In a State of Dithering

A critical realist exploration of Norwegian narratives and practices on oil, climate change and sustainability

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Title

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“Do you see how an act is not, as young men think, like a rock that one picks up and throws, and it hits or misses, and that's the end of it. When that rock is lifted, the earth is lighter; the hand that bears it heavier. When it is thrown, the circuits of the stars respond, and where it strikes or falls, the universe is changed. On every act the balance of the whole depends. The winds and seas, the powers of water and earth and light, all that these do, and all that the beasts and green things do, is well done, and rightly done. All these act within the Equilibrium. From the hurricane and the great whale's sounding to the fall of a dry leaf and the gnat's flight, all they do is done within the balance of the whole.

But we, insofar as we have power over the world and over one another, we must learn to do what the leaf and the whale and the wind do of their own nature. We must learn to keep the balance. Having intelligence, we must not act in ignorance. Having choice, we must not act without responsibility.”

— Ursula K. Le Guin, The Farthest Shore

Abstract

This thesis strives to increase understanding of what causes the continuation of dithering on the issue of climate change – that is, knowing full well the consequences of a course of action, but failing to change course. To that end, I combine the stratified view of reality from critical realism with the gramscian concepts of hegemony and common sense. I start by building a theoretical model that tries to explain the continuation of contemporary dithering on climate change by looking at the interactions of the mechanisms of society and nature through a lens of critical realism, to see how the sustainability ramifications of climate change are co-opted by and incorporated into the hegemony of neoliberal ideology using narratives of ecomodern sustainable development – premised on the conviction that technology and market forces can achieve "decoupling" of society and nature. I argue that the naturalisation of this narrative into common sense positions is what allows policy makers and people in Norway to suppress or ignore the apparent paradox of accepting a continuing growth of the oil industry as well as an increase in material throughput and consumption levels, and simultaneously acknowledging the reality of climate change and ostensibly taking a leading role in mitigation and adaptation. I test my theoretical model by analysing Norwegian policy and practices on climate change and the oil industry in order to uncover the mechanisms which reproduce them, and endeavour to understand how the paradox is resolved in daily life through analysis of empirical material collected during field work in the Dovrefjell region of the Norwegian mountains. I conclude that any interventions against further dithering on climate change that seek to break and replace common sense narratives must, following Gramsci, be contextually aware and specific, since such common sense narratives are enmeshed in historicized environments and class positions.

Keywords: Climate Change, Critical Realism, Hegemony, Common Sense, Norway

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List of Abbreviations

ACC: Anthropogenic Climate Change

CR: Critical Realism

CCS: Carbon Capture and Storage

CC: Climate Change

ENH: Ecomodern Neoliberal Hegemony

GHG: Greenhouse Gas

IPCC: Intergovernmental Panel on Climate Change

NINA: Norwegian Institute for Nature Research

PA: Paris Agreement

UNFCCC: United Nations Framework Convention on Climate Change

1 Introduction: Climate Change and the Nordic Oil State

"The Dithering: 2005 to 2060. From the end of the postmodern (Charlotte's date derived from the UN announcement of climate change) to the fall into crisis. These were wasted years."

— Kim Stanley Robinson, 2312

1.1 Approaching the Research Problem

Since the time of the enlightenment, humans have toiled under the conviction that as time passes, the human condition will almost inevitably become materially *better* – while in pre-modernity, conditions were generally assumed to be relatively unchanging from generation to generation. This change in the view of human progress was intimately tied to the movement from relatively closed local organic economies, where both people and nature were situated in relatively stable local ecologies, to the spread of large scale extractive industries, the externalization of ecological costs, and the breaking of local metabolisms of energy and nutrients (Malm, 2016; Polanyi, 1957). We can assume that a farmer in the 1600s had little hope or desire to move beyond neither the practices nor the geographical boundaries of his ancestors, while in the 1800s, movement from rural areas and practices to urban centres and factory labour was for many the only choice one had, and in 2018 the daughter of a farmer in rural Norway most probably grows up with the conviction that she can go anywhere, be anything, and will enjoy a continual increase in wealth, health and freedom. While this certainly does not apply to all contemporary humans everywhere, even in the poorest so called developing nations *development* is implied, and adoption of the contemporary varieties of capitalism, industry and modernity is the pathway provided. The extraction and burning of fossil fuels has been instrumental in this monumental development, as it allowed for the breaking of energy cycles both in time and space, enabling production to happen at a temporal and spatial distance from both consumption and ecological effects on levels hitherto unseen (Malm & Hornborg, 2014). The spread of industrial modernity, fossil-based industrial capitalism, and the overarching ideal of continual development encapsulated in modernity, has now encompassed the entirety of global

human society (what some call the "world system" (Wallerstein, 2004)) – and thus is affecting the entirety of the global bio-geophysical system we call "nature" or the Earth System (Rockstrom et al., 2009). Climate change is but one of the effects of this development, but it is without doubt the one most acutely threatening the stability and continuation of human society itself. This realization, coming from the world of natural science, has begun to take hold in the social sphere, but the reaction of our social, political, economic and cultural systems to the reality of a changing climate system has so far been woefully inadequate.

Throughout this thesis, I follow science fiction writer Kim Stanley Robinson in calling this era, where we know that the large scale burning of fossil fuels is causing a rapid disruption of the planetary climate system, but we still fail to drastically cut our emissions, the *State of Dithering*[1]. Robinson describes this era as what follows "the postmodern" - as the effects of climate change become more and more tangible all over the globe and environmental problems finally enter the public consciousness, it becomes harder and harder to ignore the reactions of nature. The *dithering* he describes is the desperate clinging to the politics, economics and habits that have caused climate change – as large parts of humanity are so locked into fossil fuel practices and capitalist relations of production that any alternative seems unfathomable, and indeed, in his fictional account no large scale decarbonisation is achieved until after the catastrophe becomes fact in a series of rapid sea-level rises in the 2060s, triggered by the unexpected collapse of major Antarctic ice sheets. Robinson was a student of Frederic Jameson before focusing fully on his writing – and the concepts of *dithering* and the "fall into crisis" that follows obviously echo Jameson's famous line that "it is easier to imagine the end of the world than the end of capitalism" (Jameson, 2003). Throughout the thesis, I use quotes from Robinson's work – much of which is a kind of precognitive ecological fiction – as bookends that illustrate the topics I write about in each section.

The purpose of the thesis is to get closer to an answer to what causes this "state of dithering" to continue. I try to achieve this purpose in the first part of the thesis by a theoretical inquiry into what caused the current predicament, the social responses to it so far, and the human-nature relationships that allow it to continue, and in the second

[1] In Robinson's book *2312*, future historians coin this term and are amazed that this state of Dithering could last as long as it did. I find it describes our current predicament precisely.

part by applying and testing the theoretical framework developed in empirical analysis of the specific case of Norway.

Although not a poor country beforehand, the rise of Norway to the position of one of the world's most affluent nation states is intimately tied to the discovery of large amounts of fossil fuels in the North Sea in the late 1960s (Stenersen, Libæk, & Anderson, 2003). Norway has, according to most mainstream economists, managed to avoid the resource curse that has plagued other states with plentiful natural resources, commonly described as an overreliance on the profits from extractive industries to the detriment of social contracts, stable welfare systems and productive industries (Holden, 2013). Norway is also unique among the Scandinavian nations that have taken a similar path of apparently high social equality, redistribution of wealth and ecological leadership, in that the extraction, refinement and sale of fossil fuels has been a main driver of those programs (Stenersen et al., 2003). A core aspect of this policy has been the establishment of what is commonly referred to as the "Oil Fund" (the real name is *Statens Pensjonsfond Utland*), the world's largest investment fund. The fund in 2018 amounts to just over eight trillion Norwegian Kroner, or about 880 billion euros (Norges Bank Investment Management, 2017). But even with the oil fund having grown to twice the value of fossil assets still in the ground (and thus arguably being large enough to secure prosperity indefinitely), extraction and export of petroleum resources continues to lie at the core of Norwegian political economy, and the major political players all support continued expansion and opening of new fields.

In light of the increasingly non-debatable reality of anthropogenic climate change, Norway finds itself in predicament. How can a continued extractivist petroleum policy coexist with Norway's apparently progressive stance in international environmental and climate negotiations? As long as the projected profits from establishing new oil fields are higher than the costs, there seems to be no end in sight – and still Norway publicly claims a leadership role in combating climate change. Fredric Jameson's thesis that postmodernity is *the predominance of space over time* (Jameson, 2015) seems acutely descriptive in this instance – there seems simply to be no way to take the future, and by extension, the mechanisms of nature, into account.

1.2 Purpose and Research Questions

For me personally, both as a researcher and in my private life, anthropogenic climate change and our lack of adequate responses to it is the central issue of our time. While this has become a common trope, I have an honest fear that future generations will look back at our State of Dithering and ask why we didn't act, when we knew what the consequences would be. In this thesis, I will try to get an increased understanding of that – why don't we act? Why don't we make the rapid decarbonisation of our societies our number one concern, when we have access to all the information uncovered by climate science during the past four decades? How can emissions continue to rise after so many years of warnings, policy recommendations, and promises from politicians? As we will see, it is not even about stopping climate change anymore, but rather of minimising the damages from changes that will continue to occur within the earth system for centuries to come, if not millennia. The consequences are already being felt. Why do we continue to dither?

Since moving to Norway in 2015, I have been as amazed as anyone by its stunning nature, its material affluence, and - perhaps more than most - by the huge black elephant in the room: the oil industry. Electric cars zip about on the streets, sustainability is part of every major political and corporate campaign, and people seem for the most part to consider themselves as environmentally conscious. But the oil industry that has built so much of the wealth I see around me is conspicuously absent, both in most public debate and in the conversations of daily life. If it is mentioned, it is most often in the finance sections of news broadcasts, relating the potential effects on the economy of an increase or decrease in the oil price. I thus find Norway is an especially interesting case to study, as it claims to take a leading role in international agreements on the mitigation and adaptation to climate change, while still being a major producer and exporter of oil and gas. In the case of Norway I see the continuation of the oil industry and the claims to climate leadership working as specific instances of the contending drives toward *development* and *sustainability*.

Two research approaches, several research questions

The overarching goal of this thesis is to gain an increased understanding of what causes continued insufficient action, or "dithering", in the face of potentially catastrophic

climate change. To do this, I use two approaches. Instead of choosing a single overarching research question, each part of the analysis is guided by its own questions.

The first approach is a theoretical inquiry into the natural and societal aspects of anthropogenic climate change. I wish to gain an increased understanding of how mechanisms of nature and mechanisms of society interact in anthropogenic climate change, how they overlap and differ, and how they are experienced empirically in the daily life of individual humans and communities. I do this by first reviewing the natural and social science responses to climate change. I then attempt to gain an increased understanding of the mechanisms and social constructs that reproduce a "State of Dithering" by combining a Critical Realist perspective with gramscian theories of hegemony and *common sense*.

The goal of that process is to arrive at an increased understanding of how natural and social factors interplay both in the processes causing climate change and in the processes of reaction to it. The first and main research question of the thesis then becomes:

How can critical realist perspectives in conjunction with gramscian theory increase understanding of the complex relationships between society and nature in the issue of delayed mitigation of anthropogenic climate change?

The second approach is to test the theoretical framework in a two level study of narratives, policy and mechanisms of oil and climate in the specific case of Norway. The aim in this second half of the thesis is first to get a picture of the official narrative and political practices on oil and climate produced by the state of Norway, and what the politic-economic drivers and historical underpinnings of such narratives and practices are. I analyse the narratives and political practices of the state of Norway on the connected issues of climate change and oil, in order to try and uncover underlying mechanisms. I wish to understand how the political response to climate change is limited by those underlying mechanisms. So the secondary research questions guiding the analysis of Norwegian policy become the following:

What underlying mechanisms can be uncovered by a critical realist analysis of Norwegian government narratives and practices on oil and climate change?

What potential responses to climate change are obscured by those mechanisms, practices and narratives?

I then turn to a case study of the region of Dovrefjell, to see how the official narrative of the Norwegian state compares to and is reflected in *common sense* positions on oil and climate in the specific context of a rural community that is deemed highly vulnerable to climate change. I wish to gain an increased understanding of how official, hegemonic narratives and political practices are transposed and reflected into *common sense* positions, and what makes *common sense* positions deviate from the official narrative. The secondary questions guiding the final part of the analysis then becomes:

How does the official narrative on the oil-climate paradox relate to common sense narratives about the future of Norwegian welfare and about individual agency and responsibility among tourists and local residents in the Dovrefjell region?

Do common sense narratives about oil and climate change contain seeds of potential counterhegemonic projects?

So, in order to answer my main question about how a critical realist approach can increase our understanding of what causes delayed and insufficient responses to the reality of climate change, I use several secondary research questions to apply my theoretical framework, first on the level of the state of Norway, and then on the level of a local community. I believe this approach, using several levels and several questions, is appropriate to my main objective. For the sake of clarity, I will return to these questions again in the introduction of each chapter.

1.3 Thesis Structure

After this introduction, I devote a chapter to the methods and methodology used in my empirical research. I describe how the process of qualitative analysis is guided by my philosophical standpoint of Critical Realism and the methodological process known as Immanent Critique. I reflect on the research process and discuss sample saturation and concerns of validity and generalizability. I offer some methodological reflections on my own role as researcher, on the growing methodology of transdisciplinarity and on normativity in research.

In chapter three my aim is to provide an overview of the warming condition at it is described by the contemporary scientific consensus. A brief history of the science and international conventions on climate change leads to the current level of scientific consensus on its anthropogenic nature and an exploration of the recommendations of scientists from the 1980s until today. I then look at projections for the future, and describe the outcomes of the Paris Agreement and some current estimates on the feasibility of reaching its target of minimising warming to 2°C. I also briefly go over the literature on Planetary Boundaries, and the other main environmental problems it describes. Finally, I review recent contributions to social theory seeking both to understand the human causes of climate change and to contribute to a swift and salient response to the reality of a warming planet.

Chapter four consists of my attempt at building a critical realist theoretical model of the current "state of dithering". I use concepts from critical realism, notably ideas about stratified reality, ontological realism, and epistemic relativism, to map the natural and social aspects of anthropogenic climate change. I look at how mechanisms in nature produce events that are empirically experienced by humans, and how those mechanisms of nature are interacting with fundamental mechanisms of society and the empirical experiences of individuals in their daily lives. I briefly discuss some current explanatory models for the slow or insufficient rate of decarbonisation of society, and posit that Gramsci's concepts of hegemony and *common sense* offer better explanatory value. Finally, I lay out my heuristic theoretical model in its entirety, exploring how mechanisms of nature and society interact to reproduce and prolong the current "state of dithering".

Chapter five is a qualitative analysis of textual sources, such as policy documents, official reports and statements by officials. I argue that the official Norwegian narratives on oil and climate change signify an ecomodern turn in the hegemony of neoliberalism, and investigate the practical implications and ideological roots of such an interpretation of sustainable development. I connect Norwegian policy and practice to the global scale of climate change. Finally I look at what the drivers or mechanisms underlying the official narratives and political practices are, and how they limit the potential responses to ACC.

Chapter six is a case study of the Dovrefjell area of the Norwegian mountains. Semi-structured focus group and individual interviews were conducted with a wide sample of local residents as well as a smaller sample of urban tourists. I argue for the relevance of the case studied, and endeavour to unearth *common sense* narratives that align with or go against the ecomodern narrative on climate and oil that I argue is hegemonic in contemporary Norway. I use quotes from informants to illustrate common threads or *demi-regularities* in the material, and seek to gain a deeper understanding of how people in rural and urban areas view their future, their agency and their responsibility in light of the climate-oil contradiction. I also look for deviations from the official narrative to try and identify counterhegemonic tendencies.

In the concluding chapter I compare and discuss the findings from the two previous chapters, compare them to my theoretical model, and discuss what they may imply for Norway's and the world's possibilities of achieving a sufficiently fast and thorough reaction to the reality of climate change. I further reflect on what the ecomodern response to climate change reveals about contemporary relationships between nature and society on a larger scale. I summarize what I judge to be my key findings and, in a spirit of normativity and with the goal of increased social-ecological emancipation and resilience, I offer some potential points of intervention that may disrupt the obstructive tendencies of the current hegemony and produce swifter and more salient action on ACC. I conclude with a tentative description of the main aspects of a counterhegemonic political project intended to break out of the state of dithering and realize the rapid decarbonisation that is necessary to avoid the most catastrophic climate change scenarios.

2 Methods and Methodology

"Thus physics, chemistry, biology, anthropology, sociology, history, the arts all interpenetrate each other and cohere if considered as a single convergent study. The physical studies scaffold our understanding of the life sciences, which scaffold our understanding of the human sciences, which scaffold the humanities, which scaffold the arts: and here we stand. What then is the totality? What do we call it? Can there be a study of the totality?"

— Kim Stanley Robinson, Blue Mars

2.1 The Research Process

This thesis started out as part of a larger research project called Climechart, in collaboration between the Centre for Development and Environment at Oslo University and NINA, the Norwegian Institute for Nature Research. I and a fellow researcher were to contribute to the qualitative part of the Climechart project, while maintaining independence in formulating and structuring our research. I knew from the onset that I wished to include the oil industry in my work, but had not yet decided on my approach or my major research questions when the fieldwork started. Informants were gathered partly through strategically approaching a wide spectrum of sectors of local society as well as tourists in one of the major tourist cabins of the Norwegian Mountains, and partly through snowball effect, where one informant led us to new ones. Interviews were semi-structured, as our main goal was to unlock the narratives of our informants and get them to tell us the stories they themselves cared about – sessions took the form of mostly informal conversations about climate change, the local area, nature and Norwegian environmental policy. During transcription and coding of the data many different narratives of interest emerged. I decided to focus on the common narratives about the oil-climate contradiction, and how people resolved this apparent conflict in their daily lives. This led me to asking questions about what structures in society could cause the overarching tendency I saw in the interview data to downplay the urgency of climate change and distance oneself from responsibility. Thus I started looking into theories of hegemony and *common sense,* and how they might fit into a critical realist understanding of climate change as a phenomenon that bridges the natural and social sciences. The theory chosen was thus informed by the data, in a sort of "spontaneous process of grounded theory". In the end, I realized that to try to understand the deeper

mechanisms and hegemony that shape common sense narratives about oil and climate change; I needed to frame the analysis of the field study within analysis at the level of domestic policy and international relations. The thesis thus grew from initially intending to focus only on the specific context of Dovrefjell, to situating those narratives we encountered in Dovre in the larger context of Norwegian oil and climate policy, and that in turn in the even larger context of neoliberal hegemony, the rise of ecomodernism, and the fundamental interactions between society and nature produced by capitalist relations of production. The text goes, so to speak, in the other direction – starting at the macro level of climate change and ecomodern hegemony, focusing in on how ecomodern neoliberal hegemony is evident in the particular case of Norway, and focusing in further on the manifestations and conflicts in *common sense* narratives in Dovre. But the process of research went the other way, starting in the empirical data and adding further levels of analysis to deepen understanding.

2.2 Immanent Critique

The methodological goal of this thesis is to use the perspectives of critical realism to analyse and understand the causes of contemporary "dithering" on the rapid decarbonisation of human civilisation, both generally and in the specific case of the state of Norway. The methodology called *immanent critique* in essence seeks to critique a given perspective or epistemological position "from within", by using the logic or rationality of the given perspective as ones starting point, and exploring it's limitations or boundaries – it's "blind spots", or the potentialities that are obfuscated by the premises or fundamental mechanisms of a given perspective. In this case, I seek to understand how the fundamental mechanisms of a neoliberal approach to solving the challenge of climate change limits the potential pathways towards a future where the climate crisis has been averted or at least lessened, in a just and equitable way. The scope of this thesis is too small to comprehensively analyse either the emergent global neoliberal response to climate change or the totality of Norwegian policy on climate change and oil – rather I hope to demonstrate how critical realist perspectives on reality and epistemology, working towards a methodological goal of *immanent critique*, can help in understanding how the mechanisms of political hegemonies and the limited rationalities they reproduce function as barriers to sober and realistic acceptance of the

real limitations that relationships in nature put on the human societies that are enmeshed in them. An ideal form of *immanent critique* would exhaustively explore the root mechanisms, political practices and actual manifest consequences of what I call the ecomodern neoliberal hegemony, the most dominant political response to climate change today. I will not achieve that ideal in this thesis, but it is the goal towards which I strive.

2.3 Field Study

The field study part of the thesis was the first to be undertaken, and was conducted in August 2017 in the central area of Dovrefjell, a mountainous region in central Norway. Interviews were first conducted at Snøheim, a tourist cabin close to the central peak of Snøhetta in the Dovrefjell-Sunndalsfjella national park. Both tourists from urban areas and local workers in the tourism sector were interviewed. The rest of the fieldwork was conducted in and around the central communities of Dombås and Dovre. The field study was approached without a confirmed final direction for the research – research questions were open ended and this resulted in an open ended form of interviews and focus groups, with only a research guide as support for the conversations with informants.

The sample of informants for the Dovrefjell part of the study was selected by a mix of strategic choice and snowballing. We first approached a wide variety of organisations and groups in the Dovre area. Examples include the local hunting association, a women's group, the local association of pasturers, the Dombås high school, the local municipality and a few local businesses. These contacts then led to further contacts with potential informants. Once in Dovre, we went out and actively approached people with our inquiries – at the local library, the local newspaper and the tourist cabin in the mountains. We also advertised our intention in several social media groups and got some responses there. We strived to get as wide representation as possible regarding age, gender and interests.

The sample from the fieldwork in Dovrefjell covers a pretty wide section of the local community. We interviewed 7 tourists (from the greater Oslo area), and 26 rural dwellers (all living in the Dovrefjell region), as well as one international tourist. Most

interviews were done in group settings. Gender and age are fairly well distributed, except in the case of the urban group, who are all female. My impression is that the sample is at least semi-saturated and allows for a contextually specific impression of the views of *common sense* positions among the informants. Figure 1 gives an overview of the age and gender distribution of the informants.

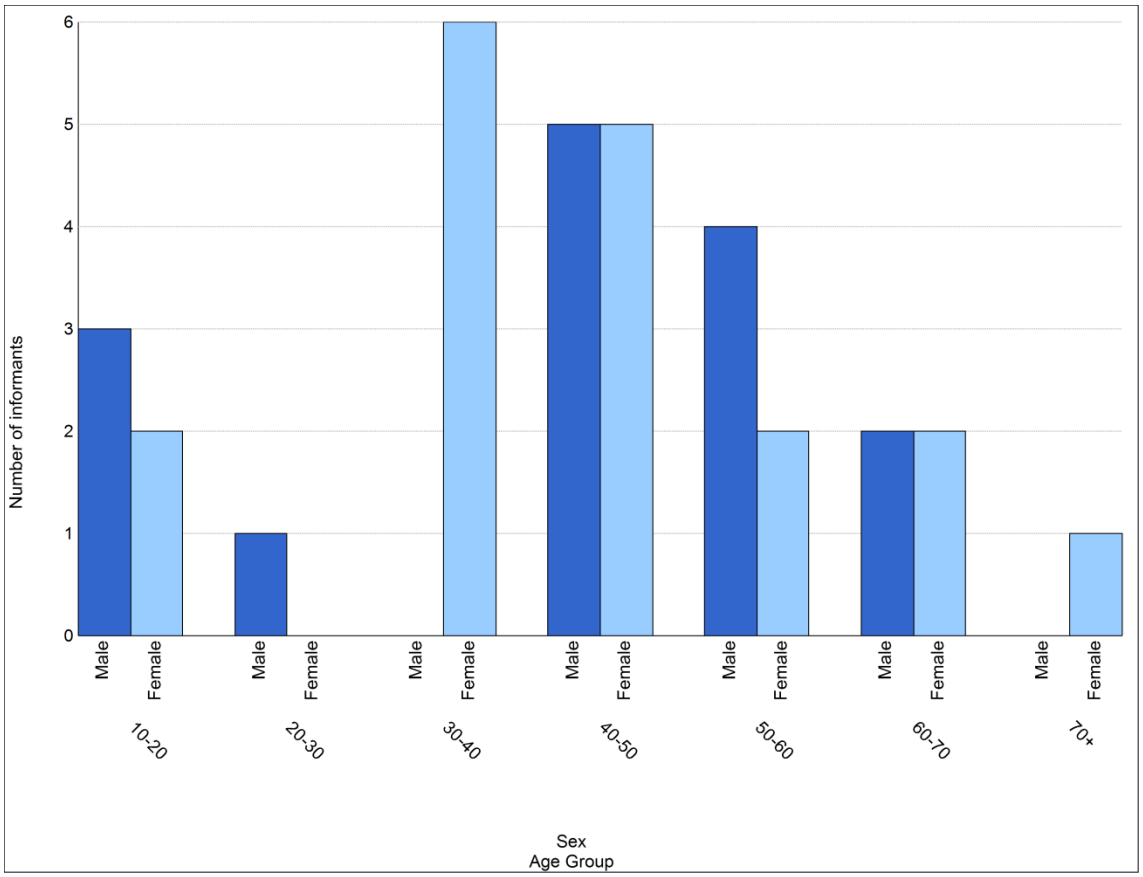

Figure 1: Age and gender distribution of informants

After the field work was complete, interviews were transcribed in Norwegian, and then coded in several iterations in NVivo. Through the coding process, patterns emerged from an initially chaotic material. The primary themes for coding (out of a total of 19) used in the first round of analysis were "CC Denial", "Guilt and Responsibility", "Livelihoods and Welfare", "Experience of Agency", "Paris Agreement", "Future of Oil" and "Technological Solutions". In a second round of coding, I added another type of theme, based on my increased theoretical understanding: "Oil and Climate Leader", "Trust and Distrust", "Scepticism and Concern", "Structure and Agency" and

"Complexity and Scale". These themes guided the qualitative analysis and the attempt to identify *common sense* positions (further explored in chapters four and six).

2.4 Qualitative Textual Analysis

In chapter 5 I strive to understand how Norwegian policy on oil and climate change are influenced by hegemonic forces at the global level, and how they are dependent on material relations both with the Earth System and with other parts of the world economy. By critically examining policy positions and political strategies, I seek to uncover and understand the foundational premises on which policies rest. I do this through analysing the underlying drivers and the main practical implementations of policy, most especially in the support for continual expansion of the oil industry and the establishment of new fields, but also subsidies for electric cars, carbon accounting practices, public investments in technology and support for carbon capture and storage initiatives. Additionally, I analyse official policy texts, press releases and personal statements from the various departments of the government and the parliament, in order to arrive at an understanding of the dominant or "official" narrative about oil and climate. I contrast these findings with data from secondary sources on the actual environmental effects of Norwegian practices, in an attempt to uncover what is obfuscated or ignored by the official narrative.

2.5 Ecocriticism

Throughout the thesis, I use quotes from the works of Kim Stanley Robinson, an author who not only has a background in critical academia, but whose works increasingly reflect the ongoing ecological crisis most acutely visible in anthropogenic climate change. I do this because I agree with a growing body of academics in viewing literary fiction as a potential field where people's apathy or lack of ownership of the problem of climate change can potentially be broken. Robinson uses the future imperfect of scholars and scientists working in the coming centuries, when climate change is no longer an abstract threat but a lived fact, to critique the contemporary inability to saliently and soberly accept the facts science is uncovering regarding the unsustainability of our current political economic systems. He does so not in a way that romanticizes a form of pristine pre-human nature or wallows in the apathy and guilt of

our present time, but always with the understanding that human societies are fundamentally enmeshed in and part of non-human nature, and that climate change will drive this fact home, sooner or later. His works are socio-ecological in the sense that the ecological disasters he describes are always understood as fundamentally human disasters – weather he describes the ordinary lives of the citizens of the flooded blocks of lower Manhattan in the 2160s, or the artists and scholars living in the space diaspora that resulted from an overheated earth in *2312*, the complexity and immensity of ecological imbalances are always reflected in the lives of ordinary humans. Significantly, the fact that science fiction seems to be the only literary field that explores the future of humanity also offers the potential of "utopistics" – the ability to describe and explore both ecological and political potentialities that seem invisible or obscured in the current time. In this sense one can see literary science fiction as a potential counterhegemonic force.

2.6 Transdisciplinarity

In this thesis, I use theories and analyses from a wide spectrum of academic disciplines – data and conclusions from the natural science studying climate change, the discipline-spanning work of researchers on the Anthropocene and Planetary Boundaries. My literature review has led me to the works of Social Anthropologists, Sociologists, Philosophers, Political Economists and Ecological Marxists. As the topic of inquiry is so broad, limiting the search for answers to one method or one theoretical framework would potentially be limiting to the resulting understanding and conclusions. While the obverse is also possible – that too many perspectives can muddy the clarity of vision – I believe I have maintained focus on the central issues being studied throughout the process.

The present research is not interdisciplinary, as that is generally understood as the transfer of methods between different academic fields, but rather transdisciplinary, as it moves through several academic disciplines in search of answers that need to be looked for through, between, and outside of those disciplines (Nicolescu, 2002). One claim to *transdisciplinarity* would be that the research grew from the situation that the informants in Dovrefjell described, and not the other way around – it's thus a form of stakeholder involved research. While informants were not included in a common

platform or actually participated in the development of the research, their descriptions of reality were the basis of the whole process. I thus hope that the work may actually deal with issues that are of real concern to people in the real world. Transdisciplinarity also deals with so called *wicked problems,* defined as *"*pressing problems, even crises, reaching in multiple domains or dimensions and involving not just academic disciplines and the interplay among them but also practitioners seeking solutions in the real world outside the academy" (Bernstein, 2015). Transdisciplinarity is thus inherently *normative*, as it seeks to understand real world problems and help in deepening understanding of them, as well as making normative suggestions on how to solve them.

The next chapter is a transdisciplinary exploration of the current state of climate change, from the natural sciences to the Earth Systems concepts of *Anthropocene* and *Planetary Boundaries* and on to recent developments in social theory on anthropogenic climate change.

3 The Heat Is On: a Snapshot of the "State of Dithering"

"They published their papers, and shouted and waved their arms, and a few canny and deeply thoughtful sci-fi writers wrote up lurid accounts of such an eventuality, and the rest of civilization went on torching the planet like a Burning Man pyromasterpiece."

— Kim Stanley Robinson, New York 2140

3.1 The Scientific Consensus on Climate Change

What does science tell us, some two years after the Paris Agreement, about the ongoing and projected effects of a global climate change? Before diving into the political and social responses to climate change, I wish to provide an overview of the current state of empirical evidence on the effects climate change is already causing, and the current scientific consensus on projected future effects.

First of all, let us look at what the *scientific consensus on climate change* means and how it has evolved over time. Already in 1988, the year James Hansen testified in the US Congress on global warming, the conference of the World Meteorological Organization issued a statement that said that human induced changes to the global atmospheric system "represent a major threat to international security and are already having harmful consequences over many parts of the globe" (WMO, 1989). Their recommendation was that global emissions be cut significantly and immediately to reach a 20% reduction of emitted GHG by 2005, compared to 1988 levels (in fact, global net emissions of CO2Eq increased by 35% between 1990 and 2010 (EPA, 2014)). Since the formation of the United Nations Framework Convention on Climate Change (UNFCCC) in 1990, and the continuous work since then by the Intergovernmental Panel on Climate Change, IPCC, consensus on the anthropogenic causes of climate change has grown steadily, albeit from an initially very high level, as seen in figure 1.

In the latest assessment report of the IPCC, they deem it *extremely likely* (which translates to a 95-100% certainty) that anthropogenic drivers are the major cause of the

warming observed since the mid-20th century, predominantly because of the huge increases in greenhouse gas emissions, which are now at higher concentrations in the atmosphere than in nearly a million years (Pachauri et al., 2014).

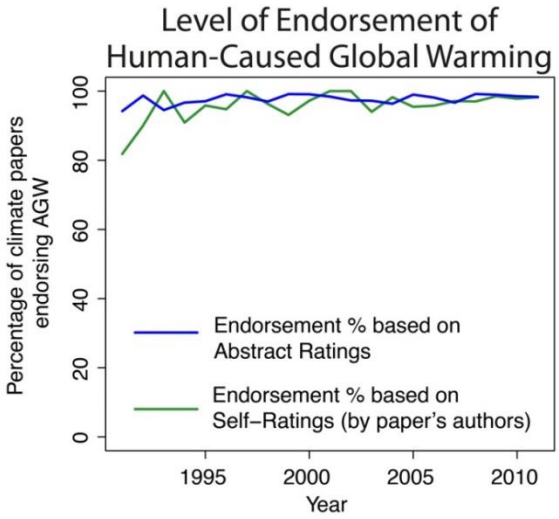

Figure 2: Percentage of papers endorsing the consensus among only papers that express a position endorsing or rejecting the consensus. From (Cook et al., 2013)

In the latest report from the IPCC the editors conclude, based on the state of consensus, that "failure to reduce climate gas emissions will result in severe, pervasive and irreversible impacts for people and ecosystems" (IPCC, 2014). Just as consensus levels are consistently rising, for each year that passes in climate science and for each new catastrophic extreme weather event, the reality of climate change becomes more tangible. At the same time, specific weather events get harder and harder to disconnect from climate trends. The extreme destruction wrought by superstorm Sandy, the Philippine typhoon of 2013, and the forest fires raging across Scandinavia as this thesis was being finished, have all been seen to have been worsened by climate change and the associated increases in surface temperatures (Stott, 2016; Takayabu et al., 2015; UNFCCC, 2017). In 2007, the year that Al Gore and the IPCC won the Nobel Peace Prize, levels of CO2 in the atmosphere were around 385 parts per million (ppm). Projections from that year indicated that under a business as usual scenario they would reach 410 ppm sometime between 2020 and 2025. The 410 mark was in fact passed in May 2017, and as I write this in July 2018, levels are at 412 ppm (NOAA, 2018). The

temperatures in the arctic have been up to 30°C above average during the past four winters (Graham et al., 2017), and in Antarctica, massive ice sheets are at an ever increasing risk of collapsing (Trusel et al., 2015), potentially leading to centuries of unstoppable sea-level rise.

When it comes to future scenarios, the predictions are dire. Barring radical and rapid decarbonisation, global temperatures could rise by 4°C or more, with severe consequences for ecosystems, species death, sea-level rise and human food production (Trusel et al., 2015). Models of the future temperatures of a region in southwest Asia, around the Persian Gulf, predict that entire regions may in fact become uninhabitable by humans within the next fifty years, due to the inability of the human body to regulate heat when the combined forces of temperature rise and increased humidity makes the experienced heat levels exceed 75°C (Pal & Eltahir, 2015). The same applies, in longer or shorter perspectives, to other parts of the Earth. If we extend our view beyond the most common delineation of models, the year 2100, projections show that temperatures and sea levels will continue to rise, and ecosystems and biogeochemical cycles will be influenced for centuries if not millennia (Clark et al., 2016). Clark et al. conclude that a "long-term perspective illustrates that policy decisions made in the next few years to decades will have profound impacts on global climate, ecosystems and human societies — not just for this century, but for the next ten millennia and beyond" (Clark et al., 2016) – highlighting that for every year we prolong the current "state of dithering" we are moving the long-term-consequences further and further into the future. Sea level rise will not only threaten coastal cities, agriculture and mariculture globally, but will in fact obliterate some island nations, and this may also be within a fifty year period (Storlazzi, Elias, & Berkowitz, 2015). As models get better and better, projections seem to be getting both closer in time and more severe in their ramifications.

There is also the issue of feedback mechanisms. In the arctic tundra and in the ocean floors lie vast deposits of methane, a gas that is twenty-six times as potent as carbon dioxide in terms of greenhouse effect (Lelieveld, Crutzen, & Brühl, 1993). Scenarios are uncertain about what would happen if arctic temperatures rise to the level where this gas starts to be released on large scales, but business as usual scenarios say it could contribute a whole degree of warming before 2100. If the threshold for Antarctic melting lies around 3°C, then one degree of uncertainty may be all it takes to trigger the

difference between a world that can somehow pull through the next centuries and a global deluge that could endure for millennia.

3.2 Assessing The Paris Agreement

In late 2015, the 21st Conference of the Parties (COP) to the UNFCCC adopted the *Paris Agreement*, with the ambitious goal of limiting global warming to well below 2°C and an ambition of pursuing the even more radical goal of 1.5°C. A few months after the signing of the agreement, the global mean temperature for the first time was estimated to exactly that – 1.5°C above pre-industrial levels (Peters, 2016). The years since Paris have each been the warmest on record (WMO, 2018).

How likely are we to reach the goals set in the Paris Agreement? In a rare moment of uninterrupted and uncontested communication from the world of science to the general public, British climate scientist Kevin Anderson during a recent interview with Danish television gave his assessment of our progress; it wasn't good. In answer to the proposition that Denmark is a leader in climate policy he stated:

> *… It's simply not true. No industrial country is a leading country on climate change. Every industrial country has emissions that are far too high to align with Paris. And no industrial country has any plans put in place that align with anything like the Paris Agreement, even in the weakest interpretation (Danish Broadcasting Corporation, 2018)*[2]

In the post-Paris assessment from the Oslo Academy of Global Governance, Harold Wilhite deems the chances of reaching the Paris targets as very low under business-as-usual scenarios. He shows that global emissions are still 70% higher than the 1990 baseline levels, and that although emissions cuts can be shown both from the US and Europe, such data don't take into account the massive shifts of production from the global North to the global South in the intervening years (Wilhite, 2016a). If European emissions from foreign production were accounted for, emission levels would be as high as the US or China, according to Chancel and Piketty (2015). For the US, fossil fuels were expected to account for 70% of US energy supply in 2030 (and this was before the unilateral pull-out of the PA by the Trump administration). For China, coal

[2] Domestic emissions in tons of CO2Eq per capita in 2016 were 6,54 tons in Denmark, 4,58 tons in Sweden, and 8.6 tons for Norway (Our World In Data, 2018).

production is expected to rise by 50% above todays levels by 2040, again fuelling much of the production of commodities that are consumed in the rich parts of the world (Wilhite, 2016a).

According to the April 2018 report of Climate Action Tracker, an independent science-based assessment that tracks the emission commitments and actions of countries, only one country in the world (Morocco) was on track to reaching its commitments for reaching 1.5 degrees. The policies and practices of the EU including Norway were deemed as "insufficient", China as "highly insufficient" and the USA as "critically insufficient" (Climate Action Tracker, 2018).

In addition to the assessments from several scholars and organisations of the PA as insufficient and unrealistic, there is an additional risk that the publicity around the Paris Agreement could cause a sense of the problem as "having been dealt with".

3.3 The Anthropocene and Planetary Boundaries

If it comes easy, at least in for those in relative positions of material affluence, to distance oneself from the reality of climate change, and relegate it to the temporal and spatial peripheries of attention, an opposite effect may also be at work. If one starts to consciously subject oneself to the measurable realities of climate change and their future ramifications, it may come just as easy to become as concerned with climate change as to forget or lessen one's attention to other global social and environmental problems. But our ecological predicament is not caused purely by our burning of fossil fuels. The extraction and combustion of petroleum products has been an essential feature of human society in the past two centuries – Andreas Malm's historical analysis of the roots of Fossil Capitalism in his book by that title even suggest that it may be what has enabled economic growth to take place at all (Malm, 2016). But human activity is causing measurable disruptions in a host of other parts of the Earth System as well. This thesis is focused on climate change and fossil fuels, but I will briefly go over the other systems which science tells us are under increasing threat – and the disruption of which will cause increasing and synergistic threats to human civilization and the stability of the biogeophysical system.

We can assume that Paul Crutzen, launching the term *Anthropocene* in 2002 in an essay named "Geology of Mankind" published in *Nature*, could not foresee the force with which the term would sweep across the sciences and into the public consciousness. His essential proposition was that humans are now the main driver of change on the planet, causing more changes in the environment than any "natural" factors – and therefore, we are no longer in the geological epoch of the Holocene, which is the scientific term for the time span between the last ice age and the present. We have in fact entered what future geologists would categorize as a new era – and it is appropriate to name this era Anthropocene – "the age of humans". Crutzen predicted that the changes he saw in nature due to human activity – our transformation of land, our use of water, our changes in the nitrogen and carbon cycles – were geological in temporal as well as spatial terms (Crutzen, 2002). As the concept has spread from the natural sciences, it has been criticised by several critical ecologists and ecomarxist scholars for attributing blame to "humanity" as a whole, instead of the particular conditions that created the sharp rise in environmental influence by humans – i.e. capitalism. Some of these scholars have suggested shifting to the term *Capitalocene* (Malm & Hornborg, 2014; Moore, 2015), but many in their own fields seem to stick with *Anthropocene*, as it has reached far wider proliferation than could have been expected. We will return to the implications of the *Anthropocene* throughout the thesis, and especially in chapter 3.

For a long time, the idea remained obscure and was limited to the natural sciences. Arguably, its path to wide adoption was given a significant boost by the publication of *A Safe Operating Space For Humanity* by an interdisciplinary team of Earth System scientists led by Johan Rockström and Will Steffen (Rockstrom et al., 2009). They reiterate Crutzen's adoption of the term *Anthropocene*, saying:

> *During the Holocene, environmental change occurred naturally and Earth's regulatory capacity maintained the conditions that enabled human development. Regular temperatures, freshwater availability and biogeochemical flows all stayed within a relatively narrow range. Now, largely because of a rapidly growing reliance on fossil fuels and industrialized forms of agriculture, human activities have reached a level that could damage the systems that keep Earth in the desirable Holocene state. The result could be irreversible and, in some cases, abrupt environmental change, leading to a state less conducive to human development. Without pressure from humans, the Holocene is expected to continue for at least several thousands of years. (Rockström et al., 2009)*

The contribution of Rockström et al. to the scientific study of the *Anthropocene* is their attempt to operationalise the struggle to maintain the stability of the Holocene by defining and quantifying a set of what they call *Planetary Boundaries*. These are the main aspects or natural cycles of the Earth System that are in danger of being irrevocably disrupted by human activity – climate change in the form of the carbon cycle boundary is one obvious example. The team created quantitative measurements for eight of their proposed *boundaries*, not yet having found suitable measurements for Chemical Pollution and the loading of aerosols in the atmosphere. The remaining seven boundaries are Biodiversity, Nitrogen Cycle, Phosphorous Cycle, Ozone Depletion, Ocean Acidification, Freshwater Use and Land Use Change – these were all quantified and preliminary ”boundary” values were set for when human influence on each of them was deemed to be ”unsafe”. At the time of publication the measured values on three boundaries were deemed to be at dangerous levels: Climate Change, quantified as parts per million of carbon dioxide in the atmosphere, Biodiversity Loss, quantified as number of species per million species going extinct each year, and the Nitrogen Cycle, quantified as the amount of N2 being removed annually from the natural cycle by humans. An overview of the boundaries is given below:

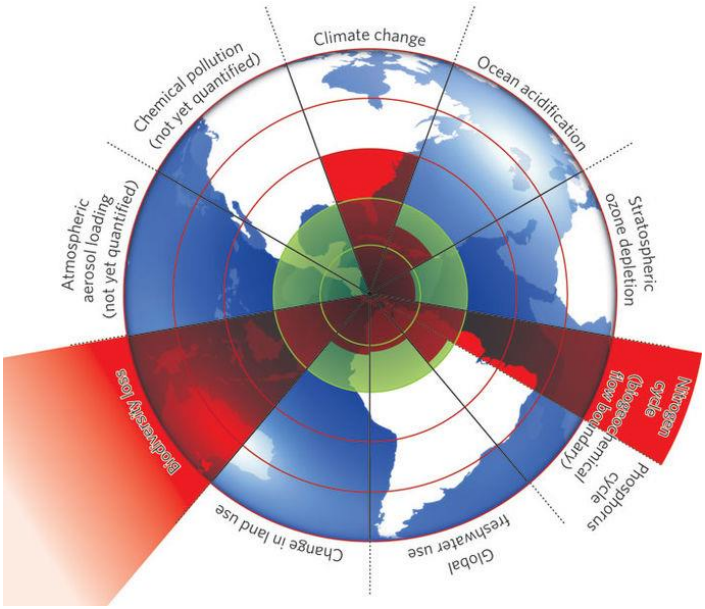

Figure 3: Planetary Boundaries in 2009 (Rockström et al., 2009)

In 2015, the team of scientists released an update on the status of the boundaries, having made some changes to the framework. The updated figure shows that in the intervening years, the boundaries for land use change and phosphorous flows had been crossed, and

the acidification of the oceans was approaching its boundary level. The team identified climate change and biosphere integrity as "core" boundaries because of their influence on the rest of the Earth System and the other boundaries (Steffen et al., 2015).

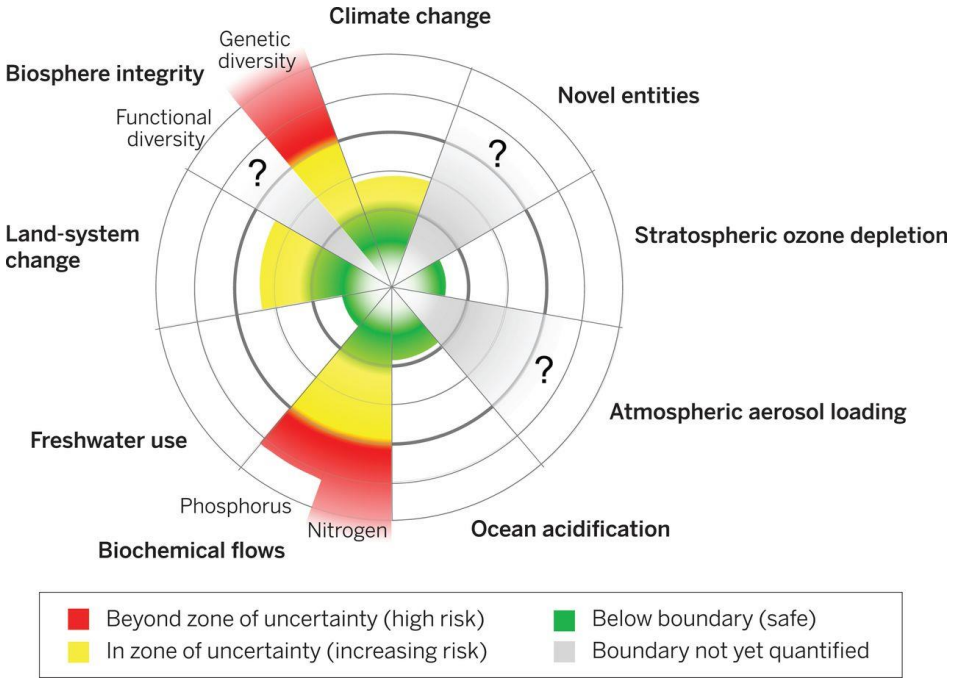

Figure 4: Planetary Boundaries in 2015 (Steffen et al., 2015)

3.4 Theory for the Warming Condition

If the natural sciences for their part have actively grasped with the epic task of projecting the future impacts of the changes they see in the climate system, social scientists and political theorists have only recently begun to build theory for explaining and understanding the human side of the warming condition. Geographer Joel Wainwright, in his 2010 article *Climate Change, Capitalism, and the Challenge of Transdisciplinarity* posited that "our understanding of the physical processes that are driving climate has run far ahead of our explanations of the social processes driving the physical processes" (Wainwright, 2010). Wainwright points to fundamental differences between natural and social science as part of the cause, saying climate scientists have been forced by their conclusions to enter into the fields of social science.

Here I will review contemporary theory from various fields in the social sciences that seeks to build theory for critically examining the social processes of climate change – theory that will inform the analysis that follows.

Marxism and Ecology: Metabolic Rifts and Unequal Ecological Exchange

The research agenda of Ecological Marxism is to uncover how the relations of production in capitalism negatively influence natural systems as well as social systems, and thus the long term sustainability of human-nature interactions. One of the most prominent theoretical perspectives within this field has been the *theory of metabolic rifts*, developed mainly by John Bellamy Foster (Foster, 2000; Foster & Clark, 2016). Though not without critics within its own field (most notably Jason W Moore (2015)[3]), it describes the tendency of capitalist production to create and exacerbate *rifts* in the metabolism or interchange of nature and society. Foster's analysis is based on Marx' writings on agriculture and nutrient cycles, where Marx described the broken metabolism of nutrient flows as agricultural produce transported nutrients from rural fields into the cities, where those nutrients ended up wasted and not returned to the soil (much abbreviated here). Foster and those who have followed his attempt to re-awaken this ecological side of Marx have applied this theoretical framework to several aspects of the increasing environmental destruction of the *Anthropocene*. Climate change, when viewed from this perspective, is the result of the break in the global metabolism of carbon, or the *carbon cycle*, caused by the enormous release of previously geologically bound carbon through the industrial scale burning of fossil fuels during the past two centuries. Thus the way in which commodities are produced under capitalist relations of production, driven by the primary capitalist mechanism of *accumulation of surplus value*, is understood as directly disruptive to the balances of uptake and release of carbon in nature.

Applied on the global scale, the theory on metabolic rifts intersects with the field of international relations, and specifically with the *world systems analysis* developed by Immanuel Wallerstein and others. A fundamental aspect of Wallerstein's analysis is that through the processes of globalisation we can now understand and analyse the world as

[3] I will not go into the ongoing debate between Moore and Foster in this work. The interested reader will find their relative positions and critiques by a quick web search.

essentially one economy or system, the *world-economy*, and that any particular event or part of the system must be studied in relation to this fact – a sort of epistemological holism (Wallerstein, 2004). The system is in a state of tension or contradiction between the *core*, where most accumulation of surplus value takes place, and the *periphery* where extraction of natural resources and most of the production of commodities happens. A vertical division of labour and capital accumulation characterises the system, where labour in the production of commodities increasingly happens in the periphery while accumulated material and financial capital flows towards the core (Wallerstein, 2004). Applying the metabolic rift theory to world-systems analysis results in a model of relationships of *unequal ecological exchange*. These relationships are characterized by that same flow of capital from the periphery to the core, while at the same time ecological damages in the form of emissions, physical processes of extraction and disrupted ecosystem functions are externalized from the core to the periphery (Hornborg & Martinez-Alier, 2016). This theory will be explored further as applied to the case of Norway in chapter five.

Overheating: The Double Bind of Sustainable Development

Anthropologist Thomas Hylland Eriksen, who terms the current ecological predicament as "Overheating" in his book by the same name, describes the concept of sustainable development itself as a "double bind" (Eriksen, 2016). According to him, *development* in contemporary capitalism is always equated with material economic growth, which he deems, leaning on the research into the Anthropocene and Planetary Boundaries, to be fundamentally incompatible with the active maintenance of ecological stability that the concept of *sustainability* entails. The result seen in the anthropological studies presented by his team is a double "clash of scales" – both spatial and temporal. The spatial clash is evident in that what constitutes beneficial outcomes on larger scales (like states striving for economic gains through exports and corporate revenue) may be directly detrimental to local communities in the form of increased dependency, inequality and environmental destruction. On the temporal scale, Eriksen argues that "the temporality presupposed by the concept of sustainability constitutes a fundamental critique of the destructive practices of contemporary capitalism" (Eriksen & Schober, 2016). The logic that informs choices in the *here and now* thus proves directly destructive for the *then and there*. This reasoning interfaces with the descriptions of unequal ecological

exchange in highlighting the importance of spatial and temporal distributions of power, responsibility and damages related to ACC. It also synergises with Jameson's descriptions of the state we're in as a "condition of synchronic space devoid of time and nature" (Jameson, 2015). In the logic of the postmodern state of capitalism there is no room for other places or temporalities than the here and now. Andreas Malm describes "the warming condition", the reality we are slowly waking up to, as the "anti-thesis of postmodernity" (Malm, 2017), as the temporal and natural realities of climate change intrude ever closer on the spaces of the present. Climate change is the present observation of processes that extend back in time and potentially far into the future. It is a storm that is continually brewing, and if we don't manage to change our course, it will crash into us with the full power of centuries' worth of burned fossil fuels.

Climate Leviathan: Global Scenarios

In response to the lack of political theory focused on the fundamental challenges all human societies face through climate change, Joel Wainwright, together with colleague Geoff Mann, wrote *Climate Leviathan: a political theory for our planetary future*. In that book, they "posit a basic framework by which to understand the range of political possibilities, in light of the response of global elites to climate warming and the challenges it poses to hegemonic institutional and conceptual modes of governance and accumulation" (Mann & Wainwright, 2017). Their analysis of the present crisis serves to provide an even wider context to the central question of this thesis – why the state of dithering is maintained. If Hylland Eriksen and the *Overheating* researchers focused on anthropological contributions to understanding the warming condition, and the metabolic rift school looks at the fundamental material interactions between society and nature, Wainwright and Mann look at the implications of climate change for overarching global political possibilities. According to the authors, their main contribution to social theory on climate change is that they combine a critique of capitalism with a critique of sovereignty. They put forward a typology of possible global scenarios or political responses to climate change, based on the two dichotomies of capitalist/non-capitalist and planetary sovereign/anti-planetary sovereign (see Figure 5: Wainwright and Mann's "four potential social formations" (2013). In the ongoing UNFCCC deliberations from Kyoto to Copenhagen to Paris, they see the concrete seeds of an emerging planetary sovereignty whose modus operandi is to present climate

change as solvable under the present hegemony of neoliberal capitalism while simultaneously strengthening contemporary trends towards a global political sovereignty that can enforce the necessary mitigation and adaptation – by deciding on emissions quotas, population levels, trade systems, food production and other issues related to a neoliberal political response to climate change. Wainwright and Mann see this tendency as equally dangerous and obstructive to a fundamentally just political response to climate change as the continuation of capitalist accumulation. They dub this trend *Climate Leviathan*, after the biblical monster that God used to taunt Job, and after Hobbes' conception of the sovereign state in his work by the same name.

The four potential responses are summed up thus: "a capitalist climate *Leviathan*; an anti-capitalist, state-centred climate *Mao*; a reactionary capitalist *Behemoth*; and anti-capitalist, anti-sovereign climate *X*" (Wainwright & Mann, 2013, my emphasis).

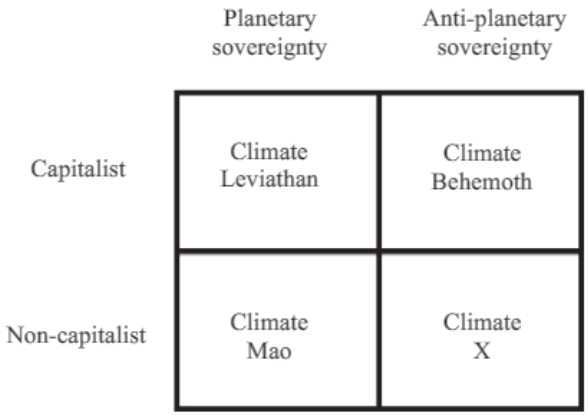

Figure 5: Wainwright and Mann's "four potential social formations" (2013).

Wainwright and Mann see *Climate Leviathan* as dominant today, and so they see the other three as in competition with it – the primary example being the reactionary capitalist climate *Behemoth* most obviously represented by the Trump administration and its unilateral disengagement with the UNFCCC process and the Paris Agreement (Mann & Wainwright, 2017). Behemoth represents a continuation of the dominant capitalist mode of production, but without the institutionalised global political hegemony which characterizes Leviathan. Instead, Behemoth focuses back on the state and the nation, and does not necessarily accept ACC as real. If Leviathan's core message is that the neoliberal hegemony can solve climate change through conventional means of markets and technological innovation coupled with a continually reinforced

institutionalisation of political power structures, the message of Behemoth is that each state must fend for itself and its people, and the attitude to an inherently global problem like climate change is likely to be denial and shifting of blame and responsibility. The drive of *Leviathan* towards planetary sovereignty is due to the fact that the "elite transnational social groups that dominate the world's capitalist nation-states certainly desire to moderate and adapt to climate change — not least to stabilize the conditions that produce their privileges" (Wainwright & Mann, 2013). According to the authors, the drive towards formalizing the hegemony of neoliberal capitalism in a "Planetary Regime" is both proving insufficient to stave off the ecological crisis, and furthermore exacerbates the dominance of the neoliberal project globally and in its move towards planetary sovereignty thus effectively undermines any response to climate change that is based on equality, dignity and solidarity. Those are the three core aspects Wainwright and Mann see as essential to the "revolutionary" anti-capitalist *and* anti-sovereign alternative of climate *X* to the "reactionary" anti-sovereign but capitalist *Behemoth*[4]. In chapters five and six, I will compare the attitudes on climate and oil of the Norwegian state as well as my informants in the field study to the typology of Wainwright and Mann.

Ecomodernism: Technological Decoupling

As expressed in the Ecomodernist Manifesto, published in 2015 by the Breakthrough Institute, the central idea of *ecomodernism* is to use the tools of technology and the mechanisms of markets to finally sever the connection between society and nature, allowing for a continual improvement in human material conditions while also allowing "space for nature" (Asafu-Adjaye et al., 2015). Thus a foundational assertion of the ecomodernist position is that accumulation of capital as measured in economic growth can effectively be decoupled from ecological damages, through the application of rapid technological progress. This aligns with the attitude of Climate Leviathan. Adaptation to and mitigation of the consequences of climate change that we explored previously in this chapter are deemed possible through an intensification of human technological activities, an increase in the efficiency of our socio-technical systems, and a further push towards the transfer of control of economic activity from the public to the private

[4] The fourth response, climate *Mao*, I will not expand upon here, more than that it is represented most clearly in the statist (sovereign) but anti-capitalist responses to climate change that the authors see as potentially growing in China.

sphere. Humans can, it is asserted, "control" climate change through application of technology (geoengineering, "green technology" including various forms of nuclear power, carbon-negative technologies like CCS), it is the responsibility of individual consumers to act, and we can have a "green shift" without ever questioning the assumption that energy use must continue to rise. In fact, the authors of the Manifesto claim that increased energy use can lead directly to less impact on nature. Thus, human development - in quantitative, material terms - can continue unhindered by the reactions of the mechanisms and events of nature. The authors assume that every human material need that was previously filled through interaction with nature can be *substituted* through technological development (Asafu-Adjaye et al., 2015). The level of technological mitigation varies from technologies generally deemed viable today, to more speculative forms like large scale application of Carbon Capture and Storage (which would, it is postulated, will allow the continued burning of fossil fuels without further disturbance of the climate system), to the sci-fi-esque concepts of large scale "geoengineering" – applying technological solutions to the planetary system on a global scale. Suggestions on this scale range in turn from the large scale seeding of algal blooms in the oceans and nitrification of forests to produce enhanced growth, to the global-level introduction of particulates in the upper atmosphere, and even to the construction of physical devices on astronomical scales to lessen the amount of solar radiation entering the biogeosphere (Faran & Olsson, 2018). The scientific rationale for any of these methods is still dubious – a model study from 2014 found that even long term the methods studied were "either relatively ineffective with limited (<8%) warming reductions, or they have potentially severe side effects and cannot be stopped without causing rapid climate change" (Keller, Feng, & Oschlies, 2014). They conclude that none of the climate engineering methods on the table will make up for failed large scale reduction of emissions.

The stated goal of the authors of the Ecomodernist Manifesto is to work for a continual improvement of human conditions along with a greater "space for nature". But they make some fundamental assumptions that have a real risk of obscuring the realities of climate change. First of all, their assumption of the viability of decoupling and substitutability is highly questionable. Both the empirical studies of the metabolic rift school, as well as data on continually rising energy use and emissions even in the centre of the world economy seem to undercut their assumption (Wilhite, 2016b; Wilhite &

Norgard, 2004). While its proponents claim that ecomodernism is not directly tied to capitalism, its proposed solution to our environmental problems fits perfectly into the neoliberal project of ever increasing technological advances and automation (Harvey, 2005). Their rejection of equating modernity with capitalism only risks making the material progress and environmental damages inherent in the only modernity we have seen – capitalist modernity – seem more natural, eternal, and transhistorical. They imply that progress, in material terms, is inherent in human societies, and is not an aspect of specific historical social relations. This runs the very real risk of obscuring alternative pathways, of even considering the possibility of a society premised on something other than eternal material development. Secondly, by focusing on technological or *instrumental* solutions, they risk being blind to the relations of power that make possible the hypothesised stabilisation of the material effects of development on nature – most obviously, they do not take into account that the majority of production for consumption in the global North has been "outsourced" to the South, and their associated emissions and other damages are thus discountable to states in the centre of the world economy (Foster & Holleman, 2014). Thirdly, they assume that humans can control and make decisions about non-human nature. They speak of human communities deciding for themselves on what species to preserve, whether or not to allow invasive species, how much biodiversity to promote and so on (Asafu-Adjaye et al., 2015). This fundamentally denies any autonomy of nature, and risks blinding us even further to our dependency on natural systems that are not of our creation, and fundamentally not within our control – as I will expand upon in chapter three. All these aspects of ecomodernism makes it an ideological ally to the political project of Climate Leviathan – since it not only allows for the premises of neoliberal modernity to go unchallenged, but also directly calls for reinforced political control over global human-nature interactions without challenging the unequal distribution of political and economic power.

3.5 Summary

In this chapter I have strived to provide a review of both the natural and social sides of the science on anthropogenic climate change. We have seen that the world of natural science has reached high levels of consensus on the anthropogenic nature of climate

change, that the consequences are already being measured and experienced primarily by people in the global South, and that the predictions for the future, under business-as-usual scenarios, range from catastrophe to potential civilizational collapse. Further we have examined the progress on emissions reductions under the Paris Agreement, and introduced the concepts of Anthropocene and Planetary Boundaries. Finally I introduced some critical theoretical advances made in the social sciences concerning the social drivers of and reactions to climate change – as well as a look at the concept of ecomodernism. In the next chapter I will go into the fundamental interactions between the social and natural worlds through the lens of critical realism, and strive to build a heuristic model of the causes of continued *dithering* by combining the critical realist perspective with theories on hegemony and *common sense* from the works of Antonio Gramsci.

4 A Critical Realist Investigation of Anthropogenic Climate Change

"Because life is robust,

Because life is bigger than equations, stronger than money, stronger than guns and poison and bad zoning policy, stronger than capitalism,

Because Mother Nature bats last, and Mother Ocean is strong, and we live inside our mothers forever, and Life is tenacious and you can never kill it, you can never buy it,

So Life is going to dive down into your dark pools, Life is going to explode the enclosures and bring back the commons,

O you dark pools of money and law and quantitudinal stupidity, you oversimple algorithms of greed, you desperate simpletons hoping for a story you can understand,

Hoping for safety, hoping for cessation of uncertainty, hoping for ownership of volatility, O you poor fearful jerks,

Life! Life! Life! Life is going to kick your ass."

— Kim Stanley Robinson, New York 2140

On one of the very last days of the magnificent winter of 2018, I left my desk and thesis work to get one last experience of that most Norwegian of human-nature interactions, cross-country skiing. Conditions were sadly appalling, as more experienced skiers evidentially had already concluded considering I found myself all on my own, trudging along in the forest of Lillomarka. As I entered an open space in the woods, in the silence I heard the voice of a woodpecker, busily pecking away, trying to get her beak on some unsuspecting worm or insect within the tree on which she perched. Having invested some thought in my thesis work into the relationship between what we call nature and what we call society, it struck me that the woodpecker cared not one iota about such thoughts. Her existence was not in any way predicated on my experience of her pecking. Should human societies suddenly disappear from the earth, some conditions of her woodpecking life would certainly change – the skiers, the berry pickers, and the men with chainsaws would quickly vanish from bird-memory. But the trees, the air, and

the insects that constitute the framework of her lifeworld would certainly still exist, and might continue to do so for millennia to come. If woodpeckers peck in the forest, and no human ever hears them again until the very end of the earth, of course they will still make their music. The idea that nature is somehow produced or constructed by humans in the literal sense struck me in that moment as absurd, and I knew that my inquiry into the human reactions to climate change had to include considerations of the foundational relationships between non-human nature and human society. I thus returned to my desk with renewed interest in the basic ontological assumptions on which we base our inquiries into the natural and social worlds.

In this chapter I will elaborate the theoretical framework in which I conduct my analysis. I start with a basic introduction of the Critical Realist stance in the philosophy of science, as this standpoint is the foundation for the entire rest of the work. Then I briefly explore some current dominant explanatory models regarding the widespread failure to act on climate change, and try to understand their weaknesses. I suggest that a critical realist model incorporating Gramsci's concepts of hegemony and *common sense* have higher explanatory value, and proceed in describing the foundations, relationships and effects of the dominant form of human-nature interaction I see existing today – what I see as an *ecomodern* turn in the political project known as neoliberalism. Finally I attempt to construct a critical realist model of "the state of dithering", a model I will use as a guide in the analysis of my empirical material. In it I combine critical realist ideas about stratified reality with the gramscian model of ecomodern hegemony and *common sense*.

4.1 Research Questions 1

The question guiding the theoretical elaboration in this chapter is also the main research question of the thesis:

How can critical realist perspectives in conjunction with gramscian theory increase understanding of the complex relationships between society and nature in the issue of anthropogenic climate change?

4.2 Critical Realism

My ambition in this work is both to increase understanding of the mechanisms or structures that underlie a continued failure to achieve rapid decarbonisation of our societies, *and* to understand how these mechanisms or structures create narratives and *common sense* positions that limit agency in reacting to climate change. This ambition to understand both structural power and individual agency is common in the field of political ecology, and has implications for what position one takes as a researcher regarding the fundamental understandings of reality and how we produce knowledge about reality – what the philosophy of science calls ontology and epistemology (Benjaminsen & Svarstad, 2010). There is a wide spectrum of positions regarding the question of the fundamental nature of reality and what we can know about it. If *realism* on the one hand takes the position that there is an objective reality that is wholly independent of human interpretations of it, and *constructivism* on the other hand claims, when taken to its extreme conclusions, that there exists no "reality" beyond human interpretations and constructions of it, then where would one position oneself if one sought to understand *both* the mechanisms and measurable phenomena of nature, *and* the importance of human interpretations and social constructions? In my view, the study of anthropogenic climate change can serve as a key to bridging the seemingly unbridgeable gap between realist natural science and constructivist social research. The complex nature of the issue at hand means that in order to gain a greater understanding, one must be open to studying the whole system of human interaction and reaction to the climate system, from the details of biogeochemical cycles to the stories that humans tell each other about their relationship to the rest of nature and their ability to change that relationship. We must strive to understand how nature and society work, how they interact, where they intersect or overlap, and what (if anything) fundamentally sets them apart. The growing field of *critical realism*, first advanced by Roy Bhaskar, can be described as an attempt to bridge the gap and combine the extreme positions of realism and constructivism into an understanding of reality and knowledge that lets us understand how phenomena and constructions coexist and interact (Benjaminsen & Svarstad, 2010).

The epistemic fallacy

One central aspect of Roy Bhaskar's philosophy of science is the concept of *epistemic fallacy*. That means, in simple terms, reducing a thing (like the actual changes occurring in the earth's climate), to our knowledge of that thing (like our measurements of those changes). Now while this may seem like foolishness in the case of climate change, it has broad implications and exposing the epistemic fallacy represents a break with a long strand of "purely constructivist" thought on ontology and epistemology – one that, taken to its conclusion, reduces *reality* to our *descriptions of reality* (Collier, 1994). If there is any position on ontology and epistemology that is evident in public and political life in 2018, I would argue that it is the idea of post truth – and not only in the sense of Donald Trump and alternative facts, but in the sense that *all descriptions of reality are equally valid or "real"*. The appeal of critical realism is that it argues against such positions in a rational, scientific way, while still acknowledging the social nature of any production of knowledge, and explicitly doing so with the end goal of increased social and ecological emancipation. Critical Realism as philosophy of science has been described as the "underlabourer" of both natural and social science in that it seeks to understand the underlying mechanisms and relationships that make science possible at all – to understand what it is that makes us able to "know" anything about reality, be it "social" or "natural".

The Transitive and the Intransitive

Critical Realist conceptions of reality maintain that there is an intransitive (unchanging) reality that exists independently of our transitive (changing) social beliefs and understandings of it. In nature, this is obvious – Sayer uses the example of the theory of a flat Earth being upended by empirical observations of the Earths roundness, without a corresponding change in the actual shape of the Earth (Sayer, 2000). The shape of the Earth is *intransitive*[5], and our conceptions of it have no bearing on its form. Our understanding of the shape of the Earth is obviously *transitive* - and in a sense this dynamic relationship between *intransitive* reality and *transitive* models for understanding reality is what enables science to take place at all, both natural and social. If we had stuck to our view of the world as a disc, a subfield of present-day astronomy

[5] At least on temporal scales of billions of years.

could have been engaged in finding out how the water in the world's oceans didn't just run off the edges of the disc[6]. That would have been a waste. So we see that the very fact that science is possible, that we can through scientific methods uncover things about reality that we did not know before (and that this in turn enables us to act in ways that we could not act before) points to *ontological realism* – there *is* a reality out there which exists independently of our observations of it. This ontological understanding is, according to Ehrbar (2002) an example of the role of philosophy as *under-labourer* to science. Philosophers can observe the way scientists uncover new understandings about the world and by those observations come to understandings of the nature of reality itself – which maybe irrelevant to any particular scientist trying to solve any particular problem, but has wide implications. The most important of these is that the world is fundamentally *open* – and that means that we, as humans, are capable of changing it.

Stratified Reality and Judgmental Rationality

Critical Realism sees reality as *stratified*, or having a gradient of levels. The most fundamental level is *the real*, the domain of *mechanisms*[7]. These are, in nature, the unchanging relationships and most fundamental aspects that enable physical reality to exist. It is in a sense the canvas on which reality is drawn, the premises for what can come to exist. Above this lies *the actual*: things as they exist in specific points of space and time – the actual manifestations of physical reality. Here one would place the physical world as we most commonly understand it. Events in the *actual* are the spatial and temporal manifestations of the mechanisms in the *real* (Collier, 1994). The state of nature as it exists in any specific point in space and time is what is *actual*. The level of CO2 in the Earth's atmosphere is what is actual – and the mechanisms (or relationships) of physics and chemistry are what will make that specific level of CO2 produce the corresponding events of temperature increases, melting ices and rising seas. The "highest" level of reality is the *empirical*, the level where events are experienced, scientific experiments are possible and interactions between a human mind and a

[6] Anyone who wants to witness the extremes of epistemic fallacy and conspiracy theory is welcome to visit the website of the Flat Earth Society. The water-edge-disc problem is something they are working actively on solving. Apparently Antarctica is actually a ring on the edge that keeps the water in.

[7] I am not convinced that the term "mechanism" is a good one for describing what happens on the fundamental levels of reality. I would say "relationship" is perhaps better and less anthropocentric or "machine-like" in its connotations. Nonetheless, I will use "mechanism" in this thesis as it is established within the theoretical development of CR.

pecking bird happen. The key understanding is that any such experience does not constitute the totality of what is actual, but can only ever be a tiny sliver of it.

Critical Realism acknowledges that all our models for describing "reality" are in the end insufficient and can never be totally accurate descriptions of underlying reality. They can only be descriptions based on what we empirically experience, and from those experiences we can begin to reveal the underlying events and mechanisms. But rather than concluding that this means that all descriptions of reality are equally valid or invalid, critical realism see the clashing of our epistemic models with the measured phenomena of intransitive reality as both confirming ontological realism and providing an opportunity to create *better* models. Rationality is judgemental – it consists of judging between better or worse choices in specific social, ecological and ideological contexts. This means that the reality we each experience on the empirical level is made up of both things that are *real* in an undeniable ontological sense, and *constructed* in that the rationality by which we judge our experiences is the result of transitive social relations (Collier, 1994). The task of any normative social science then, is to move downward along the "gradient of reality" from the empirical experiences in specific spatial-temporal situations, towards the events, mechanisms and relationships that form the basis of any situation in which judgemental rationality takes place – and expose the contradictions in them with the goal of producing *better* or *more true* rationality. This understanding of the process of social science frees it from both the ambitions to uncover trans-historical "laws" in the naturalist sense, and from reducing the objective of social science to "interpretations of meaning" (Sayer, 2000).

To come back to the woodpecker in Lillomarka, her existence and lifeworld are ontologically independent of my empirical experience of her pecking. But my interpretation of my experience, the rationality by which I judge my experience, is the result of a complex social-ecological situation in which I am enmeshed – the environmental ethics I may have studied, the values the society I live in put on nature, my potential desire or need to harvest firewood or eat a woodpecker, the exchange value I could get from a photo of a woodpecker or a poem about a woodpecker or the corpse of a woodpecker, or my actual empirical experience of awe and beauty and humility. And still, it is up to me how to act in any specific situation within that complex of human-nature relationships. The *structure* of those complex relationships exists, but

does not *determine* my agency in a positivistic way – they form the context in which my action or judgement takes place. And importantly, the agency which is shaped but not determined by structure also is capable of shaping and re-shaping that structure (Fletcher, 2017).

Rejecting Positivism – Dialectical Critical Realism

A critical realist view on nature and society has the implication that causality is not positivist, but dependent on active choices made by humans and complex interaction between mechanisms and events in nature and society. Causation doesn't follow a direct line from mechanism to event to empirical experience, as the level of complexity increases as systems move from the mechanisms in the *real* to the level of experiences in the *empirical.* The biogeochemical cycle for phosphorous, for example, is much more complex than the structure of a single phosphorous molecule [8]. When it comes to living systems, attributing causality becomes even more futile. The biosphere is an enormous complex of relationships between living beings which have their own agency and interact in myriad ways with complex biogeochemical cycles and other life forms. As we have seen, the process of science is using empirical observations and scientific methods to uncover clearer and clearer understandings of the strata of reality – working from the level of complex biological systems that are relationships between beings that have their own agency, down to the chemical bonds they are ultimately made of, down to the level of particle physics and still further down towards the ultimate prize – a unified theory of quantum mechanics and gravity, which must be a relationship less complex than the overlaying systems because it is the foundation from which all increasingly complex systems emerge, and constitutes the root of them. While we may debate the existence of natural "laws", there are at least fundamental relationships between matter and energy that constitute the basic axioms of existence. But the actual manifestations of reality and the empirical experiences of it by beings determined by both agency and relationships is not deducible from the fundamental relationship of energy and matter.

In the social sciences, the objective (according to Bhaskar and most of the "critical" social sciences) is to likewise move from the empirical to the actual to the real, from

[8] Even though that too, to a social scientist, is both complex and complicated.

experiences to events to mechanisms. Down through (and this is a reduction of course) particular individual psychology and social situations, to the political structure of a particular state or other social formation, to the more fundamental level of economic-ecological interaction, or in Marxist terms, the relations of production and hegemonic ideologies (Joseph, 1998). This again does not imply a direct line of causality from the mechanisms of social reality to the level of any particular and complex social context. The relations of production do not in a positivist sense determine the empirical experiences of any individual in any given social context in any given society. But the emancipatory potential of social science, the ability to produce *better* forms of rationality, hinges on uncovering contradictions on the more fundamental levels of society. This is because while social relations as a whole are transitive, there is a gradient – the particulars of any given social situation or individual are more transitive than the underlying political and economic structures of society, be they material or ideological. The relations of production are *less transitive* than the social context in in which I exist in any particular moment.

Achieving a deeper understanding of how the mechanisms and structures of society both have internal contradictions and "crash into" the surrounding intransitive reality is what allows us, in a dialectical process, to re-evaluate our understandings and achieve any form of societal change. The dialectic that Bhaskar describes moves beyond the Hegelian dialectic which (in extreme summary) (1) starts with a given, (2) finds it faults, and then (3) overcomes those faults – in the negation of the negation. Bhaskar says this is not dialectic – because the negation of the negation may just as well be a return to the status quo (Ehrbar, 2002; Joseph, 2000), ending up with a static circle. The dialectic must be a process of a spiral (upward or downward), that as its end result produces changes compared to the initial condition. Bhaskar's dialectic is based on his insistence on "absences" – that which is not, that which science cannot measure. To say that the world is *open* means that the world is not only positive – that which is measured by science is not all that is. It is also those potentialities that do not exist in the actual. And so Bhaskar's dialectic, in my understanding: (1) starts with something lacking or negative (an illness, a social want, an original absence), (2) finds its causes and tries to remedy them (absention of the illness), (3) runs into obstacles (constraints on absenting the illness), and (4) overcomes the obstacles (absenting constraints on absenting the original illness). To fully delve into this conception of the dialectic could produce whole

thesis on its own, so I will limit myself to a few examples of how I understand it relevant to the topic of this thesis:

As a "negative" example (derived from Harvey): (1) the drive toward accumulation of capital is limited in the extent to which it can exploit workers and produce surplus value, (2) capital identifies this limitation and tries to remedy it by lowering salaries or conditions, (3) it runs into the obstacle of worker organisations and labour laws, and (4) it remedies the obstacle by moving production to countries without strict labour laws, thus enabling the coming into actuality of a globalised system of production. Or in a more "positive" hypothetical example; (1) human society is threatened by the changes it has caused in the Earth's climate, (2) tries to overcome the threat by the rationality of capitalism and political sovereignty, (3) runs into obstacles in the form of unchanging climate trends and the formation of a global social movement that challenges the capitalist rationality and (4) human society overcomes both obstacles by *changing its rationality* and thus enabling the coming into actuality of something which previously did not exist in the positive, only as absence[9].

Andrew Sayer has reflected that if post-modernism produces a "defeatist" stance towards critical or emancipatory projects because of a focus on value-relativism, then critical realism invites social science to explicitly engage in normative arguments (Sayer, 2000). This posits a challenge, according to Sayer and Benton (Benton & Craib, 2010), because for critical realist emancipatory projects to carry any weight, they must adequately account for how the aspirations towards new forms of social relations actually would affect the complex of different needs and interests in the current ones – it's not enough to criticise the status quo in search for some nebulous future society characterised by "freedom". Benton sees a response to this challenge in recent resurgence in critical social science of envisioning what such future societies might actually be, a "rediscovered interest in utopian thought" (Benton & Craib, 2010). The "alternative hedonism" of Kate Soper, serious discussion of what constitutes a "good life", "prefigurative practices" of contemporary social movements – such as experimental forms of new social relations in communes, eco-villages and cooperatives, and the potential of utopian fiction are some of the aspects of such resurgence. These

[9] On synergies and differences between Adorno's *Negative Dialectics* and Bhaskar's *Dialectical Critical Realism* which I cannot fit in here, see (Norrie, 2004).

are prefigurations of paths that could be opened if we could transcend the a-priori barriers of the current social order. Benton sees critical realism again as a philosophical "underlabourer" for such normative explorations in social science, providing the philosophical rationality for them, and also as providing criteria for assessing their outcomes (Benton & Craib, 2010).

4.3 Critical Realism and Anthropogenic Climate Change

Now if natural science is the process of moving closer to the fundamental processes or interactions of intransitive nature, and the social sciences seek to uncover the fundamental mechanisms and contradictions in transient social systems, then the task of understanding anthropogenic climate change and indeed the whole question of nature and society, must take as its objective to study both the systems of nature and the systems of society that arise within nature, and fundamentally to understand how they interact, are distinct, and are indistinguishable. A critical realist perspective denies any form of Cartesian dualism, where nature and society are totally separated systems, or external reality is produced or given actuality by the human mind. Humans and human society are and must always be understood to be enmeshed in independently existing nature – so the object of study is certainly socio-ecological. But the ontological differences between social systems and nature remain, and so we must understand them as separate *and* enmeshed, society nestled within nature and unable to exist without it but still having its own empirically experienced distinctness, just as a city is not a forest even if it exists within a forest, and just like a woodpecker is enmeshed in nature and cannot be a woodpecker without it, but still can be understood to be a distinct entity in relation to other things, or it would not have any distinct "woodpeckerness" on the empirical level of reality[10].

A critical realist view of climate change means understanding that the *mechanisms* of physical reality exist whether we choose to believe they do or not, and that interaction by society with the mechanisms on which the Earth System is premised will produce *events*, or actual consequences, whether or not we *empirically experience* or

[10] I actually don't know if the woodpecker experiences itself as a woodpecker in any sense, but I assume it experiences some kind of distinction between itself and the tree it perches on, or indeed, "crashes into".

acknowledge the reality of those events. To put it plainly: if we increase the balance of greenhouse gasses in the global atmosphere, the global climate is going to change, no matter our beliefs about anthropogenic climate change. There are no alternative facts there. Benton (2005) describes the ontological ramifications of ecological problems like this: "if nature were a discursive, or cultural construct, ecological problems would be an ontological impossibility". Climate change, then, deals a deathblow to ontological constructivism and affirms the reality of other-than-human nature in all its forms. And in an era when human societies' metabolic interactions with the rest of nature are increasingly destructive, it becomes essential for humans to understand other-than-human nature as not simply independently existing autonomously of humanity, because it is becoming critically evident that human actions are one of the major drivers of changes in natural systems that in turn cause changes in the bases of both human survival and the lives of billions of other, non-human, animals (Vetlesen, 2016).

Because of the ontological reality of nature, science becomes possible. By observing the changes that occur in nature, we can infer the events and mechanisms that underlie our empirical observations, and critically, we can interpret those empirical observations and choose different ways to react to our interpretations because *rationality is judgemental*. So on the ontological level, reality is real and mechanisms produce events, but on the empirical level, epistemology *is* relative – and rationality too. But all epistemologies are not equally *true.* The anthropogenic explanation for climate change is *truer*, in the sense that it more accurately describes the mechanisms of the ontological reality of nature, than explanations that invoke the cycles of the sun or volcanoes. Such *false* explanations are not produced only by looking at reality from a different angle (that would indeed produce "alternative facts"), but by judging the results of our observations by a different rationality, informed by a different social context.

> *"Given that, (other things being equal) it is better to believe what is true than what is false, it is also better (other things being equal) that institutions that cause false beliefs should be replaced by, or transformed into, those that cause true ones." (Collier, 1994)*

If we as societies truly accepted this, and applied it to what we know about the causes of climate change and the effects it will have, it seems logical to conclude that we would stop at nothing to unearth and expose the basic mechanisms by which our society has produced the current ecological crisis, and seek to promptly and profoundly change

them. But in practice, it seems that we are able to believe, by some *social mechanism unseen in daily life*, that it is better to believe what is false as long as it maintains the existing relations of power and production. I now turn to trying to uncover what that unseen social mechanism may entail.

4.4 Information Deficits and "Alternative Facts"

In trying to explain the lack of salient responses to climate change, research on *information deficits* held a primary position during a long time. This interpretation of the failure to act on climate change is focused on the difficulties described in transmitting complex scientific data from experts in the field to individual laypersons. The problem was construed as being one of a *lack of information*, and it was assumed that if the transfer of information was made easier, then people would react rationally and begin to change their carbon-intensive practices (Norgaard, 2011).

During recent years, this model of explanation has been increasingly abandoned as researchers seek to understand the importance of the context in which information is communicated. What is it that obstructs the information from being turned into salient responses? It's not stupidity or lack of scientific education, or simply a matter of unskilled messengers or poorly devised campaign strategy. What is important is to understand the social context in which information is processed and the kind of rationality that people use to act upon it. Paul McDivitt has suggested that even when applying a "contextual model" to the understanding of scientific communication, most researchers underestimate the difficulty of applying models for communication in practical circumstances or to achieve significantly large scale changes of opinion. He concludes that this is due to "the fragmented, polarized, and highly contested spaces of contemporary culture, politics, and economics within which communication occurs, as well as the *unequal distribution of power* within these complex systems." (McDivitt, 2016, my emphasis)

Alternative Facts and *Climate Behemoth*

"Alternative facts" and the concept of "post-truth" are certainly a symptom of the proliferation of the *epistemic fallacy* to even the highest political positions of the world – maintaining that all descriptions of reality are equally true and valid. The cause of the

spread of post-truth ideas also has to do with power structures. Geoff Mann and Joel Wainwright describe the proliferation of post-truth ideas as a symptom of the rising influence of what they call *Climate Behemoth* – the reactionary position against the mainstream response to climate change, as described in the previous chapter (Mann & Wainwright, 2017). One could be tempted to explain the current dithering as a battle between two discourses on climate change – one that denies it and another that accepts it. In such a description, *Leviathan* could come across as the "rational" position – that we must take the issue seriously, and that we will solve it with the political strategies and technical solutions that have elevated *Leviathan* to power. I see such a model, describing the struggle over climate change as a battle between the rational forces of globalist neoliberalism with the superstitious and backward forces of nationalist capitalism and denialism, as obstructive. It obscures the underlying mechanisms of capitalist societies, and perpetuates the "double bind" of sustainable development.

Thus I deem that models based on *information deficits* as well as models of a struggle between *Behemoth* and *Leviathan* are insufficient in uncovering the root causes of the "state of dithering", precisely because they do not challenge the naturalized rationality of *Leviathan* – political sovereignty and capital accumulation. In the following sections, I support the promotion of Gramsci's conceptions of hegemony and *common sense* (just as, to name a few, Harvey, 2005; Joseph, 2000; Mann & Wainwright, 2017; Wilhite, 2016b) as capable of providing a deeper understanding of the root causes of insufficient responses to the multifaceted ecological crisis. By applying hegemony and *common sense* in the critical realist framework of understanding climate change, I hope to come closer to answers to my questions – as well as further informing strategies towards achieving a rapid end to the "state of dithering".

4.5 Towards a Better Explanatory Model

The explanatory and emancipatory value of a specific model or explanation is, in the critical realist sense, contingent upon how well it uncovers the mechanisms and contradictions in the system studied (Collier, 1994). Thus the value of Marx' critique of political economy comes not only from its emancipatory goals, but for its effectiveness in exposing the contradictions inherent in capitalist relations of production. With this in mind, I find that the information deficit models, as well as a model of struggling

discourses on climate change, are insufficient in answering the question about what causes our continued dithering. To understand how individuals, states and corporations react to the knowledge produced by science, we must look at how the underlying mechanisms and events in society create specific contexts and specific rationalities in which that knowledge is received and acted upon. With that goal, I turn to the work of Antonio Gramsci and the concepts of hegemony and *common sense*. Gramsci's approach to the study of society is "concern[ed] with the complex passage from lived experience, itself always mediated by the existing explanations of that experience, to political narratives and political movements capable of bringing about radical change" (Crehan, 2016). For my purpose of a transdisciplinary exploration of human reactions to climate change, from the grand political narratives, world-systemic relations of production and environmental destruction and international conventions and down to the rationalities that influence our day to day lived experience, Gramsci's analyses of power and social relations have much to offer both in trying explain the continued dithering, and in exploring avenues toward more radical action on climate change.

Gramsci, Hegemony and Common Sense

There has been considerable debate among scholars as to the value of the Gramsci's contribution to Marxist thought, and even more regarding the neo-gramscian school in International Relations (Joseph, 2000; Radice, 2008). The scope of this thesis does not allow me to delve into these debates. For the purposes of achieving an increased understanding of what causes and reinforces obstructive positions regarding climate change, I will focus on the Gramscian concepts of *hegemony* and *common sense*. In my understanding and in the context of climate change, *hegemony* serves the function of obscuring and naturalizing the underlying mechanisms and power structures of society and the way they interact with nature, so that they are not reflected upon or challenged in daily life – and to reinforce the dominant *rationality* by which we interpret the world. It is a form for reinforcing and naturalising relations of power and the relations of production in a non-coercive way. A cohesive description of hegemony is difficult to find in Gramsci, but I think Kate Crehan's description is a close approximation: "*hegemony* […] is an approach to the question of power that in its exploration of empirical realities – how power is lived in particular times and places – refuses to privilege either ideas or material realities, seeing these as always entangled, always

interacting with each other" (Crehan, 2002). Hegemony relates to Bhaskar's ideas of judgmental rationality and value-laden epistemology – the social reality in which knowledge is produced and interpreted as co-produced by the material mechanisms of the economy (the "base" in Marxian terms) and the dominant ideology (or "superstructure"). Gramsci breaks with Lenin's conception of hegemony in describing a *hegemonic struggle* between ideologies, and so sees hegemony not only as a tool for enforcing the capitalist order but also a potential tool for *counterhegemonic* organisation – the formation of ideological critiques of the current order around which political struggles can be organised – instituting changes on the basic or "most real" level of social reality. Ideologies thus engage in "hegemonic struggles" for determining the basic *judgemental rationality* of any given society.

I should make clear that I do not see *hegemony* as being equal to "superstructure" or existing on a level of reality *above* the economy. Hegemony is a process of mutual reinforcement between the material and ideological bases of society, and in CR terms is thus *less transitive* than the political practices on the level of the state or the social realities experienced by individuals and communities. It is what naturalizes certain forms of rationality. In my attempt to integrate the concept in critical realism, hegemony is the "social mechanism unseen in daily life" (which I mentioned in 4.3) that enables the proliferation of *false beliefs* – that is, beliefs that do not correspond to the mechanisms of underlying intransitive reality.

In the fields of International Relations and Global Political Economy, *neo-gramscian* interpretations of hegemony have flourished in the past three decades, beginning with Cox (1983). This school of thought seeks to understand the formation of *historic blocs* on the international level as alliances by those states and agents that seek to maintain their positions of power and their ideological hegemony. The battle for dominance between *Leviathan* and its challengers can be understood to happen on that arena – where *Behemoth* in the form of states that seek to break the movement towards planetary sovereignty and protect their own interests form a *counterhegemonic* historic bloc, as do movements and alliances that span from the peripheral regions of the global South to social movements in the centre regions, representative of an anti-capitalist and anti-sovereign *Climate X*.

Common Sense in Gramsci is a somewhat elusive concept, but for my purposes I take it to mean the contextually specific and continually evolving form of "most widespread conception of life and morals" of a community of people in a particular time and place (Crehan, 2016). Gramsci describes it in these terms:

Every social stratum has its own 'common sense' which is ultimately the most widespread conception of life and morals. Every philosophical current leaves a sedimentation of 'common sense': this is the document of its historical reality. Common sense is not something rigid and static; rather, it changes continuously, enriched by scientific notions and philosophical opinions which have entered into common usage. 'Common sense' is the folklore of 'philosophy' and stands midway between real 'folklore' (that is, as it is understood) and the philosophy, the science, the economics of the scholars. 'Common sense' creates the folklore of the future, that is a more or less rigified phase of a certain time and place. - (Gramsci, 1992) quoted in (Liguori, 2015)

Again, viewed in critical realist terms, *common sense* then takes place on the empirical level, where the outcome of hegemonic struggle comes into being as a "fully fledged variant of the concept of ideology" or a whole "conception of the world" (Liguori, 2015). This is the concrete, day to day, and constantly changing means by which people interpret their world and the events they experience – comparable to CR's *judgemental rationality*. Thus, to understand why people react the way they do to the information and events of climate change, we must strive to understand how their choices, their rationality, and their agency are made up of entanglements of the hegemonic ideology (which I place on the societal level of *mechanisms*), and contextually specific *common sense* descriptions of reality (on the *empirical* level). *Common sense,* as I understand it, is thus not a direct translation of the hegemonic ideology into the day-to-day reality of "the common people" but is always a complex and often contradictory "entanglement" of the hegemonic ideology and other "philosophies", and contextually specific practices and relationships.

Philosophy is intellectual order, which neither religion nor common sense can be … Moreover common sense is a collective noun, like religion: there is not just one common sense, for that too is a product of history and a part of the historical process. Philosophy is criticism and the superseding of religion and 'common sense' … Religion and common sense cannot constitute an intellectual order, because they cannot be reduced to unity and coherence even within an individual consciousness, let alone collective consciousness. - (Gramsci, 1992) quoted in (Liguori, 2015)

As I understand it, Gramsci sees in *common sense* positions as bearing within them the seeds of *counterhegemony*. While his descriptions of common sense are often quite derogatory, as in the quote below, he sees *common sense* both as something that needs to be overcome to enable social changes, and at the same time as "a starting point for world-changing perspectives" (Loftus, 2013). Kate Crehan remarks that "it is out of the lived experience of subordination … that over time counter-hegemonic accounts of reality may begin to emerge, albeit at first no more than embryonic ones" (Crehan, 2002). Gramsci writes:

> *Is it possible that a "formally" new conception can present itself in a guise other than the crude, unsophisticated version of the populace? And yet the historian, with the benefit of all necessary perspective, manages to establish and to understand the fact that the beginnings of a new world, rough and jagged though they always are, are better than the passing away of the world in its death throes and the swan-song that it produces. - (Gramsci, 1992) quoted in (Liguori, 2015)*

In relation to critical realism, I understand *common sense* to be where *judgemental rationality* actually happens in day-to-day life. In chapter six of this thesis, the purpose is to gain an increased understanding of how hegemonic ideology, specifically the dominant narrative on oil and climate change, is transposed and changed into *common sense* positions – and what those specific formations of *common sense* tell us about different rationalities that produce reactions to the reality of climate change in specific contexts.

An Ecomodern turn in Neoliberal Hegemony

I now turn to looking at what hegemony is dominant in contemporary society. The political project known as *neoliberalism* has, according to a wide field of Marxist and critical scholars, grown to global dominance – or the status of a global *hegemony* – in the past decades. Perhaps the most influential analyst of this change is Marxist geographer David Harvey, who fundamentally describes it as a large scale political counter-reaction to the advances in organisation and mutual support made by the working classes during the 60s and 70s (Harvey, 2005). While the term *neoliberal* has been used quite generally and perhaps nebulously in the past decades, I see its core aspect as being a continual shift towards the dominance of market relations as the

drivers of societal change, and a large scale increase in the freedom of movement of capital through deregulation of markets and labour laws (Lundkvist, 2009). In my interpretation, Harvey describes this as happening on three fronts: the ideological, the political and the economic, and in three main ways: (1) expanding the influence of neoliberal ideology by supporting influential think-tanks and research organisations, (2) removing political barriers to the global flow of capital towards regions of the world economy with low labour costs and low levels of worker organisation and (3) de-industrialising the centre of the world economy through a technological push towards automatization (Harvey, 2005). These together have served to increasingly disempower labour relative to capital. Harvey insists that it is a political project, not springing from theory: "I don't think they started out by reading Hayek or anything, I think they just intuitively said, "We gotta crush labor, how do we do it?" And they found that there was a legitimizing theory out there, which would support that." (Harvey, 2016).

As a reaction to increasingly vocal warnings and recommendations from environmental science in general and climate scientists in particular, neoliberal hegemony seems, in the past few decades, to have taken an "ecomodern" turn. This is evident in the wide-scale adoption of ecomodernist narratives in state policy while continuing the practices of "petromodernity" or fossil capitalism. The subject of inquiry for chapter five of this thesis will be how this process has influenced Norwegian state policy on oil and climate change. Human Ecologist Wim Carton has suggested a dialectical reading of the movement-countermovement of Karl Polanyi, and following this reasoning the shift in neoliberal hegemony in effect could be described as the dialectic between the movement of the market and a socio-ecological countermovement resulting in a co-option and disarmament of the conclusions of environmental science, which at their core challenge the idea of limitless market expansion in a closed ecological system (Carton, 2014). Whether the authors want to or not, the assumptions of the Ecomodern Manifesto thus fit snugly into the political project of neoliberalism.

If *Climate Leviathan*, as described by Wainwright and Mann, is the attempt to solve the climate crisis while preserving and reinforcing the global relations of power and production of neoliberal hegemony, then ecomodernism is one of its primary means to achieve those ends. The ecomodern proposition aligns well with models of the struggle between an advanced, ecologically conscious and fundamentally "modern" neoliberal

hegemony against the reactionary, unenlightened and isolationist countermovement of *Climate Behemoth* or the communist ghost of *Climate Mao* (Mann & Wainwright, 2017).

In neoliberal ideological hegemony only those arguments (or empirical observations in critical realist terms) that fit into the hegemony are acted upon. The science of climate change, the introduction of the concept of the Anthropocene, and the literature on planetary boundaries all signify a growing realization among Earth System scientists that the historically specific mechanisms by which human societies produce goods and commodities trigger events in non-human nature which are beyond our control, and the implication that this posits limitations to the material expansion of human society. Such a realisation is inadmissible in a hegemony which naturalises the premises of endless accumulation, material progress, human "stewardship" of nature and the feasibility of decoupling increases in material wealth (what we can call *development)* and the long term functioning of societies, ecosystems and biogeochemical cycles (what we can call *sustainability).* Thus knowledge that could be interpreted as challenging the legitimacy of capitalist relations of production and structures of power is either ignored or co-opted by the hegemonic ideology.

The resulting ecomodern turn in neoliberalism seems to represent Cartesian dualism taken to its extremes, as it is tantamount to denying any foundational connection between human production and the mechanisms of nature. But what lies beneath such an apparent dualism of nature and society? Isn't the whole argument in fact an argument for *hybridization* – because human society in the ecomodernist view is what can "allow" nature to have "free spaces", it implies the subsuming of nature *under* society? In fact, climate science seems to tell us in no uncertain terms that nature is not ours to control. We can only control our side of the equation – what mechanisms of production or metabolic interactions with nature we decide upon as a society. The mechanisms of nature themselves are beyond our control – we cannot change the laws of physics or biochemistry, and previous attempts to interfere with or "guide" ecosystems have often produced catastrophic results. In essence, the ecomodern position is one that is lacking in humility. The machinery of nature is simply not within our control or complete understanding.

4.6 On Nature and Society

To say that nature and human are completely separate, in the Cartesian sense, is clearly unsatisfactory. Science can tell us about our interaction at foundational levels and we can measure the results of those interactions. Our empirical observations of climate change, as we saw in chapter three, are measurements of the results of those interactions. And it is undeniable that humans, individually and collectively, are as much a part of the biosphere of Earth as the trees or the woodpeckers – in a sense, we are all part of a grand planetary system, and fundamentally not reducible from it.

But to say that nature and society are one indistinguishable system, that nature is somehow *produced* by society in an ontological sense, or that we have entered a sort of hybrid phase, is to deny and remove our agency to change the way humanity relates to the rest of nature – both in the concrete, material sense, and in our conceptions of that relationship. It is to deny that the world is open-ended, or that its systems are in a constant state of evolution. The widespread idea of hybridization of nature and society is problematic since it seems to reinforce deeply anthropocentric ideas of society being in control of the Earth System, that nature is fully subsumed by human society, and that humans can solve all problems and barriers that non-nature exhibits through instrumental progress, *and for the sake of continued human progress*. John Bellamy Foster (2016) and Andreas Malm (2017) insist that nature and society are ontologically separate in the way they function and how their mechanisms and fundamental laws are established, even though society is obviously nested within ecological systems "like the heart is a separate organ, but still exists within the body" (Foster & Clark, 2016). This ontological separation is what frees us from positivist, trans-historical views of social relations as comparable to natural laws.

Insisting on that separation can free us from the hubris of expecting human progress, in the form of technological development and the expansion of markets, to solve all problems, and force us to refocus on how our specific activities lead to specific feedback from the rest of nature – she is not under our control, but we can endeavour to understand how our actions lead to the alterations and imbalances in the complex relationships of natural systems – and we can adapt the fundamental mechanisms of society accordingly. Working to reaffirm the autonomy of nature can thus be an

exercise in human emancipation as well – emancipation from structural power, and affirmation of collective, deliberative agency (Malm, 2017). The appropriate response to the empirical observations of anthropogenic climate change would be one of humility and reflection, and a desire to increase our understanding of how we ended up destroying not only the conditions of our own prosperity, but the conditions of life for thousands of other species as well. But instead of being humbled, we are rushing blindly forward, ever strengthened in our conviction that we are the masters of this earth, that human progress will continue eternally, and that there is nothing we cannot do.

In my understanding, the difference between nature and society is this: the mechanisms of nature are *more intransitive*, more permanent, more unchanging. While what is *actual* in non-human nature changes constantly, the fundamental mechanisms of both the biogeophysical premises for ecosystems and the actual ecological relationships of those systems are relatively unchanging. But the mechanisms that govern the relationships of human societies are transitive, historicised and changeable – and indeed they must change. Interpretation of the Anthropocene as the biogeophysical result of a fundamental and unchanging mechanism of "human nature" leads to fatalism and determinism. It is precisely because social systems are transient on a different level than natural systems that the Anthropocene signals the potential of returned collective human agency – because human history is open, and that means that human relationships to other-than-human nature are also open.

Figure six is my attempt to illustrate my understanding of society as part of but still separate from nature, as well as the stratified nature of reality as understood by Critical Realism. It attempts to show that both social and natural phenomena exist on a scale from the most transient, like individual human and non-human experiences, down through the strata of reality to the fundamental intransient mechanisms of nature, and the "more intransient" mechanisms of human society – the relations of production and ideological hegemonies are in this case understood as being "more intransient" than *common sense* conceptions of reality or specific political practices.

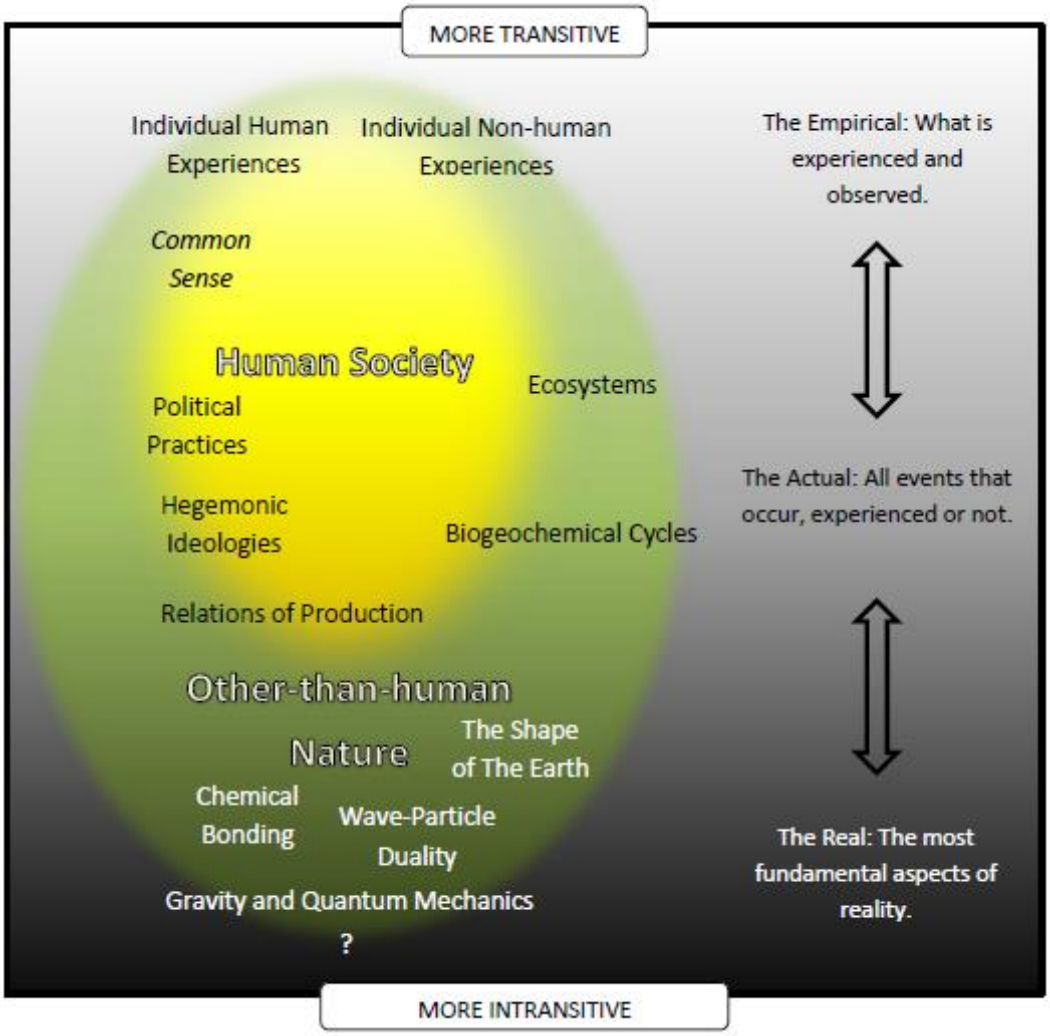

Figure 6: A Critical Realist model of society and nature

4.7 A Critical Realist Model of the "State of Dithering"

In summary, my understanding of the natural and social realities of climate change, as viewed through a critical realist framework and incorporating Gramsci as well as the theories explored in chapter three, explains the continuation of the "state of dithering" as follows:

The global and domestic relations of production, and the premise of eternal accumulation upon which they are built, produce and are reproduced by a hegemonic ideology – the Ecomodern Neoliberal Hegemony – that naturalizes and obscures power relations between humans and nature, capital and labour, and the centre and periphery

of the global economy. Those same relations of production, the *mechanisms of society*, metabolically interact with *mechanisms in nature* to produce the *events* of climate change that we empirically experience, both in scientific and embodied terms. In the case of fossil fuels and climate change, this means in practical terms that the burning of fossil fuels that has driven our economic growth for two centuries (a fundamental *mechanism* of fossil capitalism) interacts with the *mechanisms* of nature (the fact that increased concentrations of greenhouse gasses capture more heat in the atmosphere) to produce the *events of* climate change (rising temperatures, acidifying seas, melting ice and disrupted biogeochemical cycles). We can then scientifically *empirically* observe these changes, or not, and *empirically* experience those changes on our bodies, or not. But the events are there whether we acknowledge them or not.

Then, if our interpretations and reactions to those empirical experiences and observations (what science tells us about climate change) take place as the relative *judgemental rationalities* of the contextually specific *common sense* positions that are produced in relation to a hegemony that naturalises the mechanisms of capitalism, we are likely to produce narratives that continue to mask the unsustainability of the underlying mechanisms of the relations of production – and the result is that we produce "solutions" to the problem of climate change (on all levels of society, from the local contextually specific to the level of national policy and on to the level of global institutions) that do not serve to emancipate either humans or nature, and in fact keep the mechanisms that produce the events of climate change in place. If the hegemonic ideology and the rationality by which we judge climate change is one of ecomodern neoliberalism, then the observed climate changes are deemed to be solvable without questioning the fundamental drive to accumulation, and the resulting "solutions" will be to keep increasing our energy use and material wealth and relying on efficiency gains, substitution of natural capital by manufactured capital, and technological advances to stop the events of climate change. Furthermore, incorporating the work of Wainwright and Mann, *Leviathan* is continually strengthened in its movement toward establishing a formalised political structure where those ecomodern neoliberal "solutions" can be enforced.

But the model also offers potential for breaking the "state of dithering". Anthropogenic climate change, while it is the greatest threat to the stability of human societies and

functioning ecosystems alike, can also serve to reaffirm human collective agency, if we strive to understand not only the *natural mechanisms* that produce the changing climate, but also the *social mechanisms* that both cause the changing climate and our inadequate responses, and if we reaffirm our collective agency in the capacity to fundamentally change those mechanisms. Crucially, the judgemental rationalities of different *common sense* positions are dominated by hegemonic ideology *to varying extents*, are full of specific internal contradictions and in constant evolution. The struggle for maintaining ideological hegemony thus must take place in relation to spatially and temporally specific instances of *common sense* that all have within them the potential for building counterhegemonic struggles.

The model in figure seven is my attempt to heuristically illustrate the relationships between what I call the Ecomodern Neoliberal Hegemony and contextually specific *common sense* positions, and their respective positions on the scale from more transient to more intransient levels of reality. The model illustrates how the ENH is made up of political narratives, political practices, and the underlying mechanisms of the relations of production. It seeks to show how the hegemony is more intransitive, more resistant to change and less visible in day-to-day experiences than the *common sense* rationalities which it influences, and also how those *common sense* rationalities as well as the ENH are affected by other potentialities that may act against the hegemony – the ”counterhegemonic potentialities” that transcend the nature-society gradient. These are, for example, the understandings of natural science regarding the limits to human interference in other-than-human nature, counter-hegemonic critical social sciences, competing ideologies, and “prefigurative” practices that break with the hegemony (“prefigurative” means they are practical examples or models of social practices that do not fit within the ENH).

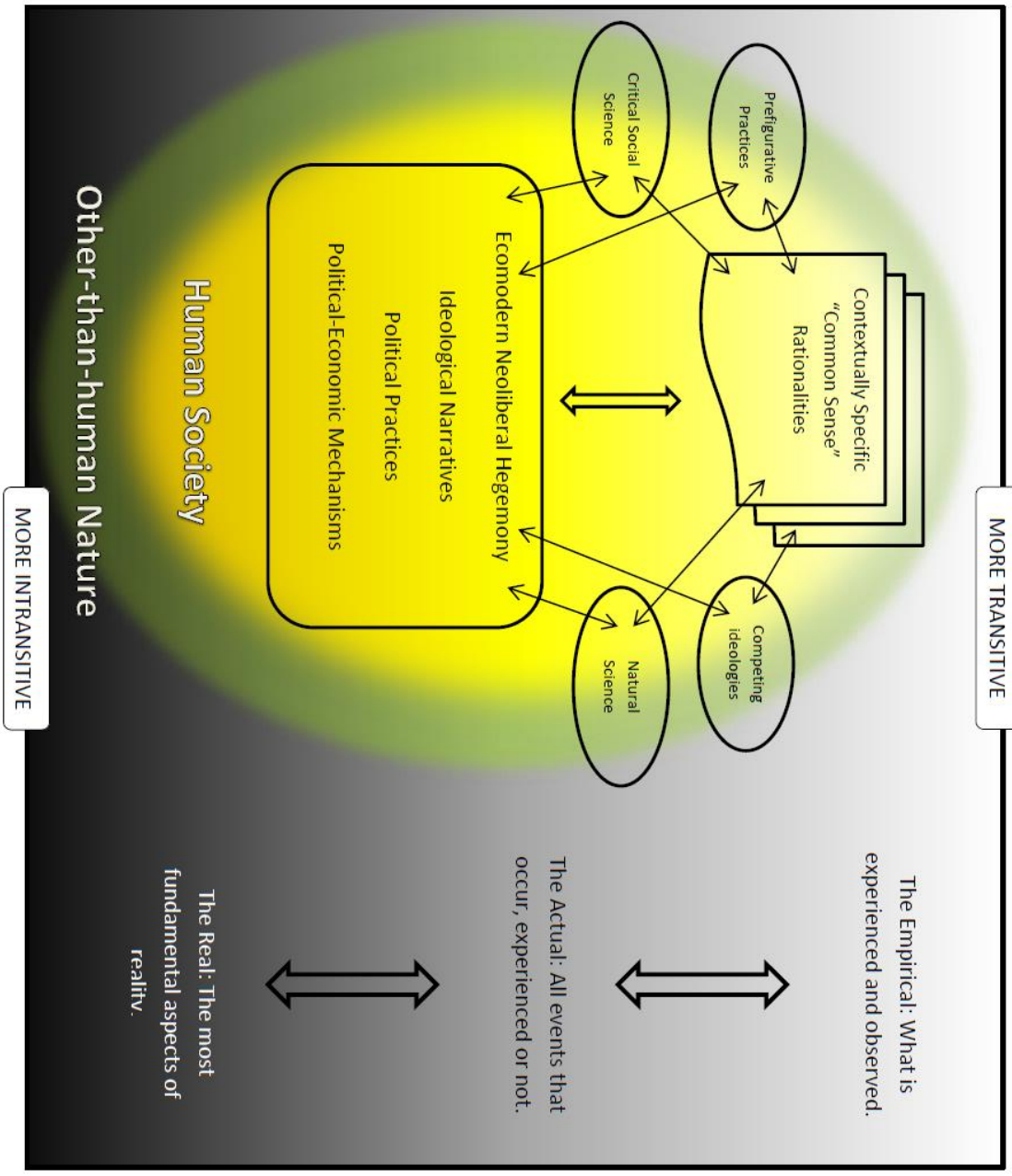

Figure 7: Heuristic Critical Realist model of Ecomodern Neoliberal Hegemony

An important conclusion of the line of reasoning in this chapter is that the Anthropocene, that contemporary geological era where human activities have become a force that influences the Earth System, is not a result of a positivist or natural chain of causation. It is not simply the case that as the human population grows we will by some aspect of our very biology wreak havoc on the rest of the Earth System. Our current form of metabolic interaction with the Earth System is not inherent in us as species, but is a *specific historical form* of human-nature relationship. Unlike mechanisms in nature, which we can uncover through the application of science and which are intransitive (and thus exist independently of humans), social mechanisms and the events they produce are transitive and historically specific. The current hegemonic position of the ideology and practices of the neoliberal project are not "the end of history" or the only way forward, and the dominant ecomodern conception of sustainable development is not the only possible understanding of the future coevolution of human societies and non-human nature. The dialectical process *can* bring into being new potentialities that do not yet exist, enable new paths into the future. This realisation indeed heralds a restoration of potential agency to the human collective. *But* such restoration of agency is contingent upon critically examining and unearthing what those social mechanisms are, where they crash into intransitive reality and how they affect our experience of agency in real life relative to our positions of power in the current hegemony. That is the task of building a *counterhegemonic* rationality that can de-naturalize the current order and expose its limitations. That, in my view, must be the pursuit of any philosophy and social science that has normative ambitions.

I now move from a general understanding of the "state of dithering" on the level of theoretical models and the philosophy of science into the application of the theoretical framework developed so far on the specific case of Norway and the rural community of Dovrefjell.

5 Exploring Norwegian Policy on Oil and Climate Change

"The space diaspora occurred as late capitalism writhed in its internal decision concerning whether to destroy Earth's biosphere or change its rules. Many argued for the destruction of the biosphere as being the lesser of two evils."

— Kim Stanley Robinson, 2312

In the previous chapter I ended in an understanding of the *state of dithering* being prolonged when the empirical observations of anthropogenic climate change are interpreted by contextually specific forms of *judgmental rationality* that resist challenges to the underlying structural mechanisms of human-nature interaction in the hegemony currently dominating the globe, which I describe as an ecomodern form of neoliberalism corresponding to *Climate Leviathan* – the Ecomodern Neoliberal Hegemony.

In this chapter I intend to explore premises and practices that produce and are reproduced by the "official" narrative on climate and oil in the state of Norway, and see how it corresponds to the hegemony as described so far. I start by giving a short historical background on the Norwegian relationship to oil and Norway's historical positions in the international negotiations on climate change. I then try to get an overview of the current status of Norway's contributions to the environmental crisis and commitments to emissions reductions. In the analysis proper, I look at Norwegian political economy at three levels roughly corresponding to the critical realist model of stratified reality. I study the narrative and political practices related to climate change and petroleum production, in order to uncover the mechanisms that produce them – or in other words, I seek to understand the *social mechanisms* that reproduce the limited rationality by which environmental problems are judged and reacted upon.

5.1 Research Questions 2

The questions I seek to answer in this section were stated in the introduction, but I repeat them here for the sake of clarity:

What underlying mechanisms can be uncovered by a critical realist analysis of Norwegian government narratives and practices on oil and climate change?

What potential responses to climate change are obscured by those mechanisms, practices and narratives?

5.2 Norway, Oil and Climate Change

After the 2015 signing of the Paris Agreement, articles by prominent news media such as *The Financial Times*, *The New York Times* and *The Guardian* have highlighted the particular contradiction or paradox (often expressed as "cognitive dissonance") apparent in the case of Norway, with its very ambitious voluntary pledge in the Paris Agreement, aiming for a 40% reduction in domestic emissions by 2030, and its continuing plans for expansion of the petroleum industry that has been so vital to the nation's wealth and prosperity (Milne, 2017; Sengupta, 2017; Watts, 2017). In this section I go through some major periods and events in the recent history of climate and oil in Norway, from the discovery of large amounts of petroleum deposits in the North Sea in the end of the 1960s, to the role Norway has played in the field of international environmental policy.

5.2.1 A brief history of the Norwegian "oil adventure"

Prior to the 1960s, the Norwegian economy was built primarily on manufacturing industries, fishing, and raw materials exports. The domestic energy supply was and still is provided by a mix of an extensive hydroelectric infrastructure and wood-fired stoves and fireplaces (Underthun, 2013). In the early sixties, foreign companies started to express an interest in prospecting for petroleum resources on the Norwegian continental shelf, after deposits of natural gas had been found in British areas of the North Sea. Though the government was initially sceptical as they had been informed that the chances of finding petroleum were next to nil, they granted concessions for prospecting to Phillips. On the 23rd of December, 1969, in their last planned attempt, the Phillips prospectors struck black gold (Sangolt, 2013). Production started within two years after that, and the form of production was from the onset determined by heavy involvement by the Norwegian Government in how the value of the newfound national resource would be distributed between foreign operators and the state. It was regulated by an

official adoption of ten "oil commandments" in 1973, including environmental concerns, distribution of value and investments, and ownership (Underthun, 2013). The state's approach was from the onset marked by precaution, not wanting to Norway to become overly dependent on the oil industry, but making sure the resource would be usable for the long term. As Ryggvik and Kristoffersen (2015) note, this decision on moderation was made before the science on fossil fuels and climate change became clear.

Gradual Privatisation and Peak Oil

In the first decade of oil extraction, there was broad resistance to exploring for oil fields north of the 62nd latitude due to environmental worries and a resistance to foreign companies making a quick profit. In 1977 a large oil spill from the Ekofisk installation initially cemented these plans, but the distant geographical location of the spill meant that the oil never reached coastal Norway, and since a large spill seemed to have occurred with no negative effects, the effect on the public perception of risk went in the opposite direction (Ryggvik & Kristoffersen, 2015). The north was opened to exploitation in the early 1980s, and during that decade development of the petroleum industry went in line with the general economic upheaval after the crises of the 1970s. The focus on a government regulated cap on production shifted to an investment-focused strategy, and from 1985 to 1993 annual state investment in what was a predominantly nationalised industry went from NOK 25 billion to over 57 billion (Ryggvik & Kristoffersen, 2015). Ryggvik (2015) argues that this shift from active control of the production side to a continual adaptation to the demand side of the petroleum business equation was a reflection of the emergence of neoliberal ideology and political practices during the 1980s. In essence, it was a declaration of a loss of control from the Norwegian state, and an adaptation to the rationality of market demand dictating national petroleum policy. Underthun (2013) describes the same process as a shift from a national focus on redistributing the economic growth from the petroleum industry across all of Norway, to a focus on the state as supporter of national firms in their global expansion and competitiveness.

During the periods of wild fluctuations in oil prices of the 1990s, corporations became more aware of their vulnerability to unforeseen price changes, and the number of

operators on the Norwegian shelf went up. Investments continued to accelerate and in 2001, the same year as Norwegian production peaked, Statoil was partially privatised, further limiting government involvement and further shifting the focus towards the company making its own decisions on infrastructure, investments and competitiveness (Underthun, 2013).

Petroleum Sovereignty

Norway is unique in having rejected membership in the EU twice through popular vote. In both instances, a major argument for staying outside of the union was the relative affluence of Norway afforded by the petroleum riches, as well as concerns over possible loss of sovereignty over natural resources and their associated industries. In spite of not formally being a member, Norway has nevertheless subjected itself to EU regulations and tariffs through a sort of voluntary transfer of political and economic power without the policy-making benefits of membership. This has led to what Sangolt (2013) describes as a status of "member in deed, if not in name" – the price that has to be payed for European economic integration without formal relinquishing of political sovereignty. Intermittently this policy can be said to have payed off, as Norway's relative affluence has allowed it continued economic prosperity during the post-2008 crisis which has rattled many European economies, but as Sangolt notes, this prosperity is built heavily on a state-capitalist involvement in an industry that is facing a severe level of risk should a downturn in international investments or the volatility of the oil market spark a major crisis. Indeed, in June 2018, warnings were issued by analysts at the Bank of Norway about the economic viability of the petroleum markets on which Norway continues to depend in spite of the urgency of dealing with climate change (Turtveit & Goldsack, 2018).

5.2.2 Norway's role in international climate change negotiations

Roots of Norwegian Environmentalism

Norway and Norwegians have a long history of environmentalism, going back to the romanticised ideals of Norwegian nature and urban Norwegian's affection for "turgåing" – hiking – that is closely associated with the national identity that grew

stronger during the nineteenth century's long movement toward independence from first Denmark and then Sweden. The remote mountainous areas, like Dovrefjell, are especially tied to this national identity – Tor Arnesen describes these areas as "the supposedly characteristic original Norwegian landscape, the place where the soul of the nation dwells". My own experience in Norway is that walking, skiing and being in nature can truly be considered a national pastime, with many urban Norwegians going straight from work to the "hytte" or cabin as soon as work ends on Friday afternoon. Every Norwegian child learns the "fjellvettreglene", the "rules" for sensible behaviour in the mountains (among them rule number eight: "there's no shame in turning back", which I learned repeatedly during our fieldwork in the mountains). The modern, institutionalised phase of Norwegian environmentalism can be said to have started with the establishment of the first national park in the Rondane region in 1962. The civil society work of the Norwegian Society for the Conservation of Nature during the 1960s, a period characterized by growing public awareness of environmental issues, finally prompted the creation of the world's first Ministry of the Environment in 1972. In the following decades Norway took measures for environmental protection both domestically, but also increasingly on the international arena (Stenersen et al., 2003).

The Brundtland Commission

The selection of former Norwegian Prime Minister Gro Harlem Brundtland as leader of the UNs World Commission on Environment and Development is arguably one of the high water marks in Norwegian environmental politics.

In the 1987 Brundtland Report, the concept of "sustainable development" was widely introduced for the first time. This concept has since reached a level of proliferation that has turned it into what can only be called a hegemonic position – few serious political or market actors would argue against its premise: that economic development and growth must continue while ensuring the continual functioning of the earth system. Since the report, the definitions of sustainability and development have been debated thoroughly in academia, both globally and in Norway (Høyer, 2011). The concepts are subjects of debate both together and individually. Some have rejected the commission's definition outright, while others have taken a more "pragmatic" approach and focused on the parts of the report that insist on redistribution and environmental justice (Høyer,

2011). But however one interprets "sustainable development", the process that led to its inclusion in international environmental politics is closely tied up with Norwegian environmental identity (Norgaard, 2011; Sangolt, 2013). The Norwegian mission to the United Nations calls Brundtland "the mother of sustainable development" (Permanent Mission of Norway to the United Nations, 2018).

"Clean Oil" as Mitigation

During much of the 1990s, after the Rio conference in 1992 put environmental problems on the agenda for many states around the world, the major strategy for Norwegian contributions to the mitigation of climate change was the relative "cleanliness" of Norwegian petroleum (Sangolt, 2013). It was argued for a long time by official government agencies that Norwegian oil production in itself was offsetting sufficient amounts of "dirtier" petroleum products, enough that any active effort to cut domestic emissions was seen as unnecessary (Stenersen et al., 2003). This policy did not go uncriticised by Norwegian environmental organisations who argued that the enormous wealth generated by the petroleum industry made investments in energy savings and renewables unable to compete, and as emissions per capita kept growing during the early twenty-first century policies for domestic emissions reductions started taking shape. The argument for clean Norwegian oil continued to be in use, however. In 2010 such arguments should reasonably have met their final end, as the average emissions from petroleum production in the Middle East became lower than the Norwegian numbers (Sangolt, 2013). But as we shall see in this chapter, the argument is still part of the official story of Norwegian petroleum, and present in common sense attitudes about oil and climate change.

Stoltenberg's Moon Landing

2007 was the year when climate change began to take hold as a serious issue on the political agenda. That year the IPCC shared the Nobel Peace Prize with Al Gore, and in his new-year speech Norwegian Prime Minister Jens Stoltenberg reversed his previous position and gave his full support for Norwegian investments in Carbon Capture and Storage (CCS) technology. He referred to it as "the Norwegian moon landing", paralleling the massive public investments planned with the US Apollo Programme of

the 1960s (Eckersley, 2016). Later in this chapter I will look at how this moon-shot programme has been implemented in practice.

5.3 Progress Thus Far

In 2016, Norwegian domestic emissions of CO2Eq were, in spite of the decades of pledges for emissions cuts, three percent higher than the 1990 baseline. The major increases since 1990 are in Oil and Gas Extraction and in Energy Supply. Emissions from Manufacturing and Mining as well as heating have gone down (Statistics Norway, 2017). That emissions were 3% higher than the baseline in 2016 not only puts past pledges of reductions in perspective, but also calls into serious question the viability of reaching the goal of 20% reductions by 2020 – and indeed, the most recent pledges, in line with Norway's NDC in the Paris Agreement, have shifted the deadline to 2030.

Crucially, these figures don't include emissions from outside of Norway's borders, neither from consumption or the burning of exported oil. If part of the explanation for a cut in emissions from manufacturing and mining is accountable to the outsourcing of such processes to the global South (as we have seen, China accounts for 60% of production for European consumption), then it doesn't require much imagination to conclude that many of the advances are accountable to relations of Unequal Ecological Exchange.

A recent development in the Planetary Boundaries school offers an overview of the current status of Norway's overall environmental impact that takes into account both the relatively small size of the population compared to emissions and affluence, as well as, crucially, being based on emissions related to *consumption* instead of *production*. Researchers from the University of Leeds have taken a "safe and just" approach to the boundaries framework, and introduced, following the "doughnut economics" model of Kate Raworth (Raworth, 2012), a set of social indicators based on the UNs Sustainable Development Goals (SDGs) (O'Neill, Fanning, Lamb, & Steinberger, 2018). The updated boundaries model thus resembles a doughnut, with the biophysical indicators of Rockström et al. (2009) making up the outer edge of the doughnut – the "ecological ceiling". The boundaries of those indicators cannot be crossed if we are to maintain a "safe" space. The inner edge is made up of the social indicators – the "social

foundation" – which *must* be crossed if we are to achieve a "just" space (Figure 8). The operating space for humanity's development thus is located between an outer limit set by intransitive nature, and an inner limit that is socially determined and transitive.

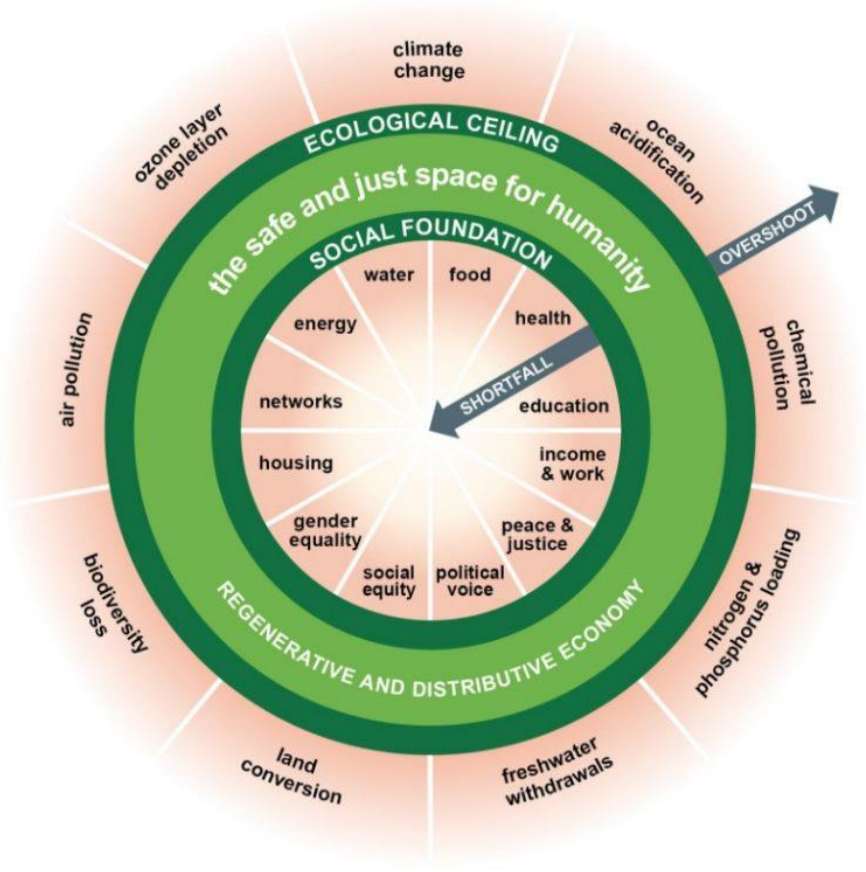

Figure 8: The Safe and Just Space for Humanity Model (Raworth, 2017)

Figure 9 shows the model applied the most recent available data for Norway and China, taken from the supplementary website provided by the researchers (O'Neill et al., 2018), where data from different countries can be compared. Again, these figures are adjusted both according to emissions linked to consumption and according to a global per capita allowance for each person. A rather striking image emerges. When figures are based on a global per capita allowance, and are adjusted to be based on consumption, the amount of per capita emissions for Norway jumps from the official figure of 8.6 (Our World In Data, 2018) to 17.2. Let us take that image with us as we now continue into an analysis of the premises, practices and narratives of Norwegian oil and climate policy.

Biophysical Indicator	Norway	China	Per Capita Boundary	Unit
CO2 Emissions	17.2	6.4	1.6	tonnes CO2 per year
Phosphorus	7.5	2.7	0.9	kilograms P per year
Nitrogen	108	25.7	8.9	kilograms N per year
Blue Water	307	308	574	cubic metres H2O per year
eHANPP	5.5	1	2.6	tonnes C per year
Ecological Footprint	4.8	2.5	1.7	global hectares (gha) per year
Material Footprint	39	12.3	7.2	tonnes per year

Social Indicator	Norway	China	Threshold	Unit
Life Satisfaction		5	6.5	[0-10] Cantril scale
Healthy Life Expect.		68	65	years of healthy life
Nutrition	3484	3074	2700	kilocalories per capita per day
Sanitation	100	65.1	95	% with access to improved sanitation
Income	100	88.8	95	% who earn above $1.90 per day
Access to Energy	100	100	95	% with access to electricity
Education	113	89.1	95	% enrolment in secondary school
Social Support		78.7	90	% with friends or family they can depend on
Democratic Quality		-1.1	0.8	Democratic Quality Index
Equality	74.7	50.8	70	[0-100] Scale -> (1 - Gini Index) * 100
Employment	96.7	95.7	94	% of labour force employed

Figure 9: Biophysical and Social Indicators for Norway and China (O'Neill et al., 2018)

5.4 Analysis

The goal of this analysis is not to explicitly *criticise* Norway's claims to leadership in oil and climate adaptation, but rather to critically investigate where its limitations lie by using analysis of empirical material in conjunction with theory to try and uncover the mechanisms that are underlying the narratives and political practices. To do so I am not only looking at what is being said and practiced, but, following Bhaskar, looking for the negatives implied by the positive. Much of the analysis consists in both critiquing what is being said and practiced in relation to what science tells us about climate change and what competing rationalities or theories on nature and society imply, but also to look at what is being *left out* in official narratives and political practices and what kinds of potentialities for the future are thereby made invisible or actively obfuscated. The limited scope of this study relative to the whole thesis makes the analysis focus in on examples that serve to illustrate the positions and policies of the state of Norway – and as such I cannot make claims to comprehensiveness or complete validity. The analysis of Norway serves to illustrate and apply the theoretical model developed so far.

5.4.1 Narratives: The Oil and Climate Leader

I have divided the analysis in three parts: narratives, practices and mechanisms. Here I will explore the official narrative on oil, climate and sustainability that the Norwegian state seeks to communicate to Norwegian public and the outside world. This I would roughly place on the level of the empirical or "more transitive" in CR terms – what is analysed in this section is the official story told by representatives of the state that represents the judgemental rationality by which the state of Norway publicly understands climate change and its relationship to the domestic petroleum industry and thus determines what the possible outcomes will be. Moving towards the methodological goal of *immanent critique*, I will try in this analysis of the official statements of the state to see where they "crash into" or come into conflict with other descriptions of reality, or where narratives indicate internal contradictions. The statements under analysis here are drawn from a variety of sources – most prominently from the official policy statements and press releases gathered from the Norwegian government's official web site at www.regjeringen.no. Robyn Eckersley comments in her work on Norwegian climate leadership that "[t]he meaning of national identities,

and international roles and responsibilities, are no more or less stable than the political discourses that produce them" (Eckersley, 2016). With this in mind, I have limited the texts analysed to those produced in the past four years.

Let us first look at the current government's official stance on climate change. On the official webpage for the topic of "Climate" on the Norwegian government's webpage, we can read two consecutive passages about the seriousness of climate change, and the measures that need to be taken to combat it.

> *"From 2000 to 2010 the global emissions of greenhouse gases have risen by over two per cent per year. If the two degrees target is to be met, the growth must be stopped in a few years, and subsequently replaced by a permanent reduction in the emissions in the amount of three per cent per year on average until 2050. If implementation of new emission-reducing measures is postponed until 2030, the necessary reduction in emissions between 2030 and 2050 will be about six per cent per year. This will be much more onerous and costly over the long term, and shows how critical it is for further emission-reducing measures to be implemented during the next few years."*

This passage communicates that the Norwegian government takes climate change seriously and also that it is explicitly aware of the cost of further dithering on decarbonisation. Emission-reducing measures must be implemented as soon as possible if we are to reach the two degrees target. The next passage, though short, can serve as a first illustration of what methods the government sees as crucial to reaching that goal of rapid decarbonisation, or in other words, what form of rationality underlies the government's response to climate change.

> *"It will require major changes in energy supply. Coal power must be replaced by renewable energy or other climate-friendly forms of energy. Alternatively, the CO2 emissions from fossil power production must be cleaned and sequestered underground on a large scale. In the transport sector today's passenger cars must be replaced with zero emission vehicles such as electric cars."*

Here we see, as is the case in all the material studied, that the national petroleum industry goes relatively unscathed when the necessary political changes are described – instead focus lies on coal power being replaced by renewables and other "climate friendly" forms of energy – such as, we will see, the relatively "clean" Norwegian natural gas. "Alternatively", we must find a way to clean and sequester the emissions from fossil energy sources – indicating that a definite stop to petroleum burning is not a

definite necessity. We can either stop burning coal, or make coal cleaner. Oil and gas are not mentioned in the equation. The next section gives another hint at the rationality that determines Norwegian responses to climate change – passenger cars must be *replaced* rather than passenger traffic being reduced – there is an unspoken assumption that our level of mobility and access to transportation can continue to grow as long as we replace fossil fuel cars with zero emission vehicles (ZEVs) – we replace "dirty" technology with "clean" technology. These passages exemplify two larger trends in official documents and statements on climate change. The first is that if Norwegian oil and gas are mentioned at all, it is in the context of their relative cleanliness and the low amounts of domestic emissions associated with Norwegian petroleum exports. There is also a general assumption that as long as demand for petroleum products remains, production must continue. The second trend is that if changes in consumption, transportation and energy use are mentioned, they will be achieved through a technological shift away from processes and products associated with carbon emissions towards new, clean technology and products. The position of the government is to make the choice between old, *dirty* products and processes and the new *clean* versions of those products and processes as easy as possible for consumers and other actors, by incentivising "green" choices and putting prices on "dirty" choices. The key words are "replace" and "clean". What is fundamentally being left out in this general description of Norway's narrative on climate change is the potential to imagine a future scenario where the word "reduce" is central.

As we saw previously in this chapter, the Norwegian strategy for climate mitigation was for a long time predicated on the cleanness of Norwegian oil compared to other producers – it was implied that no domestic cuts were needed because the export of oil itself was enough to offset dirtier production from the competition (Norgaard, 2011). The relative "cleanness" of Norwegian petroleum is still present in official statements. In conjunction with Statoil's announcement of plans to invest 7,8 billion NOK in expansion of the *Troll* oil field in June 2018, a move intended to keep the field productive for several decades beyond 2050 (the same year that the government states Norway will be "carbon neutral"), the deputy minister for Petroleum stated:

"Norwegian gas is not a part of the problem, but a part of the solution. Norway is essential to helping make Europe Greener. … What we'll live by after the oil is more oil, just extracted in a different way".

- Ingvil Smines Tybring-Gjedde, Deputy Minister for Petroleum and Energy (NRK, 2018)

This statement quite starkly contrasts with a statement from the previous year regarding renewable energy investments:

"This government is investing more in renewables and energy efficiency than any other. But renewables are not yet at a level where we can switch off oil and gas. We need a bridge."

- Tybring-Gjedde, quoted in (Watts, 2017)

Let's look at what lies beneath these statements. In the 2017 *Renewables Status Report* published by REN21, Norway's investments in renewables are not among the top five nations in any of the indicators (REN21, 2017). The claim of leadership seems to not be qualified, but rhetorical. Regarding the development level of renewables, it opens up a whole plethora of implications: First of all, it implies that Norway *specifically* can't switch off oil and gas – and this is not a given. Several studies show that the implied assumption that other producers would take up the slack from a cut in Norwegian exports is not certain – one report showed that as much as a third of emissions from current Norwegian exports would not be made up for by other producers (Fæhn, Hagem, Lindholt, Mæland, & Rosendahl, 2014). Secondly, the Norwegian oil fund is currently valued higher than all the remaining predicted petroleum reserves in the Norwegian oceans (Norges Bank Investment Management, 2017). It is conceivable for an outside observer that the returns from the fund would be enough to fulfil the goal of "ensuring Norwegian prosperity" even if the remaining reserves were untapped. Third of all, it implies that all states, including Norway, which has the sixth highest GDP per capita in the world, must continue to extract and export fossil fuel resources as long as there is demand for them – implying that the only strategy imaginable for lowering emissions is based on reductions on the demand side.

In the same year that Tybring-Gjedde spoke of a bridge towards a level of renewables where "we can switch off the oil and gas", the Director of development and operations of the Norwegian Petroleum Directorate described the future of Norwegian Petroleum like this in conjunction with the 24th offshore licencing round:

"We have been producing oil and gas in Norway for nearly 50 years, and we are still not halfway done. Vast volumes of oil and gas have been discovered on the

Norwegian shelf that are still waiting to be produced. We want companies with the ability and willingness to utilise new knowledge and advanced technology. This will yield profitable production for many decades in the future. The authorities expect that all resources that contribute to values for society will be produced, not just the 'easy barrels'. This requires us to maintain strong expert communities and develop and apply new technology."

– Ingrid Sølvberg, (quoted in The Maritime Executive, 2017)

A study from Down and Ericksen (2017) suggests that if expansion of the extractive industry follows the current plans of producing "all resources that contribute to values for society" there is no possibility of reaching Norway's commitments in the PA. This is especially indicative of an internal contradiction since the 2012 agreement on Norwegian climate policy explicitly states that the climate goals for Norway must reduce emissions both domestically and abroad. Studies published in Nature Climate Change further concluded that reaching the PA goals is incompatible with extracting *any* of the petroleum resources in the arctic (Clark et al., 2016; Kartha, Lazarus, & Tempest, 2016).

The current policy seems blind to the possibility of even considering a reduction in petroleum extraction – it's a pathway into the future that is effectively closed by the rationality of what Sangolt (2013) defines as a "fossil capitalist state". The bridge that the deputy minister described should logically lead to a post-petroleum future. But this future pathway, this "negative implied by the positive" in CR terms, is blurred and obfuscated by the actual policy plans and the fundamental drive to continued extraction which exists *a priori*, or on a deeper strata of reality, to political practice.

The Norwegian government made a clear statement on its stance on climate change and the economy when it publicly endorsed the report "A New Climate Economy" in 2014. The report, co-authored by former Norwegian PM Jens Stoltenberg, is a clear indication of the rationality by which influential policy makers in the core of the world economy judge anthropogenic climate change.

Solberg announced that the core message of the report is that anthropogenic climate change "must not be seen as a burden that diminishes the possibility for value creation, but rather an opportunity for development and growth" (Solberg, 2014).

One of the a priori assumptions of the New Climate Economy report is that economic growth must continue for all nations, including what is arguably the richest nation in the world, and that assumption is blind to the unequal relationships of power in the world economy. Norway's endorsement especially is problematic, as Solberg lifts REDD investments and a 200 million NOK investment in the green technology fund as signs of Norwegian climate leadership – when state revenues from the oil industry consistently awards the state with over 200 *billion* NOK annually from production with emissions that Norway can discount, while counting in the mitigations from investments in REDD.

Another fundamental problem with the report is that it "gambles" on the assumption that increasing the cost of emissions by putting a price on carbon, and incentivising the development of green technology through active public steering, will more or less by itself make the transition to a low-carbon future happen. There is an assumption, not backed up by evidence, that actual decoupling of economic growth and environmental destruction is possible, and there is likewise an assumption that those vested interests that has built and retain positions of power on fossil fuelled industrial processes will adapt to the technological developments incentivised by states (O'Mahony & Kirby, 2018). But as Peter Frase puts it: "technological developments give a context for social transformations, but they never determine them directly; change is always mediated by the power struggles between organized masses of people" (Frase, 2016). A political response to climate change based on market mechanisms risks cementing rather than challenging the unequal distribution of power and safety from ecological damages of the present, by making both mitigation and adaptation to climate change be contingent on wealth and class position.

A year after the launch of the New Climate Economy, Solberg described the inevitability of continuing the "high north adventure" in these terms:

> *"Norway's oceans cover a vast area. The seabed contains large resources of oil and gas. Our oceans provide vast opportunities for harvesting their bounty. Therefore, it is vital that we make every effort to ensure that the oceans are clean and productive"*
>
> *– Prime Minister Erna Solberg, quoted in (Wilhite, 2016a)*

This statement encapsulates the contradiction inherent in Norway as a fossil fuel dependent society that still maintains a self-image of environmental leadership. The oceans the PM is speaking about contain extremely rich and vulnerable ecosystems (Wilhite, 2016a). But there is no question, no alternative – the coexistence of productive oceans and clean oceans is assumed, naturalized, a premise for policy – a rationality produced by the underlying ecomodern neoliberal hegemony. The option to not "harvest the bounty" of oil and gas is not on the table. The term "productive" especially highlights a utilitarian view of nature – these oceans are implied to exist for the benefit of Norway, and not for their own sake. Ensuring that the oceans are "clean and productive" is not an inherent value – it is needed *because* the oceans have a bounty to harvest. The role of the government is to secure that that bounty is harvested in order to maintain domestic economic growth – while the role of the government is simultaneously to incentivize consumers to make choices that steer domestic consumption away from carbon emissions.

5.4.2 Practices: Ecological Modernisation

Following the theoretical model, on the societal side of the level of "the actual" we can heuristically place the practical implementations of the underlying mechanisms of society at any given point in time. On the level of political policy and practice on petroleum and climate change, these can be seen as the actual results of the hegemonic response to the empirical facts of climate change in the specific case of Norway. Here I will seek to show by example that the practices supported and put into place by contemporary Norwegian policy on climate change and oil are indicative of a national ambition to promote and maintain the mechanisms of the global hegemony of ecomodern neoliberalism – national political practices reflecting the global political practices of Climate Leviathan.

Extractive Policy

The primary example of ecomodern practice in Norway is the fact that the core policy regarding oil is continual expansion, in spite of increasingly uncertain markets and the obligations in the Paris Agreement to curb emissions by 40% before 2030. We have

already seen the narratives that maintain that production will continue as long as it can produce value for Norway. But how does that production look in practice?

During the past two decades, debates have been ongoing about the prospecting and extraction of oil in the arctic sea. Somewhat ironically, as the sea ice creeps northward due to global warming, new areas are opened up for potential petroleum operations. In the past few years new concessions have been given each year for exploration and operations in the arctic sea (Ryggvik & Kristoffersen, 2015).

In June 2018, as this thesis was being completed, the first installations on a gigantic new platform in the arctic sea, Johan Sverdrup, off the coast of northern Norway. Sverdrup is stated to be intended to extract oil and gas for the next 40-50 years – meaning twenty years beyond the point where Norway is supposed to be a zero-emissions nation. The new platform is being marketed by Statoil as the lowest emission platform to date, since energy for the platform itself will be provided by either cables from the shore or by off-shore wind parks. Electrification of further oil platforms along the coast is described as a way to make the clean Norwegian oil industry even cleaner (TU, 2018). The logic of this way of thinking about emissions – describing an oil platform as "climate friendly" – is one more example of Norwegian policy on oil and climate ignoring or consciously hiding the global nature of the problem of climate change. Reducing emissions from the extraction phase of petroleum will at maximum only influence around 10% of the total emissions of the extracted petroleum – but significantly, it is only those 10% that Norway needs to account for as they are released within its sovereign territory. In addition to the *doublethink* required to invest heavily in new petroleum extraction and simultaneously seeing it as a way to reach climate goals, there are issues of both economic and democratic viability of such a long term and expensive project. Sverdrup and the other new oil fields in the Barents Sea are described by the government as creating new job opportunities for the people of Northern Norway in the long term. And so securing not only national and corporate incomes but also strengthening the local economy. But increasingly, economists are warning of the risk of stranded assets (meaning investments that are not recoverable) in fossil fuel production – one recent report stating that between one and four trillion USD in the global economy could be lost in stranded fossil fuel assets by 2035. This compares to the loss of a quarter trillion dollars in 2008 that started a global economic crisis (Mercure et al., 2018). The effects

of such a loss of investment on local communities having built up their reliance on fossil fuel production over decades would be hard, if the recent crises are any indication. Democratically, state policies determining local communities' future resilience and job security is also problematic, as studies from several arctic communities have shown little connection between state plans for further extractive industries and local environmental and social concerns (Wilson & Stammler, 2016).

Since the partial privatisation of Statoil in 2001, the corporation has grown from being a wholly state-owned entity responsible for the execution of domestic petroleum production and exports into a transnationally operating energy and natural resource corporation, which functions on the same basic premise as all other large corporations – the continual accumulation of surplus value for its shareholders (Underthun, 2013). Statoil, while still majorly owned by the Norwegian state, is now involved in operations all across the globe and works mostly independently of its major owner, making its own decisions about investments and operations. While the corporation is currently in the process of changing its name to Equinor in order to reflect its changing role and highlight its self'-proclaimed expansion of investments in renewable energy, the absolute majority of its activity is still in fossil fuel extraction and production. A recent article in the Guardian describes a process that is probably far from the views of most Norwegian citizens - Statoil's plans for new oil production in Australia's ecologically sensitive Great Bight region. According to the article, Statoil was the only corporation left after other major oil firms pulled out due to the difficulty of drilling in such rough seas and sensitive environment (Guardian, 2018).

In 2017, a group of environmental organisations sued the Norwegian state regarding its plans to start prospecting for oil in the ecologically sensitive areas around Lofoten, Vesterålen and Senja, islands that form the core of the northern Norwegian archipelago, on the grounds of these plans for expanding the extractive industry breaking the Norwegian constitution as well as Norway's commitments in Paris. The organisations lost the lawsuit, and the high court denied hearing an appeal.

Carbon Capture and Storage

Since Stoltenberg's "moon landing" announcement in 2007, significant investment has been made in CCS technology development. According to Underthun (2013), CCS

represents the possibility of "closing the value chain" of petroleum – it is a form for commodifying the final phase of petroleum consumption, the emissions themselves. If CCS is successfully implemented and proves profitable, it would be the ultimate "techno-fix" – allowing the extraction and sale of petroleum resources to continue growing until all reserves were depleted, while adding an additional aspect of capital accumulation by having the buyers of petroleum products provide another source of income for Norwegian state-sponsored corporations. A world addicted to petroleum would become addicted to Norwegian CCS technology to keep its emissions in check – and additional flows of capital toward the Norwegian part of the core of the world economy would be secured.

Despite decades of funding research and development in CCS, the technology is far from being ready for large scale implementation, and comes with a variety of environmental concerns of its own. As a result of delays and huge budget overruns, PM Solberg recently announced the government's intentions of shifting focus towards funding development of CCS technology outside of Norway, due to lower costs and due to the lack of significant emissions sources in Norway (NRK, 2017).

CCS takes another form beyond the technological capture and storage of carbon. Part of the climate policy of Norway is actively increasing the CO2 sequestration potential of forests through fertilisation. Based on a 2014 report on forest fertilisation by the ministry of environment, fertilisation has increased rapidly, from 8000 hectares in 2014 to 84000 in 2018 (Norwegian Environment Agency, 2014; Norwegian Institute of Bioeconomy Research, 2018). In 2013, Researchers from NINA (Norwegian Institute for Nature Research) issued a report warning about increasing fertilisation – stating that "based on existing knowledge it is highly likely that large scale nitrogen fertilisation of Norwegian forests will have severely negative effects on nature, especially where nitrogen tolerance levels are already exceeded. Additionally we question the actual climate benefit of such an initiative, since N-fertilisation will likely increase emissions of the N2O greenhouse gas, which is 300 times more potent than CO2" (Aarrestad et al., 2013). The warnings of the NINA researchers are absent in the report from the NEA. A deeper study of the differences in research and conclusions between independent institutions and official agencies seems to be warranted, but one could speculate that the conclusions from NEA are likely to be more based on anthropocentric

views of nature and political strategies for cost-effective climate mitigation than the conclusions of the biologists and ecologists at NINA.

The International Energy Agency's assessment of Norwegian progress in its ambitions climate goals can be seen as an indication of how Norway's political approach to climate change is in line with the emerging global political consensus of Climate Leviathan. The IEA suggests that Norway should perhaps be more active in its adaptation to a potential future "with lower oil and gas revenues", but at the same time offers praise for its investments in technological adaptation, research into new technology and especially CCS technology, whose development is "very welcome". Norway is praised for continuing to be a reliable supplier of oil and gas to the global market, and is deemed to be doing so in a "sustainable way". The IEA further suggests increased integration of the Norwegian energy system with the European energy market. It also highlights further potential in the area of transportation (IEA, 2017).

Road Traffic

Despite more than a decade of political policy for reducing transport emissions, focusing on enhancing public transport, cycling and walking, and actively supporting a transition to so-called "zero-emission vehicles"[11], emissions from domestic transport use have consistently been on the rise and have thus far risen by 28% since 1990 (Norwegian Environment Agency, 2018).

[11] Recent studies show that pure-electric vehicles (EVs) do indeed contribute a lower amount of total CO2 emissions during their life-cycle than internal combustion cars, but still release CO2 during production and transportation of the vehicle. The emissions from EVs in a life-cycle analysis are, according to the studies found, around 40% of conventional cars (Holtsmark & Skonhoft, 2014).

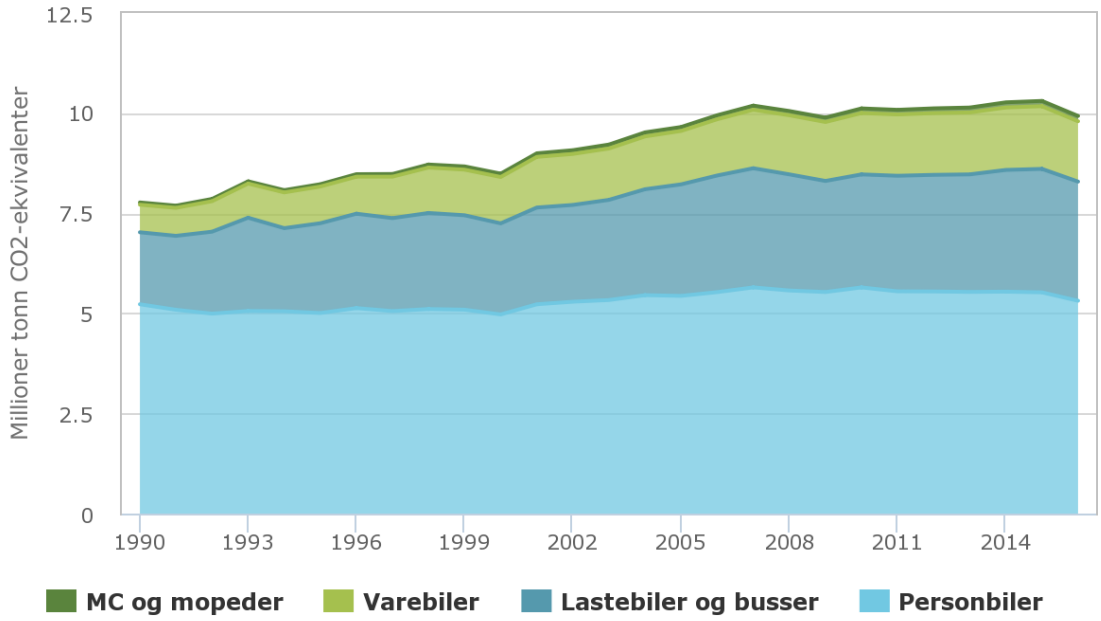

Figure 10: CO2Eq Emissions from Norwegian Road Traffic 1990-2016 (retrieved from http://www.miljostatus.no/veitrafikk-klimagassutslipp)

Analysis of the subsidy program for EVs by Holtsmark and Skonhoft (2014) finds several problems. They found that rather than switching from personal transport to public transport, high- and middle-income households who were the prime beneficiaries of the policy were incentivised to buy an EV as their second car and use this for local transport, thus not reducing the amount of road traffic. This lead to a significant drop in the use of public transport for such households and undercut the cost-effectiveness of the policy. (Holtsmark & Skonhoft, 2014).

In addition to the problems found by Holtsmark and Skonhoft, I would add that the subsidy policy is a clear signal that consumer choices are a preferred policy tool as opposed to the taxation and regulation of the use of conventional cars. The policy can have the effect of allowing only those consumers of a certain affluence level (or class position) to make low-carbon transformations – in effect allowing affluent urban areas where an electric second car is a viable option to save money and time to "buy a clean conscience", while this is not an option for less affluent people who are dependent on reliable access to long range personal transport due to their geographic context and lack of public transport provisioning.

Looking at blind spots or the negatives obscured by the positive, the EV policy also assumes that sustainable mobility is an inevitability; that the demand for personal

transportation is more or less given and is going to continue to rise. Geographer Maja Essebo has studied policy on mobility in Sweden and concluded that a "myth of sustainable mobility" is prevalent among policy makers, a myth that she identifies as a proxy for the overarching "myth" of sustainable development. A myth in this instance is a narrative developed to resolve conflicting positions or beliefs (Essebo & Baeten, 2012). Looking at mobility from our critical realist perspective, a future where mobility is maintained at current levels or even reduced is not even imaginable under the rationality of ecomodern neoliberal hegemony. Thus the policy assumes as given the need for continual growth (as it is a corollary to continual accumulation), and uses the mechanisms of the market as the tool for implementing a technological fix. That the ability to make such a technological transition is contingent upon economic affluence seems unproblematic – as the national implementation of the global hegemony reflects a reinforcement of the social structures necessary for accumulation (Joseph, 1998).

Carbon Accounting Practices

In 2016, Norwegian domestic emissions were still, after decades of publicly stated targets for emission cuts, three percent higher than the 1990 baseline – if accounted by the standards of the Paris Agreement which includes only the emissions that physically happen within territorial borders, and is calculated per country instead of per capita (Statistics Norway, 2017). There is inequality hidden in this practice. Norway exports a commodity that primarily creates emissions when consumed, accounting only for emissions from production of that commodity – resulting in a low emission figure for the state. This is because the emissions from consumption of petroleum actually happen, in the physical sense, within the state where it is burned – and thus emissions are accounted to that state. But China, which produces and sells commodities that primarily create emissions when produced, takes full responsibility for the emissions from that production – because the goods exported by China don't generally produce more emissions when they are used than when they are produced. The inequality is evident in the data – turning the tables and holding Norway accountable for the per capita emissions from their high consumption level, while discounting the emissions from the production of oil, shows the inequality of production-based carbon accounting, as seen in Figure 9: Biophysical and Social Indicators for Norway and China (O'Neill et al., 2018). Add to the calculation that 78% of corporate profits from oil production are

collected in tax by the state of Norway, which is definitely not the case for the profits from production in China – where foreign producers are consistently given tax cuts, and the inequality hits home even harder.[12]

This is what the ecomodern neoliberal supposition of eternal growth, efficiency and resource stability is blind to – that the advances of those hypermodern societies that they hold up as ideal are contingent on the unequal exchange between them and the peripheral regions of the world economy. Only by their dependency on production for our consumption and the exports of ecological damages inherent in that production are our lands, in fact, kept clean and environmentally conscious.

The Oil Fund

That the Norwegian petroleum wealth is being managed as a global investment fund is in itself an indication of the kind of rationality that dictates of Norwegian political practice. The premise for the management of the sovereign wealth fund is maximising profit, not ethical or environmental concerns. Despite three years having passed since the decision to divest from coal, Norway maintains an investment of 77 billion NOK in corporations whose fossil fuel operations account for emissions on the scale of the entire Norwegian annual emissions (Fjellberg, 2018; Hovland, 2016). In 2017, the same year that the oil directorate spoke about expansion of Norwegian extractive industry beyond the year 2050, and the deputy minister for energy said that what Norway would live from after oil was more oil, the minister for the environment, Vidar Helgesen, established Norway's Climate Risk Commission, in order to study the green competitiveness of the Norwegian economy as well as the financial risks involved in oil

[12] Consumption-based carbon accounting has problems of its own. Shifting the equations so that consumers are responsible for emissions from the products they consume would be a step in the right direction in exposing relations of unequal ecological exchange and holding the affluent populations in the centre of the world-economy accountable for their practices. But it is not the Norwegian person who buys and uses, for instance, a smartphone produced in a Chinese factory with low environmental and labour regulations, *who has gained the most* from the emissions related to the production, transportation and sale of that phone. There has arguably been an increase in her personal material wealth. But there is an entity missing from the equation – the entity where the surplus value of the production and sale of that commodity ended up – the corporation that produced the phone. If we were to replace the rationality of carbon accountability only for emissions that physically happen within territorial borders with carbon accountability based on which economic actor makes the actual *profits* from emissions, we could get a clearer picture of how the accumulation of capital is directly tied to CO2Eq emissions. The whole production-consumption dichotomy of carbon accounting could be replaced by accounting for *where the surplus value ends up*, and include transnational corporations. That would be a monumental (perhaps impossible) task in ecological economics indeed, but could perhaps produce a clearer picture of the relationship between capital accumulation and CO2 emissions.

and gas assets in light of climate change adaptation and mitigation. The minister stated that "given the energy and transport revolutions, fossil energy resources will be of less value over time. The energy transition to renewables is going faster than anyone thought. And almost any scenario is being out-competed by reality" (Dagens Næringsliv, 2017). At the same time as the government is consistently pushing for expansion of the petroleum industry both in time and space, it has begun to wake up to the reality of a potential future of "stranded assets", investments made unprofitable by a continually low oil price or a significant reduction in fossil fuel demand. A presentation from the commission shows with further clarity that this "climate risk" is regarded in terms of markets and profitability rather than as a threat to human societies, other-than-human life, or to the stability of biophysical systems. The risk is explained in terms of short and long investment opportunities for maximising fund profitability, with recommendations for "shortening" investments in oil and gas stocks and technology development, while making long term investments in such industries that are "negatively correlated with oil price" such as aluminium smelting, plastics production and transport – i.e. such industries that would profit from a long term decline of oil prices. The environmental impacts of those industries themselves are not mentioned – showing again that profitability is what rules investment decisions. The commission's recommendations for the future further drives home what "climate risks" are in financial terms:

> *"Divesting fossil fuel or better dynamic and transparent hedging strategies against the risk of a dramatic and prolonged fall in oil prices, the "risk" that cumulative emissions will really be curbed, and the "risk" of rapid technological progress in renewable energies is a good start". (Van der Ploeg, 2018)*

In terms of financial investments, what constitutes a "climate risk" is the risk to financial assets that could come from actually reducing emissions and transitioning to renewable energy. Put differently, under the rationality of the neoliberal hegemony risks are understood in terms of threats to perpetual capital accumulation, not in terms of threats to the conditions of life in the planetary biosphere. Thus the only rational motivation for a decarbonisation of the economy and the only incentive to actively adapt to or mitigate climate change is if such changes become threats in themselves to accumulation – if the economic effects of the environmental damages caused by fossil

capitalism become more costly than the benefits reaped. In the case of Norway, both seem to be happening simultaneously – the accumulated wealth that has been built up by the mechanism that causes climate change is now deemed to be threatened by the effects of climate change – but at the same time, the potential wealth from continued extraction is too great to even consider leaving any assets in the ground.

Summary of the official narrative

The following is my interpretation of the narrative I see emerging from my analysis of Norwegian practices, statements from officials and official policy statements:

Norway is a world leader in renewables, a leader in the environment, and a leader in oil. Our oil industry is the cleanest in the world. And now we are at the cutting edge in developing CCS technology to not only make it climate friendly, but so that we can help the rest of the world in their adaptation as well and continue to make money for the future of our great country. Norway can build CCS for the whole world. As we have extracted fossil fuels, we can contract the emissions and put them back in the continental shelf – it creates a win-win opportunity. The Norwegian oil industry is so clean we can even look for new oil in the most sensitive ecosystems in the world. And it will really help the people up north when they get new high tech jobs. We have invested the oil money wisely and now we are even open to divesting our wealth from coal, which is the real problem. Sustainability is not a problem at all: we can develop technological solutions that will make sustainability profitable to all of us. Green technology is the future. Our population is a population of conscious consumers, and we support that through public investments nudging behaviour towards greener technology. Look as all the electric cars on our streets, and look how well we have managed our beautiful nature. It's a win-win situation. We're going to continue to increase our wealth with cutting edge green technology and we will make space for nature. We can take care of nature and take care of the climate while continuing to be a reliable supplier of natural gas and oil. Technology and markets will help us realise the green shift and make sure we benefit from all the resources still locked in the continental shelf.

This narrative has several blind spots. Nowhere in all of the documents I have studied is there any mention of reducing global emissions through an active downscaling of

petroleum exports or a lessening of the pace of extraction, even though the Paris agreement specifically mentions that national policy must target not only domestic but global emissions. If we would apply Occam's Razor to the problem – what is the most logical answer to the problem of "we are emitting too much carbon dioxide"? It would be simply to stop extracting and burning the fossil fuels that cause emissions of carbon dioxide. There is an outspoken assumption that *development* must always continue, even for the world's most developed oil state. But if the nation with the biggest domestic resource fund in the world cannot even conceive of actively halting rate of extraction then how can Norway be considered a leader in climate change?

A "cognitive dissonance" seems to be evident to outside observers considering the many articles I have found pointing it out. But is it really a case of cognitive dissonance? The concept of cognitive dissonance includes a tension or conflict between two beliefs, or action and belief. I would argue that if any psychological term describes the contradictions in the official Norwegian oil-climate narrative it is rather Orwellian *doublethink* – the ability to accept two mutually contradictory beliefs as correct simultaneously. For the official representatives of the state of Norway there seems to be no tension or conflict between the two positions of "we must deal promptly with climate change" and "we must extract all profitable petroleum". What enables this doublethink is the underlying and unquestioned rationality of ecomodern neoliberal hegemony.

5.4.3 Mechanisms: Fossil State Capitalism

We have seen that the practices and narratives of ecomodern neoliberal hegemony are instrumental in enabling the simultaneous maintenance of the "fossil state capitalism" embodied in the Norwegian oil industry and the commitment to sustainable development described in Norwegian climate policy. In my critical realist model, I would place these narratives and practices on the respective levels of the "empirical" and the "actual", the specific experiences and events that are observable effects of the ecomodern neoliberal hegemony in the specific case of Norway.

To arrive at an increased understanding of what lies beneath the Norwegian policy and practices on climate and oil explored in the previous sections, I now turn to the underlying structures and *mechanisms* in Critical Realist terms that drive the Norwegian response to climate change. Now, to say that we can definitively *know* what these

mechanisms are and how they work would be recommitting the epistemic fallacy – claiming that the value-laden knowledge we produce about the basic levels of reality *is* reality itself. What we *can* do is try to increase our understanding of these mechanisms as they appear in this specific historical period by building theoretical models and comparing them to our empirical observations (Joseph, 2000).

Based on the theoretical framework and the study of narratives and political practices, I put forward that three interacting mechanisms are at work at the most basic level of contemporary Norwegian political economy: (1) a drive to extraction, as seen in the narratives and political practices on Norwegian petroleum resource, (2) a drive to accumulation, as seen in the consistent promotion of market solutions and economic growth, and (3) a drive to resilience, as seen in the narratives and political practices on climate change.

A primary mechanism of Norwegian economic development has been, as we have seen, the drive to exploit all profitable petroleum resources located within the Norwegian sovereign borders in the North Sea, the North Atlantic and the Arctic. For a state in a capitalist world-system to allow such resources to lie unexploited would mean a direct disadvantage in the global competition for capital and power (Harvey, 2005). From the exploration of narratives and practices of extraction, it seems that policy makers are fundamentally "locked-in" to extractivist logic – as long as extraction provides further possibilities of economic accumulation, extraction must continue.

A second mechanism is the drive towards accumulation that is common to all capitalist societies, and that is ideologically promoted by the hegemonic position of the neoliberal political project. In the Marxist tradition of both Bahskar and Gramsci within this thesis is situated that the primary mechanism of any society built on capitalist relations of production is understood to be the *accumulation of surplus value*. Core aspects of the contemporary neoliberal project in global capitalism are the naturalization and promotion of market forces as the main drivers of social development, and the tendency to concentrate capital in private hands and externalize social and ecological costs (Harvey, 2005). Research into the neoliberal tendencies in Norwegian policy shows that up until around 2008, there was a focus on market mechanisms, but not privatization per se (Wilhite, 2016b). Norway is still maintaining strong aspects of the welfare state model emblematic of the Nordic countries in the post-war era. But in the past ten years

and especially under the right-wing coalition of the Right Party and the Progress Party led by Prime Minister Erna Solberg that have been in power since 2013, there has been a clear shift towards neoliberal ideology and practices. While Norway still maintains a relatively strong level of public provisioning in the form of education, health care, and other welfare systems, there has been a continual shift towards individualization and market mechanisms as drivers of societal development (Wilhite, 2016b).

As we saw in chapter three, much of ecomarxist analysis maintains that *metabolic rifts* are to be found in all forms of capitalist exploitation of nature and labour. In the case of Norway they can be seen in the effects of commercial fisheries on the resilience of fish stocks, a depletion of soil nutrients by industrial agriculture, a decline in biodiversity in forests, mountains and coastal waters – but most of all it is apparent in the extractive practices of the Norwegian petroleum economy. The effects of Norwegian fossil capital accumulation can be seen clearly in Figure 9: Biophysical and Social Indicators for Norway and China (O'Neill et al., 2018) It shows that the level of societal progress as measured by the social indicators must be understood in relation to the crossing of all but one of the biophysical boundaries. It is not difficult to make the tentative connection between this biophysical overshoot and the *metabolic rifts* that widen between society and nature under capitalist relations of production.

A third mechanism then is the drive to protect Norwegian society from potential damage from actually occurring events in the natural systems in which production is enmeshed, or what I call a *drive to resilience*. This can be seen, connecting back to the critical realist model, as emerging from the combination of the other two. The first two drivers or *mechanisms* of capitalism – the drive to exploit natural resources and the drive to accumulate capital and externalize costs – together interact with the *mechanisms* of nature to produce the *events* of environmental destruction most evident in climate change. In response to those environmental threats, the drive to resilience stems from the need to protect the vested interests of Norwegian political economy from potential environmental threats – mirroring the drive of *Climate Leviathan* to solve the climate crisis in order to protect the relationships of power of the global neoliberal hegemony. I call this a drive to *resilience* rather than a drive to *sustainability* because it is, as I understand it, more a question of ensuring the long term functioning of specifically *Norwegian* ecological and economic systems – I follow Joseph (2013) in

understanding *resilience* as an approach to environmental concerns that is fundamentally aligned with neoliberal policies of small government, public-private partnerships, and individualist solutions to environmental problems. Such a response to environmental destruction is not concerned with seeking the root mechanisms and relationships that produce events that threaten ecological and social stability, but rather becomes an issue of securitization, of making sure that local environmental, social and economic systems are able to withstand the inevitable increase in environmental instability. This is evident in Norwegian policy – which is focused on protecting a "representative" selection of Norwegian environments and ensuring the long term functioning of Norwegian ecosystem services, as well as maintaining Norwegian seas for the economic bounty that they offer.

As the imperative to acknowledge environmental problems has gained in political importance in the past decades and public awareness of it has grown, a contradiction has arisen in the core of Norwegian political economy – as indeed it has for all states that make public claims to addressing environmental issues. This is what Hylland Eriksen refers to as the *double bind* of sustainable development. Policy makers must simultaneously struggle to maintain the relative position of the Norwegian state and corporations in the neoliberal hegemony (and it has indeed been virtually unchallenged even through the major crises of the past decade), and maintain the perception that environmental issues are being seriously addressed. The hegemony has been forced to adapt. The solution to the contradiction has been the active promotion of domestic practices of ecological modernisation, and narratives of ecomodern sustainable development, combined with strategies for the externalisation and export of emissions and production. This again compares to the rise and dominance of Wainwright and Mann's Climate Leviathan, which seeks to maintain and reinforce (or increase the resilience of) the current global power structure while claiming to address the environmental issues most critically evident in climate change.

The fundamental contradiction between leadership in oil production and leadership in climate change remains unchallenged in the turn to ecomodernism – Norwegian officials publicly claim to acknowledge the reality of environmental damages and the corresponding threats to human societies, while they simultaneously continue and even intensify those practices that have led us to this point – precisely because of the inability

of the hegemonic rationality to see other potential futures than the ones based on extraction, accumulation and ecological modernisation. The potential future of "green growth" can be viewed as a "positive in a sea of negatives" in Bhaskar's terms – the only potentiality springing from the rationality of ecomodern neoliberal hegemony. In criticising or deconstructing such normative political projects, we might risk ending up in the postmodern apathy of accepting all epistemologies as equally valid – value-relativity, or a re-committing of the epistemic fallacy. But if we instead insist on ontological realism, we can see that not all political projects are based on knowledge that is equally *true* relative to the rest of reality. And so the task becomes to find pathways in that "sea of negativity" that surrounds the positive of the dominant hegemony.

Based on the analysis in this chapter, I put forward that Norwegian claims to advances in sustainable development are fundamentally linked to unequal relationships of power and exchange (what we can also term *metabolic rifts*) between human economies and non-human nature, between capital and labour, and between the centre and periphery of the world economy. Despite retaining strong aspects of the Nordic welfare state, the political project of sustainable development in Norway is a distinctly ecomodern and neoliberal in its mechanisms, practices and narratives – and indeed, the continued reliance on petroleum incomes is part of what has allowed Norway to avoid the severe austerity policies of other states in the core, and retain a relatively strong welfare infrastructure. In Norway, I also see a prime example of a state that is part of the *historic bloc* that struggles for the continued hegemony of *Climate Leviathan* – since maintaining that hegemony and the relations of power, exchange and production it promotes, is to a large degree what enables it to maintain the double identity of world leader in both climate mitigation and high tech oil exports.

In chapter six, I will strive to get an understanding of how the practices of ecological modernisation and the narrative of ecomodern sustainable development are reflected in the common sense narratives of Norwegian citizens – and to see where they clash or "crash into" each other.

6 Daily Life in the state of Dithering: Narratives and Contradictions

"Habits begin to form at the very first repetition. After that there is a tropism toward repetition, for the patterns involved are defences, bulwarks against time and despair."

"The command to be free is a double bind."

— Kim Stanley Robinson, 2312

The single most difficult part of the work on this thesis has been to make sense of the data collected in Dovrefjell. There are *common sense* narratives in the transcriptions – but they are chaotic, and full of contradictions. After spending significant time on coding the interview material, some trends started showing – but often, the same informant that had just positioned herself as thoroughly sceptical of an issue in the next paragraph seems to wholly support it. This perceived chaos and the self-contradictory nature of people's positions on climate change and oil at first seemed to defy any kind of rigorous scientific analysis – but as I struggled on, I began to see the contradictions and my own struggle to make sense of them as reflecting the difficulty that our informants seem to have in grappling with the issues at hand, and of the jumbled nature of people's own conceptions of *common sense* (Liguori, 2015). On the one hand, anthropogenic climate change may seem to be a pretty straightforward issue – the climate is changing, and science tells us that it is predominantly because of human emissions of greenhouse gasses. Not very complicated as such – we must find ways to rapidly reduce our emissions. But since the burning of fossil fuels occupies such a central position in our societies, and has done so for the past two hundred years, there is virtually no aspect of our lives that does not stand to be affected by the large scale adaptations necessary to curb the changes we are seeing. From the very premises of our systems of production and right up to virtually every aspect of our daily life, fossil fuel derived energy has been essential. In the case of Norway, a further dimension of complexity is of course added due to the intimate connections between the oil adventure and the high standard of living most people are enjoying. And so challenging the viability of such a fundamental mechanism of society (as even raising the questions about oil and climate seems to do) connects directly to real life experiences of trust and

risk, of guilt and responsibility, of structure and agency, and of the fundamental relationships between individuals, communities, and the rest of the world – both human or non-human.

This part of the thesis then consists of an analysis of qualitative data from a specific case study in a culturally and geographically significant region of the Norwegian mountains. I start by restating the guiding research questions for this part of the thesis. Then I describe the relevance of the selected case for achieving a deeper understanding of how hegemonic narratives on oil, climate change and sustainable development are transformed into common sense narratives. In the analysis proper, I describe the often contradictory narratives I have found emerging from the data using several rounds of coding and re-coding. I first look for commonalities that make up a *common sense* narrative among all the informants, and describe the main aspects and contradictions of this narrative using quotes that illustrate commonly held positions. I then try to distinguish where narratives of the two main groups of informants, urban tourists and the local community, diverge, and describe the differences in the narratives that emerge. I try to explain the differences and commonalities and strive for a deeper understanding of them using the theoretical framework developed thus far. Some significant outlier positions that seem to reflect counterhegemonic potentialities (the negatives obscured by the positive of the official narrative) are lifted and analysed. Finally, I sum up my findings from the field work and my interpretations of them, in preparation for the final part of the thesis, where I will reflect further on my findings and what they may mean for the future.

The research in this section was done in collaboration with another researcher, who is simply called "T" when appearing in the quotes from informants.

6.1 Research Questions 3

These are the questions that guide the analysis in this chapter:

How does the official narrative on the oil-climate contradiction relate to common sense narratives about the future of Norwegian welfare and about individual agency and responsibility among tourists and local residents in the Dovrefjell region?

Do common sense narratives about oil and climate change contain seeds of potential counterhegemonic projects?

6.2 Introduction to Dovrefjell

The Dovrefjell region is located in the central part of southern Norway, roughly between the urban centres of Oslo, Bergen and Trondheim. One of the major highways between Oslo and Northern Norway runs right through the heart of the area, and across the mountains near the local peak Snøhetta. The Snøhetta area has seen an increase in tourism in the past ten years, since the decision was made to "re-naturalize" a former military shooting range called Hjerkinn. As the military drew back, an old tourist cabin called Snøheim, situated near the Snøhetta peak, was given back to the Norwegian Trekking Association (DNT), and has since reopening in 2013 become a "flagship" cabin, attracting just under 5000 visitors in 2016 (Gundersen et al., 2016). The interviews with urban tourists were all conducted at Snøheim. The flow of tourists is of vital importance to the local economy, after most local industries have been shut down (notable a large mine in the Hjerkinn area which was shut down in the 1990s), and employment in agriculture has dwindled (Gundersen et al., 2016). Interviews with the local population were mostly made in the municipalities of Dovre and Lesja, which occupy large areas of national park land but whose political and commercial centres are located in the valley of Gudbrandsdalen, which runs up through the mountains from the south east. The main centre is the village of Dombås, which is located where the road through the valley forks off and up over the mountains towards Trondheim.

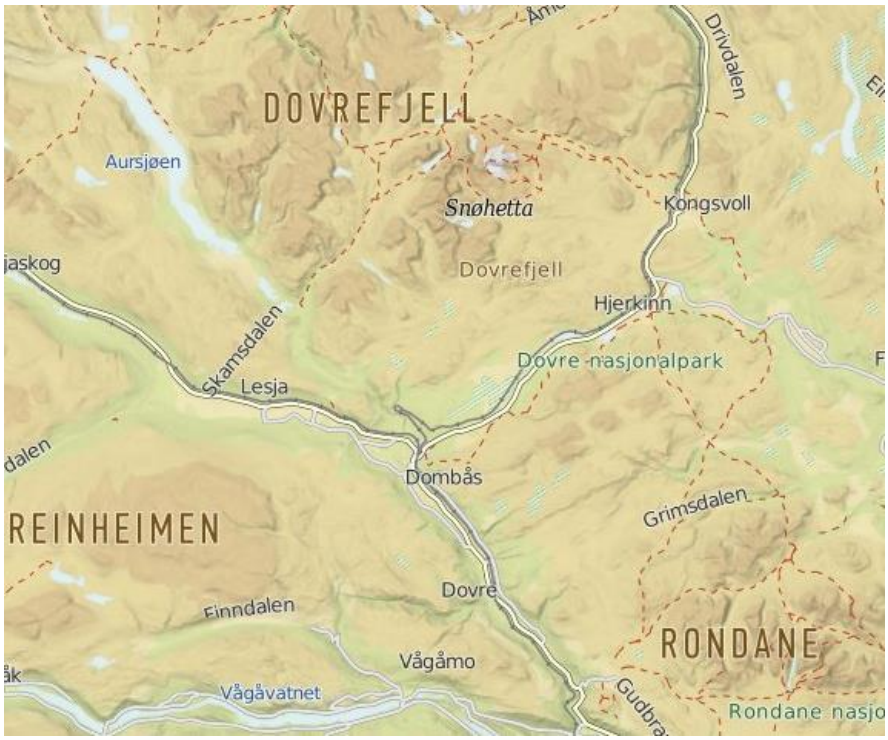

Figure 11: Map of the Dovrefjell area

6.3 Relevance of the case

Dovrefjell is an interesting case study because it is threatened by both sides of the oil-climate paradox: Both a decrease in oil profitability and the effects of climate change itself will likely decrease the resilience of rural communities dependent on tourism and maintenance of pristine nature as their primary commodity. If a fall in oil prices should lead to a decline in support from central institutions, then rural communities are most likely the ones who will most strongly feel the effects, as they are already struggling with declining access to health, childcare and care services, and are increasingly threatened by urbanization (O'Brien, Eriksen, Sygna, & Naess, 2006). The Dovrefjell area is highly dependent on tourism, meaning that in practice the resilience of the local community hinges on the continued affluence levels of urban and foreign populations (Kaltenborn, Qvenild, & Nellemann, 2011). A decline in the petroleum economy could very well lead to a decline in tourism. Climate change itself also threatens the resilience of rural communities – both through the projected loss of global productivity and the corresponding increase in prices (Norway is highly dependent on imports of agricultural

produce), and through the potential damages to the local ecosystems on which tourism thrives, and increased flooding and regrowth destabilizing local agriculture (Michelsen, Syverhuset, Pedersen, & Holten, 2011).

Another motivation for choosing a rural setting to study climate change and oil is a desire on my part to hear the voices of those people whose relative economic and political disenfranchisement makes them less likely to influence and participate in public debates and politics. Rural populations, and in particular rural women and working class people, are underrepresented in environmental governance as well as economic activity (Svarstad, Daugstad, Vistad, & Guldvik, 2006; Vik, Bay-Larsen, Aasetre, Haugen, & Stræte, 2011). It is often the case with climate change that those groups who have the least power to influence political policy and economic activity are those who are likely to be hit hardest by the effects of climate change.

Dovrefjell is additionally culturally significant for Norway and Norwegians on a more general level. When the "founding fathers" of the Norwegian constitution met in 1814, their rallying call was "united and faithful, until Dovre falls". Dovre is in a sense the touchstone of the mythos of Norway and the Norwegian, the rock upon which the nation is built (Steinsland, 2014). For tourists visiting Dovre, it may signify a sort reconnection to an archetypal pristine nature – a kind of "pure Norway" – a position which is reflected in the statements of the municipality of Dovre, who state in an interview

6.4 *Common Sense* Narratives

6.4.1 Oil and Climate Leader

When talking about oil, there are a lot of contradictions in the narratives from Dovre. Many express a sense of pride in Norway's leadership, both in the oil industry and in being a role model for dealing with climate change. But many also see the contradiction of that double identity:

Birger: Well… I think it's totally ok that Norway is a part of it, and is a leader [in climate adaptation], to look environmentally conscious, but really we have things

under wraps… Thinking about, not least Mongstad[13], that expansion… That cost four times as much as they calculated and ran for, like, eight years, and they never got it to work. And you can…it grates a little when you start thinking about pollution and fossil fuels, Ola Nordmann[14] is one of the largest now, and will continue to be so, because it makes such good money for Norway that I can't imagine them quitting before it's all gone.

This informant, who previously in the interview expressed strong doubts about the anthropogenic nature of climate change, directly addresses the paradox of being a leader in political action on climate change while simultaneously being one of the largest oil exporters. His critique of the Mongstad CCS project cuts to the core of Norwegian Ecomodernity – the technological fix that was supposed to be the Norwegian Moon Landing, according to former PM Stoltenberg, did not live up to expectations. He concludes that, despite the obvious paradox, there will be no end to extraction and exports as long as demand is maintained. So despite both fundamentally questioning ACC and being explicitly aware of the contradictions in oil and climate policy, there is a sense of the official narrative and policy being inevitable due to the fact that it "makes such good money for Norway".

This description of the inevitability of the continuation of extraction is described by many. Trust in the ability of politicians to support a transition out of petroleum exports as long as demand continues is very low. There just seems to be no alternative:

Harald: But again, what is the alternative? What would they replace it with if we stopped? Is it… It's always… I'm from the world of economics, so «opportunity cost», right? There's always an alternative cost to what you have now. And in Norway we have, sure, we have really good arguments seen in isolation to move over to electric energy to a much higher degree, if we don't export it. That is, if we use it ourselves. So seen like that we are maybe some of the cleanest, and could get the biggest effect. But many countries don't have that. And climate change that's not … that's not isolated either, so that if we get totally clean here that will influence the climate. It's also what they do in Russia.

Harald again describes the inevitability of production as long as there is demand – corresponding to the logic of the Norwegian state as described in the last chapter. He also brings up a point that is common throughout the interviews from Dovre – that what

[13] Mongstad has been the primary site for Norwegian CCS technology development in the past decade, and has been plagued by constant budget overruns.
[14] "Ola Nordmann" is a colloquial term for the average Norwegian.

Norway does in isolation doesn't matter as long as others keep emitting. There is a tendency to use this argument as defence for the inevitability of continued extraction – that there is no alternative and that Norway is a small emitter in the big picture. Some seem to seek to redeem this course of action by referring to the official narrative on Norwegian oil as the "cleanest in the world", and contrast it with the "dirty oil" of other states.

Birger: It [Norwegian oil] is better than that [foreign oil], yes. Even if they do it on our fishing banks it's better. Because the technology that Norwegians have developed is so damn secure. There's been a few accidents, yes, in the beginning. There was one blow-out. I don't remember which field it was, one of the first ones. And you never hear about this in the Middle East – there there are things like that happening all the time.

By this statement, it seems that at least for Birger the official narrative of the cleanliness of Norwegian oil as mitigation in itself has translated into common sense.

Sebastian, a hunter in his fifties, thinks the government's official stance of expanding the petroleum industry and opening new fields is a "last ditch effort", and will not be profitable in the long term, and that policy makers are going to wake up to that reality soon, but have no real plan for what to do after the petroleum industry:

Sebastian: I see the oil industry dying away by itself. It will become unprofitable since Norway and other countries are beginning with cleaner energy now, and the oil industry will die out as it becomes unprofitable.

Jonas: And do you think the politicians have a plan for what will happen then?

Sebastian: No, I think… at least a lot of the politicians only think four years ahead. So I don't think they have any very long term plans for what will happen… when they're interviewed on TV about what we'll live from after the oil they just talk about technology, building robots who will work in old folks homes and things like that.

Sebastian's view of the future of oil clashes with the official policies and narratives of the Norwegian state when it comes to the viability of a long term extractive industry. But he simultaneously sees no possibility of stopping production while demand remains – he assumes that it is only through market mechanisms and a decline in demand and profitability, driven by technological development, that the industry will die out.

6.4.2 Trust and Distrust

Among our rural informants, there is widespread distrust in central institutions, politicians and the media. People express distrust in that central authorities are willing or interested in dealing with the practical ramifications of urbanization – expressed as a concern over the continued functioning of core welfare services like healthcare and childcare, police and emergency services, but also in the lack of employment opportunities in rural areas.

Birger: They (rural communities) fight their own battles to keep what they have and perhaps get it a bit better than today. And that means everyone is afraid of being left alone and losing what little public support they have.

This is a stark contrast to people's trust in politicians when it comes to environmental leadership. One informant says, when discussing climate policy, that she has high trust in that politicians are taking the issue seriously.

Ingrid: It seems to me that the leading politicians in Norway are taking the issue seriously. I think so. Maybe some on the extreme right are denying it a bit…

Alexander [Ingrid's husband]: The challenge for Norway is to get those countries that really matter to join us in this. That's the difficulty.

T: Because you think other countries are…

Alexander: Other countries, yes, that should take it just as seriously as we do.

Ingrid: Because Norway has in a way been driving these things… like that agreement, the climate agreement and all that, Norway has really been… Norwegian politicians, I mean, have been leading that.

Both Ingrid and Alexander seem to agree with the official narrative communicated by the government, that Norway is a leader in mitigation and adaptation to climate change. They seem to have high trust in Norwegian leadership. But later in the same interview, when discussing urbanization, she says that she has no trust in central politicians whatsoever.

Ingrid: I have an uncle who's worked there [in the state bureaucracy] for many years, and he says they change something, swapping some words, how words sound in speeches and such, but otherwise they do the same things no matter what elected officials they have. Move some decimal points, here and there, but on the whole everything remains the same.

There's a sort of pride or trust in national politics when it comes to the big issues like environmental policy, but a feeling of resignation when it comes to actually changing things for the better when it comes to local issues. The distrust in politicians seems to be linked to a widespread distrust in science:

Birger: I think it's a lot of fearmongering, so some scientists can get jobs, and get money for new projects. So I think a lot of it is in that – they're not so wrong as they say a lot of the time, but there's a lot that's wrong today. And I think, as I said, this about the weather and the temperature, these small temperature changes, they can make a difference if it only rises one degree. But now I saw a new research report on that the ice in Antarctica, it's growing! It's actually growing, and has grown a lot, a lot in just a few years! And why is that then? I think, like I say, it's cycles, it's other things. I don't think it's all human made.

Somewhat surprisingly, even those who are openly sceptical about ACC still all support measures to reduce fossil fuel emissions – "better to be safe than sorry" is a common argument:

Sebastian: I don't know really about that [that humans are causing climate change]. But I think that… Instead of saying "no, we don't know about this", we'd better og ahead and take the lead in trying to reduce emissions. Because… it's something we can do. And if it turns out to be the sun and storms on the sun or whatever, then we won't change anything. But we have to do what we can. And that's to reduce emissions of climate gasses.

Sebastian's view is representative of several informants. Even though a majority are sceptical to climate science, and remain unconvinced that humans are causing climate change, the support for the government's policy of reducing domestic emissions is high. This is especially surprising considering how difficult many think such a transition will be, especially in the local context. People are aware that the transition may not come easy, and that political will is necessary – but they seem to have little trust that politicians will enact any systemic changes:

Harald: If you want to change things on that systemic level, then you have to take it above the indivudal level, because then you actually have to force people.

Frida: And then you have to vote for the right party, haha.

Harald: Well, I don't think there are any parties that are radical enough on this issue, if you look seriously at it.

I see significant contradictions in the way people respond to questions of trust in institutions (high trust in ecological leadership, low trust in support for rural issues), the role of Norway as climate change leader and oil exporter (high trust in both the ability to be a role model and leader of transition, and the robustness and superiority of the Norwegian petroleum industry), and the role of individuals versus collectives in adaptation (constant focus on individual consumer responsibility, as well as constant insistence on the responsibility of public provisioning). This dissonance is arguably a reflection of the dissonance inherent in ecomodernism – one of simultaneously acknowledging the reality of climate change and an unfolding ecological crisis while being locked in the instrumentality of neoliberal ideology.

6.4.3 Skepticism and Concern

Scepticism or doubts about the anthropogenic nature of climate change is high among the rural informants. Nearly all of our rural informants express some form of doubt, in varying levels of seriousness, about whether it is human activity that is causing a changing climate. Notably, none of the people interviewed deny that there are changes happening in the weather – but there is a tendency towards doubting that humans are the cause, or at least the only cause. Anders expresses a common position when he puts it like this:

Anders: No, I don't know about that. I'm not convinced, at least. It could be other things. It's been changing a lot, this climate. But we do see more and more reports saying it's human made. I guess it's a combination.

There is also scepticism of the agendas of climate scientists – even by those who agree that humans are affecting the environment negatively:

Marit: I think, when it comes to science, that… if you… if you want to reach a certain result, then that's what you'll find. That's what makes me sceptical of science.

T: That they have a kind of agenda?

Marit: Yes. And the research must be payed for by someone. So I'm a bit skeptical of some science. But that we do a lot in the world that destroys nature and the environment and such, I don't doubt that.

Marit implies that climate scientists produce the results that they are payed to produce – but is unclear on why this would be the case. Several other informants imply that there

is some sort of collusion between corrupt politicians and climate scientists, but are unclear on what agenda they would be promoting. McCright and Dunlap (2011) in their study of denial in the US, and Norgaard (2011) in her study of denial in rural Norway, conclude that denial is socially organized in order to justify the current system and protect it against change. Many of the inhabitants in Dovre express an uncertainty and fear about the future of the Norwegian countryside. The tendency to be skeptical of climate science while being convinced that we need to protect nature, is likely connected to a skepticism of politicians and a growing distrust that central institutions care about or understand the needs of rural communities. Such fear and skepticism is based on real concerns over real threats to rural livelihoods.

Most of our informants are noticing some changes in long term weather and temperature, with wetter, warmer summers, warmer winters and a change in the tree line being the most commonly cited – but this doesn't seem to increase concern, and some argue that climate change will generally be good for Norway – and that their own experiences of change has even been positive.

Alexander: For Norway, in general, the climate changes are overall positive.

T: In what way?

Alexander: Well, conditions will improve. If what I've read is correct. Longer and wetter summers, not so cold winters.

T: So better conditions for production, you mean?

Alexander: Yes, for example.

People express a lack of "feeling it on the body" as a cause of lack of concern – in fact, that exact expression, "å kjenne det på kroppen" – to feel it on the body, comes back in several interviews. The lack of personal empirical experiences of climate change as something dangerous or threatening is described by Anders in this way:

Anders: I don't think people feel it concerns them. When we live here, we don't really notice things getting polluted. If you live in a city and the river suddenly turns red, or the air is full of exhaust, you'll be more concerned. … They're [scientists] saying it's getting so much warmer and then you get up in the morning and it's 35 below. It's hard to connect it to your everyday life.

This tendency to refer to local weather and local environmental conditions when asked about climate change is very common. Many informants use their own knowledge and memory of local weather and climate variations to argue against ACC.:

Birger: So if we look at the average temperature in Dovre municipality, I think it may have risen a bit in the last few years. But in 1922 there was no ice on the lake over here, in the entire winter! So it was… and the thirties! Then we had a horrible winter seven years in a row! And then the years after, they had huge yields in the farms and there was good temperature… So I think it goes a bit, there are other things that affect us. So what was human made in 1922 then? I don't know; it could have been a volcano.

There is self-confidence in Birger's statement, a sense of having seen through the claims of climate science – although blaming a volcano for a warm winter shows a significant lack of understanding of climate science. This feeling of exposing the climate scientists by referring to local weather is common among climate change deniers – and especially so among older men, according to other studies of denial (Anshelm & Hultman, 2014). Throughout our material, there is a tendency for men to more openly express their scepticism and denial of ACC – while women are the only ones who are expressing real concern with the level of consumption and materialism in modern society. Anshelm and Hultman explain this gender disparity by describing anthropogenic climate change, and acceptance of ecological destruction in general, as being threatening to what they call *industrial masculinity*. In their view, many men, especially in older generations, identify strongly with industrial society, with the man as the worker and breadwinner. *Ecomodern masculinity*, as Anshelm and Hultman call it, means a feminisation of the role of the man – acceptance that forces outside himself puts limitations on his agency. Our study is too small to go further into the gender aspect of climate change, but it is certainly an interesting topic for future explorations of how denial is socially organised. Another informant expresses that environmental issues are seldom discussed publicly by men, but that the activity of hunting (which is practiced by all our male informants) is an opportunity to discuss such issues among themselves in a setting that is conducive to it. When asked if men in Dovre have a more practical relationship to nature, he says:

Bo: Absolutely. I don't know how deep it is, but reindeer hunting is an important activity here, in many ways – not just about shooting an animal and the knowledge around that, but there's a social factor to it. Suddenly we're a whole group of men in the mountains, talking to each other. It's a social thing.

Though we haven't had access to such gender-specific social settings, it is possible that such arenas serve to strengthen socially organised *common sense* positions on many issues – such as climate change.

Synne, a woman in her forties employed in the municipality, expresses that people in Norway are reluctant to think about climate change and it's relation to the oil industry because of their positions of relative affluence:

Jonas: But do you think it's something people think about? That we consider ourselves a nature-loving and environmentally conscious people, while so much of the country is built on the oil industry?

Synne: I don't know that people think very much about that.

Jonas: Do you think it's difficult to think about?

Synne: Yes of course – it's just how it is. And it happens easily, and no action is taken, because we're so well off.

Synne comes across as somewhat uncertain about whether her opinions are relevant – she says she doesn't really think about climate change. This is representative of many of the women we spoke to – they make very clear that they are not experts in the field and doubt if we will have any use for their opinions. But as the conversations proceed, everyone has an opinion on climate change and it's relation to society – and among women especially, there is a tendency to express critical views on how our consumerist societies are affecting both ourselves and our relationships to nature.

The one group where skepticism of ACC was not evident at all was the students at the local high school, who all agreed that climate change was a serious issue that needed to be tackled. The gender difference that we observed in the older population was not evident among the young people. The students were aware that climate change was human caused, and that Norwegian oil was part of the problem. But they still seemed to prioritize the security and welfare of Norwegians over radical cuts in oil production:

Isak: Personally, I would say the most important thing is the welfare of the Norwegian people. If the welfare of the Norwegian people sinks by cutting out oil quickly, then we shouldn't cut it out quickly. Then it'll have to happen gradually, right.

Ellen: All these emissions create a lot of climate change, and this thing about climate refugees, that creates a lot of problems for Norway and other countries. So we have to do something about the climate if we want to deal with the refugee problem.

Carl: I'd say it's important to start thinking about a transition as soon as we can – it doesn't have to happen overnight, but we have to make sure people can re-educate themselves, making sure people can make the right choices for the future. Norway was very good at securing itself when we found the oil, and when we built the hydropower. We should do the same now, think new, think… about what can make Norway a nation, a state that's good to live in in the future. Where we have enough.

The three students all express that the primary goal when deciding about a transition to a low-carbon society is that the welfare of Norway is secured – secured from climate refugees, secured from unemployment, and secure in its sources of national revenue. So there seems to be a general agreement with the official narrative – that the issue of sustainability is an issue of the resilience of the Norwegian welfare system, not about the welfare of humanity or global ecosystems. Carl again expresses the role of the government in the transition – helping people "make the right choices for the future" – a position that aligns well with the individualist approach to climate mitigation and adaptation.

6.4.4 Structure and Agency

For Gramsci, "the subject acts in a field of forces whose outcomes are not to be taken for granted, and thus can and must choose – within, however, a given objective situation. The subject is not absolutely free. The field of forces in which it finds itself, the historical situation in which it understands itself, prescribes the (limited) possibility of the real choices in front of it" (Liguori, 2015).

When discussing responses to climate change, there is widespread focus on individual consumer responsibility, practices such as recycling and "green technology" as potential solutions (while simultaneously hoping that "the big actors" will take a lead and disbelieving that they are capable of doing so).

Birger: Last march we passed 55.000 sold electric cars, and I don't know how many it is now. I think that in 2025, I think that over half of the cars in our households will be either a hybrid or electric. And that, I mean, then we have limited our emissions a bit. But we're so small! In Germany… We're five million… And in Germany they're 52 million, and they have more than one car, many of them.

The focus on electric cars as a solution is prevalent among many informants – an indication that the official policy has been successful in communicating individual consumer choices as a primary tool for combating climate change. At the same time, the lack of public transportation is a common issue when talking about what can be done locally in Dovre. Many express that it's virtually impossible to live in Dovre without a car.

Isak: There's such bad public transportation. It really is bad. There are just a few buses and then you have the train, luckily. It's really important that we have the train. It's really very difficult to get around with buses and such, even short distance, you have to drive a car.

Carl: Having a driver's license is absolutely necessary here. There's one bus in each direction on Saturday, and none on Sunday.

According to Isak and Carl, it seems the government's policy on increasing public transportation has had little effect in the rural community of Dovre – if people are asked about possible changes they can make when it comes to mobility, switching to an electric car seems the only option imaginable – but in Dovre it is not realistic. This reflects what we saw in chapter five of the thesis, that under the current policy, choices in transportation are determined to a high degree by economic situation and geographic location. Provisioning for sustainability is limited to making a switch from one technology of mobility to another, "cleaner" technology of mobility. For the people in the cities, this comes down to switching to an electric car. But for people in Dovrefjell, who are dependent on individual mobility to a much higher degree than the urban populations, that choice is not realistic.

Cathrine, a tourism worker in her fifties, expresses that even if a lot of people would like to live in a less stressful, less intense way, they are restricted in their agency by social factors.

Cathrine: A lot of people are probably thinking "no, no, now we want to live more… more simply", and such things, but sometimes it's a bit… I think it's difficult to interpret, what can I call it… It's like hip, it's cool. That you're just following a trend then, that the neighbours are doing this and your friends are doing that. This and that and that… But I think its, anyway, very complex. Very many factors that determine… But I think, that us, as individuals, if we would work more together, we have much more power to change things than we may believe.

Once again structures are limiting their ability to act, but most people continue to maintain individualist interpretations of responsibility. The hegemonic narrative once again seems to dominate any attempts to go against it – development in the form of quantitative material wealth increase is in a sense the premise and purpose of our lives in a neoliberal hegemony – and people are aware of this, but experienced being locked in by social structures. To quote Jameson again: "It is easier to imagine the end of the world than to imagine the end of capitalism". And still, there is some hope in that we can work together – but as individuals.

6.4.5 Complexity and Scale

Many of the Dovre informants seem to want to distance themselves from the problems and risks of modernity (like climate change) by disowning the problems and claiming it is a problem primarily for other nations.

Sebastian: Well, I think… I googled it. How big the emissions are in Norway and other countries. And I saw the tables that showed that for other countries it likes this [shows a large size] when it comes to emissions, and for Norway it's like this [shows a small size]. But I think Norway will really do a lot in the next ten or twenty years. But I doubt that China and India and those… many African countries that want to reach our level of welfare, and can't do it without using dirty energy, that's still so much cheaper.

Sebastain's conception of emissions and responsibility in this case is directly linked to the carbon accounting practices discussed in chapter five – if you google emissions, you will find data that confirms that Norway is a small emitter compared to other nations like China. The obfuscation of emissions from import of products and exports of petroleum is in this case directly translated into a *common sense* idea that Norway is a small country with small emissions, compared to other nations. The expression "Norway is a small country" comes back several times in the interviews in Dovre. The same expression was found to be prevalent in Norgaard's study of Norwegian denial, done almost two decades ago (Norgaard, 2011). What seems to have changed is the idea that Norway will take a lead in helping other countries by developing clean technology. Comparisons to China are very common when talking about the relatively small amount of Norwegian domestic emissions. This further highlights the problems discussed in chapter five – current carbon accounting practices obfuscate the relations of unequal

ecological exchange that connect states in the core of the world economy to states in the periphery.

There is a widespread sense of the problem not being related to Norway and Dovre, or what people in Dovre do:

Birger: I'm not really concerned about traffic in Norway, we have long distances to go. The traffic we have is really small. Yes. I saw it, I was in Australia this winter and hell, the drive in to Sydney early in the morning! It's seven lanes! You know, the amount of cars going through there in the morning, and we talk about congestion in Mossevein [Oslo]? Forget it! I mean, congestion, sure, but it's nothing in relation.

Anders: You know, electric cars and gasoline cars and diesel cars. When you come out here in the countryside I'm not convinced we're the big bad wolf driving diesel cars up in this little valley. It's like pissing in the ocean.

T: So you don't think it has any effect?

Anders: No, I think it's minimal. You have to start with the big emitters that create pollution.

Responsibility for climate change is sworn off when it comes to individual habits and traffic in the local context, but attributed to nebulous "big emitters" or foreign nations. This again disregards the direct relations between Norwegian affluence levels and emissions that becomes evident when carbon accounting is shifted to reflect the effects of imported commodities and exported petroleum. The issue of climate change, which is by its nature a global problem, is reduced to local contexts – Dovre emits little, China emits a lot. There is no connection made between Chinese emissions and the relative positions of affluence enjoyed by all Norwegians, urban or rural.

Many also refer to climate change as a big and complex problem that is hard to relate to daily life.

Harald: I think it can feel a little complex for many, in any case.[…] If you take it down to the micro level, that makes it easier to relate to and take responsibility for, rather than these big, overarching goals. […] It's always easier to react to something close to yourself. So then you can rather make adjustments like that, instead of turning everything upside down. Again, every small contribution counts.

Harald expresses the difficulty in imagining big, radical changes in society, saying that people can't relate to the dramatic changes implied to be necessary by climate change.

He seems convinced that if everyone, on the micro level, makes some small adjustments, we will be able to solve the problem – or at least, that is the only way he imagines people will be able to react. The reality of anthropogenic climate change – the fact that our fossil dependence has led to a future of potentially catastrophic consequences for all of humanity – is too large, too complex to react to. And so the solution must be that we maintain our current lifestyles and structures, making small adjustments on the individual level. Such a conception of what kind of change is possible and realistic aligns, intentionally or not, with the logic of ecomodern neoliberal hegemony. The implication is that the only way we can adjust to climate change is by making small changes or adjustments on the individual level.

Our informant Synne agrees that the scale and complexity of climate change makes it difficult to imagine and relate to:

> *Synne: It's so big that it's hard to take it in. And relate to. There are a lot of horror scenarios, and you do hear about those… But it's really difficult to imagine that this is something that can actually happen.*

Synne's difficulty in imagining catastrophic climate change is understandable in the social and natural context in which she lives – Dovre is perhaps experiencing changes in weather patterns, and social pressures related to a decline in support for rural communities, but the acute consequences of climate change are being experienced by other people in other parts of the world. This highlights the inequality inherent in anthropogenic climate change – those who have benefited the most from the fossil-driven economic growth of the past centuries are those who are the best protected from the effects of climate change – both by the material wealth and security that the fossil fuel economy has generated, and by the unequal distribution of the effects of climate change.

6.5 Re-interpretation of the *Common Sense* Narrative

As I did with the "official" narrative, I will attempt to re-interpret and summarise the *common sense* narrative on oil and climate change I see among the Dovre informants. While people in Dovre have a wide range of beliefs and opinions on climate change and

oil, there are some demi-regularities that show up again and again – what I interpret as *common sense* positions. The few examples of radically different views will be explored later in the chapter.

Of course we will eventually have to stop relying on the oil industry, because it will run out sooner or later. But stopping before it's either all gone, or demand for it falls, is simply not realistic. We are proud and grateful for the material wealth it has given us, and we are of course worried about what will happen to those who work in the oil industry. We do want to have some wealth to leave to future generations, after all. And our industry is the cleanest in the world! But Norway, despite its oil industry, is a small country and thus what we do doesn't matter much in the bigger picture. In fact, despite being so small, we have taken a leading role – we can be a role model for others if we invest in green technology. Look at the factories in China, and the highways of Australia and the US, and the tar sand fields in Canada. Those are the real problems.

We are not really sure that it is a human problem. It may be a human problem, but those scientists are not really sure and either way we don't really trust them. Many of them are allied with the politicians and only want to secure their jobs. But if it is a human problem, then it's not us here in Dovre that's the problem, and we don't really have the resources to be part of the solution, because of the lack of support by politicians. We have other problems, real problems to deal with here. Politicians are never going to change anything for real – voting doesn't really change anything. It's all bureaucracy. We want to do our part, of course. We have to make society more environmentally friendly. As consumers, we can make some changes in our habits. But we don't really have the resources to do much more than what we are already doing. Either way, we will probably not be badly affected. We can't really see how it would affect us.

6.6 Urban Narratives

The group that can be classified as urban is small, consisting of only seven informants. The group is also made up entirely of women, five between thirty and forty and two above the age of seventy. To draw any major conclusions from their accounts would be impossible, but nevertheless there are some differences between their narratives and

those of the rural informants. Being aware of the anecdotal character of their accounts, I will nonetheless describe the common threads that emerged in the conversations with urban tourists at Snøheim.

In general, the urban group expresses much higher support for the official ecomodern narrative. Climate change is real, but the political institutions and the market will solve the problem. The main driver will be consumer choices supported by incentives from the state. If any collective action is referred to, it's in the form of collective consumer power, and in many small changes coming together. There is no mention of any collective political power beyond consumer choice and representative democracy. The urban group seems to have more trust than the rural group in using their votes to elect politicians that take the issue seriously.

Where the rural informants express generally high levels of distrust in politicians and central institutions in connection with the risks they are facing as a rural population, the urban informants are critical towards politicians for other reasons. Rather than thinking that politicians are doing too little, many express that those in power fail to see how difficult it is for regular people to make changes in their lifestyle. Consuming less plastic, switching to electric cars, limiting long distance flights and dealing with the parking situation in Oslo are some examples.

Christine: I think it's a bit far from reality, when someone who doesn't have a family, doesn't have a need to transport goods to and from the city centre, who has a whole vacation where she can si ton a train to Barcelona and back without concern for others – I think it's naïve and young. And then putting all those rules and regulations for other families and everyday situations, which make it really difficult for the individual.

Like many of the rural informants, there is a tendency to shift both blame for causing climate change and the responsibility mitigation and adaptation to other countries and "big emitters". One example is the emissions cuts from all the people switching to electric cars being offset by the arrival of large cruise ships in the Oslo fjord.

Jenny: When you think about how much a single diesl car emits, and then you have these huge container ships lying out there with their engines on and emitting as much as all of Norway in one day. So really… if I do this or I do that doesn't actually matter.

Several informants express a form of climate guilt – being aware of the problem but being too comfortable or too disengaged to actively do anything. This coincides with putting trust in that younger generations will take the issue more seriously, that it is the people growing up today, being informed from an early age about climate change, that will have to take care of the problem.

Jenny: I just don't have the energy to engage in all of it, but if my ten-year-old comes home and says "mom, we have to stop buying microplastics", then I'll do it to make him happy. But honestly, I have more than enough to make my daily life work. Of course I'll turn the lights off when I leave a room. But I don't think about the environment in daily life. I'm sorry.

If I were to re-interpret and summarize the narrative on climate change and oil in the urban group, it would be along these lines:

The problem is real, and we can solve it by technological adaptation and market mechanisms. It is up to the individual consumer to make "sustainable" choices, and that aggregate demand will provide solutions. So in a sense, the market will actually solve the oil problem for us. The main political failure consists in not preparing for the fall in demand by investing enough in green technological innovation. Some politicians also make unreasonable demands on us as consumers, who are only struggling to get by in their hectic modern lives. But we can use our votes to get a government that takes the issue seriously, and we can trust that the coming generations will do what they can to solve the problem. Norway can develop green technology to lead the world in a transition, and so we could safeguard the national welfare by making sustainability profitable – through high-tech fisheries, offshore wind power, CCS, or by exploiting our other natural resources. We need to save our beautiful nature so we can continue enjoying it.

6.7 Summary

An overarching tendency in what I interpret as the collective *common sense* of the informants is to shift responsibility and risk away from the local context – be it Dovre or Norway in general. People have ambiguous relationships to the oil industry – it is both a source of pride and acknowledged as the reason behind current levels of affluence, but is also portrayed as a risk for the same reason. Falling oil prices are seen

as both a solution to the climate issue – the market solving the problem for us – and as a practical concern over actual employment opportunities and state income. The urban group express higher confidence than the rural informants in the viability of transitioning from dependency on the oil industry to a largely unspecified form of "green technology".

Rural populations express great concern over the future of the welfare system, and the ability to maintain it in a post-petroleum economy. There is some hope in the ability of green technology and innovation to keep the economy going. Trust in institutions and politicians is generally very low in rural populations – mostly due to not taking the problems of rural Norway seriously. Trust seems higher in the urban group – although many express that politicians do not understand the practical consequences of climate adaptation policies for ordinary people – the hassle of shifting to low-emission transport, difficulties in parking cars in Oslo, and the impracticalities of reducing domestic flights.

Most people agree that CC is happening, but many in the rural community question the anthropogenic nature of it, or at least argue that natural cycles play a large part. Perception of the vulnerability of the local social-ecological system is low. Most people can't imagine how Dovre or Norway would be badly affected by climate change – and some claim that the changes would actually be beneficial. A connection is not generally made between local climate, GHG emissions and the oil industry – if it doesn't concern specific instances of using nature, like in hunting or skiing.

Responsibility for climate change adaptation is placed most commonly with the individual consumer and in individual practices, although many describe the futility of individual action and a dependency on public provisioning. There is a simultaneous insistence on individual responsibility and a general tendency to shift blame away from oneself and to either a lack of government support and understanding, or to nebulous "foreign" emitters.

How is the "official" ecomodern narrative of Norway reflected in the fieldwork material? There certainly seems to be a greater alignment between the urban group and the official "hegemonic" narrative. They are generally concerned with the issue of climate change, but seem to share in the trust of technology and markets to solve the

problem. The *common sense* of rural informants is to a higher degree in conflict with the hegemonic narrative. There is much lower trust in that the state will be able to maintain current welfare levels, which are already perceived as dwindling and threatened in rural settings. The challenge is not so much against the ecomodern narrative of technological solutions – indeed I find that even ACC sceptics in our sample seem to have accepted the necessity of a transition away from the fossil industry to new, "green" industries. The conflict rather stems from a general experience of abandonment and irrelevance in relation to the state – there is scepticism towards central authorities in general. And since information regarding the anthropogenic nature of climate change is identified with the central authorities – scientists are often hinted at as being in "collusion" with politicians – the judgement of the state spills over to judgement of climate science. This scepticism towards anthropogenic climate change aligned with a scepticism towards political authority can be seen as a breeding ground for Wainwright and Mann's *Behemoth*, one aspect of which manifests as an acceptance that CC is happening, but by attributing it to natural factors ending up in a refusal to politicise it or demand any overarching political-economic reactions to it.

The most interesting finding in the end is perhaps not any empirically testable connection between the narratives identified in Dovre and the hegemonic narrative explored in chapter five, but the fact that the issue of climate change is one that indeed concerns everyone – no matter how sceptical or ignorant they initially claim to be. In each of our interviews, even those people whose initial reaction to being asked about climate change was some variation of "*I really don't know anything about it*" showed that it is fundamentally connected to their day to day lives and that they were capable of serious reflection about it when such a discussion was actively provoked. Viewed through the Gramscian conception of *common sense* then, we could see this as common sense positions holding within them the potential for reflexivity – when actively challenged. A tentative conclusion would be that it is not a lack of information that is keeping people from actively reflecting and acting upon climate change, but rather because *common sense* positions, the naturalized "conceptions of the world", are not commonly actively challenged or reflected upon in day-to-day life.

I now turn to some of the positions that seem to break with the *common sense* narrative that emerged during our conversations in Dovre.

6.8 Outlier Positions – Seeds of Counterhegemony?

Within the overall *common sense* on oil and climate change, both as expressed by the rural and urban informants, some positions that can be characterized as "counterhegemonic" in gramscian terminology also emerge. These are significantly more prevalent among women than among men. One of the most common positions that seem to go against the hegemonic narrative is an open or suggested desire for reduced consumption and materialism:

Synne: But of course – you don't need to fly to the south three times a year, you don't need to… it's so much that you don't need. But I guess it's up to each individual to do what one can. But, well, there's something about the society we live in that is such a consumerist society. Which… well, you just go along. Float along.

Synne expresses the structure-agency problem succinctly, in her own terms. She clearly sees the consumption levels in society as unsustainable – and as unnecessary. But at the same time, she's resigned to the logic of individualism – we all just have to do what we can, and the result is that we just float along. Another informant, Frida, describes a longing for a less materialist life:

Frida: I think about how people live, with the cost of living and both working and they have kids… There's almost no time left! Why not wish for a little less? I mean, how long do you get joy from a thing you buy? … There's a tendency for single families to … move out. Some families are doing it. Well, to the countryside, with kids, so they can have more time.

What Frida is getting at is confirmed by several studies that look at the correlation between material status and happiness. Material status is generally seen to increase reported levels of happiness and life satisfaction – to a certain degree. After a certain affluence level is reached, further increases in material wealth has no effect on happiness, or even seems to lower it (Wilhite, 2016b). Frida is also the only one of our rural respondents who expressed what can be called a grave concern over climate change, and significantly, it was tinged with expressions of self-doubt, of perhaps being an "extremist" or at least being *seen* as an extremist in the community:

Frida: You know, I've become really focused on it. So it may be that I put too much weight on it too. I'm aware of that.

T: But do you think it's because of humans that it's getting warmer?

Frida: Yes I do! You know, the earth has always been moving, the climate has always been moving, but when you see… When you see how we pollute! All that… and we bring up all these fossils and just emit them, that have been saved for many years. And you see the ice melting – I don't understand that people aren't thinking more about it. I don't get it. I don't get much response, hehe, no more response there… Well, we see that it's changing. And many are afraid, when you read in papers and online and such, many are concerned. So I'm not alone in the world, hehe.

T: But is it something you can talk to friends and family about?

Frida: Well, a little, but it's not so much. No, I'm a bit of a lonely soul, hehe.

This expression of being doubtful about one's level of concern, and being labeled as "extreme" by the community due to it, could be interpreted as an expression of the difficulty for one individual in actively challenging common sense positions. Frida seems almost resigned to being the only one in her social circle to be actively concerned about climate change. Here we can perhaps see the effects of attempting to break what Norgaard calls the social organization of denial – that taking a position that actively challenges the common sense of one's local society risks leaving one vulnerable – structure manifesting itself over attempts to manifest individual agency.

Several informants in the group of urban tourists also express an experience of stress connected with modern lifestyles – and as a consequence, they describe their stay in Dovre in terms of a "reconnection" to nature. The unspoiled nature of the mountains is described as a refuge from the stress of city life, the stress of always being connected, of always being in competition. But they also express that the "refuge" doesn't last long:

Marianne: Well, we kind of have double standards. It's so beautiful and nice and healthy to be in the mountains like we say, but as soon as we've been up and recharged our batteries a little we go back to the city and we take the car straight down to the store for a caffe latte. There's something about that, it becomes a bit strange. We want to go up where we think it's untouched and natural, and then we forget it as soon as we leave.

This view of the mountains, of nature, as a refuge where one can "charge the batteries" seems connected with a deep concern that arises when climate change is brought up in the context of local, beloved places in nature. When we mentioned reports that the forest around Oslo could become snow-free in winter months due to climate change, our

informants got much more engaged than when we talked about climate change on a more abstract, general level.

Marianne: Absolutely! It's about getting ownership of things. For me, who's always been used to skiing in the mountains, it's clear. We had a cabin in the mountains, a place at 350 meters altitude. We had a cabin there for ten years. But there was less and less snow, the last few easters there hasn't been snow at all. So we sold our cabin and bought another one, higher up, and were imagining a snowy winter this year. But there's hardly been any snow there either. So considering how we use nature and what you value, there's been a change in the last fifteen years… I thought about it this winter – is that how it's going to be? Won't my kids get to experience skiing in Easter? Will we have to go to really special places to just ski a little?

Compared to the real experiences of catastrophic climate change experienced by many in the global South, such a position may come across as distanced, and perhaps spoiled. But it nevertheless indicates the importance of local context, of bringing climate change into the realm of daily life, to see that it is not only an abstract future scenario, but will have tangible consequences even for urban members of a global elite.

These positions are, from a Gramscian point of view, potential points of intervention and counterhegemonic organization – positions from which counterhegemonic narratives or practices of what Gramsci called *good sense*, positions springing from *common sense* that oppose the hegemony, might emerge. In our material from the field, they are expressed by single individuals, and are often accompanied by expressions about the difficulty in breaking with social norms of material wealth, urbanisation, and keeping up with the neighbours. This indicates that such counterhegemonic positions are still seen and experienced as rare, or "other", and as such being difficult to maintain under the social pressure experienced. But rare and lonely as such voices may be, they could serve as the seeds of larger counterhegemonic project if they were in turn actively socially organised and promoted. Actively tying such positions to the larger structures which they challenge as well as the earth system and ecological science which can confirm their validity is a potential for anyone who seeks to challenge the *common sense* position on climate change that is largely a translation of the logic of ecomodern neoliberal hegemony. These brief glimpses of counterhegemony are, each by themselves, not enough to challenge a *common sense* that maintains the mechanisms of extraction, accumulation and individualist resilience – but they offer a hope that larger counterhegemonic projects may find supporters in unexpected places. But to effectively

do so, it seems important that such projects must be contextually aware and connected to local, historicised social and ecological conditions.

7 Reflections and Potentialities

> *"We have to start doing this in ignorance of the details of how to do it. We have to learn how to do it in the attempt itself. It is something we are going to have to imagine."*
>
> *— Kim Stanley Robinson, Sixty Days and Counting*

Kim Stanley Robinson, writing in the future imperfect of climate science fiction, sees the "state of dithering" coming to an abrupt end in what he describes as "the first pulse" – when a massive portion of the Antarctic ice sheet finally overcomes the threshold of its continental plate and rushes into the southern ocean, causing a global rise in sea levels of ten meters in a matter of weeks, and causing unforeseen human suffering on a global scale, disrupting trade, food supplies, global finance and transportation in one fell sweep (Robinson, 2012). Not until then, when the UN building in New York is suddenly a literal island, do the elites of humanity finally wake up to the reality of the problem they have caused. And still, in the face of such global on-the-body confirmation of the price of dithering and "the fall into crisis" that follows, they struggle to maintain their hegemonic positions. It is not until the year 2140 that a global network of activists finally start pushing back, ushering in "the turnaround", a period characterized by *verteswandel* – a deep mutation of values – eventually manifesting "the accelerando" – a sort of second enlightenment[15].

Let us hope that we do not have to wait for such an apocalyptic wake-up call. If we can come to accept the reality that nature puts boundaries on what we can do as a species, on the boundaries to which our fundamentally unjust accumulation of wealth and distribution of ecological damages can grow, then we can also (and this is the crucial point) regain collective agency. A historically specific mode of human organization of production has caused this crisis, and we have the ability to change course. In the final section of my thesis, I will reflect on what has been learned through the research, and look for paths forward.

[15] It does not end in Utopia. Robinson's future history continues, of course, in his book 2312, exploring further challenges, setbacks, revolutions and balkanisations – there is no end of history and no end to the dialectic. Only continual adaptation of social systems to intransitive reality – whether enforced by catastrophe or enabled through *verteswandel*.

7.1 Summary and Discussion of Results

The following is an attempt at summarizing the results of my study of the causes of continued inaction in the face of climate change – what I have called the "state of dithering". It starts at the highest (or deepest) level, funnels down (or up) through the specific case of Norway and further to the *common sense* of the people of Dovrefjell, before expanding outward in reflection of what has been learned.

According to the understandings of Critical Realism, the natural world is, if not fully understandable to us, at least *real* in the ontological sense. It operates according to mechanisms that we can begin to understand through the application of science. These mechanisms exist independently of our knowledge of them, and produce actual events that we can experience and observe empirically. If a certain amount of CO2 equivalents are released from the Earth's crust and introduced into the atmosphere, then severe consequences will follow due to the intransitive mechanisms of natural laws, and the specific events they produce. These consequences will actualise weather or not we understand them, observe them, or prepare for them.

Anthropogenic climate change is the greatest threat to human civilization in recorded history. This is not alarmism, but a sober acceptance of the facts uncovered by science. Our response so far to the reality of climate change has been inadequate. We are currently, as a species, in a state of *dithering* – having uncovered, through natural science, reliable predictions about the consequences of our actions, but failing to change the behaviours that have put us in collective jeopardy. The consequences of this dithering, if it is allowed to continue, is felt currently by multitudes of humans in the periphery of the world-economy and will be felt by future generations, not only for the next century or two, but for millennia into the future, according to our best understanding of the mechanisms of nature. The effects of a global increase in temperature will be devastating to the absolute majority of the human population of the planet, and will have unforeseeable long term effects on the functioning of ecosystems and other natural cycles.

The dramatic changes we are observing in global climate are the result of the systematic extraction and burning of fossil fuels previously encapsulated in the Earth's crust. The increase in the systematic burning of fossil fuels coincided with and was driven by the

needs of the political economic system of industrial capitalism. The major effect of industrial capitalist society on the mechanisms of nature is the way our economy interacts metabolically with the natural systems in which human societies are unequivocally embedded. This form of interaction, which we call the capitalist mode of production, is predicated on the constant increase of accumulation of material wealth in private ownership through the dual exploitation of nature and human labour power. This constant accumulation of capital causes irreparable rifts in the metabolism of nature and society, since capital accumulation cannot be decoupled from deeply affecting natural systems, and since capital accumulation causes deep inequalities in the social system itself, between those who are forced to sell their labour power for sustenance and those who own and accumulate capital. The resulting metabolic rifts can be seen in multiple areas of the global environment, but the most direct influence of human activity has been on the climate, species biodiversity, and the nitrogen and phosphorous cycles, as evident in the research on planetary boundaries.

To ensure the unhindered continuation of accumulation of capital in private ownership, a global ideological, political and economic hegemony is maintained. This hegemony naturalizes the exploitative relations of capitalism between society and nature as well as between workers and capital, and makes them appear to those living within them as *common sense* – although such *common sense* positions are not universal, but come about as interactions of the hegemonic ideology with local historical contexts. In the latest decades, the increasing actualisation of the effects of human burning of fossil fuels on natural system have forced this hegemony to take an "ecomodern" turn, to enable the naturalization and harmonization of two distinct and conflicting mechanisms – which we can refer to as *development* and *sustainability*. Development, in this sense, is a constant increase in the accumulation of material wealth. Sustainability, on the other hand, means ensuring the future functioning of social and natural systems without catastrophic consequences. *Ecomodernism* enables people in the centre of the world economy to maintain the *common sense* position that we can continue to increase material wealth in an Earth System that has been proven to react to our material interaction with it. This ecomodern turn in global capitalism is represented on the global level by what Wainwright and Mann call *Climate Leviathan* – the drive to solve environmental problems under the present relations of production and institutionalised power. The dominance of this interpretation of the relationship between humans and

nature is now the leading cause of continued dithering, that is, failure to change the way we as a society interact with nature. It enables the maintenance of the hegemony, the central proposition of which is that material wealth can continue to increase while we maintain the stability of natural systems. This myth is naturalized as *common sense* almost everywhere in the global north – although in contextually specific forms.

The state of Norway is in a state of contradiction. It has "committed" to lowering its emissions from fossil fuels and contributing to ensuring that the global temperature rise due to anthropogenic climate change remains under 1.5 degrees Celsius. At the same time, it has built and continues to build its material wealth on the extraction, refining and export of fossil fuels locked in the continental shelf of the North Atlantic. The neoliberal hegemony and the corresponding ecomodern interpretation of sustainable development is what allows the Norwegian state to continue inhabiting this double role, by its promise that technological development and increasing the reach of market mechanisms will allow both a continuation of material wealth accumulation and avoiding a catastrophic disruption of the global climate system. This masks the unequal ecological relationship of Norway, as part of the centre of the world system, with the periphery in which the majority of its commodities are produced, and where the effects of its exports of fossil fuels are already most acutely felt. Norway can enjoy the continual accumulation of material wealth and the protection this offers against the effects of climate change, profiting from the sale of fossil fuels – the burning of which is accounted for outside its borders – as well as the outsourcing of manufacturing of commodities and the related ecological damages. Thus Norway amasses wealth, while the exploitation of both labour and nature for the most part occurs outside its national borders – and the carbon accounting models allows Norwegian capital to shift the burden of responsibility away from itself, maintaining a narrative of environmental leadership *and* a continued unquestionable expansion of the oil industry.

In the lives of the people inhabiting the mountain community of Dovrefjell in central Norway, the ecomodern idea of sustainable development is present as Gramscian *common sense* – formulated in contextually specific ways and influenced by the relations of power between the local community and the state as well as urban populations and other parts of the global economy. The future resilience of this community is dependent on the continued support of the Norwegian state, dependent as

rural Norway has become on central power, and this effectively manifests as the *common sense* understanding that Norway will and must ignore the climate consequences of continued oil extraction as long as it remains a source of increased material wealth. If extraction and export of fossil fuels eventually becomes unprofitable to the Norwegian state, most people assume that technology will evolve which allows for the continuation of Norwegian economic growth – new machines will be built that allows for the continued subsumption of nature, and the continued transformation of nature into exchange value – or alternatively, machines will be built that somehow can increase material accumulation *without* disrupting the functioning of the Earth System. The global market is commonly seen as the arena that will enable a transition away from fossil fuels to what is universally but imprecisely called "green technology". There is widespread scepticism towards politicians, their ambitions, and their understanding of the reality of ordinary people. This scepticism of authority often spills over onto scientists, who are described as having political motives.

At the same time, there are other contradictions present in what constitutes *common sense* in Dovrefjell. People there identify strongly with the nation of Norway, and it's ideals of environmental protection and leadership. At the same time, many seek to actively distance themselves from the state of Norway, and downplay their own role in contributing to climate change. Both blame and responsibility are shifted away from the individual and the local context, to either past and future generations: our parents didn't know what they were doing, we are much better than them, but it's the kids that will have to take the lead, other contexts: what we do up here in the mountains is not really relevant, it's a drop in the oceans. It's the big cities, the big corporations, and the big countries (like China, India, and the US) that are ultimately responsible.

A conflict is also evident when people discuss the responsibility of climate change mitigation and adaptation. There is widespread insistence on agency through the market, as the aggregated choices of individual consumers, in adapting to the reality of climate change. On the other hand, people insist that the responsibility for adaptation lies with "the big emitters", this referring to both large corporations, and developing nations such as China and India. There is a continual trend toward shifting responsibility away from oneself and onto others – urban elites, corporations, Americans, or developing nations, while simultaneously maintaining that consumer demand is able to change our

destructive relationship to nature. Insistence on that both Norway as a whole and the local context is insignificant on the large scale of things enables the shifting of culpability, not to the mechanisms of capitalism, but *others*, living in urban centres or far away countries.

A fairly large portion of informants also express a continued doubt regarding the cause of climate change, with many of them insisting that the changes we are seeing are due to natural cycles. This level of denial takes *common sense* one step further away from reality as we understand it through science – but is understandable in the context of living in a hegemony that promotes eternal increases in material wealth, and the subsuming of nature under society. This level of denial or scepticism is, interestingly, coupled with an almost unanimous support for measures to lessen emissions – arguments of "better safe than sorry" are very common. The tendency towards scepticism therefore seems not to be due to a lack of information on climate change, but due to the fact that the information about climate change and the need to adapt is experienced as coming from the state and the institutions in which this community have generally low trust. This scepticism could be seen as a sign of the influence of climate *Behemoth*, in that its scepticism towards anthropogenic climate change is intermingled with it scepticism towards central sovereignty over local issues. But it could also signify a potential for a move towards the presently "absent" or "negative" future of climate *X*, if the connections between the unequal political power relations between centre and periphery inside Norway could be expanded upon to include a questioning of capital's drive to unequal ecological exchange – a challenge to the rationality of the hegemony.

In trying to understand the underlying causes of continued dithering on action to reduce emissions, I conclude that the core mechanisms of the capitalist mode of production, and the hegemony that naturalizes this historically particular relationship between human society and non-human nature, are the main culprits. In a society where the concept of sustainable development is so deeply ingrained, it becomes very hard for individual actors to question the logic of constant accumulation – indeed, the *myth* of sustainable development is what assuages most fears about future risks to the wellbeing of the local community and the individual. Both individuals and nation states are locked-in by the hegemony – to act against the logic of accumulation would be to expose oneself to the existential risk of lowering the material conditions of life, since all

other actors are locked-in in the same way. But this does not mean, and this is a crucial point, that all people everywhere are equally responsible for climate change or have equal agency in the rapid process of decarbonisation. My analysis of the relationship between the hegemonic and *common sense* narratives leads me to highlight the importance of context when trying to understand what causes our delayed response to climate change. The people in Dovre are in much worse starting positions when it comes to the possibility of radical changes in consumption and lifestyle – they are lacking in provision of both the societal and material infrastructure required to make such changes.

Where then, does hope lie?

Viewing climate change through the lens of Critical Realism can help us understand our predicament and clear up the fog of epistemic fallacies. Bashkar's dialectical approach offers a perspective for investigating the co-evolution of society and nature that transcends the dichotomy of realism and constructivism, and encourages the constant re-examination of where our conceptions of reality "crash into" reality itself, with the intent of constantly re-formulating those conceptions. It allows us to understand both how structure imposes restrictions on agency, but also that agents individually and collectively are capable of transforming those structures. Gramsci's theories of hegemony and *common sense* can help us see how specific relations of power between individuals and collectives in society are reproduced both through the underlying mechanisms of production and through ideology – and in the context of climate change, how such relations of power influence our responses to the reality of climatic changes caused by human actions. Using the theoretical understandings of Gramsci and Critical Realism in conjunction with the theories critically examining the warming condition, and applying these in empirical research on the relationship of hegemonic narratives to the formation of *common sense* positions, could lead to an increased understanding of potential points of intervention and where to find arenas for counterhegemonic struggle.

The scope of this thesis is limited to Norway and a specific community, but further research into the contextually specific formations of *common sense* positions and how they relate to *power* could further counter the idea that all people everywhere are equally responsible for causing and acting on climate change – that it is a problem caused by the human species as a collective. The people in Dovrefjell describe a feeling

of diminishing agency, as they deal with the real day to day struggles of diminishing opportunities for employment, weakening institutions of welfare, depopulation and dependency on central authorities. That they are more prone to positions of doubt regarding ACC should not be seen as intellectual weakness or a tendency to care less about nature, but as a consequence of their relative position of power in relation to the authorities and urban populations that urge them to take climate change seriously and make changes in their daily lives.

The *state of dithering* then is not a universal, homogenous state, and neither are the implications for responsibility and ecological debt. That the disenfranchised populations of declining rural communities dither on rapid decarbonisation is not a problem of the same magnitude as the dithering of affluent urban populations who are more provisioned with low-carbon alternatives, or more significantly, the dithering of those elected to represent the State and those whose positions of power has allowed them a scale of affluence and influence exponentially higher than the rest of global society.

7.2 On Validity and Generalizability

In the qualitative study of empirical data from the field, as the scale of inquiry decreases, so, generally, does generalizability – and this is indeed one of the conclusions of the present work. In my inquiry into the ontological and epistemological foundations of the problem of anthropogenic climate change, I admittedly draw large conclusions, with potentially huge ramifications. I cannot claim that they are true descriptions of reality. My model is an amalgamation of several different concepts from several different fields of research. Their validity hinges on their usability. And in my empirical analysis, I do not and cannot claim that my conclusions are completely accurate or valid representations of the reality of Norwegian society and policy. I can only judge my empirical findings based on my own judgemental rationality, and from my own value-laden epistemological position. But this is indeed part of the point. Both in the formulations of Gramsci and in the spirit of critical realism, validity is not only about accurately describing reality, but just as much about providing an analysis that can further solutions to social and ecological problems. The quality and validity of my analysis, then, comes into existence in the meeting between my own judgemental rationality and that of my imagined readers. Of course I am convinced that my analysis

and my conclusions are *more true* than those of information deficit models, the ecomodern neoliberalism of *Climate Leviathan*, or the reactionary denialism of *Climate Behemoth*. That conviction builds on the combined experience of field work, analysis and literature review. The process of research has led me to the conclusion that both the anthropogenic explanation for observed climate change and the analysis of the fundamentally unsustainable character of capitalist relations of production have high explanatory value. I further believe, based on my research, that the model developed using critical realism has both high explanatory value, and high emancipatory potential. But it remains to be seen whether or not my findings are useful or not in practical terms, or if my case is convincing to anyone else. All one can do as a researcher in the social sciences is to make one's case, supported by the theoretical foundations of those who have gone before, and the analysis of empirical data.

7.3 On Interventions

"Make up a recipe for a successful revolution."

"Take large masses of injustice, resentment and frustration. Put them in a weak or failing hegemony. Stir in misery for a generation or two, until the heat rises. Throw in destabilizing circumstances to taste. A tiny pinch of event to catalyze the whole. Once the main goal of the revolution is achieved, cool instantly to institutionalize the new order."

— Kim Stanley Robinson, 2312

The need to fully accept the reality of climate change means a need to accept that there are limits to human activities in the biosphere before the events triggered by our activities will become threats to our continued existence – extraction must cease because the facts and mechanisms of climate change will lead to social and ecological disaster – and we simply cannot afford to wait for a fall in profitability of fossil fuel production. But why does it matter if the end of fossil fuels comes through market forces or an active intervention against the drive of endless accumulation? In the words of James C. Scott: "the problem is that in most economic systems, the external costs (in water or air pollution, for example, or the exhaustion of non-renewable resources, including a reduction in biodiversity) accumulate long before the activity becomes unprofitable in a narrow profit-and-loss sense" (Scott, 1998). In my analysis, the problems caused by the underlying premises of industrial modern capitalism, even in its

ecomodern guise, extend both beyond the climate change-fossil fuel problematic, as seen in the planetary boundaries research, and temporally beyond the narrow profit-and-loss perspective that Scott describes. Furthermore, we have seen that the pace of decarbonisation under the present hegemony is woefully inadequate. Not only do the relations of production cause rifts in the metabolism of society and nature – they cause and reinforce fundamentally unjust distributions of wealth and power among humans, both within individual states, but much more fundamentally between people in the centre and periphery of the world system. If Climate Leviathan seeks to ostensibly solve the problem of climate change by maintaining existing structures of power, then where are the potentials for intervention?

Based on the theory and analysis of this work, and following the calls from Marx, Gramsci and Bhaskar, I tentatively identify the following as potential points of intervention for the building of counterhegemonic political projects.

Our informants often refer to the potential for "on the body" events to drive home the need for action, for example connecting radical changes in the local landscape to climate change (examples in the interview material include the prospect of snow-free winters in the forests around Oslo and higher frequency of seasonal flooding and the reforestation of open pasture land in Dovre). Especially interesting would be to study the potential of intervention in the constant process of *common sense* formulation in specific instances of crisis or extreme events – to directly connect out-of-the-ordinary embodied experiences to the overall trends of change in the climate system and the societal drivers of that change. The intense forest fires of the summer of 2018, for example – could such instances of on-the-body environmental crisis, if properly tied to climate change science and communicated in a contextually sensitive way, serve to break hegemonic views on climate change?

Another potential is questioning the growth paradigm by relating to the stress of consumerism and modernity on the personal level expressed by some informants – based in the contextually specific formulations of *common sense* on climate change. Especially the urban informants express the need to use nature as a refuge to "charge batteries" and some express awareness of the contradictions in this need – leading a life of high consumption and high emissions that in effect threatens the stability of the nature one desires to experience to escape from the stresses of that life. Combined with

the often expressed notion that to take climate change seriously you need to feel it "on the body", one would express the threat to those "sanctuaries" in concrete terms, based on scientific evidence. Make the connection explicit – the same structures that cause the stress of individualist consumerism is de facto responsible for the threat to those natural systems on which we depend both for leisure and survival. In other terms, such counterhegemonic interventions would make explicit the connection between the exploitation of labour (which lies at the root of the stress people associate with "consumerism") and the exploitation of nature.

This thesis has given little attention to what is commonly known as "civil society", as its focus has been on the state and the influence of hegemonic rationality on the formulations of *common sense*. One example of a potential intervention from civil society is the *fossil free* movement, which works for the divestment from and boycott of those economic actors that are directly responsible for the majority of emissions, has gained significant ground in the past few years. Their strategy is to make fossil fuel capital unprofitable by pressure from the public sphere – in effect making it bad for business to be associated with GHG emissions. The divestment campaign takes on the language and logic of capital accumulation to defeat a specific form of it – it doesn't explicitly challenge the financial system itself, but uses it as a weapon against the largest emitters. One could argue it is a solution within the hegemonic ideology of neoliberalist politics and still does not challenge the basic drive of accumulation and growth, only *fossil-based* accumulation and growth. And still, the urgency of reducing emissions is real, and making fossil fuels unprofitable is a step in the right direction. It also has the potential to overcome the focus on individual agency and reaffirm the power of collective action through social movements. The movement is still in its infancy, but has had some successes – even in the case of Norway, which has, somewhat hypocritically perhaps, pledged to divest the holdings of its oil fund from the coal industry.

Any political strategy for increasing the pace of mitigation and adaptation to climate change needs to be contextually aware – not only on the global scale, but also within so-called developed nations. One could speculate that rural-urban relationships in the global north reflect relations of unequal ecological exchange – indeed, Immanuel Wallerstein, a leading world-systems scholar, points out that the centre and periphery

are not mere geographical poles and are not tied to specific places, but rather has to do with the relations of production (Wallerstein, 2004). Without falling down the hole of constructivist views on nature, the people in Dovrefjell can be seen as producers of a "spectacular" form of nature, nature as commodity, for the consumption of tourists (Igoe, 2017). Further investigation into urban-rural relationships from a critical ecological perspective is warranted, but it seems clear that if all parts of society are to be able to achieve decarbonisation, then the effective lack of public provisioning, most especially in rural areas, must be addressed (Wilhite, 2012).

If the *common sense* position in Dovrefjell is that climate change is something that may happen, somewhere, sometime, but not here, and not due to anything we do, then it seems that active intervention and challenging of such positions (which requires first to interpret and understand those *common sense* positions) can awaken the reflexive potential in people. Any interventions that seek to challenge *common sense* obstructive views on climate change and a lack of action, then, must take into serious account the context in which *common sense* is continually formed. This context includes environmental, historical and cultural specifics of any particular social stratum or group, as well as their relationship to those classes and powerful groups that maintain and are maintained by the ideological hegemony (Kipfer & Hart, 2013).

Finally, a Gramscian reading of the inability of states to break their dependency on fossil fuels highlights the importance of challenging naturalized *common sense* understandings of the state-society-capital relations. For Gramsci, the state is always a vessel through which the ruling classes maintain the hegemonic relations of power and production. Any counterhegemonic movement that wishes to fundamentally challenge both the social and ecological disruptions inherent in the current unfolding crises should look soberly at the connections between the foundational aspects of the neoliberal political project, which is, according to David Harvey, at its core "a war against the working classes by the forces of capital" (Harvey, 2005), and the ecological analysis of capitalism. I see such potential connections between (1): the increasing experiences of alienation (ecological and social) by those who sell their labour and the neoliberal push to delegitimize and weaken the collective organisation of workers; (2): the increasingly unequal relations of ecological exchange between regions of the world economy and the neoliberal push to financialize capital and externalise production; and (3): the

ecomodern focus on technological solutions and the neoliberal push towards automation and mechanisation of production. As previously stated, any challenge of the status quo must challenge not only the contradictions between nature and society, but the contradictions within society as well: those contradictions are at their core connected to capital-labour relations and so contextually situated counterhegemonic organisation must include in its ideological formation a critique of the relations of production, locally as well as globally (Jakobsen, 2018).

7.4 Final Words

I have argued that the ecomodern response to climate change is insufficient and actively prolongs what I call the state of dithering. At the same time, the science on climate change is clear on one thing: if we are to avoid catastrophic warming over the long term, it won't be enough to stop emitting more greenhouse gasses into the atmosphere. The changes we have already caused and the feedback mechanisms they have started will by themselves be enough to produce severe consequences for human societies as well as non-human species, even if all further anthropogenic contributions of CO2Eq to the atmosphere stopped overnight. To avoid the eye of the hurricane, we need to not only stop burning more fossil fuels, but to actually reduce the level of CO2 in the atmosphere, which is now rapidly nearing 420 parts per million (NOAA, 2018). And so, we cannot wholly abandon the need for technological solutions. *What needs to be abandoned is the idea that such solutions will let us continue with business as usual.* Any technological innovations must be coupled with active policies for decreased energy use and active efforts to mend broken metabolic cycles between society and nature, as well as with massive efforts of redistributive justice between the centre and periphery of the world economy. And in the end, if we truly wish to mend our relationships with the complex ecosystems in which we are enmeshed, the basic premises of our mode of production must be critically examined again and again – what kind of value are our machines producing, for whom do they produce value, and who controls that value? Following Bhaskar's formulation, the critical realist dialectic is a continuing process, and we must continually reassess the rationalities by which we solve the problems of society as those rationalities "crash into" objective realities (Collier, 1994). A breakdown of the hegemonic position of neoliberal ideology and its

ecomodern conception of sustainability could open up paths for different outcomes. One such outcome could be the extension of democracy to the economic sphere – meaning that production for the unequal accumulation of surplus *exchange value* could be fundamentally replaced by the production of *use values* based on the actual needs of society, as decided upon collectively and with the best knowledge available about how human production and other-than-human natural systems interact (Harvey, 2005). That fundamentally means the democratization of the relationship between society and nature, which would open the door to a future where we continually readjust our interaction with the rest of nature to achieve the highest possible level of emancipation for both human societies, other-than-human species and the ecosystems in which we dwell. This does not mean a wholesale rejection of civilisation and technology. It means an expropriation of technology from capitalist production to production based on the actual needs of society *and* nature.

To use Andreas Malm's metaphor in *The Progress of This Storm,* the storm of climate change is approaching, the winds are picking up, and we will all be struck by them, human and non-human alike. But if we really want to weather the storm and come out on the other side without catastrophic losses, we must soberly examine the trajectories that put us in our current predicament, and do our utmost to make sure our future travels avoid re-creating it. Instead of looking the other way or trying to hunker down in the security of our cabins, we should be up in the rigging, tugging at the sails for all we're worth, and doing our utmost to grab hold of the rudder.

Bibliography

Aarrestad, P. A., Bendiksen, E., Bjerke, J. W., Brandrud, T. E., Hofgaard, A., Rusch, G., & Stabbetorp, O. E. (2013). *Effekter av treslagsskifte, treplanting og nitrogengjødsling i skog på biologisk mangfold. Kunnskapsgrunnlag for å vurdere skogtiltak i klimasammenheng*. Oslo: Norwegian Institute for Nature Research.

Anshelm, J., & Hultman, M. (2014). A green fatwā? Climate change as a threat to the masculinity of industrial modernity. *NORMA, 9*(2), 84-96.

Asafu-Adjaye, J., Blomquist, L., Brand, S., Brook, B., DeFries, R., Ellis, E., . . . Lynas, M. (2015). An ecomodernist manifesto.

Benjaminsen, T. A., & Svarstad, H. (2010). *Politisk økologi: miljø, mennesker og makt*. Oslo: Universitetsforlaget.

Benton, T. (2005). Why are sociologists naturephobes? In J. López & G. Potter (Eds.), *After postmodernism: An introduction to critical realism*. London: Bloomsbury.

Benton, T., & Craib, I. (2010). *Philosophy of social science: The philosophical foundations of social thought*. Basingstoke: Palgrave Macmillan.

Bernstein, J. H. (2015). Transdisciplinarity: A review of its origins, development, and current issues. *Journal of Research Practice, 11*(1), 1.

Carton, W. (2014). Environmental Protection as Market Pathology?: Carbon Trading and the Dialectics of the 'Double Movement'. *Environment and Planning D: Society and Space, 32*(6), 1002-1018.

Chancel, L., & Piketty, T. (2015). *Carbon and inequality: from Kyoto to Paris*. Paris: Paris School of Economics.

Clark, P. U., Shakun, J. D., Marcott, S. A., Mix, A. C., Eby, M., Kulp, S., . . . Santer, B. D. (2016). Consequences of twenty-first-century policy for multi-millennial climate and sea-level change. *Nature Climate Change, 6*(4), 360.

Climate Action Tracker. (2018). Paris Tango. Climate action so far in 2018: individual countries step forward, others backward, risking stranded coal assets [Press release]. Retrieved from https://climateactiontracker.org/documents/352/CAT_BriefingNote_SB48_May2018.pdf

Collier, A. (1994). *Critical realism: an introduction to Roy Bhaskar's philosophy*. London: Verso.

Cook, J., Nuccitelli, D., Green, S. A., Richardson, M., Winkler, B., Painting, R., . . . Skuce, A. (2013). Quantifying the consensus on anthropogenic global warming in the scientific literature. *Environmental research letters, 8*(2).

Cox, R. W. (1983). Gramsci, hegemony and international relations: an essay in method. *Millennium, 12*(2), 162-175.

Crehan, K. (2002). *Gramsci, culture and anthropology*. London: Pluto Press.

Crehan, K. (2016). *Gramsci's common sense: inequality and its narratives*. Durham: Duke University Press.

Crutzen, P. J. (2002). Geology of mankind. *Nature, 415*(6867), 23.

Dagens Næringsliv. (2017). Eksperter skal granske økonomisk risiko fra klima. *Dagens Næringsliv*. Retrieved from https://www.dn.no/nyheter/2017/10/04/2046/Politikk/eksperter-skal-granske-okonomisk-risiko-fra-klima?_l

Danish Broadcasting Corporation. (2018). Interview with Kevin Anderson in "Deadline", Danish TV. Retrieved from http://t.co/d86VODOU7C

Down, A., & Erickson, P. (2017). Norwegian oil production and keeping global warming 'well below 2°C'. In *SEI Discussion Brief*. Stockholm: Stockholm Environment Institute.

Eckersley, R. (2016). National identities, international roles, and the legitimation of climate leadership: Germany and Norway compared. *Environmental Politics, 25*(1), 180-201.

Ehrbar, H. G. (2002). Critical realist arguments in Marx's Capital. In Andrew Brown, Steve Fleetwood, & J. M. Roberts (Eds.), *Critical realism and marxism* (pp. 43-56). London: Routledge.

EPA. (2014). Climate Change Indicators: Global Greenhouse Gas Emissions. Retrieved from https://www.epa.gov/climate-indicators/climate-change-indicators-global-greenhouse-gas-emissions

Eriksen, T. H. (2016). *Overheating: Coming to Terms with Accelerated Change*. London:: Pluto Press.

Eriksen, T. H., & Schober, E. (2016). Economies of Growth or Ecologies of Survival? *Ethnos*, 1-7.

Essebo, M., & Baeten, G. (2012). Contradictions of 'sustainable mobility'–The illogic of growth and the logic of myth. *Tijdschrift voor economische en sociale geografie, 103*(5), 555-565.

Faran, T. S., & Olsson, L. (2018). Geoengineering: neither economical, nor ethical—a risk–reward nexus analysis of carbon dioxide removal. *International Environmental Agreements: Politics, Law and Economics*, 1-15.

Fjellberg, A. (2018). Ny rapport: Oljefondet har fortsatt 77 milliarder i kull. *Dagbladet*. Retrieved from https://www.dagbladet.no/nyheter/ny-rapport-oljefondet-har-fortsatt-77-milliarder-i-kull/69770578

Fletcher, A. J. (2017). Applying critical realism in qualitative research: methodology meets method. *International Journal of Social Research Methodology, 20*(2), 181-194.

Foster, J. B. (2000). *Marx's ecology: Materialism and nature*. New York: Monthly Review Press.

Foster, J. B., & Clark, B. (2016). Marxism and the Dialectics of Ecology. *Monthly Review, 68*(5), 1.

Foster, J. B., & Holleman, H. (2014). The theory of unequal ecological exchange: a Marx-Odum dialectic. *Journal of Peasant Studies, 41*(2), 199-233.

Frase, P. (2016). *Four futures: Life after capitalism*. New York: Verso books.

Fæhn, T., Hagem, C., Lindholt, L., Mæland, S., & Rosendahl, K. (2014). Climate policies in a fossil fuel producing country-demand versus supply side policies. *The Energy Journal, International Association for Energy Economics, 0*(1).

Graham, R. M., Cohen, L., Petty, A. A., Boisvert, L. N., Rinke, A., Hudson, S. R., . . . Granskog, M. A. (2017). Increasing frequency and duration of Arctic winter warming events. *Geophysical Research Letters, 44*(13), 6974-6983.

Gramsci, A. (1992). *Prison notebooks* (Vol. 1). New York: Columbia University Press.

Guardian. (2018). Impending blight: how Statoil's plans threaten the Great Australian Bight. Retrieved from https://www.theguardian.com/environment/2018/may/07/impending-blight-how-statoils-plans-threaten-the-great-australian-bight

Gundersen, V., Strand, O., Flemsæther, F., Nerhoel, I., Thanem, A., & Wold, L. C. (2016). *Kunnskapsgrunnlag om ulike scenarier for Snøheimvegen. Effekter på villrein, ferdsel og lokalsamfunn etter åtte års forskning*. Oslo: Norsk Institutt for Naturforskning.

Harvey, D. (2005). *A brief history of neoliberalism*: Oxford University Press, USA.
Harvey, D. (2016). Neoliberalism Is a Political Project. *Jacobin, 7*, 23.
Holden, S. (2013). Avoiding the resource curse the case Norway. *Energy Policy, 63*, 870-876.
Holtsmark, B., & Skonhoft, A. (2014). The Norwegian support and subsidy policy of electric cars. Should it be adopted by other countries? *Environmental science & policy, 42*, 160-168.
Hornborg, A., & Martinez-Alier, J. (2016). Ecologically unequal exchange and ecological debt. *Journal of Political Ecology, 23*, 328-333.
Hovland, K. M. (2016). Oljefondet kaster ut kull. *E24*. Retrieved from https://e24.no/boers-og-finans/oljefondet/oljefondet-kaster-ut-kull/23878877
Høyer, K. G. (2011). Ecophilosophy and the contemporary environmental debate. In R. Bhaskar, P. Naess, & K. G. Høyer (Eds.), *Ecophilosophy in a World of Crisis: Critical Realism and the Nordic Contributions* (pp. 56-84). London: Routledge.
IEA. (2017). Energy Policies of IEA Countries: Norway 2017 Review. Retrieved from https://webstore.iea.org/energy-policies-of-iea-countries-norway-2017-review
Igoe, J. (2017). *The Nature of Spectacle: On Images, Money, and Conserving Capitalism*. Tuscon: University of Arizona Press.
IPCC. (2014). *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (IPCC Ed.). Geneva, Switzerland: IPCC.
Jakobsen, J. (2018). Towards a Gramscian food regime analysis of India's agrarian crisis: Counter-movements, petrofarming and Cheap Nature. *Geoforum, 90*, 1-10.
Jameson, F. (2003). Future city. *New Left Review, 21*, 65.
Jameson, F. (2015). The aesthetics of singularity. *New Left Review*(92).
Joseph, J. (1998). In defence of critical realism. *Capital & Class, 22*(2), 73-106.
Joseph, J. (2000). A realist theory of hegemony. *Journal for the Theory of Social Behaviour, 30*(2), 179-202.
Joseph, J. (2013). Resilience as embedded neoliberalism: a governmentality approach. *Resilience, 1*(1), 38-52.
Kaltenborn, B. P., Qvenild, M., & Nellemann, C. (2011). Local governance of national parks: the perception of tourism operators in Dovre-Sunndalsfjella National Park, Norway. *Norsk Geografisk Tidsskrift–Norwegian Journal of Geography, 65*(2), 83-92.
Kartha, S., Lazarus, M., & Tempest, K. (2016). *Fossil fuel production in a 2 C world: the equity implications of a diminishing carbon budget*. Somerville, MA: Stockholm Environment Institute.
Keller, D. P., Feng, E. Y., & Oschlies, A. (2014). Potential climate engineering effectiveness and side effects during a high carbon dioxide-emission scenario. *Nature communications, 5*, 3304.
Kipfer, S., & Hart, G. (2013). Translating Gramsci in the current conjuncture. In E. Michael, H. Gillian, K. Stefan, & L. Alex (Eds.), *Gramsci: Space, nature, politics* (pp. 321-343). West Sussex: Wiley-Blackwell.
Lelieveld, J., Crutzen, P., & Brühl, C. (1993). Climate effects of atmospheric methane. *Chemosphere, 26*(1-4), 739-768.
Liguori, G. (2015). *Gramsci's Pathways*. Leiden: Brill.
Loftus, A. (2013). Gramsci, nature, and the philosophy of praxis. In E. Michael, H. Gillian, K. Stefan, & L. Alex (Eds.), *Gramsci: Space, nature, politics* (pp. 178-196). West Sussex: Wiley-Blackwell.

Lundkvist, A. (2009). *Dansk nyliberalisme*. Copenhagen: Frydenlund.
Malm, A. (2016). *Fossil capital: The rise of steam power and the roots of global warming*. London: Verso.
Malm, A. (2017). *The Progress Of This Storm*. London: Verso.
Malm, A., & Hornborg, A. (2014). The geology of mankind? A critique of the Anthropocene narrative. *The Anthropocene Review, 1*(1), 62-69.
Mann, G., & Wainwright, J. (2017). *Climate Leviathan: A Political Theory of Our Planetary Future*. London: Verso.
McCright, A. M., & Dunlap, R. E. (2011). Cool dudes: The denial of climate change among conservative white males in the United States. *Global environmental change, 21*(4), 1163-1172.
McDivitt, P. (2016). The Information Deficit Model is Dead. Now What? Evaluating New Strategies for Communicating Anthropogenic Climate Change in the Context of Contemporary American Politics, Economy, and Culture. *Journalism & Mass Communication Graduate Theses & Dissertations, 31*.
Mercure, J. F., Pollitt, H., Viñuales, J. E., Edwards, N. R., Holden, P. B., Chewpreecha, U., . . . Knobloch, F. (2018). Macroeconomic impact of stranded fossil fuel assets. *Nature Climate Change, 8*(7), 588-593.
Michelsen, O., Syverhuset, A. O., Pedersen, B., & Holten, J. I. (2011). The impact of climate change on recent vegetation changes on Dovrefjell, Norway. *Diversity, 3*(1), 91-111.
Milne, R. (2017). Oil and the battle for Norway's soul. *Financial Times*.
Moore, J. W. (2015). *Capitalism in the Web of Life: Ecology and the Accumulation of Capital*. London: Verso Books.
Nicolescu, B. (2002). *Manifesto of transdisciplinarity*. New York: Suny Press.
NOAA. (2018). Up-to-date weekly average CO2 at Mauna Loa. Retrieved from https://www.esrl.noaa.gov/gmd/ccgg/trends/weekly.html
Norgaard, K. M. (2011). *Living in denial : climate change, emotions, and everyday life*. Cambridge, Mass.: MIT Press.
Norges Bank Investment Management. (2017). *Government Pension Fund Global 2017 Annual Report*. Oslo: Norges Bank Investment Management.
Norrie, A. (2004). Bhaskar, Adorno and the dialectics of modern freedom. *Journal of Critical Realism, 3*(1), 23-48.
Norwegian Environment Agency. (2014). *Målrettet gjødsling av skog som klimatiltak*. Oslo: Norwegian Environment Agency.
Norwegian Environment Agency. (2018). Klimagassutslipp fra veitrafikk. Retrieved from http://www.miljostatus.no/veitrafikk-klimagassutslipp
Norwegian Institute of Bioeconomy Research. (2018). Slik gjødsler de skogen. Retrieved from https://forskning.no/2017/07/lonnsomt-gjodsle-skog/produsert-og-finansiert-av/nibio
NRK. (2017). Erna lyver om klimamuligheter i Norge. Retrieved from https://www.nrk.no/norge/_-erna-lyver-om-klimamuligheter-i-norge-1.12202487
NRK. (2018). Forventer å tjene 1650 milliarder fra Troll-feltet de neste årene. Retrieved from https://www.nrk.no/hordaland/equinor-skal-investere-7_8-milliarder-i-troll-feltet-1.14110221
O'Brien, K., Eriksen, S., Sygna, L., & Naess, L. O. (2006). Questioning complacency: climate change impacts, vulnerability, and adaptation in Norway. *AMBIO: A Journal of the Human Environment, 35*(2), 50-56.
O'Mahony, T., & Kirby, P. (2018). *The Political Economy of the Low-Carbon Transition*. Cham: Palgrave Macmillan.

O'Neill, D. W., Fanning, A. L., Lamb, W. F., & Steinberger, J. K. (2018). A good life for all within planetary boundaries. *Nature Sustainability, 1*(2), 88-95. doi:10.1038/s41893-018-0021-4

Our World In Data. (2018). CO_2 emissions per capita. Retrieved from OurWorldInData.org/co2-and-other-greenhouse-gas-emissions/

Pachauri, R. K., Allen, M. R., Barros, V. R., Broome, J., Cramer, W., Christ, R., . . . Dasgupta, P. (2014). *Climate change 2014: synthesis report. Contribution of Working Groups I, II and III to the fifth assessment report of the Intergovernmental Panel on Climate Change*. Geneva, Switzerland: IPCC.

Pal, J. S., & Eltahir, E. A. B. (2015). Future temperature in southwest Asia projected to exceed a threshold for human adaptability. *Nature Climate Change, 6*, 197.

Permanent Mission of Norway to the United Nations. (2018). Mother of Sustainable Development. Retrieved from https://www.norway.no/en/missions/un/norway-and-the-un/norways-rich-history-at-the-un/important-norwegians-in-un-history/gro/

Peters, G. P. (2016). The 'best available science' to inform 1.5 C policy choices. *Nature Climate Change, 6*(7), 646.

Polanyi, K. (1957). *The Great Transformation: the Political and Economic Origin of Our Time*. Boston: Beacon Press.

Radice, H. (2008). Gramsci and neo-Gramscianism: to what purpose? In A. J. Ayers (Ed.), *Gramsci, Political Economy, and International Relations Theory* (pp. 53-73). New York: Palgrave Mcmillan.

Raworth, K. (2012). A safe and just space for humanity: can we live within the doughnut. *Oxfam Policy and Practice: Climate Change and Resilience, 8*(1), 1-26.

Raworth, K. (2017). *Doughnut economics: seven ways to think like a 21st-century economist*. Vermont: Chelsea Green Publishing.

REN21. (2017). *Renewables 2017 Global Status Report*. Paris: REN21 Secretariat.

Robinson, K. S. (2012). *2312*. New York: Orbit.

Rockstrom, J., Steffen, W., Noone, K., Persson, A., Chapin, F. S., Lambin, E. F., . . . Foley, J. A. (2009). A safe operating space for humanity. *Nature, 461*(7263), 472-475. doi:10.1038/461472a

Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin III, F. S., Lambin, E. F., . . . Schellnhuber, H. J. (2009). A safe operating space for humanity. *Nature, 461*(7263), 472.

Ryggvik, H. (2015). A short history of the Norwegian oil industry: From protected national champions to internationally competitive multinationals. *Business History Review, 89*(1), 3-41.

Ryggvik, H., & Kristoffersen, B. (2015). Heating Up and Cooling Down the Petrostate: The Norwegian Experience. In T. Princen, J. Manno, & P. L. Martin (Eds.), *Ending the Fossil Fuel Era. MIT Press. Massachusetts*. Massachusetts: MIT Press.

Sangolt, L. (2013). A wealthy outlier: Norway in an age of globalization and European integration. In G. Rusten, K. Potthoff, & L. Sangolt (Eds.), *Norway: Nature, industry and society* (pp. 99-116). Bergen: Fagbokforlaget.

Sayer, A. (2000). *Realism and social science*. London: Sage.

Scott, J. C. (1998). *Seeing like a state: How certain schemes to improve the human condition have failed*. New Haven: Yale University Press.

Sengupta, S. (2017). Both Climate Leader and Oil Giant? A Norwegian Paradox. *New York Times*.

Solberg, E. (2014). *Speech at the endorsment of the report "A better climate for growth"*. Oslo: Office of the Prime Minister Retrieved from https://www.regjeringen.no/no/aktuelt/Tale-ved-lansering-av-rapporten-A-better-climate-for-growth/id2000816/.

Statistics Norway. (2017). Emissions of greenhouse gasses. Retrieved from https://www.ssb.no/en/natur-og-miljo/statistikker/klimagassn/aar-endelige

Steffen, W., Richardson, K., Rockström, J., Cornell, S. E., Fetzer, I., Bennett, E. M., . . . de Wit, C. A. (2015). Planetary boundaries: Guiding human development on a changing planet. *Science, 347*(6223), 1259855.

Steinsland, G. (2014). *Dovrefjell i tusen år: Mytene, historien og diktningen*. Bergen: Vigmostad & Bjørke.

Stenersen, Ø., Libæk, I., & Anderson, J. (2003). *The history of Norway: From the Ice Age to today*. Snarøya, Norway: Dinamo Forlag.

Storlazzi, C. D., Elias, E. P. L., & Berkowitz, P. (2015). Many Atolls May be Uninhabitable Within Decades Due to Climate Change. *Scientific Reports, 5*, 14546. doi:10.1038/srep14546

Stott, P. (2016). How climate change affects extreme weather events. *Science, 352*(6293), 1517-1518.

Svarstad, H., Daugstad, K., Vistad, O. I., & Guldvik, I. (2006). New protected areas in Norway: local participation without gender equality. *Mountain Research and Development, 26*(1), 48-54.

Takayabu, I., Hibino, K., Sasaki, H., Shiogama, H., Mori, N., Shibutani, Y., & Takemi, T. (2015). Climate change effects on the worst-case storm surge: a case study of Typhoon Haiyan. *Environmental research letters, 10*(6), 064011.

The Maritime Executive. (2017). Norway Opens Arctic Lease Sale. Retrieved from https://maritime-executive.com/article/norway-opens-arctic-lease-sale#gs.MbagSV4

Trusel, L. D., Frey, K. E., Das, S. B., Karnauskas, K. B., Munneke, P. K., Van Meijgaard, E., & Van Den Broeke, M. R. (2015). Divergent trajectories of Antarctic surface melt under two twenty-first-century climate scenarios. *Nature Geoscience, 8*(12), 927.

TU. (2018). Kabelen skal gjøre Johan Sverdrup-feltet mer «klimavennlig». Retrieved from https://www.tu.no/artikler/kabelen-skal-gjore-johan-sverdrup-feltet-mer-klimavennlig-na-vil-de-ha-slike-anlegg-langs-hele-kysten-br/429944

Turtveit, L.-T., & Goldsack, M. (2018). Teknologiutvikling og klimatiltak kan påvirke bankenes kredittrisiko. In. Oslo: Norges Bank.

Underthun, A. (2013). The politics, rewards and paradoxes of the Norwegian 'petroleum adventure'. In G. Rusten, K. Potthoff, & L. Sangolt (Eds.), *Norway: Nature, industry and society*. Bergen: Fagbokforlaget.

UNFCCC. (2017). Some Scientific Views on Irma. Retrieved from https://unfccc.int/news/some-scientific-views-on-irma

Van der Ploeg, R. (2018). Climate and the risk of stranded assets: portfolio management in Norway. Retrieved from http://nettsteder.regjeringen.no/klimarisikoutvalget/files/2018/01/Ploeg_klimarisiko_17January2018.pdf

Vetlesen, A. J. (2016). From anthropocentrism to the Anthropocene. In H. Wilhite & A. Hansen (Eds.), *Will the Paris agreement save the world? An analysis and critique of the governance roadmap set out in COP 21*. (pp. 57-63). Oslo: University of Oslo, Centre for Development and the Environment.

Vik, J., Bay-Larsen, I., Aasetre, J., Haugen, M., & Stræte, E. (2011). Bruk og vern–brytninger om demokrati. *Rurale brytninger*, 180-202.
Wainwright, J. (2010). Climate change, capitalism, and the challenge of transdisciplinarity. *Annals of the Association of American Geographers, 100*(4), 983-991.
Wainwright, J., & Mann, G. (2013). Climate leviathan. *Antipode, 45*(1), 1-22.
Wallerstein, I. M. (2004). *World-systems analysis: An introduction*. Durham, NC: Duke University Press.
Watts, J. (2017). Norway's push for Arctic oil and gas threatens Paris climate goals – study. *The Guardian*.
Wilhite, H. (2012). Towards a Better Accounting of the Roles of Body, Things and Habits in Consumption. *Collegium, 12*.
Wilhite, H. (2016a). Addressing a delusion underlying global climate negotiations: deep reductions in carbon emissions can be achived in political economies governed by the common sense of capitalism. In H. Wilhite & A. Hansen (Eds.), *Will the Paris agreement save the world? An analysis and critique of the governance roadmap set out in COP 21*. (pp. 57-63). Oslo: University of Oslo, Centre for Development and the Environment.
Wilhite, H. (2016b). *The Political Economy of Low Carbon Transformation : Breaking the Habits of Capitalism*. New York: Routledge.
Wilhite, H., & Norgard, J. S. (2004). Equating efficiency with reduction: A self-deception in energy policy. *Energy & Environment, 15*(6), 991-1009.
Wilson, E., & Stammler, F. (2016). Beyond extractivism and alternative cosmologies: Arctic communities and extractive industries in uncertain times. *The Extractive Industries and Society, 3*(1), 1-8.
WMO. (1989). *The Changing atmosphere : implications for global security, Toronto, Canada, 27-30 June 1988 : conference proceedings = L'atmosphere evolution : implications pour la securite du globe, Toronto, Canada, 27-30 juin 1988 : actes de la conference* (Vol. 170). Geneva: Secretariat of the World Meteorological Organization.
WMO. (2018). WMO confirms 2017 among the three warmest years on record [Press release]. Retrieved from https://public.wmo.int/en/media/press-release/wmo-confirms-2017-among-three-warmest-years-record