the informant had not covered some of the relevant topics. The sequence and structuring of the interview were, therefore, very much a product of the interview situation and the interaction between the interviewee and myself. For this reason, I do not agree with the conception of the research interview as an a priori asymmetrical relationship between an interviewer and an interviewee (Kvale and Brinkmann 2015: 51–52), in which the former has the power to completely define the interview situation. For instance, the setting or staging of the interviews was also mostly up to the informants since they chose where and when the interviews would take place. For this reason, the setting varies enormously from very formal contexts, like offices or conference rooms in the Norwegian parliament or the Ministry of Climate and Environment, to informal settings like someone's home or a small, noisy street corner cafeteria in Quito. In fact, sometimes, informants would reschedule the appointment or change the place for the interview because they thought it was better or something else came up that they had to attend. On other occasions, they would ask me where I thought it would be okay to meet, suggesting, in other words, that I should select “a proper” setting for the interview. The setting is, therefore, by no means defined a priori only by the researcher but appears as a negotiable dimension both before and during the interview (Kaarhus 1999: 40). These situations clearly illustrate that informants are not just passive entities who provide answers that the interviewer evokes by using questions prepared beforehand. On the contrary, the previous examples demonstrate that they engage in a role as co-producers of the interview in a variety of ways.

### ***Fieldwork***

Fieldwork, which constitutes the core data material for this inquiry, was conducted in two stages: First in Ecuador between January and June 2015 and later in Norway from September 2015 to January 2016. I interviewed local and national actors in both cases. This was important, as I was interested in obtaining diverse perspectives on different levels. The reason for conducting fieldwork in Ecuador first, however, was mainly pragmatic because I thought it would be easier to start back home since I had more knowledge and, therefore, a better understanding of the Ecuadorian case than the Norwegian one. Additionally, it would give me more time to upgrade my knowledge on the oil debate in Norway before starting the interviewing process.

I applied a combination of purposive and snowball sampling (Blaikie 2010) to recruit informants; this means that some participants were selected based on my knowledge about their involvement in the cases, while others were contacted because other participants considered they were relevant for the inquiry and, therefore, should be included. While recruiting informants in Ecuador, one important criterion was to incorporate informants who had been involved in the Yasuní Initiative in an earlier stage. Other informants were selected because they actively participated in the current debate. The reason for this strategy was that it

allowed me to incorporate informants with different points of view from different phases or stages of the political process of the Yasuni-ITT Initiative.

I normally used the internet to contact and inform possible informants about the inquiry if their e-mail address was available on their organization's website. If this was not the case, I would contact them by phone and ask for an appointment after explaining the project's background and objectives. Since some of the informants did not belong to formal organizations or organizations with updated websites, e-mail addresses were not always available. This was never a problem in Norway, but in Ecuador, some participants were not easy to locate. Therefore, I had to make use of my personal network of family, friends, and former colleagues who helped me locate people or, as it often turned out, locate other people who could help me contact the person in question. Informants whom I had previously interviewed were also very helpful, providing e-mail addresses and phone numbers of people I wanted to contact.

Another difficulty I encountered while recruiting participants in Ecuador was that some government officials and people with close ties to the government never replied to my e-mails or directly declined to participate in the inquiry. After several attempts, I realized that gaining access was not possible and, therefore, started to look for other informants who could voice the government's perspective in some way. I believe the reason for this situation was the growing tensions between the government and certain civil society groups that originated when environmentalists and indigenous groups accused the National Election Council (*Consejo Nacional Electoral*) of fraud when thousands of signatures were rejected in May 2014, blocking the possibility of a national referendum on oil extraction in Yasuní (The Guardian 2014). Distrust on behalf of the government also grew when members of the German parliament tried to enter the national park in December 2014 without an official permit from the Ecuadorian authorities (BBC Mundo 2014). Against this background, I believe some people felt that giving an interview was complicated and, therefore, decided not to participate. What is more, on two occasions, people directly told me that the problem with my research project was that it involved a politically sensitive issue.

Furthermore, in Ecuador, where I had followed the case and its development for several years, I could ask more specific and detailed questions. In Norway, however, I did not have the same familiarity or prior knowledge regarding the petroleum debate. The solution was to employ a set of more general questions, at least in the beginning. After a while, I was able to use questions that were a lot more specific and formulate follow-up questions in a more detailed manner. Another strategy that turned out to be quite useful was that I decided to provide an explanation about my background before I started each interview. The reason for this was that I feared that I would lose important shared or common knowledge about the case if the informants erroneously believed I already knew things that "everybody" knows and excluded this type of information from their accounts or answers. Therefore, I briefly explained to the interviewees that I grew up in Ecuador, where my family moved when I was a little girl, and that this was the reason for me not necessarily knowing what everybody knows about the

Norwegian oil debate regarding Lofoten. As I see it, this disclosure about myself made informants incorporate more details in their accounts as they became aware of certain background information that I was perhaps lacking. Some interviewees also made drawings of the territory to show me how specific characteristics of the topography and ocean currents in this area made the region highly vulnerable in the case of a major oil spill or a blowout. An informant also drew the movement of different currents in the area to explain why he believed Statoil's (now Equinor) data on this issue were inaccurate since he knew the area from his work as a fisherman for more than 20 years. In other words, he depicted his experience-based knowledge as opposed to the national oil company's use of science-based knowledge. How these two knowledge systems are enacted and used in the petroleum debate will be analyzed in Chapter 3. Moreover, another informant drew a timeline to explain the chronology of important political events during the struggle to keep the territory outside LoVeSe closed to petroleum activity. The informants' drawings had the ability to connect and visualize events and environmental risk. By drawing locations, sensitive areas, currents, and *Eggakanten* (the edge of the continental shelf), etc., invisible and intangible risks became connected and specified on paper. The drawing activity linked experience, events, and context, as the informants were able to accompany some of their explanations with visual elements and, thereby, enhance my understanding. In other words, the drawings became important vehicles for spatial and temporal positioning of environmental and political challenges according to the informants' perspectives. These are examples that point to the importance of material conditions during the interview situation.

In Ecuador, besides conducting in-depth interviews, a short field trip to Tiputini Biodiversity Station, owned by the University of San Francisco in Quito, in collaboration with Boston University, was also important for the project. The research station, located within the Yasuní Biosphere Reserve in the Eastern Ecuadorian Amazon, is internationally recognized as a unique place to study biodiversity and tropical ecosystems due to its isolation and pristine rainforest.<sup>4</sup> Before my trip, I had agreed not to conduct any formal interviews during the visit at the station since all research projects require an official permit from the Ministry of the Environment in Ecuador, something I considered out of the scope of this inquiry since I was not going to carry out systematic observations or data collection. Alternatively, my purpose was to better understand the importance of the conservation of the rainforest and its ecosystems. The trip provided me with a unique opportunity to observe a variety of species in their natural habitat, feel the extreme humidity while walking through the forest with other students and the guides who worked at the station, and, last but not least, see what healthy rainforest looks like. In short, I had a very basic understanding of the concept of biodiversity before arriving at the station in Tiputini; however, the visit transformed my understanding into something experiential, as there was life everywhere. My approach was rather simple. I felt that in order to write about the challenges related to oil extraction in highly sensitive environmental areas, I had to visit these territories, even if only for a short time, to gain

an experiential intake of the complexities of the Amazonian rainforest and the Lofoten Islands.

In the case of Lofoten, I had the opportunity to visit the islands several times during data collection; however, my first visit was in September 2014 during the yearly Science Week when Norwegian universities and research institutes present their projects and activities to the public. I participated in a series of seminars with a group of professors and researchers from the Faculty of Social Sciences at Nord University. In Reine, a fishing community that belongs to the Moskenes municipality, located above the Arctic Circle, we slept in traditional fishing cabins and tried the world-famous bacalao. At night, the Northern lights or *aurora borealis* lit up the dark sky over the harbor, and I remember the experience as truly magical. Being able to visit and see the places and the inherent characteristics in which the controversies regarding oil extraction in these regions have originated has been crucial, as I do not believe it is possible to carry out case study inquiry without some sort of contact or first-hand experience with the cases' geographic locations.

## Chapter outline

Chapter 1 introduces the reader to the book's topic, the questions it addresses, its arguments, and analytical framework. The purpose is to position the inquiry within existing international climate debates and discussions. The chapter also explains the rationale behind selecting Lofoten and Yasuní and their usefulness as contrasting cases. Finally, it discusses the inquiry's methodology and the data material the analysis rests on. Chapter 2 analyzes how global uncertainties arising from climate science inform the Norwegian petroleum debate and how controversies and processes related to oil extraction in environmentally sensitive areas travel between conflicting logics and arguments. Drawing on Law (1994), I argue that safety and insecurity can be understood as two different modes of ordering regarding Norway's oil-driven economy. The analysis suggests that behind the discourse and storylines about the country's "petroleum adventure", there are both contradictions and ambivalence. Focus is placed on how Norway actively uses different framings to reconcile its role as an oil and gas producer with its ambition of being a forerunner in international climate negotiations. By enacting climate change as an economic issue, embedded in market assumptions, Norway has managed to politically separate petroleum production from climate change, despite scientific research linking them together. The last section examines the main factors that are delaying Norway's "green shift" towards a more diversified and less oil-dependent economy. Chapter 3 addresses the ongoing sociopolitical process and environmental controversy attached to the possibility of opening up the Lofoten area to oil drilling and, thereby, expanding the oil frontier towards territories that are classified as "valuable" and "vulnerable" in several research documents and the integrated management plan. The analysis suggests that these categories have become important means of negotiation and resistance among different stakeholders. Overall, people do

not question the authority of the existing knowledge base. As such, scientific knowledge becomes an important *ally* in the petroleum debate. What is negotiated, however, is the political implications and practical meanings of these categories, that is, what kinds of *matters of concern* (Latour 2005) emerge and are enabled due to these categorizations. As part of this analysis, the chapter looks into how tensions between science and politics and oil and environment are enacted and translated. The last section is dedicated to the analysis of Lofoten as a heterogeneous territory and how this situation produces conflicting and overlapping network translations.

Chapter 4 starts out by examining Ecuador's oil history from a "curse" perspective, which constitutes a frame for ordering the multiplicity of oil. Emphasis is placed, therefore, on how the Amazon crude produces global connectivity and local fragmentation simultaneously. Here, I identify and discuss three modes of ordering related to oil extraction in Amazonia: Developmentalism, environmental destruction, and violation of rights. I then examine some key socioenvironmental conflicts, focusing on territorial disputes as the outcome of spatial dynamics rooted in the underground petroleum reservoirs. The chapter's last section describes the inscription of Nature(s) in the Ecuadorian Constitution. Chapter 5 addresses the process of the Yasuni-ITT Initiative as an evolving design that assembled and enrolled a series of elements and actors in an attempt to "go global". Callon's (1998a) pairing concepts of framing and overflowing are used to examine to what extent the Yasuní Initiative overflowed the UNFCCC and the Kyoto Protocol as it attempted to open the "black box" of climate change mitigation. Emphasis is placed on tracing some of the policy documents and the different parallel processes that were assembled in the Yasuní-ITT Initiative. This chapter also analyzes how the struggle to keep the oil in the ground was translated as a matter of defending the rights of humans and nonhumans.

In Chapter 6, after a brief introduction on oil and climate as intersecting epistemic objects, I draw the cases together by comparing and contrasting key elements and themes from the previous chapters. Lofoten and Yasuní, as interfering networks, constitute translocal political processes, which implies tracing links and connections across local, national, and global levels. By comparing the management plans for the Barents Sea–Lofoten area and Yasuní National Park, the chapter identifies several similarities and differences in the way territorial disputes are domesticated through zoning and how the underground petroleum reservoirs become a particularly important drive in this process. Hence, the chapter provides a cross-case analysis of how various encounters between oil and climate influence aspects such as territorializations and spatial ordering, the framing of climate change, and the production of both natures and socioenvironmental risks. In Chapter 7, I revisit the empirical chapters and discuss some important analytic choices; I then sum up the main findings in light of the initial questions presented in the first chapter and discuss possible contributions and limitations of the inquiry. The chapter concludes with a final comment regarding the analytic potential of the processual comparative case study methodology used in the study.

## Notes

- 1 The term “Dutch disease” refers to a situation where the non-resource sector of the economy has become uncompetitive on the international market. The appreciation of the national currency stimulates the import of goods and, consequently, the domestic non-resource sector declines (Bradshaw 2014: 173).
- 2 While the Conservative Party and the Progress Party wish to open LoVeSe for petroleum activity, the Labour Party changed its position in 2019.
- 3 UNDP Multi-Partner Trust Fund Office: Yasuni-ITT Fact sheet: <http://mptf.undp.org/yasuni>.
- 4 Boston University, Center for Ecology & Conservation Biology: <http://www.bu.edu/cecb/tiputini/>.

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