

# The Aftermath of Climate Justice in Lofoten, Norway.



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*Front page photo: Coast of Å i Lofoten, 'Moskensöya' Source: (Fieldwork)*

## ABSTRACT

The impacts of climate change are a pressing issue for the present and a looming concern for the future. We are witnessing global repercussions of our actions, from intense storms to prolonged drought. Our planet is at risk, necessitating immediate efforts to reduce this risk. This study focused on understanding the implications of climate justice in Lofoten, Norway, a region that has become a focal point for climate justice due to seismic activities for oil exploration. These activities could impact the local biodiversity, tourism, and fishing industries and obstruct the achievement of sustainable development goal 13, which pertains to climate action. The study aimed to achieve the overarching objective of establishing whether a robust basis for sustainable development in the area was realized or not. An online survey was conducted among the local population to gather the necessary data, with 11 individuals participating.

Additionally, seven in-depth interviews were conducted. The results indicated that the community favoured the ruling against oil exploration in Lofoten, viewing it as a positive development for the community. Residents of Lofoten have implemented resilience strategies to ensure the long-term well-being of their region, protect its unique ecosystem and resources and reduce the potential adverse effects of oil exploration. These strategies include preserving the natural beauty of their environment, safeguarding their traditional lifestyle, and actively participating in activism and community initiatives.

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LIST OF ABBREVIATIONS:

<b>CO<sub>2</sub></b>	<i>Carbon dioxide</i>
<b>COP</b>	<i>Conference of parties</i>
<b>ES</b>	<i>Ecosystems services</i>
<b>FAO</b>	<i>Food and Agriculture Organization</i>
<b>GHG</b>	<i>Greenhouse Gas</i>
<b>IEA</b>	<i>International Energy Agency</i>
<b>IPPC</b>	<i>Intergovernmental Panel on Climate Change</i>
<b>LoVeSe</b>	<i>Lofoten, Vesterålen, and Senja</i>
<b>MRFCJ</b>	<i>Mary Robinson Foundation Climate Justice</i>
<b>NVE</b>	<i>Norwegian Water Resources and Energy Directorate</i>
<b>RIFSPotsdam</b>	<i>Research Institution for Sustainability Helmholtz Center Potsdam</i>
<b>SSB</b>	<i>Statistics Norway</i>
<b>UN</b>	<i>United Nations</i>



## Chapter one

### 1.1. Introduction

The effects of climate change are not just a concern of the present but also pose a significant worry for the future. The results of our activities are already being felt globally, from severe storms to extended droughts. Our planet is in danger, and we need to take immediate action to mitigate the risk. This is supported by the fact that global temperatures have increased by 1.1°C over the past 100 years, according to the World Research Institute; this has in turn increased natural disasters like flooding, hurricanes, and other unwanted natural events around the world (IPCC, 2022). Climate change has far-reaching consequences on the wellbeing of the society affecting, agriculture, water supplies, and human health. The effects of climate change, such as the increasing frequency and intensity of severe weather, have impeded efforts to meet *Sustainable Development Goals*.

The Brundtland Commission in 1987, as cited by Redclift, 2005, p. 213) defined sustainable development as “*development that meets the needs of the present without compromising the ability of the future generation to meet their own needs.*” This definition, not mentioning specific needs, imply the need to take into account the interconnectivity of economic, social, and environmental concerns when making decisions. It also provokes a reflection on our current activities that are aimed at development to ensure that they do not introduce new hazards that will affect future generations.

While agricultural output has grown worldwide over the past 50 years, climate change has reduced this expansion, especially in the middle and lower latitudes (IPCC, 2022). Despite this expansion, food output from fisheries and shellfish aquaculture in certain marine regions has been significantly damaged due to ocean warming and acidity. Several areas and communities in Africa, Asia, Central and South America, the small Islands countries, and the Arctic have been hit particularly hard by the rise in weather and extreme climatic events, putting millions of people at risk of severe food insecurity and poor water security (IPCC, 2022). This is supported by the statement made by FAO (2022): “*Malnutrition has increased in many communities, particularly for Indigenous Peoples, small-scale food producers, and low-income households, with children, older people, and pregnant women particularly impacted. These factors have been exacerbated by decreased diet diversity and sudden food production and access losses*”.

Dolak and Prakash (2022) conducted a study on climate change's climatic and non-climatic causes, affirming a solid scientific consensus regarding climate change; however, the political response still needs to be improved and motivated by feelings of injustice. They identified three faces of climate justice:

- i. Uneven cost distribution: Referring to the cost associated with mitigating climate change, is not evenly distributed across all societies and populations.
- ii. Unequal benefit distribution: Highlighting that the benefits of climate change mitigation efforts are not shared equally; as some groups gain more than others from actions taken to address climate change and,
- iii. Uneven exposure to the effects of climate change: Explaining that the impacts of climate change are not evenly felt, meaning some communities and countries are more vulnerable and experience more severe effects than others.

Dolak and Prakash (2022) highlighted the complexities of climate change beyond its environmental implications, focusing on how it intersects with social justice inequality.

The IPCC (2022) stated that addressing these three faces of climate justice is vital in achieving fair and effective climate change policies emphasising that the International frameworks and conventions provide guidelines for coordinating and funding international adaptation efforts. The IPCC (2022) also mentioned that governments, communities, and individuals must work together in the international community to ensure that adaptation is inclusive, efficient, and equitable. This implies that, the specific adaptation goals must be tailored to the local context and the specific impacts being addressed. Hence the goals of adaptation should also consider equity, social justice, and effectiveness to ensure that all communities, regardless of their socioeconomic status, can adapt to the impacts of climate change.

Regarding settlement density, population, and resource exploitation, the Arctic and northern coastal regions, which are the subject of this study, are presently among the least developed in the world. Due to climate change, new transportation routes, geopolitical tensions, and rising demand for natural resources, these regions are frequently assumed to be the frontiers of future change, conflict, and opportunity (Kaltenborn, 2017).

## 1.2. Study area

A group of rocky, mountainous islands known as the Lofoten Islands are off the coast of Norway in the Norwegian Sea. The 365 islands that make up the archipelago are home to about 24,500 people. The primary industries in Lofoten are tourism, fishing, subsistence farming, wharf industries, and a developing service sector. The Lofoten Islands are renowned for their stunning natural surroundings, extensive cultural past, and colourful aurora borealis. It is a significant draw for travellers/tourists because of the authentic fishing villages, breath-taking scenery, and opportunities for outdoor pursuits like hiking, fishing, and kayaking, (Karlsson and Dale 2019). Lofoten is the primary location for the study due to its international publicity in contentious debates over oil extraction and exploration and its history of dealing with climate justice concerns.

The cultural and natural landscapes of the Polar Regions (Arctic and Antarctic) are changing due to climate change and anthropogenic influences like oil and gas exploration and development. Global warming-induced permafrost thawing causes changes in ice sheets and glaciers, snow cover, floods, erosion, sea level rise, and carbon dioxide released into the atmosphere, among other effects Bodansky & Hunt, 2020. It would be safe to say that these changes have far-reaching consequences for the ecosystem and the communities that rely on them, together with impacts on biodiversity, food security, transportation, and cultural heritage. It is worth noting that addressing these challenges is possible through a combination of mitigation and adaptation measures to ensure the resilience of the environment and human societies in the Polar Regions. A visual representation of Lofoten's geographic position within the larger context of Norway can be seen in the square in the image below.



*Figure 1: Map of Norway, Lofoten Islands in the black square. Source: Rodger D. J. (2013)*

According to Hermansen and Kasa (2014) Lofoten's coastal seas contain the world's most extensive cod spawning grounds. These waterways have a lengthy fishing practice and stock fish trade patterns history. Norway is concerned about the region's political, environmental, and economic implications of petroleum extraction. The Lofoten Islands have become a symbol of Norway's conundrum as a country that relies on oil exports but also seeks to conserve the global environment. However, the oil industry's interest in the potential resources in the nearby waters has also made the islands controversial. The idea of permitting drilling and extraction in the area has been the subject of ongoing discussions, but locals and environmental organisations are opposed to it. The argument focuses on how oil development could negatively impact fisheries. The dispute depends on whether petroleum development can be accomplished without endangering the fisheries; the Lofoten, Vesterålen, and Senja (LoVeSe) issue has come to symbolise Norway's questionable status as a nation relying on cash from petroleum exports while advocating global climate measures such as REDD+ (Hermansen and Kasa, 2014).

The Norwegian government permitted seismic testing and drilling on the country's oil and gas shelf outside of the LoVeSe area in 1994. One such field is called "Nordland VI," and it can be found in the Norwegian Sea, off the coast of Norway's northwest. The initial test well in the

Nordland VI field was drilled by Statoil (now known as Equinor) in the year 2000. Fortunately, for the Island municipality no substantial oil or gas was found during the test drilling.

Several locals and environmental activists have spoken out against the proposal (the exploration of oil around the LoVeSe), citing concerns for the maritime environment. Government officials in Norway stress the importance of the oil and gas industry to their nation's economic and energy security. Several organisations urged the government to stop seismic activity in the waters since it affects ecotourism and other socioeconomic activities. The Arctic Youth Council was established by young people who care about the environment, including those from Sweden, Norway, the United States, and Canada; this took place in Lofoten, where 400 young people had spent a week protesting oil drilling in an international camp. The Young Arctic Council needs to exert influence over high-level decisions made by the Arctic Council, of which Canada is now the chairman. "Oil drilling must stop," reported Lindqvist (2013) for Svt NYHETER. The then Norwegian Conservative Prime Minister Erna Solberg announced that Norway's Arctic regions of Lofoten, Vesteraalen, and Senja will remain inaccessible to oil exploration until the 2021 parliamentary election. Dagenborg (2018) reported on Reuters that this had prompted activists and students to call for climate justice. Adomaitis (2019) on Euronews reported that students protested climate change with the slogan "Climate before Cash"—young Norwegians demanded time out on the oil business at the Oslo parliament building. The majority party in the parliament voted against allowing gas exploration on Lofoten Island which led to Lofoten to have achieved climate justice.

According to Mary Robinson Foundation Climate Justice (2018), also known as (MRFJC) "*Climate justice aims to find a way to deal with climate change that puts people first, protects the rights of the most vulnerable, and shares the costs and benefits of climate change and its effects equitably.*" In my view, this perspective recognises and acknowledges the disproportionate impacts of climate change on marginalised people while also attempting to address the underlying causes of climate change, such as social injustice and environmental degradation.

MRFJC's definition of climate justice aligns with the notion of praxis expressed by Sultana (2021), who maintains that achieving justice requires not only acknowledging the presence of wrongdoing but also working to correct it. Sultana elucidates, "*climate justice is in many ways inherently about praxis. Praxis is a theoretically informed practice that includes integration,*

*ongoing feedback, and reflection.*” citing the work of Brazilian philosopher Freire (1970, p. 51). Freire described 'praxis' as "*reflection and action upon the world in order to transform it*", a concept that resonates with the goals of climate justice. This seems to mean taking informed action and reflecting on the outcome of that action to continue transforming and improving our approach to addressing climate change. In further discussions about critical climate justice praxis Sultana, (2021) stated that political action and solidarity are prioritised in climate justice to alleviate the suffering caused by climate change with an emphasis on accountability, ethics, human rights and examining the inequalities in group exposure, vulnerability, and risk; she opined that in order to achieve critical climate justice, we must re-evaluate global institutions that exacerbate existing socio-spatial inequalities and work to alleviate the burdens already placed on vulnerable communities. She explained that the perspective she's discussing combines theoretical ideas with activist insights to inspire cooperation and joint action against climate change, with the intending goal to create a more equal and just society. In line with this, several authors (Foran, 2016; Mehta et al., 2021; Rice et al., 2015 as cited in Sultana (2021, p.119), opined that unbalancing the power structures that cause climate injustices and addressing structural imbalances are two key objectives and goals of critical climate justice praxis. Similarly, Agarwal & Narain, 2019; Gonzalez, 2021; Nightingale et al., 2020, as cited in Sultana, 2021, p. 120, opined that climate inequalities result from a combination of geography and history, and that those in the global south and other racially marginalised populations have borne the brunt of these problems, as have minority communities in the global north. The authors contend that climate change is not a natural occurrence but the product of human actions, with people in positions of power being primarily responsible. They opined that, shifting the existing power structures and redistributing resources is necessary to alleviate climatic inequities.

Climate justice is interdisciplinary, encompassing environmental and social justice movements and many others. In the 2002 Conference of Parties (COP) discussions on climate change, it was non-governmental organization and activist group that spearheaded the dialogue on climate justice among the participating nation-states. It was highlighted in the conference that achieving climate justice necessitates grassroots initiatives and activities alliances that coordinate actions across different locations and time periods. Various groups, including social justice movements, indigenous rights movements and the youth movements concur on the importance of striving for climate justice. According to Sultana (2021, p.119), there is a shared dedication to maintaining fairness in climate governance and redressing injustices created by

climate change, although diverse viewpoints and methodologies are employed when tackling climate justice.

According to Okereke (2010) conversations on climate justice have acquired attention within the international community, but there remains considerable work to be done to define the status of justice concepts and create policies that effectively address global inequalities. Furthermore, he suggests that climate justice requires addressing global inequalities, promoting sustainable development, acknowledging historical responsibility, and respecting human rights. Climate justice also entails recognising the disproportionate impact of climate change on vulnerable groups such as women, children, and indigenous peoples. Both Sultana (2021) and Okereke (2010) converge on the urgency of climate justice, the diversity of approaches required to tackle it, and the shared commitment towards fairness and redressing injustice associated with climate change. To elucidate further on the inequalities that needs to be addressed, Robinson and Shine (2018) defined climate justice as protecting human rights, especially those of the most marginalised, in the face of climate consequences and actions is central to the concept of climate justice, which seeks to achieve the 1.5°C temperature goal to avert disastrous climate change as with the Paris Agreement. Climate justice is a driving force behind social, indigenous, and youth movements today.

According to (Foran, 2016 as cited in Sultana 2021), even if there are some differences in the theories and practises of climate justice, the core themes of knowledge and mobilisation centre on ensuring equity and fairness in climate governance and repairing climate-related injustices. Critical climate justice praxis promotes empirically derived and culturally suitable academic theorisations. Scholars like (Hickel, 2020; Malm & Warlenius, 2019; and Roberts & Parks, 2009, as cited in Sultana, 2021), believe that more prosperous countries owe a debt to the poorer countries and should provide support to help deal with the impacts of climate change on these poorer countries, as they are to be held accountable for causing and benefiting from climate change. In my view, this belief aligns with the concept of climate justice, based on the idea that the responsibility for addressing climate change should be shared globally, with developed countries taking a leading role in supporting developing countries to transition to more sustainable economies, and the approach recognises that climate change is a global problem that requires collective action and solidarity between nations.

Explaining the approaches to climate justice these authors (Davis et al., 2019; Moore & Patel, 2017; Sultana, 2021b cited in Sultana, 2021, p. 119) stated that the fundamental economic, social and political institutions that contribute to climate change are the targets of climate justice strategies which involves shifting away from fossil fuels, confronting extractive exploitation of natural resources, supporting indigenous peoples (culture), resolving structural racism and encouraging sustainability over limitless expansion. It involves challenging our assumptions, biases, and beliefs shaped by societal norms and systems of oppression. Unlearning these harmful patterns can create a more just and equitable world for all, (Sultana, 2021, p. 119).

There are several definitions of climate justice, and I have mentioned a few above. However, for this study, I will be using the definition from MRFCJ (2018) which states that “*Climate justice aims to find a way to deal with climate change that puts people first, protects the rights of the most vulnerable, and shares the costs and benefits of climate change and its effects equitably.*” This is because in my opinion it focuses on the following;

- i. It will provide a lens to examine how the ruling impacts conservation efforts and the ecotourism industry in Lofoten, a primary source of income for the local community and a significant contributor to preserving local biodiversity. Climate justice emphasizes the protection of vulnerable ecosystems and populations.
- ii. The principle of equitable distribution of cost and benefits in climate justice can help assess the socioeconomic repercussions of preventing further oil exploration. It allows us to explore who bears the economic burdens of this decision and who benefits from it, particularly considering the potential trade-off between immediate economic gains from oil extraction and long-term sustainability.
- iii. It will provide an understanding how communities adopt resilience strategies, how effective these are and whether they are accessible and beneficial to everyone, particularly the most vulnerable.



### **1.3.Problem Statement:**

*A well-stated problem statement is a beacon when faced with a difficult situation. Without it, we'd be adrift in an ocean of data and speculation. We need a clear understanding of the issue to find a workable solution.*

Today, Lofoten is the centre of climate justice in Norway due to the seismic activities for gas exploration carried out in its locality that would have affected the biodiversity, tourism, and fishing industries on the island and probably hindered the actualisation of Sustainable Development Goal 13 regarding climate action, which states that countries should "*strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries,*" "*integrate climate change measures into national policies, strategies, and planning,*" and "*improve education, awareness raising, human and institutional capacity on climate change mitigation adaptation, impact reduction, and early warning*" (Sena, 2022, p. 22). There is an inherent assumption that climate action and sustainable development are closely interlinked. However, it is still being determined if this interlinking manifests in practical policy-making or reflects the values and principles guiding Norwegian climate policy, as in Lofoten. The conflict in Lofoten highlights the need for policymakers to balance economic development with environmental sustainability and the protection of vulnerable communities. It also underscores the importance of involving local communities in decision-making processes related to climate change and sustainable development.

In the context of climate change, Scholsberg (2014) argued that the shift in discourse from environmental justice to climate justice emphasises the need to address not only the impacts of climate change on the environment but also their disproportionate effects on marginalised communities, as well as the significance of equity and justice in addressing the issue. In "Contours of Climate Justice" (Brand et al., 2009) the authors analysed the idea of climate justice and its impact on the development of new climate and energy politics. They asserted that in addition to reducing greenhouse gas emissions and minimising the effects of climate change, attaining climate justice entails addressing the social, economic, and political causes of the problem. They also argued that emphasis must be given to the redistribution of power and resources and the establishment of new governance structures to address the inequities caused by the current energy and climate systems. By viewing climate justice as a moral and political concern, Edward (2021) sheds further light. He stated that the focus of climate ethics

is on distributive and procedural justice within the framework of the global climate regime, as well as international and intergenerational justice. He opined that the climate justice movement is committed to acknowledgement and other forms of radical justice to address structural inequities and the development of both requires the presence of the other. He observed that climate justice can only be comprehended by looking closely at the ethical principles and political demands of scholar-activists and the climate justice movement. Climate change presents a moral conundrum. Edward (2021) mentioned urgent need to act on climate change and opined that its far-reaching consequences makes it all the more important to understand the ramifications of alternative strategies to tackle the problem.

Given the implications of climate justice, further research is needed to evaluate the effectiveness of various approaches to addressing climate change and its. Impact on different population groups. Through my studies and observations, I hope to help fill in some of the gaps in our understanding of climate justice and move the conversation forward. A structured questionnaire and interview were used in this study to identify the ruling on conservation and ecotourism, analyse the socioeconomic impact of the rule restricting further exploration, and identify the adaptation measures used by the inhabitants of Lofoten.

#### **1.4. Research Question**

The research will address the following question;

- a. What is the impact of the ruling on conservation and ecotourism in Lofoten?
- b. What are the socioeconomic impacts of the ruling preventing further oil exploration?
- c. What are the resilience strategies adopted by the people in Lofoten?

#### **1.5. Aim and Objectives of the Study**

The study aims to examine the aftermath of Climate Justice in Lofoten, Norway in order to achieve the overarching objective of establishing whether a robust basis for sustainable development in Lofoten has been realized or not.

## **1.6. Structure of the Thesis**

The thesis is structured as follows: In chapter 1, I will discuss the phenomenon of climate change and the necessary actions leading to climate justice. This discussion includes an exploration of climate justice itself, focusing on how it assesses environmental consequences of human activities and highlights disproportionate impacts on marginalized population. In chapter 2, I will expand on the conceptual and theoretical frameworks, resilience, and literature review to lay the groundwork for the study and ensure that the research is well-grounded and relevant to the current body of knowledge. The third chapter examines the research strategy, methods, and data sources. This section describes the steps followed to answer the research questions and accomplish the objectives of the study. In chapter 4, I will present data analysis, presentation and discussions. Chapter five finishes the findings with recommendations for future study.

## Chapter two

### 2. Conceptual framework

In this chapter, I aim to show what is to be focused on in the study (climate justice), the essential influencing factors (climate change) involved, and how they are related. Miles and Huberman (1994) explained conceptual framework as the tool that helps us organize our thoughts. It can be represented in either graphical or narrative form, encompassing the main components to be examined and informing research by identifying their interactions and underlying theoretical or practical underpinnings. For this study, the conceptual framework is narrative, and based on literature review.

The fundamental driver of climate change is an increase in the global concentration of greenhouse gases such as methane, carbon dioxide (CO<sub>2</sub>), and water vapour. These gases trap the heat collected by the Earth's atmosphere rather than allowing it to escape into space, thus warming the planet. CO<sub>2</sub> being the weakest of these greenhouse gases, is the commonest and primary cause of global warming. Historically, CO<sub>2</sub> levels in the atmosphere increased from 42% in 1800 and 24% in 1959. The burning of fossil fuels like coal, oil, and gas is the largest contributor to the increase in atmospheric concentrations of carbon dioxide (CO<sub>2</sub>). In addition, deforestation, transportation, and industrial processes also contribute to the increase in greenhouse gas emissions (Holden, Nadeau, and Porio, 2017). DeBuys (2011, p. 10) explained the fundamental physics of climate change in the following terms. *“greenhouse gases trap more of the heat that Earth would otherwise radiate back into space. The retained heat charges the atmosphere and oceans—the main drivers of the planetary climate system—with more energy, loading them with more oomph to do the things they already do, but more powerfully than before,”*

Elaborating further on the explanation of climate change, Salehi et al. (2019, p. 798) stated that changes in the Earth's climate occur naturally on time scales of thousands of years, but the most recent climatic shifts have been far more dramatic than those that occurred two million years ago, and the Earth's warming has surged in the last two decades. The findings of scientific studies indicating a global temperature increase cannot be refuted; this is supported by the following statement from Pope Francis; *“A number of scientific studies indicate that most recent global warming is attributable to the great concentration of greenhouse gases emitted*

*primarily as a result of human activities*" (Laudato Si, 2015, p. 19). He further stated that, climate change is one of humanity's most pressing challenges (Laudato Si, 2015).

Adapting to and mitigating the effects of climate change have become urgent global concerns in the twenty-first century. Rising sea levels, natural calamities, and altered weather patterns are some of the most pressing repercussions according to Haynes and Tanner (2015, p, 358). Ellwood (2014) opines that there is currently a substantial amount of carbon dioxide (CO<sub>2</sub>) in the atmosphere of the earth, and that percentage is only going to continue to rise each year.

Schneider (2009, p, 1104) cautioned that the consequences might be disastrous if attempts to curb greenhouse gas emissions are not addressed, enabling atmospheric CO<sub>2</sub> concentrations to reach 1,000 parts per million by 2100. Furthermore, many unique ecosystems, animals, and human cultural practices will be destroyed if and when it does happen. As stated by Walch, (2014, p. 40) *"There is growing evidence that climate change is increasing the intensity and frequency of natural disasters, particularly hydrologic and climatological ones such as floods, cyclones, and droughts."* The severe weather incidents following climate change are one of the most challenging problems in the society, since the undesirable events can cause significant devastation to infrastructure, residences, and means of subsistence, as well as human life. It is crucial to acknowledge that disaster risk reduction policies and practices may be a tremendous asset to climate change adaptation in view of the possibility that climate change would alter the distribution and severity of extreme weather occurrences (Schipper and Pelling, 2006).

#### *a. Increased Drought with Climate Change*

As global temperatures rise, so does the amount of water lost through evaporation and condensation. The term "evapotranspiration" refers to the combined effects of surface evaporation (from things like soil) and plant transpiration. This boost in evapotranspiration compounds the problem of dryness in already parched desert areas. The balance is upset, and the region experiences even more severe drought conditions if the amount of precipitation (rainfall) does not rise enough to compensate for the greater evapotranspiration rates. Trenberth et al., (2004), Overpeck and Udall (2010), and Romm (2011) all foresee an increase in the frequency of droughts due to the drying, heat, and melting of snow and ice produced by extreme global warming. In my opinion, increased drought as a consequence of climate change highlights the urgent need for climate justice in the aftermath. This involves addressing droughts' disproportionate impacts on marginalized and vulnerable communities that may lack

access to resources and infrastructures necessary to cope with water scarcity. Also, ensuring equitable water resource management safeguarding food security requires addressing the impacts on food security and ensuring access to nutrition and affordable food for all, addressing migration and displacement, acknowledging global responsibility in supporting adaptation efforts acknowledging shared responsibility for all in mitigating climate change and providing adaptation and resilience building measure in vulnerable regions.

*b. Increased Heavy Rainfall Events*

Since warmer air retains more moisture than cooler air, climate change may increase the frequency and intensity of heavy rains. This will also cause wet areas to get wetter as supported by Holden et al., (2017 pg.13) "*Storms will carry more moisture, and when they let it go, the repercussions will be larger.*" They opined that economic activity and way of life disruptions can result from heavy rainfall, especially in areas where agriculture is a major industry. Losses of livestock and disruptions to supply chains may have long-term effects on the resilience and economic stability of communities. It seems that in the wake of extreme rainfall events, achieving climate justice necessitates acknowledging that all nations share responsibility for reducing climate change and extreme rainfall frequency and intensity, which calls for aiding vulnerable areas with resources and technology.

*c. Sea Level Rise*

Two of the most certain effects of global warming are the thermal expansion of water (as it warms, it takes up more space) and the melting of the Antarctic and Greenland ice sheets (Bellard et al., 2014; Overpeck et al., 2006). These two elements will increase the sea level in the oceans around the world. Since Arctic sea ice melting produces only enough water to cover the space it already occupies in the ocean, sea levels will not increase (Chivers, 2011). According to Overpeck et al., (2006), by 2100, the sea level could be 4–6 metres higher than it is today (2006). Low-lying island countries and coastal communities are seriously threatened by sea level rise. Coastal areas are more vulnerable to erosion, flooding, and inundation as the sea level rises, which causes displacement and forced relocation. The coastal ecosystems (wetlands and mangroves), which are essential for coastal protection, biodiversity, and ecosystem services, are also impacted by sea level rise. These ecosystems, however, could deteriorate or disappear as the sea level rises, resulting in the loss of habitat and a decline in

ecosystem functions. In my observation and as seen in Lofoten, Norway, achieving climate justice entails appreciating the value of coastal ecosystems, putting conservation and restoration measures in place to protect them, and helping the communities that depend on these ecosystems for their livelihood. According to the Norwegian Climate Service Centre, sea level rise and storms surges must also be considered as a potential hazard by all coastal communities suggesting that even when protective or adaptive measures cannot be implemented, it is essential to include inundation from storm surges/sea level rise in municipal contingency plans since these municipalities have limited leverage when it comes to imposing measures on existing buildings and infrastructures.

#### *d. Enhanced Tropical Storms*

One of the most alarming ways climate change can alter weather events is through the development of stronger tropical storms, or tropical cyclones, as they are known. According to Mei et al., (2015), tropical cyclones are one of Earth's most dangerous and destructive natural hazards. The most dangerous tropical storms are typhoons, also known as hurricanes in parts of the western hemisphere. Typhoons happen in the northern hemisphere just north of the equator from July to November. Regarding energy, a full-blown typhoon can do as much damage to coastal communities as an atomic bomb. Wisner et al., (2004) say that typhoons are hard to track because they often move in ways that are hard to predict. (Mei et al., 2015) There is strong scientific evidence that climate change strengthens tropical cyclones by warming the ocean's surface. Tropical cyclones, such as typhoons and hurricanes, necessitate long-term recovery and reconstruction efforts, which can be difficult for marginalised and vulnerable communities with limited access to resources and support. Marginalized communities are frequently at a greater risk and are ill-prepared to sustain and respond to these extreme events, which frequently results in human deaths and injuries. In my perspective, climate justice requires communities receive the necessary assistance, including financial resources and capacity-building support, to recover and reconstruct in order to increase their resilience and reduce future risks. Understanding the impact of climate justice on the intensification of tropical cyclones requires recognising the significance of proactive adaptation and risk reduction measures.

## *Climate Change: An Urgent Threat*

Climate change constitutes an existential threat to humanity. If regional disasters are not adequately addressed, they will eventually affect everyone. There are already conceptual frameworks for climate change that can be divided into types of climate change assessments, standards for assessing the risk from climate change, conceptual frameworks for climate change vulnerability, adaptation, and resilience, types of adaptation systems and measures, and evaluation frameworks for adaptive strategies (Füssel and Klein, 2004). Nonetheless, not every social, economic, environmental, or policy scenario fits a single paradigm (Boylan et al., 2018).

According to the Norwegian Climate Resilience Policy Indicator (2022), since the year 1900, Norway has had a rise of 1.1 degrees Celsius in its yearly average temperature. In a scenario with high emissions, the predicted average temperature by the end of the century is around 4.5 degrees Celsius higher than it was between the years 1971 and 2000. This indicates that the warming trend is expected to continue in the future. It is projected that the northern region, as well as winter, would experience enormous temperature increases. It is anticipated that warming will have an effect on energy demand, likely leading to reduced need for heating during the colder months. There is a possibility that summer droughts will become much more severe as a result of increasing evapotranspiration. Between the years 1900 and 2014, the annual average precipitation increased by about 20%, and it is expected that it would increase by another 18% by the end of the century (compared with the period of 1971–2000).

Additionally, it is projected that heavy precipitation events would happen more frequently and with higher intensity, increasing the overall quantity of runoff on the Norwegian mainland. It is also expected that floods brought on by rainfall would become more frequent and intense, but floods brought on by snowmelt will become less often and intense. If the necessary infrastructure and reservoir capacity were in place, the larger runoff might increase Norway's hydropower output. On the basis of known information about the climate change resilience of the energy industry, Norway produced a White Paper on Climate Change Adaptation in 2013 and a Climate Change Adaptation Plan for 2015–2019. Both volumes discuss the effects of climate change on the energy system, in particular the power sector, and offer recommendations for policy changes to increase resilience. Although Norway's energy policies acknowledge the impact the energy sector has on the climate, they give energy security and mitigation a higher priority.



## 2.1 Theoretical framework

*“It is this regard for the interaction between human activity and natural circumstances that has epitomised so much that is challenging in geographical studies; this is what is implied by the term 'human ecology’” (Eyre and Jones 1966, p. 8).*

The quote above encompasses the recognition of the intricate connections between human societies and the environment, and it highlights the importance of studying and understanding these interactions with the field of geography.

To address and explain my research question I choose the political ecology framework. I am aware that there are other framework like Sustainable Development: that seeks to address the complex interplay between economic growth, social development and environmental protection with the aim of promoting a balanced and integrated approach to development that satisfies the current needs while preserving the capacity of future generations as cited in UN Brundtland Commission (1987). Also, Green economy framework: an economy system that aims to promote sustainable development and checkmate environmental challenges. And at such might be well suited to these questions but I choose Political Ecology framework as it addresses the complexities of power, inequity and vulnerability that underlies the research questions.

Having first emerged in the '70s and '80s, it is now one of the most vibrant and conceptually diverse fields of inquiry into nature and society relationships within the social science at the intersection of geography, anthropology, sociology and environmental history. The concept of ecology viewed as a science intertwined with political aspects arose in 1960s, a period marked by increasing worry about the human -induced effects on the physical environment. during this time, ecology evolved from studying these impacts to adopting a novel philosophy that considered human-environment interaction in a comprehensive manner, Forsyth (2003).

In recent decades, political ecology has become an increasingly popular approach to analysing socio-environmental issues. It centres on the examination of power within environmental governance and the co-creation of society and the environment within a broader political economy. The field originated in the 1970s as a Marxist response to Malthusian concepts in environmental studies, arguing that studies of human ecology involved power, interests and societal norms Robbins (2012). Marxist’s response aligns with Blaikie and Brookfield (1987,

as cited in Robbins, 2012) when stated that political ecology is concerned with the complex, ever-changing interactions between societies, their environment and their internal social dynamics as they relate to environmental issues and resources.

Sovacool (2021) asserts that political ecology is a multidisciplinary paradigm for examining power dynamics and weaknesses in environmental concerns, particularly where human society and the environment converge, critiquing unfair systems of colonialism, racism, militarism and systemic violence, which are central in the field. Sovacool noted that the framework encompasses four processes: “enclosure, exclusion, encroachment and entrenchment” which shape social climate responses across economic, political ecological and social dimension. Enclosure refers to public assets into private hands or expansion of private roles into public sector, exclusion involves limiting access to decision-making processes, or unfair planning or policymaking procedures, and encroachment refers to when climate mitigation projects damage natural environment via pollution, carbon emission or other ecological insults while entrenchment occurs when climate change adaptation projects results in uneven patterns of development that is not affordable to fairly accessible to affected groups resulting in disempowering vulnerable groups. From Sovacool’s assertion of political ecology, it would be right to say that political ecology uses varied collections of inquires with a shared concern for addressing inequality, injustice and asymmetric power relation at the intersection of people and the environment.

Climate justice is a concept that is concerned with addressing the unequal impacts of climate change on different communities, particularly the disproportionate burden faced by marginalized and vulnerable groups. It seeks to promote fairness in the distribution of climate change impacts and ensure that all people have a say in decision-making processes related to climate change mitigation and adaptation, (MRFCJ 2018). Political ecology offers a critical lens for examining how political, economic and social factors shape the uneven distribution of climate change impacts and the responses to those impacts. It helps identify the root causes of vulnerability, marginalization and exclusion, which are essential for understanding climate justice. By focusing on power dynamics, institutions and human agencies, political ecology can uncover the structures and processes that perpetuate climate injustice and provide a basis for developing more equitable and inclusive strategies, Sovacool (2021).

People have said that reducing greenhouse gas emissions is a global problem that needs a regional solution in Europe (EEA, 1996). Although the principal objective of European climate policy is to minimise climate change, some climate change is unavoidable and is anticipated to have consequences for European society (Schar et al., 2004). Climate change could impact the health of natural ecosystems, the productivity of forestry, agriculture, and fisheries, the possibility of floods and erosion, the disappearance of wetlands, and the cost of business insurance (Voigt et al., 2004). Regarding regional effects, it appears that southern Europe will be hit disproportionately hard due to increased risks of water shortage and fires, decreased crop productivity, adverse effects on winter ski resorts, and negative effects on human health, including heat stress, respiratory conditions, and vector-borne diseases. The effects in northern Europe appear to be less severe and, in some cases, even favourable, with a predicted increase in agricultural output and positive impacts on tourism and outdoor recreation (O'Brien et al., 2006).

Unlike other places, like southern Europe or sub-Saharan Africa, many of the possible effects of climate change in Norway are considered good or less bad (O'Brien et al., 2006). Even though oil is now Norway's most significant source of income, agriculture, forestry, fishing, aquaculture, and hydropower are still crucial to the country's economy. It is believed that a robust national adaptive capability is required to assist adaptation in instances where adverse effects may be evident. Norway performs well in terms of wealth, technology, education, information, skills, infrastructure, access to resources, and managerial skills (O'Brien et al., 2004). Well-established catastrophe compensation funds contribute to the perception that the government will foot the bill for exceptional climate disasters (Ness et al., 2005). Hence, Norway needs to give adaptability more attention in terms of research and policy. The fact that it receives little attention in Norway's national climate change research efforts and is almost absent from the Government White Paper on Climate Policy (Lis et al., 2003) is proof of this. From a broader European perspective, Norway is a good illustration of climate change complacency. The socioeconomic repercussions of climate change have been investigated using several methodologies, even though Norway still needs to undertake a complete state-wide assessment of its implications, vulnerability, and adaptation. The studies included quantitative techniques such as econometric modelling, the statistical analysis of municipal risk indicators, or the mapping of aggregate county-level data. Other research adopted a qualitative approach, concentrating on assessments of vulnerability and adaptation at the local level. Local or community-specific climate risk research has focused on long-term adaptation

to climate variability and coping mechanisms throughout the past two decades, O'Brien et al., (2004).

This study aims to encourage the formulation and implementation of rules that minimise the detrimental consequences of climate change and variability on ecosystems and human systems, particularly in Lofoten. Thus, it is necessary to assess the development of methods for determining climate change sensitivity. According to McCarthy et al., (2001), there has been much research over the past 20 years on climate change's possible and actual implications on diverse natural and social systems. Regarding vulnerability and adaptation to climate change, as well as its expression in the IPCC (2022), the prevailing view of the climate change community must be implicit. By presenting four stages of vulnerability assessments, the underlying idea is developed. Each four primary evaluation stages address a distinct research and policy topic. Determine the probable impacts of climate change generated by humans on a climate-sensitive system; impact assessments superimpose future climate scenarios on an otherwise stable environment. The possibility of adaptation efforts to mitigate anticipated climate impacts is acknowledged in vulnerability assessments of the first generation, which consider significant non-climatic factors. In vulnerability evaluations of the second generation, the capacity of a system or people to adapt to climate change is given specific consideration. Despite considering climate change and potential responses in a broader context, their primary purpose remains descriptive. Assessments of adaptation policies attempt to influence policymaking by recommending specific adaptation measures, which constitutes a substantial shift in the assessment's objective. The foundation for multidisciplinary work is strengthened by making it easier to appreciate the variety of legitimate approaches to measuring climate change vulnerability, both within the field of climate change and in other scientific communities IPCC (2022).

In a critical paper about integrated assessments, Rothman and Robinson (1997) wrote about a "conceptual framework for thinking about integrated assessments." Their method identifies six characteristics for integrated assessments and uses them to demonstrate how they have evolved through time. The following trends illustrate this evolution:

- i. From linear to more complex chains of analysis;
- ii. From non-adaptive to perfectly adaptive to realistically adaptive agents;
- iii. From simple to sophisticated, pluralistic consideration of alternative developing paths
- iv. From strictly quantitative and qualitative analyses;

- v. From science-driven to policy-driven assessments;
- vi. From analyses that dictate to users to those that involve users in the actual assessment process.

Given the significant implications of these characterization for climate change, it is important to focus on assessing vulnerability to anthropogenic climate change, a phenomenon distinguished by its various spatial and temporal scales, scientific uncertainties, and policy context, particularly in mitigation and adaptation policy.

Füssel and Klein, (2006, pp. 303-304) assessed the characterization by Rothman and Robinson (1997) and stated that adaptation to climate change and mitigation are the two-primary means of addressing the hazards posed by human climate change. They opined that mitigation refers to actions taken to reduce global climate change by decreasing the release of greenhouse gases and increasing the capacity of natural systems to absorb these gases while adaptation focuses primarily lessening the harmful impacts of climate change by implementing a variety of measures designed to protect the systems that are most at risk, (It may also involve using new opportunities brought about by climate change). They highlighted the difference between adaptation and mitigation in the table below. Table 1 outlines the main differences between mitigation and adaptation policies. Due to the significant differences in the typical temporal and spatial scales at which they occur and their particular information requirements, mitigation and adaptation plans are often developed independently. This split is also reflected in the organizational structure of the IPCC, where Working Group II is responsible for reviewing adaptation and Working Group III for mitigation.

*Table 1: Characteristics of Mitigation and Adaptation (Füssel and Klein, 2006, pp. 303-304).*

	<b>Mitigation</b> of climate change	<b>Adaptation</b> to climate change
Benefited systems	All systems	Selected systems
Scale of effect	Global	Local to regional
Life time	Centuries	Years to centuries
Lead time	Decades	Immediate to decades
Effectiveness	Certain	Generally less certain

Ancillary benefits	Sometimes	Mostly
Polluter pays	Typically yes	Not necessarily
Payer benefits	Only little	Almost fully
Monitoring	Relatively easy	More difficult

According to Füssel and Klein (2006), in climate change, mitigation has generally received substantially more attention than adaptation from a scientific and a policy perspective. Key reason for emphasising climate change mitigation is that it helps to reduce impacts on all climate-sensitive systems. However, the ability of adaptation measures is limited for many systems. For instance, it is difficult to envision how small island states in the Pacific or Arctic could successfully adapt to a significant rise in sea level. In addition, the polluter-pays principle is followed when reducing GHG emissions. However, the need for adaptation measures will be most significant in developing countries that have contributed the least to climate change. Lastly, GHG emission reductions are easy to quantify in terms of their absolute amount and as a deviation from a predefined baseline. Assessing the success of adaptation in terms of avoided outcomes and guaranteeing that foreign financing to enable adaptation will properly augment existing development aid dollars are substantially more complex undertakings.

In addition, Füssel and Klein (2006), stated that alongside the requirement for mitigation, there are compelling reasons for a more exhaustive approach to adaptation as a response to climate change and suggested the following steps; first, considering the volume of past GHG emissions and the lag in the climate system, we are already committed to a certain degree of climate change which cannot be avoided, even with the most aggressive emission reductions. Next, they stated that it will take several decades for impacts of emission reductions to fully unfold, while most adaptation strategies yield more immediate benefits. Furthermore, they opined that adaptations can be efficiently executed at a local or regional level making their effectiveness less reliant on the actions of others, whereas mitigation of climate change necessitates global cooperation. Finally, majority of adaptations to climate change also lower the threats associated with current climate variability, which poses a considerable risk in many parts of the world (Füssel and Klein (2006)).

In further discussion, Fussler and Klein (2006), pointed out two crucial criteria for effective adaptation to climate change are information on what to adapt to and how to adapt and the resources necessary to implement adaptation measures. They suggested that a comprehensive climate policy must therefore include the collection of data on the vulnerable system and the stressors to which it is exposed (through scientific research, data collection, or model experiments) and the transfer of resources to vulnerable societies (in the form of investment, technologies, or expertise) to assist them in preparing for and adapting to the inevitable effects of climate change. According to them, these measures can be classified as either unique response possibilities or adaptation-facilitating procedures.

## **2.2. Climate Change and Climate Justice**

“The world is reaching the tipping point beyond which climate change may become irreversible. If this happens, we risk denying present and future generations the right to a healthy and sustainable planet – the whole of humanity stands to lose” (*Kofi Annan, Former Secretary-General of UN, 2015*).

The quote above highlights the urgency of addressing climate change and avoiding irreversible consequences to safe guard the well-being and future of humankind, emphasizing the importance of taking immediate action to mitigate climate change and ensuring a sustainable and liveable planet for the present and the future generations. The United Nations Framework Convention on Climate Change defines climate change as a modification of the climate system caused by human activity. This human activity directly or indirectly impacts the composition of the Earth’s atmosphere and contributes to changes in climate which are separate from natural climate variations observed over given periods. According to United Nations’ approach to Climate Action, it is crucial to consider critical climate mitigation strategies. One key option is reducing emissions caused by the use of fossil fuels as an energy source, including coal, oil and gas. Among these, oil and gas contribute most to climate change per unit of energy produced following coal. There are several ways to decrease the reliance of fossil fuels such as limiting their production and consumption, implementing fees and taxes, and transitioning to renewable energy sources like wind, solar and hydropower. In addition, efforts are underway to develop technology that can capture CO<sub>2</sub> emissions produced during the manufacturing of fossil fuels into materials that can be permanently stored. Similarly, initiatives exist to capture and store previously emitted CO<sub>2</sub> from the environment. It is worth noting that certain climate

action approaches involve radical systemic transformation such as degrowth. As outlined by Benjaminsen and Svarstad (2021), it is important to acknowledge that governments often develop climate change mitigation plans based on neoliberal paradigms.

Bond (2016) and Tuna (2019) who is cited in Sultana (2021) observed that climate change has increased the severity and frequency of natural catastrophes in the global South. However, this risk is now felt in the global north as climate change becomes more and more extensive. The unequal distribution of climate change consequences is evident in socio-spatial differences, many of which may be traced back to past and present colonialism and racism. The phrase "*climate apartheid*" draws attention to the disproportionate toll that climatic breakdown takes on vulnerable populations, especially in the global South, regarding human lives lost, people displaced, and money spent on rebuilding. Resolving these inequalities is crucial to building a future that works for everyone.

Climate justice is reflected in the global climate change regime. With the Paris Agreement, the parties to the UN Framework Convention on Climate Change resolved to keep global warming well below 2 °C and strive to keep it below 1.5 °C. The Paris Agreement recognises that developing nations need more time than others to reach the peak in greenhouse gas emissions because of concerns for justice, sustainable development, and efforts to eradicate poverty (United Nations, 2015). Hence, even though each nation's government sets the extent of its commitment to carbon reductions, the Paris Agreement can be interpreted as creating principles for climate fairness among nations. In a 2018 special report, the IPCC argued that in order to limit global warming to 1.5 °C, CO<sub>2</sub> emissions from human activity would need to have decreased by approximately 45 percent from 2010 levels by 2030 and to zero by 2050, which would require much faster reductions than the total reductions pledged by countries in the Paris Agreement (IPCC, 2018). Greta Thunberg emphasises the necessity for wealthier nations to adopt urgent changes so that people in less developed nations can continue to construct their infrastructure. She frequently cites the Paris Agreement and the IPCC's 2018 special report on 1.5 °C's emphasis on the severity of the problem, stating that both documents emphasise the situation's urgency (Thunberg, 2019).

Reforestation and forest conservation are a big part of efforts to stop climate change. The goal is to limit deforestation since trees absorb and store CO<sub>2</sub> from the atmosphere, reducing global emissions of greenhouse gases. From a scientific standpoint, the magnitude of this potential influence is, nonetheless, debatable. Moreover, CO<sub>2</sub> is re-emitted when forests burn, or trees



are harvested for electricity. Even if the anticipated quantity of this contribution has altered, deforestation still contributes to greenhouse gas emissions. In 2007, the IPCC's fourth assessment report stated that deforestation contributed 20% of total greenhouse gas emissions. In 2014, according to the IPCC's fifth assessment report, this figure was closer to 12%. In addition, Winrock International and Woods Hole Research Center (2013) discovered that deforestation contributes just around 10% of total CO<sub>2</sub> emissions. This percentage is decreasing because emissions related to the global climate are increasing while deforestation is decreasing. However, efforts to halt deforestation have had relatively modest and frequently transient effects on carbon emissions. In recent years, large forest areas used for climate mitigation programmes have burned in several countries. The Paris Agreement on climate change, which entered into force in 2015, is premised on the notion that each country decides how much it will contribute to climate mitigation and how it will cut emissions. Therefore, it is up to the country's government to determine whether to implement time- and space-sensitive policies to combat climate change.

According to the Research Institution for Sustainability Helmholtz Centre Potsdam (RIFSPotsdam), COP26 and the Paris Agreement aim for global net zero emissions and maintaining global warming within 1.5 degrees, with humans responsible for mitigating climate change. However, there is disagreement on achieving these goals due to differing socio-economic development stages among countries. Developing nations seek to progress similarly to developed nations while calling for assistance in climate change adaptation efforts. These challenges are further complicated by the significant contributions to climate change historically made by developed nations. Global inequalities and injustices are highlighted by climate change, and these are further complicated by policy inconsistencies in developed countries, such as the European Commission's classification of natural gas as a "transitional" fuel. These delays in taking decisive action against climate change disproportionately affect the global south's marginalised population, resulting in delayed justice and equity.

Regarding adaptation, RIFSPotsdam opined that climate change events threaten food security and livelihood, prompting COP26 to highlight the urgency for climate adaptation. While funding is increasing, adaptation gaps persist. Despite the vulnerabilities of the global south, countries rich in renewable energy resources have a critical role in climate adaptation and mitigation. RIFSPotsdam recommended that: for successful climate change mitigation, it is essential to ensure fairness in climate action and prioritise the sustainable development process. Also, for future climate discussions like COP27, it is necessary to recognise and effectively

address the challenges that could hinder the fulfilment of the sustainable development goals and the Paris Agreement. Furthermore, extending energy transition support to more climate-vulnerable countries can greatly promote equity in climate action. An example would be a collaborative project like green hydrogen production could benefit both renewable-rich and fossil fuel-dependent countries and could be a potential COP27 discussion.

### **2.3. Resilience to Climate Justice**

Holling (1973) defines resilience as understanding how systems (individuals, communities and organisations) can withstand and function when faced with drastic change. He believes a resilient system can withstand market, climate or leadership changes without losing its identity or function. In line with Holling's definition, Walker and Holling, Carpenter and Kinzig (2004) opined that a resilient system could absorb and respond to changes without losing its fundamental characteristics such as structure, identity and feedback. It is, therefore, acceptable to say a resilient ecosystem can withstand natural disasters such as hurricanes, wildfires, or economic disasters such as stock market collapse, recover from the damage caused, and continue to provide essential services. These authors describe resilience as a system's ability to withstand changes and disturbance while maintaining its fundamental features such as function, structure and identity.

Folke (2006), elucidates further on resilience stating that, resilience is about assisting individuals, groups, societies, and cultures in adapting to change, both gradual and abrupt, anticipated and unanticipated and thriving in the process. This, in my opinion, refers to people's capacity to not only endure change but also to respond to it by adapting, picking up new skills, and developing themselves. For this study, I adopted Folke's (2006) definition of resilience within the context of the aftermath of climate justice in Lofoten as it provided a valuable perspective on how the communities bounce back and the equitable distribution of resources.

According to the IPCC (2022) sixth assessment report on climate resilience development pathways, climate resilience is the capacity of a socio-ecological system to adapt, reorganise, and evolve towards more sustainable and climate-change-resistant future configurations. Climate change resilience is comparable to adaptation and mitigation and these are responses to climate change in the sense that adaptation involves addressing new or evolving environmental concerns and reducing the sensitivity of human systems to the effects of climate change. It can occur in anticipation of an event or response to one; it includes climate planning

modifications and autonomous responses by individuals and public institutions. The policy implications of adaptation are tied to the unique hazards that climate change poses to a region or industry and the practical measures required to mitigate those risks. Increases in heavy rainfall, for instance, will not have the same effect on settlements on higher ground as they do in flood plains. Thus, diverse adaptation and policy solutions are required for varied locations.

Hutson (2021) opined that climate resilience necessitates acknowledging the interdependence of human-made structures and the natural environment and taking measures to enhance our ability to withstand and adapt to the effects of climate change, while climate justice entails recognizing the disproportionate harm that climate change can inflict on marginalized communities. However, mitigation targets the underlying causes of climate change and seeks to reduce the human impact on the climate system. Adaptation, on the other hand, is implementing changes to anticipate and mitigate the effects of climate change, thereby reducing the vulnerability of ecosystems and civilisations. Adapting to the effects of climate change can strengthen the climate change resilience of communities, businesses, and institutions. The ability to withstand the effects of climate change necessitates an understanding of the relationship between the built and natural environments, as well as the formulation of adaptation plans. Achieving climate justice necessitates admitting that climate change can exacerbate the hardships of already disadvantaged individuals. (Hutson, 2021).

The interconnection among climate justice, resilience, and decarbonisation gives rise to various concerns that go beyond the usual confines of academic disciplines. How do scientists estimate climate risk and resilience? Should individuals harmed be compensated, and if so, by whom, how much, and on what grounds? What are the economical components of the compensation, and would carbon taxes or other redistributive policies be more effective? What types of compensatory mechanisms are most likely to garner broad popular support? How can government and non-government organisations generate widespread support for climate compensation? Should intergenerational and international concerns be considered when determining compensation for climate risk? Urgent work in the physical sciences on climate resilience and decarbonisation is heavily influenced by these pressing concerns' political, economic, geological, ecological, and philosophical aspects.

In my perspective, resilience theory can help inform and support climate justice by guiding the development of equitable and inclusive policies, interventions and governance structures that

enhance the resilience of vulnerable communities and promote a just transition to a climate-resilient future.

Resilience theory and the climate justice movement are interlinked in several ways;

- i. Enhancing resilience of vulnerable communities: Climate justice highlights the importance of improving the resilience of vulnerable communities to climate change impacts. By understanding and managing the resilience of social-ecological systems, decision-makers can develop policies and interventions that assist communities in adapting to climate change and reducing vulnerability. As a result of climate change, “deprivation, exclusion, and inequality” affect the world’s most at-risk populations (Edward et al., 2013, p. 6 cited in Kim, H. et al. 2018, pp. 129–140).
- ii. Equitable distribution of resources: Prioritising the needs of those hit the hardest by climate change and allocating resources to combat existing inequalities while strengthening the resilience of marginalised populations are central to achieving climate justice. Margis, (2010) cited in Folke (2016) stated that the idea of resilience which is always changing and evolving is seen when we talk about a community’s ability to use its resources, grow them and actively engage them. This ability helps the community not to survive but flourish in a world full of changes, uncertainties, surprises, and unpredictable situations.
- iii. Transformative change: Both climate justice and resilience theory acknowledge that adapting to the complex challenge posed by climate change may necessitate radical alterations to existing social, economic, and ecological structures. Transformative change that advances climate justice and ushers in a more sustainable and equitable future can be achieved through employing the dynamics of resilience decision-making pathways. According to UN (2016) the hurdles are substantial, yet the world has the expertise, resources and affluence required to construct a future resilient to climate change – a future devoid of poverty, hunger, prejudice and injustice.
- iv. Inclusive decision-making: Climate justice stresses the importance of including the marginalised and vulnerable population in the decision-making process related to climate change adaptation and mitigation. Resilience theory supports this idea by recognising the value of diverse perspectives and local knowledge in enhancing the resilience of social-ecological systems. Inclusive decision-making can lead to more effective and equitable climate justice. According to Norris et al., (2008) cited in Folke, (2016) inclusive decision-making involves preparing for situations where

there is no predefined plan, necessitating adaptability, problem solving abilities and reliable information resources that can operate effectively amidst uncertainties.

During the early 2000s, Norway created a sound knowledge base regarding the climate change resilience of the energy department. The 2010 national assessment report *Adapting to a Changing Climate: Norway's vulnerability and the need to adapt to the effects of climate change* addressed adaptation in the energy sector, specifically concerning electricity supply. Examining data from Storting (white paper), Meld. St. 33 (2012–2013) the Norwegian Meteorological Institute, the Norwegian Water Resources and Energy Directorate (NVE), and the Norwegian Mapping Authority, three potential climate impacts were discerned: the need for heightened maintenance, an uptick in the frequency of damages and positive implications for the production of hydropower. The Norwegian Climate Services Centre was established in 2013 to provide information on adaptation options. One of its research efforts is a comprehensive study from 2015 that acts as a foundation of knowledge for climate adaptation. The Norwegian Environment Agency produced a study in 2019 summarising the situation and present state of knowledge regarding the effects of climate change in Norway.

In 2013, the Norwegian Parliament issued a White Paper on Climate Change Adaptation that includes significant research and evaluations of climate change adaptation and resilience, as well as adaptation and resilience in the energy sector. The section of the text devoted to the power supply system included present and future measures, as well as the responsibilities of the relevant government agencies. For instance, it was suggested that the NVE schedule any maintenance or enhancements necessary to adapt to changes in runoff patterns as part of the licencing procedure based on this advice, the NVE adopted the Strategy for Climate Change Adaptation 2015–2019. The strategy emphasised the need to incorporate climate change adaptation into the NVE's various areas of work (such as hydropower installation and operation licences and energy licences for new plants) and promoted the collection of the most accurate data on how climate change will impact the supply and demand of energy. Norway's energy policies account for the effects of climate change, although they focus more on energy security and mitigation than on adaptation and resilience. In its 2016 white paper, *Power for Change: Energy Policy Towards 2030*, the Ministry of Petroleum and Energy discusses in depth the effects of climate change on energy; nonetheless, climate resilience is not a central theme. Although some of the white paper's ideas, such as enhanced flexibility, could increase resilience, most of the recommendations focus on energy supply security, energy efficiency,

and renewable energy production. Significant efforts were made to incorporate many stakeholders, such as municipalities, to improve Norway's climate resilience. Since 2009, a Norwegian website [Klimatilpasning.no](http://Klimatilpasning.no) has been offering a variety of resources to municipalities to help them adapt to climate change. These resources include case studies, data and other helpful materials. Additionally, multiple counties in Norway have designed and launched a beginner's course on climate change adaptation specially tailored for municipalities. The aim of these initiatives is to support local governments in their effort to respond effectively to challenges posed by climate change. The Norwegian government and thirteen large cities participated in the Cities of the Future programme (2008–2014) to engage cities in the fight to reduce greenhouse gas emissions and prepare for a changing climate (IEA, 2022).

According to Amundsen (2012), local communities do not differentiate between the suite of challenges they face and adapt to, including social, economic and climatic. Climate change is but one challenge requiring adaptation in communities. Norway is perceived to be resilient to climate change, but this picture becomes more nuanced when focusing on specific sectors, regions, communities and social groups. Senja, a community in the Nordland county of Norway, was used as a case study to understand the factors necessary for “community resilience and analyse local adaptation to future global change; it identified six dimensions of community resilience: “community resources, community networks, institutions and services, people-place connections, active agents and learning.” Amundsen stated that these dimensions are activated in processes and activities in the village to respond to current challenges, which are initiated to increase optimism and well-being and ultimately enhance resilience. However, uncertainties about the direct and indirect consequences of changes in climate and other factors make it challenging to define which dimension will be necessary for future resilience. The article asserts that without active involvement of communities in reflective learning about root causes of systematic alterations and the connection between local and global phenomena, there is a potential that perceived community resilience becomes nothing more than a façade.

## 2.4. Literature Review

To give the study more value, I reviewed other articles and studies done related to climate justice which I found very insightful.

Examining the Literature on Climate Justice and the International Regime: Given that justice issues are not external to international climate governance but rather intrinsic to existing political practises, Okereke (2020) argued that the age-old question of the applicability of distributional justice in international regimes is more or less anachronistic. He added that the current regime had done an excellent job of acknowledging the need for distributive justice between rich and developing countries and incorporating its concepts and policies. However, it has yet to provide a basis to sufficiently upset the underlying forces and enduring structures of global inequality. Okereke argued that a better understanding of the power dynamics and systemic issues perpetuating global inequality is necessary to achieve true distributive justice in international climate governance. He also noted that making international environmental policy is not a pluralistic process in which all ideas and proposals are considered equally. Claiming that proposals favouring performance-based approaches to global climate governance and market-based conceptions of distributive equity have prevailed, this article argues that these ideas have marginalised radical notions of climate justice in regime development circles. He stated that moving away from broad consultancy and advocacy-type works towards more precisely defined and conceptually rigorous debates is a significant challenge for a scholarship, not to mention the technical know-how to craft policies that balance idealistic concepts of justice with the realities of power dynamics.

According to Sultana (2021), development, democracy, and citizenship are as much a part of critical climate justice as international politics, funding, geographies, and histories. It demands transparency in intersectional feminist analysis to ensure that people from many backgrounds share their perspectives and that policies and programmes are designed to benefit everyone. She mentioned that it is essential to pay attention to varied power relations in every environment to fine-tune and address the inequalities, marginalisation, and vulnerabilities perpetuated through disruptive climatic patterns and socio-ecological shifts across scales and places. She opined that research and action on climate justice require intersectional methods to ensure full accountability for the many overlapping and compounding forms of systemic injustice. Critical climate justice solidarity praxis must continue to centre on addressing

colonial and racial suffering. Climate justice cannot be achieved once and for all; instead, it is a process of becoming that involves unlearning to relearn and constantly taking stock within different communities to effect positive change. In order to achieve true distributive justice and the aims of international climate governance, both Okereke (2010) and Sultana (2021) stress the importance of understanding power dynamics and structural difficulties that perpetuate global inequality. To accomplish climate justice, it is necessary to remember that learning and unlearning are ongoing processes, as is working with different groups to bring about positive change.

However, Svarstad (2020) believes that studying climate justice in space and time would make a difference if measures were not implemented to mitigate climate change. If mitigation measures for climate change are not taken, there will be no future, as the present state faces injustices, but it would be far worse than what the world is facing now. In her opinion, achieving climate justice in time would require a change in a country's climate policy that would lead to a reduction in greenhouse gas emissions that is deep and fast enough to avert the worst possible outcome for the future generation and also cut emissions that fairly distribute costs among the world's current population. Svarstad explained climate justice in space to mean everyone should share the work of reducing pollution fairly. Examining the disparities in wealth ranging from privileged individuals in high-income countries and affluent areas elsewhere to those who grapple with fulfilling their essential requirements for sustenance and survival. Stating the efforts to reduce pollution should not hurt the most vulnerable people no matter where they live. Svarstad suggested climate justice in time and space addresses the unfairness towards future generation who will suffer severe consequences if we fail to sufficient action against climate change today. Simultaneously, it also considers the unfairness towards present population who are adversely affected by mitigation measures that impede their ability to fulfil their basic necessities.

Caney, (2014) argues that examining the ethical challenges of climate change should involve two perspectives: burden-sharing and harm avoidance justice. However, he stated that those two approaches do not acknowledge the need for sacrifice to avert dangerous climate change. He proposed another approach called the "Power/Responsibility Principle." In his opinion, those with power should ensure agents comply with their first-order responsibilities to use their power to protect people from existential threats posed by climate change. The principle shifts focus from engaging in adaptation and reducing emissions to considering the political



responsibility required to avoid severe climate change impacts. He believes that if this principle is implemented, it will encourage individuals to comply with their duties to mitigate climate change and enable adaptation, emphasising the need to avoid harm and acknowledge the importance of avoiding harm. Despite Svarstad's (2020) and Caney's (2014) different approaches to addressing climate change impacts in the present and future, they both emphasise the need for urgent action, policy changes and responsibilities to mitigate climate change.

O'Brien et al. (2006) stated that in Norway, there is a belief that climate change impacts will be relatively positive or less severe compared to other regions. Despite the petroleum sector being the main contributor to the economy, Norway relies on climate-sensitive sectors like agriculture, forestry, fisheries, aquaculture and hydropower. According to the authors, the country's (Norway) high adaptive capacity including factors like wealth, technology and education contributes to a perception that adaptation will be manageable. However, this complacency has resulted in limited research and policy attention given to adaptation, as reflected in Norway's climate change research programs and policy documents. They observed that although there have not been comprehensive country-wide studies, a collection of individual studies has provided insights into the socioeconomic impacts of climate change in Norway, emphasizing the importance of understanding the specific impacts of climate change in agriculture, tourism, coastal infrastructure and transportation sectors, in order to effectively prepare and adapt. O'Brien et al. opined that while melting glaciers due to climate change may negatively impact Norway's hydropower sector, it also opens up new opportunities for tourism and shipping in previously ice-covered areas. Additionally, the warming of Norwegian waters may allow aquaculture and fishing industries to expand. However, without proper attention to adaptation measures, these potential benefits could be outweighed by negative impacts in other sectors.

Obi, (2010) analysed the relationship between globalised oil extraction, dispossession of indigenous people, and violent resistance in Niger Delta, Nigeria, and discovered that the recent transformation of resistance from diplomatic to violent forms in the Niger Delta area is fuelled by the unequal distribution of benefits from oil extraction resulting in dissatisfaction and conflict between indigenous people and those seen as exploiting and benefiting from the region's oil resources. He went on to say that ambiguity and contradiction stem from the region's conflicts and tensions between different ethnic groups and the competing interests of

many stakeholders. Obi observed that the struggle for resource control in Niger Delta, Nigeria can be seen as a demand for climate justice as it seeks to address the need for more equitable and sustainable development policies.

According to Kaltenborn et al. (2017), the primary sources of contention in the Lofoten-Vesterlen region are oil and gas exploration, infrastructure development, specifically the construction of substandard roads in Lofoten, governance issues involving new administrative levels and public services, and various aspects of the fishing industry. They reasoned that in the Norwegian region of Lofoten Islands, there is a dispute regarding petroleum exploration and the decision to temporarily cease oil and gas drilling has become a divisive political issue at the national level. However, there is a correlation between the major conflict zones, as viewed by the majority of the population, and the prospective consequences of various change agents on the region's future development.

In a three-part definition of climate justice as a political issue, Edward, (2021, p. 155) explained the diversity of climate justice as "The heart of climate justice is the understanding that the urgent action needed to prevent climate change must be based on community-led solutions and the well-being of local communities, Indigenous Peoples, and the global poor, as well as biodiversity and intact ecosystems. Climate justice is the understanding that we will not be able to stop climate change if we don't change the neoliberal, corporate-based economy that stops us from achieving sustainable societies. It is the understanding that corporate globalisation must be stopped." In essence, climate justice is not just about reducing carbon emissions but also about addressing social inequalities and systemic issues that contribute to climate change. It recognises that climate change disproportionately affects marginalised communities and that their voices and perspectives must be included in decision-making processes. Both Obi (2010) and Edward (2021) highlights the importance of addressing social inequalities and systematic issues that contribute to climate change. Also emphasizing the need for more equitable and sustainable approaches to address these issues and involve the voices and perspectives of affected communities in decision-making processes.

Bremer et al. (2020) concluded that establishing Bergen as a climate city implies a future orientation, spanning from the concern of young protestors to the confidence in a technical transition to a low-carbon society as expressed in the Climate Plan for Vestland. Compared to its weather culture, which places a premium on historical achievements like the water

management system and inherited resistance to extreme weather, Bergen's local government climate policy takes a forward-looking perspective. As an illustration, the increased risk of flooding at Bryggen demonstrates the significance of managing future risk.

Bercht, (2017) asserts that the Lofoten Islands in northern Norway are severely affected by climate change. She stated that empirical study demonstrates that the fishermen of Lofoten regard climate change as a concern and recognise the need for adaptive measures. However, the present immediacy of climate change is likely obscured by mental barriers. She found, however, that this sign is only apparent after a while. In an effort to reconcile contradictory views or alleviate oppressive tension, fishermen are likely to minimise the severity of climate change initiatives. Bercht asserted that the fishermen might do so by re-evaluating its effects as insignificant or harmless. Consequently, it is essential to emphasise that they are not deniers but instead in denial. In other words, their coping mechanism is interpretive denial instead of physical denial.

Climate change exacerbates existing social disparities and vulnerabilities, such as access to land and water, as well as livelihood security via disturbance of ecosystems and infrastructures and extreme weather events, according to Newell (2022). He said further that the intranational and international nature of the politics of responsibility and vulnerability is a neglected but significant aspect of the story. Despite this fact, the issue is still frequently handled in arrangement discussions and scholarly writing as a between state problem to be addressed through "normal yet separated liability" or "misfortune and harm." for example, what such framings miss are the vast inequalities within societies in terms of contribution to the problem (much more significant for 'polluter elites' in all parts of the world) (Kenner, 2019) differences in vulnerability to climate change and in the ability to change ways of life to accommodate the new normal (much smaller for 'the precariat' the world over) (Standing, 2014) and racialised minorities within them (Newell, 2005). Both Okereke (2010) and Newell (2022) recognise the importance of addressing social disparities, vulnerabilities, and systemic issues in climate justice discussions and international climate governance. Both authors suggest a need for deeper understanding of power dynamics, a more inclusive and rigorous policy-making processes, and a focus on balancing idealistic concepts of justice with the realities of power dynamics.

According to Newell, (2022) in some ways, climate justice connects with the political economy of agrarian change, from "nature-based solutions" to the large-scale use of land by states and companies for net-zero measures. He further noted that, Oxfam discovered for four of the world's top oil and gas companies to meet their "net-zero" climate pledges by 2050, they would need to plant trees on land comparable to twice the size of the United Kingdom. In his opinion, it predicts a significant restructuring of rural economies that is unlikely to protect the interests of rural residents with lower incomes. Agrarian studies are ideally suited to provide a comprehensive account of the social relations and power structures that shape the winners and losers of particular pathways, the dynamics of resource extraction and value creation, and how local sites of conflict are embedded within broader power relations. If class and class differentiation is considered, several class fractions and agrarian movements will have distinct interactions with climate justice. There is a need for exploration of the interconnections between conflicting ideas of agrarian justice and climate justice, given that agrarian and climate futures are becoming increasingly connected, and the core procedural and distributive features of justice apply equally to both areas. Agrarian justice in the form of access to land, resources, and secure livelihoods will not be viable if it exacerbates the climate crisis. A just climate settlement may include a Green New Deal for agriculture to ensure that poorer and more marginalised rural populations are not unfairly burdened with the costs of transitioning to a low-carbon economy. Therefore, addressing the potential trade-offs between agrarian and climate justice is crucial to ensure that both are achieved fairly and equitably. This requires a comprehensive understanding of the social, economic, and political factors that shape the interactions between different class fractions and agrarian movements in the context of climate change.

According to Tokar (2019, p. 18), the European Climate Justice Action Network explained in a March 2010 discussion paper that "Climate Justice means linking all struggles together that reject neoliberal markets and working towards a world that puts autonomous decision-making power in the hands of communities." The paper came to the following conclusions: *"Fundamentally, we believe that we cannot prevent further global warming without addressing the way our societies are organized – the fight for climate justice and the fight for social justice are one and the same"* (Anonymous, 2010a cited in Tokar 2019). This statement highlights the interconnectedness of environmental and social issues, emphasizing that the fight for climate justice cannot be separated from the fight for social justice. It suggests that addressing the root causes of climate change requires a systemic approach that considers economic, political, and

social structures. Tokar's perception of climate justice aligns with the adopted definition of climate justice for this study by MRFCJ (2018) as they both highlight the need to address root cause of climate change by considering economic, political and social structures as well as the importance of integrating environmental and social considerations in the pursuit of climate justice.

As an island municipality in northern Norway, Lofoten is confronted with justice, equality, and power issues fundamental to climate change challenges. According to Farbotko and Lazarus (2012), "*The rights of islanders to retain their homelands put the international community under an obligation to do all it possibly can to avoid a future mass displacement of island people.*" Resettlement would violate the UN Framework Convention on Climate Change, the primary international framework for addressing climate change (Barnett and Adger, 2003).

In the article, "It's in Our DNA": Climate Change and Perceived Resilience and Adaptive Capacity in Nature-Based Tourism in Lofoten, Norway, Antonsen et al. (2021) examine the Lofoten Islands in northern Norway, where the growth of nature-based tourism over the past two decades has occurred concurrently with the restructuring of the traditional fisheries. Based on their findings, they discuss the adaptability of individual nature-based tourism actors. It can serve as the foundation for the system's resilience, and how a general focus on resilience also serves as the foundation for transformational capacity, a capability required for future resilience. They concluded that, despite worries, the nature-based tourism economy in Lofoten before COVID-19 was deemed adaptable, resilient, and flexible by stakeholders due to the substantial reliance on various ecosystem services (ES). The vast array of ES and ES-based products and services were associated with resilience, flexibility, and adaptability as a socially and culturally maintained capability to deal with the unexpected. The system provided a variety of potential adaptation mechanisms for addressing minor and significant concerns.

#### **2.4.1. A review on global literature on climate change and climate justice on islands (populations)**

As the study reviews the literature related to the Lofoten region on climate change and climate justice and the impact of the ruling to avoid oil drilling. It seemed fitting to look into related literature about other islands who are or have encountered climate justice issues and their

resilience strategies. By looking into this literature, the researcher may gain more insights about climate justice issues in the Lofoten region, since Lofoten is a group of islands.

*i. The Maldives*

The Maldives is a group of islands with a population of approximately 510 000 inhabitants. It is one of the territories at the forefront of climate justice issues and the need for efficient resilient strategies because it is threatened by rising sea levels and the population may be displaced in the near future because of the adverse effects of climate change (Shaheed and Spector, 2012). A lot of socio-economic livelihoods in the Maldives are under threat because of the change in global temperatures and some human activities. To that end, the government of Maldives has enshrined in its legislation some rulings to fight against the threats related to climate change. Some of the policies include: Renewable Energy Promotion, Blue Economy approach to save marine life, Community awareness and engagement policies, and Carbon Neutrality target. These rulings have significant impact on the people of Maldives and they have to adapt to new lifestyles and face economic challenges as they try to save their territory Shaheed and Spector, 2012. Research in the Maldives shows that legislation has immense power as to how people resist the challenges of climate change. Hence, a lesson can be drawn from this that understanding the legal framework of Norway, will go a long way in helping the researcher understand Lofoten's case in this research.

*ii. Chagos Islands*

Another potentially interesting case related to climate change and climate justice is the case of Chagos Islands. In 1973, the entire population of Chagos Island was forcibly transferred to the Seychelles and Mauritius. According to Pilger (2007) the United States and the United Kingdom agreed to remove the entire population from the island so that they can create a military base in the Indian ocean territory. The aforementioned countries used the pretext that Chagos Island is under serious climate change threats and the people had to be evacuated, whereas that was not the case. It was just the United States and United Kingdom greed. The entire population was subsequently moved. What this shows is that when it comes to political and economic expediency for politicians, inhabitants of islands may suffer. This means that using the political economic approach to understand climate change and justice issues may be enriching to understand the case of Lofoten islands. Focusing on sustainable development alone is not enough Pilger (2007).

### *iii. Other Islands*

According to the United Nations News (2019) the United Nations observed that a lot of islands have very little resilience to climate related changes and they are vulnerable to a lot of natural disasters that result from climate change. This means that people have to be given more protection and support for better resilience. Geographically, islands are usually too small to withstand the impact of floods or cyclones. Further, they are sensitive to climate changes as they easily affect economic activities such as farming and tourism as we shall see in the Lofoten Region. At a global scale, the Samoa Pathway, which is an agreement to help small islands was made so that people can give more attention to islands. It will be interesting to know how much the Lofoten region benefits from some of these instrumental policies.

## **Chapter Three**

The aim of this chapter is to show how the researcher navigated the research aims to effectively answer the research questions under study. To that end, the chapter will explain the study setting, target population, research instruments, the population sampling techniques used, the data collection methods, the data analysis technique employed, the possible limitations and ethical considerations; in the context of the literature review and the aim to understand the consequences of the ruling in Norway on Lofoten oil exploration and the socio-economic lives of the people therein.

### **3.1. Methodology**

The aim of this chapter is to show how I navigated the research aims to effectively answer the research questions under study. I conducted the fieldwork between September 2022 and October 2022. The initial stage of the research involved collecting and analysing policy documents, international media as well as local media to identify relevant actors, stakeholders. According to Kothari (2004), the methodology is a method for systematically solving a research problem. It is understood to be the study of how scientific research is conducted. It entails several steps generally adopted by a researcher when examining research problem and the logic underlying them. I searched for articles related to the oil protest going back to 2010 and closely monitored related stories from that year leading to the conclusion of this research. From this process I was able to identify the key players and location.

#### **3.1.1. The study setting**

The research adopts the definition according Yin (2014), that “a research setting refers to the physical, social, and cultural context within which a case study is conducted”. To that end, this section will explain the aspects that shall be under scrutiny to answer the research questions. The research setting is the Lofoten Islands which is a region under Norway and its entire population. As mentioned earlier in the introduction, this region contains approximately a population of 24 000 according to latest census data. To gain better understanding of impacts of the ruling preventing further oil exploration in Lofoten, Norway, I researched about the of ecotourism, conservation and socio-economic activities in that area. The study setting for this research is the Lofoten Islands, located in the northern part of the country, north of the Arctic Circle, is both an archipelago and a traditional municipality in the Norwegian county of Nordland. The archipelago is known for its stunning natural scenery, including steep mountains, beautiful beaches, and dramatic fjords. Lofoten is a popular destination for outdoor enthusiasts, especially hikers and photographers. The area has several well-known hiking trails, including the famous Reinebringen hike, which offers spectacular views over the fjords and mountains. Fishing has been an essential industry in Lofoten for centuries. The area is still known for its high-quality seafood, including cod, traditionally dried on racks called "hjell" and known as "stockfish." The fishing village of Henningsvær is a popular destination for tourists interested in experiencing the traditional fishing culture and sampling fresh seafood. Lofoten also has a rich cultural heritage, a history of Viking settlements and a unique Norwegian dialect still spoken in the area. The archipelago has inspired many artists and writers over the years, and several museums and cultural centres celebrate the area's history and artistic legacy. Lofoten is situated between the Norwegian Sea to the west and the Vestfjorden to the east, and it is part of the larger Nordland county. The islands are about 100 kilometres (62 miles) west of Narvik and about 300 kilometres (186 miles) north of the Arctic Circle. The archipelago consists of several larger islands, including Vestvågøy, Austvågøy, Flakstadøy, and Moskenesøy, as well as many smaller islets and skerries. The islands are connected by a series of bridges, tunnels, and ferries, making it possible to travel easily between them.

As mentioned earlier in the introduction, this region contains approximately a population of 24 000 according to latest census data. The population of the aforementioned archipelago of Islands is less than one per cent of the total population of Norway (5.4 million according to SSB) but that small population hold a critical role in determining the course of action to be



taken with regards to natural resources, as in this case, oil and vegetation. Most of the data collected focused on the social, economic and political dynamics of the region vis-a-vis the research questions under study. The introduction furnished us with the requisite information so that we can use it to determine the reliability and validity of the study.

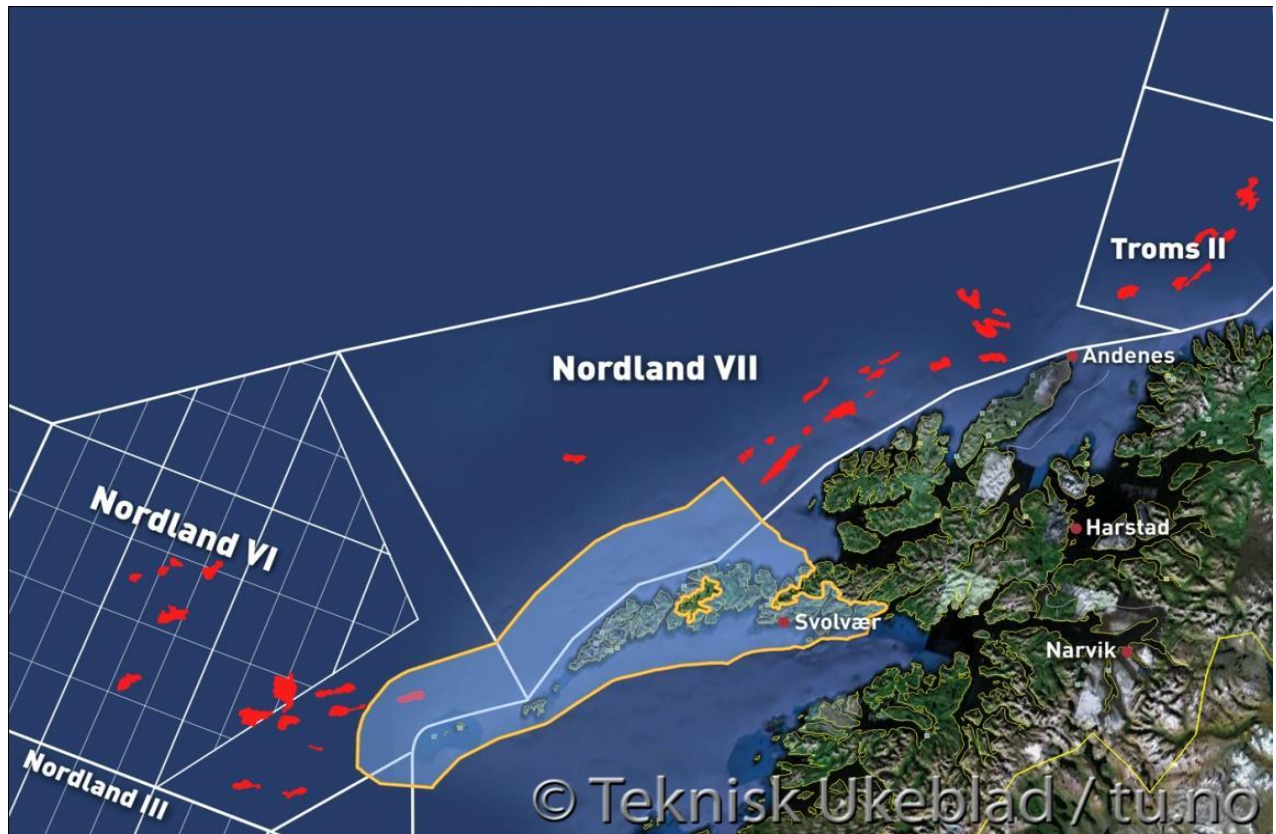


Figure 2: Map of study area showing site of the seismic activity Nordland VI Source: Veum (2020)

### 3.1.2. Research Design

Creswell (2014) postulates that, “research design refers to the overall plan or strategy for conducting a research study”. The literature review showed that although little research has been done in the Lofoten region on the theme of climate change and the subsequent human impact, no one has looked at the importance of the ruling made in 2019. This piece of legislation has a huge potential impact on the livelihood of the inhabitants of this region. Further, more evidence from the literature pointed out that the government and other

independent researchers gravitate towards quantitative research more than qualitative research methodology. Whereas, for one to understand how people are affected, one has to hear the voice of participants; which requires the use of methods such as interviews and focus group discussions where one can freely use open ended questions and probe for detailed information. Following Cresswell’s advice, this section focused on aligning the methodology of the research with the aim of the researcher. This section, the aim is to elaborate on the reasons for the choices in the data collection methods and research analysis, in other words, what was the strategy used to answer the research questions under study. To reiterate, the aims are to understand what the impact of the legal decision on oil extraction in line with climate justice has for the people of Lofoten region and how those people perceive the decision for their livelihood. For that reason, it was important to understand their feelings and emotions which means a qualitative approach is important for that purpose. Using in-depth interviews seemed the best choice.

At first, it seemed more rewarding to use the mixed method approach that combines quantitative data and qualitative data but the practical feasibility was a challenge. The researcher noted the huge amount of resources needed to collect quantitative data; for example, how many people were for or against the ruling based on their demographic characteristics. Therefore, the mixed method approach was not viable for this research. It is not a problem because the qualitative methodology suffices. However, the research issued closed-ended questionnaires to see how much can be gathered concerning the topic. The questionnaires were not the primary method used for data collection for this study, but rather as an additional tool.

Table 2: Overview of methods

<b>S/N</b>	<b>Research Questions</b>	<b>Objectives</b>	<b>Required data</b>	<b>Tools for analysis</b>	<b>Expected Outcome</b>
1	What is the impact of the ruling on conservation and ecotourism?	Identify the ruling on conservation and ecotourism.	Articles and Newspapers report	Discussion	
2	What are the socio-economic impacts of the ruling preventing further oil exploration?	Examine the socio-economic impacts of the ruling preventing	Articles and Newspapers report	Charts and Discussion	

		further oil exploration.			
3	What are the resilience strategies adopted by the people in Lofoten?	Determine the coping strategies adopted by the people in Lofoten.	Physical Assessment, interview and questionnaire administered	Charts and Discussion	

### 3.1.3. Target population

According to Rubin and Babbie (1989), “a target population can be defined as an aggregation of elements from which a sample is selected”. This research’s target population consisted of any inhabitant of Lofoten or person above the age of 18 years, who is actively involved in the issue at hand such as Norwegian politicians and climate activists. Children were not included as they may not grasp the complex issues yet. Again, clearly defining the target population helps us increase the validity and reliability of the research as we focus on the target audience.

## 3.2. Methods and Data Collection

I relied on two methods of data collection based on time, the literature review, availability of resources and feasibility of the study. For example, Focus Group Discussions were not feasible in this study. Secondary sources were not the best option to solely focus on for this study because they are not enough to give information that answers the questions. Primary data was very much needed to fill in the gap missing i.e. the impact of the ruling on the people in the Lofoten islands.

### 3.2.1. Interviews

This method involved asking open ended questions to the respondents. According to Gray (2021), semi-structured interviews are conducted to delve into participants' personal interpretations and meanings of specific concepts or events. The intention is to elicit views and

opinions, encouraging the respondents to provide more in-depth responses. I had the opportunity to observe non-verbal cues at the same time and these are important in analysing the data. Furthermore, I had the opportunity to probe questions further that were not initially put on the interview form. I amassed information from laypersons all the way to experts on the issue. This gave a wide range of information for me to analyse as we shall see in Chapter Four. The total number of people interviewed was seven (7). The potential challenge that could have been faced during the interviews is social desirability. This means that the respondents give the answers that they assume the research wants to hear.

### **3.2.2. Questionnaires**

As mentioned above, I issued out questionnaires just to get some supplementary information if possible. The pilot study for this research had shown the difficulties of getting people to fill questionnaires in Lofoten. I sent questionnaires to different internet platforms and to different organisations dealing with climate change issues. The questionnaire was to be filled on a document. The advantage of the questionnaire would be that it would make the people unwilling to have face-to-face conversations give their opinion. The sample questionnaire is provided at the appendix of the thesis. There was no minimum intended number of questionnaires to be filled as this method was not really at the centre of the research.

### **3.2.3. Data analysis**

Rubin and Babbie (2017) observes that “data analysis involves the structuring and the ordering of information to make it useful or meaningful knowledge”. Therefore, the purpose of this section is to explain what was done to explain the data gathered from the respondents in a lucid and systematic manner. The researcher followed the following steps:

- i. Transcribing: During the interview process, no recording was made. Instead, I opted to take detailed notes in real life to ensure that crucial information, including specific words and expressions. The approach allowed me capture information that might not have been preserved had recording been the chosen method.

- ii. The second step was for the me to immerse herself in the data to gain familiarity thereof. I read through the manuscripts several times for a deeper understanding and more importantly, to observe potentially recurring themes.
- iii. I followed Creswell's (2014) suggestions for data coding, categorising the data into themes and patterns for reader comprehension. This coding process involved applying the political economy approach and inductive directly from the data.
- iv. The subsequent stage entailed data analysis which included dividing the data into categories and elaborating on the significance of each. One category focused on demographic information with the aim of understanding how demographic patterns influence respondents' attitude and perception about the subject matter being studied. Respondents' statement was utilized to validate the research findings.
- v. Afterwards, I analysed the collected data for trends, similarities and differences. I then assessed how the data corresponded to the research questions.
- vi. I interpreted the data within the context of literature review and research questions, striving to understand the implications of the findings in relation to the existing literature. While this study did not set out with specific hypothesis about the ruling's impact, it focused on exploring how the judgement influences Lofoten resident's perception of climate change issues.
- vii. I continued comparing the research findings and existing literature. As discussed in Chapter Four, there are notable similarities and differences which shed significant light on the issue of climate justice in Lofoten Islands.

### **3.3. Research Sampling**

For this study I, relied heavily on the use of the purposive sampling method. According to (Maxwell, 1997, cited in Gray, 2021), purposive sampling is used when specific individuals, instances, or locations are selected because they are known to yield crucial data that would be difficult to collect using any other method. Having this definition in mind, any adult resident of the Lofoten region was eligible for the interview. Other research sampling methods would

not have had the desired outcome. For example, the risk of using sampling methods such as catch-as-catch can or random sampling is that the researcher would have run the risk of interviewing persons under the age of 18 years or tourists who do not have the necessary characteristics to answer the pertinent questions. And as such I used purposive sampling method which focuses on looking for people who have the desired characteristics for the study.

### **3.3.1. Validity and Reliability**

I ensured that the parameters set for the research can be replicated by any researcher who intends to prove or disprove the information. For example, I clearly defined the target population and the sampling technique utilised and also improved the validity of the research by employing both qualitative and quantitative techniques.

### **3.3.2. Positionality**

I was already based in Bergen as student researching for a university project and as such, I expected participants can have some trust in me because I represents a reputable institution. However, I consider myself an outsider as I do not speak Norwegian nor was I resident in Lofoten nor am I originally from Norway. I conducted the research with no foregone conclusion. I did not use any hypothesis or pick any position that I supported. I conducted the research as a neutral researcher. That is there was no form of activism tied to the research. The intention is to gather the information for the different stakeholders to be aware of what is at stake with regards to climate justice issues in Lofoten and the ruling made a few years ago.

### **3.3.3. Ethical Issues**

The fundamental principles of ethical social science research include avoiding harm to participants, obtaining their informed consent, protecting their privacy, and avoiding deception (Bell and Byman, 2007). The topic under study is definitely sensitive and polemical in nature. As a result, it was important to assure the participants that their confidentiality will be upheld.

Their real names will not be used under any circumstances and any information that may be somewhat specific about them is omitted from the research. I also debriefed the participants at the end of the research so that they know that their data was not misrepresented in any way. To avoid a form of deception, I was clear about how much time I requested for the interview and stuck to the agreed time.

### **3.4. Limitations of the study**

Any research who undertakes a project of this kind is likely to face some challenges. The first challenge I faced in Lofoten was the initial reluctance respondents were reluctant to participate in the research. As an outsider, I reassured the participants that the research is intended to benefit Lofoten above all else and provided university identification to authenticate the research. I also reminded the participants to avoid the social desirability phenomenon, which entails saying what the researcher may want to hear.

### **3.5. Summary**

This chapter presented how I came up with a strategy to collect and collate data based on the findings in the literature review and the research questions. The next chapter will analyse the data gathered and its implications.

## **Chapter Four**

### **4. Data Analysis and Discussion**

The purpose of this chapter is to present the data findings and analyse it in line with the research questions and the proposed methodology utilised (mixed methodology) and the conceptual, theoretical framework (Political Ecological Approach) as written in the literature review.

#### **4.1. Background of the analysis**

At the onset, the thesis initially sought to investigate three research questions:

- i. Examining the impact of the ruling on conservation and eco-tourism in Lofoten;
- ii. Assessing the impact of the ruling preventing further oil exploration; and
- iii. Investigating the resilient strategies used by the people of Lofoten.

The reviewed literature, Laudato Si (2015), Haynes & Tanner (2015), Schneider (2009), and Gillett *et al* (2011), demonstrated the urgent need to address climate change due to its devastating effects, not only on the people of Lofoten, but also in Norway and the rest of the world. However, dealing with climate change issues is not always a straightforward issue because it is fraught with a lot of political and economic decisions that may hinder people getting justice, more specifically, climate justice.

Given the potential vulnerability of the population and region, I was interested in understanding the implications of the 2019 ruling in Lofoten Islands. My approach to the research was unbiased, without any preconceived notion or hypotheses about whether the ruling has a



negative or positive impact on the people of Lofoten, or whether the people of Lofoten have effective resilience strategies. Any findings, regardless of their magnitude, could potentially assist policymakers and Norwegian citizens in better understanding the political economy of the environment in Lofoten, thereby facilitating more informed decision-making.

*a. Sample size*

The total number of research participants was 18, with 11 respondents answering the questionnaires and 7 in-depth interviews. These two methods were used to gather as much primary data as possible from those most affected by the decision. It is important to emphasize that the interview method served as the primary instrument for this topic, while the questionnaires provided supplementary information. The interview method proved rewarding, particularly during the initial research assessment. According to Boddy (2016) to ensure a comprehensive understanding of potential response rates, which can help prioritize which questions to include in a survey or tool, it is necessary to use a large sample size. He also mentioned that the general rule for qualitative research should include at one individual from each distinct group. However, no matter how much I tried to reach out to the residents of Lofoten to fill out the questionnaire, the number was, at most, 11 participants. The people of Lofoten perceive the government's decision as a divisive issue, which may have contributed to their lack of interest in participating in surveys.

Additionally, being a small community, residents may have feared risking their anonymity. My position as a foreigner may have also influenced the resident's scepticism. To maintain anonymity references such as Participant 1, participant 2, and participant 3 will be used to identify interview respondents.

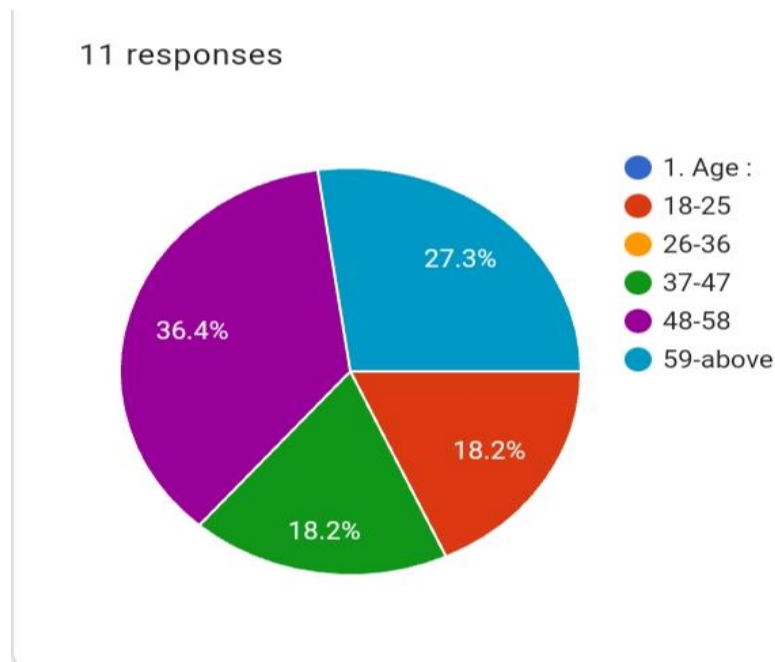
In order to follow the interview participants easily and what their occupations are, this is the completed coded information:

- i. Participant 1 (fisherman)
- ii. Participant 2 (female activist)
- iii. Participant 3 (male activist)
- iv. Participant 4 (Politician)
- v. Participant 5 (community representative)
- vi. Participant 6 (Public transport operator)
- vii. Participant 7 (second male activist)

## 4.2. Data Analysis

As part of the data analysis, it seemed fitting to start presenting data gathered through the questionnaire method.

*Findings from and analysis of the questionnaires*

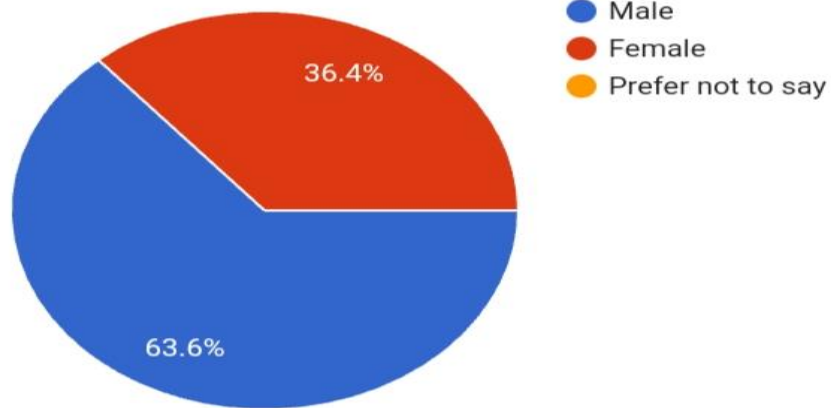


*Figure 3: Distribution of respondents based on age*

The data gathered on the respondents age is good for analyses because there is an almost even distribution between the young and the old. This enriches the research as the researcher collects information from different age groups who have different experiences of Lofoten based on their age and climate issues.

## 2. Gender:

11 responses



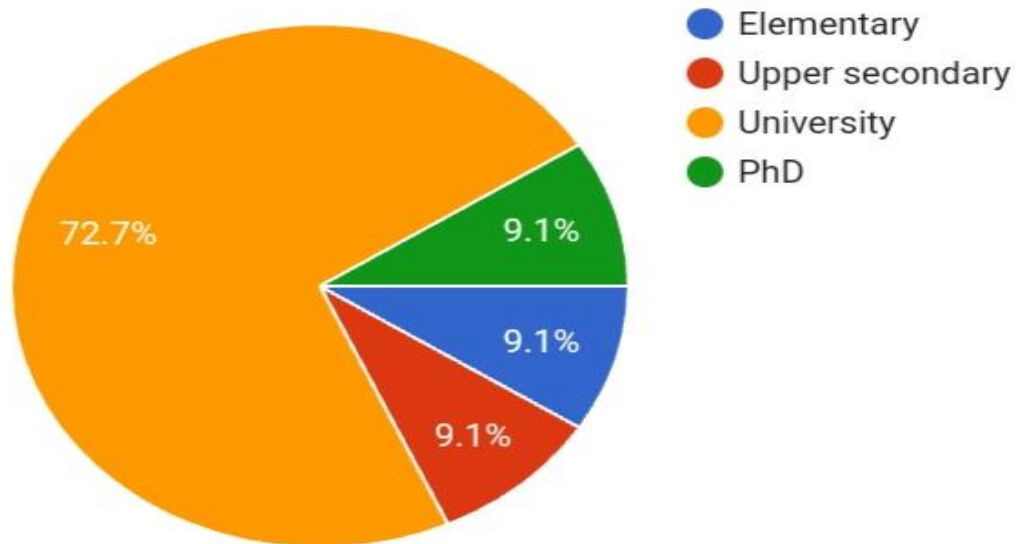
*Figure 4: Distribution respondents based on gender*

Majority of the respondents (7) were male. The findings did not find any distinct differences in perception of the climate justice problem in Lofoten based on gender. The two sexes seem to perceive the ruling of Lofoten and the subsequent threat to climate justice as if it will affect them in more or less the same way. This is different from the UN Women (2022) which seem to show that women are at a greater risk to receive climate injustice than their male counterparts because of existing structural barriers.

### 3. What is your level of education?



11 responses



*Figure 5: Distribution of respondents based on education*

A large majority of the respondents (9) have reached tertiary education. One can assume with a lot of confidence that individuals who have passed through university can look into climate change issues more logically; they can provide rich answers.

## 4. Employment status:



11 responses

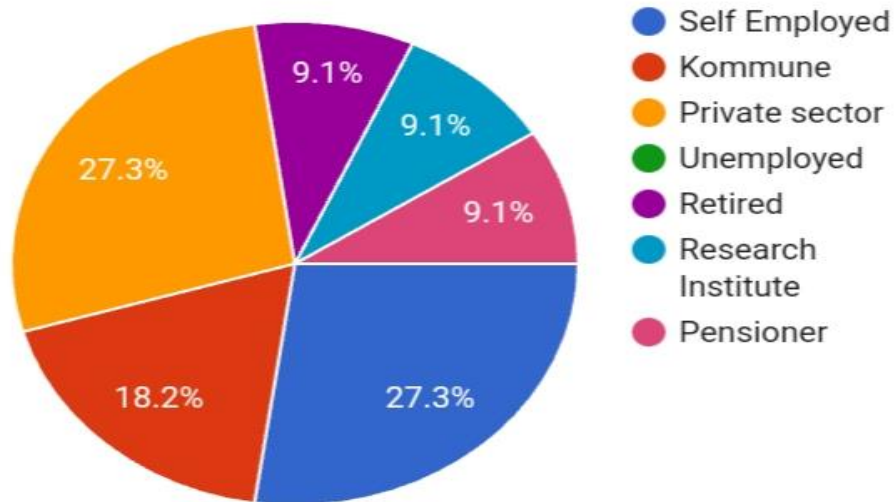


Figure 6: Distribution of respondents based on employment status

All the respondents who participated are employed except for one who is a pensioner.

### 4.2.1. Questionnaire analysis

In total 14 questions were asked in the questionnaire. As previously mentioned, the questions aligned with the research aims and they were more or less the same with interview questions in terms of objectives. The question had three options which are: YES, NO and NOT SURE. A majority of respondents answered that they were not sure (6) that the ruling had improved their lives but they were sure (9 YES) that the decision will benefit Lofoten immensely as it will promote conservation of the environment and ecotourism. The conviction of the respondents was backed up by the fact that a majority think that Lofoten will not benefit from oil drilling. A majority (9) support that fishing and tourism are major industries in Lofoten, a view also shared by O'Brien et al 2006 in the literature review. According to the respondents' answers, for as long as the ruling stands, the future of fishing and tourism will always flourish. As for the two questions that ask whether the Norwegian government should implement stricter policies to mitigate climate change, a majority (8 and 9) supported the idea. The reason for

supporting stricter policies is based on the belief that some of the respondents think that the oil companies have not given and they will come back in the future to challenge the ruling. Two reasons could be at play as to why the respondents seem to be against oil drilling in Lofoten. The reasons could be related to the fact that the respondents are well-educated and aware of looming dangers caused by climate change. Additionally, they are employed, which means their livelihood would not be threatened with new economic activities for example; oil mining and encroach. This is a normal reaction by the respondents as the political ecology approach observes, local communities are almost always against large powerful groups that seek to pursue economic interests at the expense of the environment while changing the fabric of the society at the same time.

Now, the research will turn to the interview method for its analysis.

#### **4.2.2. Data analysis: interview method**

The main data collection instrument for this research, adequately provided rich first-hand information from the people who reside in the Lofoten region. After coding and triangulating the data, the research questions turned into main themes and each on the main research themes has sub-themes.

#### **Theme 1 Impact of ruling on conservation and ecotourism**

##### *i. Fishing*

The Participants 1, 2, 3 and 7 were very certain that the ruling was a huge step towards the conservation of the Lofoten region as it will preserve the balance of the prevailing ecosystem. The fishing industry emerged as one of the recurring themes of this impact on conservation. Participant 1 who is a fisherman, expressed gratitude to the leaders for preventing oil drillers launching their industries because it would affect the fishing activities which Lofoten relies on heavily. Again, as observed by the political ecology approach, communities seek to preserve their way of life as was shown by the fisherman. The fisherman was part of the protestors when the idea that oil drillers want to settle in Lofoten was pitched. Participants 2 and 3 corroborated what the fisherman said. That for as long as the ruling stands, the fishing industry will thrive to the benefit of some residents of Lofoten. Participant 3 was confident that the majority of the

people of Lofoten will continue backing the ruling because they do not want oil drillers. Participant 3 observes:

“The people of Lofoten consider the ocean like a ‘food plate’ (*Matfatet*) so I do not see how they will support oil drillers”

Participants 2 and 3 noted that they were not sure how the ruling impacted the rest of the region in other ways. Participants 5 and 6 seem to be sure how Lofoten would be affected as we shall see under the second main theme.

## *ii. Tourism*

All the participants were also in support of the ruling and confident that tourism will continue to thrive in the Lofoten region. However, two participants were in favour of oil drilling companies embarking their business because they did not think that this would impact tourism. The responses of these participants do not concur with the findings in this research literature such as Voigt et al (2004). It seems as if they may have something to benefit from the oil drilling companies entering Lofoten or they simply need to be more informed on the issue of climate change and climate justice.

Two Participants interestingly observed that although tourism in Lofoten will continue to flourish under the present circumstances, they were discontent with the activities of some tourists. They observed that tourists are polluting some of the forests and beaches of Lofoten. While they are fighting against oil drillers, they are also keeping an eye on tourists who are polluting the environment.

## **Theme 2** Impact of the ruling on further oil exploration

Under this theme, it is noted that oil drilling has only been suspended and not abolished. No one seems to believe that the ruling is permanent. The interests of oil drillers are a continuous threat in the Lofoten region. Over 10 years ago, Participant 7 said that they had to protest against oil companies again and in recent years they did the same. Following Participant 5’s remarks that in Lofoten fishing and ecotourism still generate a lot of revenue for Norway, one can assume that the ruling was voted for partly because fishing and ecotourism are still profitable. Had it been a different case, the oil drillers may have started their business trumping the interests of the residents of Lofoten.

*i. Ambivalence*

Participants 5 and 6 demonstrated the aspect that the ruling is not a permanent law or policy because they agree with the idea that oil drillers should come to Lofoten. Participant 5 mentioned that the only reason why he ended supporting the ruling is because of his children who begged him to do so. This may also come across as a case of social desirability. Participant 5 may have said this because he may think it is the position I am expecting him to take. Participant 6 noted that there are always negatives to oil drilling but then there are a lot of positives too. She inclined more to the oil drillers moving onto Lofoten islands. The reason she was not very vocal about drillers coming in seems to be because of political survival. With attitudes (in a neutral way) such as that reflected by participants 5 and 6, it shows that there is ambivalence over the ruling.

*ii. 'Tension'*

As if ambivalence is not enough. There seems to be 'tension' in Lofoten over this ruling. Participant 4 seemed frustrated by the ruling and wanted oil drillers to come as it will give him better job prospects than being a public transport worker. Participant 6 argues that people are leaving Lofoten and the population is decreasing instead of increasing. On one of the online platforms when I was doing my pilot study, some people corroborated Participant 6's claim and expressed a similar desire for oil drillers to come to the area. What was surprising is that they did not think oil drilling would cause environmental problems, which seems unlikely because the literatures used in the study proves that it does over and over again. People do not want to openly talk about this issue sometimes because of this tension.

**Theme 3** Resilient strategies used by people of Lofoten

Following Theme 2 one can get the idea that the ruling needs to be constantly reinvigorated through some various strategies. Also, according to Boylan et al, (2018) "the annual average temperature in Norway has increased by 1.1 °C since 1900"; this means the impacts of climate change are already afoot. Thus, some resilient strategies are needed. From the information gathered and coded, some resilient strategies indeed emerged. Below are the strategies:



### *i. Protests*

Participants 1, 2, 3 and 7 favoured protests as a resilient strategy for climate justice. They believe in exercising their democratic rights to make known their grievances related to climate change. Through protests, they can safeguard policies that were signed by the Norwegian government such as the Lofoten Agreement or the Paris Agreement. When the researcher asked the activists other resilient strategies they use, they said they did not have any other than having faith in the protests they do. In Norway, there are so many vibrant communities and Non-Governmental organisations that protest for climate justice. At the same time as this thesis was being written, Greta Thunberg, a key figure in climate justice issues, also mentioned in Chapter, led a huge protest in February 2023. This backs up the claims of the respondents.

### *Climate information sharing*

The residents of Lofoten who are keen on climate issues also seem to utilise the aspect of climate information sharing. They have measures to keep their environment clean and they try as much as they can to use sustainable materials to keep their environment clean. Also, information sharing is important as it helps fisherman and workers in the tourism sector to keep their industries thriving.

## **4.3. Discussion**

The research questions in this section relate to the literature on climate justice and its implications for the Lofoten region. The questions explore the impact of oil drilling restrictions on the Lofoten economy, ecotourism, and key industries like fishing and tourism. They also inquire about the potential benefits of oil exploration, the effects on other ecosystems, opposition from pro-oil parties, emission reduction measures, and the need for stricter regulations.

The literature by Okereke (2020) and Sultana (2021) on climate justice emphasizes the need to understand power dynamics and structural issues that perpetuate global inequality in international climate governance. It calls for a process of unlearning and relearning, as well as collaboration with different communities to achieve positive change. The research questions in

this section align with these ideas by examining the local perspective on the aftermath of climate justice measures in Lofoten and the opinions of the respondents.

The literature also discusses the importance of addressing colonial and racial suffering, intersectional analysis, and the need for policies and programs that benefit everyone. The research questions touch on these aspects by exploring the impact of oil drilling on land and sea life, and the potential improvement or deterioration of the climate crisis due to fossil fuel extraction. Additionally, the literature highlights the urgency of acting, policy changes, and responsibilities to mitigate climate change. The research questions address the resilience mechanisms adopted to stop gas/oil exploration, reflecting the need for adaptive measures and the local community's perspective on oil extraction in Lofoten.

Generally, the research questions in this section align with the literature on climate justice by examining the consequences of oil drilling restrictions, the perspectives of the local community, and the implications for environmental protection and sustainable development. They provide insights into the local adaptation strategies and shed light on the complex dynamics of climate justice in the context of Lofoten.

Based on the literature review, the following key points from different researchers can be related to the research questions:

- i. **Intersectionality and Climate Justice:** Sultana (2021) emphasizes the importance of addressing systemic injustices and ensuring that climate policies benefit all communities. This is relevant to understanding the impacts of the ban on oil exploration on Lofoten's ecotourism and the inclusive distribution of benefits in the region.
- ii. **Urgent Action and Policy Modifications:** Svarstad (2020) and Caney (2014) highlight the need for timely mitigation measures and policy changes to address climate change. These perspectives are relevant to assessing the impact of the ban on oil exploration on Lofoten's economy and the potential benefits or harms it may bring.
- iii. **Adaptation and Impacts in Lofoten:** O'Brien (2006) stresses the importance of proper attention to adaptation measures in maximizing potential benefits and mitigating negative impacts in sectors like fishing, aquaculture, and tourism. This is relevant to understanding the effects of the ban on Lofoten's economy and key industries.

- iv. Conflict Zones in Lofoten: Kaltenborn et al. (2017) highlight the major conflict zones in Lofoten, including oil and gas exploration, infrastructure development, governance issues, and the fishing industry. This is relevant to understanding the potential conflicts and diverging perspectives surrounding the ban on oil exploration in Lofoten.
- v. Definition of Climate Justice: Edward (2021) defines climate justice as community-led solutions that address social inequalities and systemic issues alongside carbon emissions reduction. This perspective is relevant to understanding the concept of climate justice in the context of the ban on oil exploration in Lofoten and its potential impacts on local communities.

### *Resilience Strategies Adopted*

The responses obtained from the research participants in Lofoten indicate that the local community has implemented various resilience strategies to tackle the challenges posed by gas/oil exploration. These strategies can be summarised as follows:

- i. Preservation of Natural Beauty: The respondents are firmly attached to Lofoten's pristine natural beauty. They emphasised the importance of preserving the region's unique environment and ecosystem. They believe oil exploration would disrupt this beauty and cause irreparable damage to the sea life and shores, which are vital to their way of life.
- ii. Local Mentality and Way of Life: The locals in Lofoten value their traditional way of life, which primarily relies on fishing and tourism. They perceive oil drilling as a potential threat to their community and express concerns about its adverse impacts on their livelihoods and the environment. Most respondents are still looking for tangible benefits that oil exploration would bring to their region.
- iii. Environmental Concerns: The participants highlighted their deep concern about the potential pollution and damage that oil exploration could cause to the marine ecosystem. They emphasise the need to protect the land and sea creatures of Lofoten and prevent deforestation. Their resilience strategy focuses on safeguarding the region's natural resources and ecological balance.
- iv. Activism and Community Engagement: The mention of Oljefritt Lofoten og Vesterålen (The Peoples Action for an Oil-free Lofoten, Vesterålen, and Senja) indicates the presence of a local organisation dedicated to preventing oil exploration in the region. This suggests that community activism and engagement play a crucial role in the

resilience strategy adopted by the locals. They actively participate in efforts to secure an oil-free future for Lofoten and protect its vulnerable marine areas.

- v. **Resistance to Materialistic Cravings:** One respondent pointed out that stopping gas/oil exploration requires a fundamental shift in human behaviour, particularly reducing materialistic cravings. This implies that the people in Lofoten recognise the importance of embracing sustainable and environmentally friendly lifestyles as a resilience strategy.

To sum up, the residents of Lofoten utilise resilience tactics, including preserving the natural beauty, safeguarding their traditional way of life, actively participating in activism and community initiatives, and prioritising environmental concerns. These strategies are implemented to secure the region's long-term prosperity, protect its distinctive ecosystem and resources, and mitigate the potential adverse consequences of gas/oil exploration.

### **Chapter Summary**

This chapter presented all the information gathered during the data collection process. The information was analysed and presented in a systematic way that utilised themes. The data collected was compared and contrasted with the literature review and the political ecology approach was also utilised. Certain themes that emerged were analysed. The next chapter will give a summary, recommendations and conclusions of the research.

## Chapter Five

### 5.1. Summary

The relationship between climate change and climate justice is closely intertwined. Climate change refers to the long-term shifts in weather patterns and environmental conditions caused by human activities, primarily the emission of greenhouse gases. On the other hand, climate justice focuses on the ethical and equitable aspects of climate change, particularly in terms of its impacts on vulnerable communities and future generations in line with the adopted definition of climate justice by MRFCJ (2018).

Climate change can potentially exacerbate existing inequalities and injustices, as its effects are often felt disproportionately by marginalised and disadvantaged populations. These communities may lack the resources, infrastructure, and social support systems to cope with the impacts of climate change, such as extreme weather events, rising sea levels, or food and water shortages. Climate justice emphasises the need to address these disparities and ensure that the burdens and benefits of climate change mitigation and adaptation are fairly distributed. Several dimensions of climate justice are discussed in the previous chapter. One aspect is temporal justice, which refers to the responsibility of current generations to mitigate climate change to protect the rights and well-being of future generations. This concept recognises that the actions taken now will have long-term consequences and that present generations should not compromise the ability of future generations to thrive on a healthy and sustainable planet. Another aspect is spatial justice, which focuses on the fair allocation of costs, responsibilities, and benefits associated with climate change mitigation and adaptation. This includes holding historically high-emitting nations accountable for their contributions to climate change and ensuring that those who have the means to bear the costs of mitigation efforts do so while also considering the needs and vulnerabilities of disadvantaged communities that may already be struggling to meet their basic needs.

The importance of climate resilience is also mentioned in this study, which is the capacity of social-ecological systems to adapt and recover from the impacts of climate change. Resilience strategies aim to enhance the ability of communities and ecosystems to withstand and recover from climate-related disturbances as mentioned earlier by Folke (2006). Climate justice and resilience are interconnected, as resilience efforts should prioritise the most vulnerable communities and promote inclusive and equitable approaches to building adaptive capacity.

Climate justice seeks to address climate change's social, economic, and political dimensions, ensuring that the response to climate change is fair and inclusive and accounts for the needs and rights of all individuals, particularly those most affected by its consequences.

This study's research questions revolve around the ban's impact on oil exploration in Lofoten, and the respondents' answers provide insights into their perspectives. By analysing the key points related to international climate governance, intersectionality and climate justice, urgent action and policy changes, adaptation and impacts in Lofoten, Niger Delta and climate justice, conflict zones in Lofoten, the definition of climate justice, inequalities and vulnerabilities, interconnections between agrarian and climate justice, and systemic approach and social justice, we can draw the following conclusions:

- i. The restriction of oil drilling in Lofoten has yet to have a clear consensus regarding its impact on the local economy. Respondents' answers vary, with some expressing uncertainty, disagreement, or agreement. This suggests that the effects on the economy are influenced by global inequality and underlying power dynamics, as highlighted by Okereke (2020).
- ii. The ban on oil exploration is perceived to have a beneficial effect on Lofoten's ecotourism. Most respondents agree that the ban has had positive implications for the region's tourism sector. This aligns with Svarstad's (2020) emphasis on timely policy changes and the potential for positive outcomes.
- iii. The respondents generally reject the belief that Lofoten's economy would benefit more from oil exploration. They recognise the potential harm to crucial industries like fishing and tourism, supporting the argument put forth by Caney (2014) regarding the responsibility of those with power to avoid severe climate change impacts.
- iv. There is a consensus among respondents that oil exploration would have severely harmed Lofoten's key industries, such as fishing and tourism. This aligns with the research by O'Brien (2006), highlighting the importance of proper attention to adaptation measures to mitigate adverse impacts in these sectors.

- v. The measures taken to prevent oil drilling in Lofoten are expected to positively impact the future protection of other ecosystems conducive to ecotourism and conservation. Most respondents believe that the actions in Lofoten will influence the protection of other ecosystems, supporting the view presented by Edward (2021) regarding the need to consider community-led solutions and address social inequalities alongside emissions reduction.
- vi. Respondents anticipate opposition from pro-oil parties against the policies implemented in Lofoten. This suggests the potential for conflicts and challenges in sustaining the restrictions on oil exploration, as highlighted by the research on conflict zones in Lofoten.

To overcome the difficulties of gas and oil exploration, the people of Lofoten have implemented a number of resilience methods. These tactics include conserving the area's natural beauty, defending their traditional way of life, participating actively in activism and community projects, prioritising environmental issues, and restraining oneself from materialistic desires. These tactics seek to protect the region's distinctive ecosystem, guarantee the welfare of the local populace, and guard against any potential harm from gas or oil development.

## **5.2. Conclusion**

The relationship between climate change and climate justice is intertwined, with climate change referring to long-term shifts in weather patterns caused by human activities and climate justice focusing on the ethical and equitable aspects of its impacts. Climate change can worsen existing inequalities, affecting vulnerable communities disproportionately. Climate justice aims to address these disparities, ensuring fair distribution of climate change mitigation and adaptation burdens and benefits.

Temporal justice is a crucial dimension of climate justice, highlighting the responsibility of current generations to take action to protect the well-being of future generations. Spatial justice is another aspect, calling for the fair allocation of costs, responsibilities, and benefits of climate change mitigation. High-emitting nations must be held accountable while considering the needs of disadvantaged communities struggling to meet basic needs.

Climate resilience, the capacity to adapt and recover from climate impacts, is crucial. Resilience strategies should prioritise vulnerable communities and promote inclusive approaches to building adaptive capacity. Climate justice and resilience are interconnected, as resilience efforts must consider the needs and rights of all individuals, particularly those most affected by climate change. In order to ensure a just and inclusive response that considers the interests and rights of all people, particularly the most vulnerable, climate justice tackle the social, economic, and political components of climate change.

The research questions and respondents' answers shed light on the complex dynamics surrounding the ban on oil exploration in Lofoten. While there is support for the positive impact of ecotourism and recognition of potential harm to critical industries, there is also uncertainty and disagreement regarding the overall effect on the local economy. The responses align with key points from various sources, emphasising the importance of addressing systemic issues, power dynamics, distributive justice, and the interconnectedness of social and environmental concerns in achieving climate justice. The findings highlight the ongoing challenges and potential conflicts associated with sustaining the restrictions on oil exploration in Lofoten and the need for continued policy changes and adaptation measures to protect vulnerable ecosystems and promote sustainable development.

### **5.3. Recommendation**

Several recommendations can be made based on the resilience tactics used by the inhabitants of Lofoten. First, it is essential to strengthen environmental protection through stricter regulations and monitoring systems to safeguard the region's ecosystem and wildlife. Second, promoting sustainable livelihoods, such as fishing and ecotourism, can enhance the resilience of the local community by providing training, resources, and incentives for sustainable practices.

Furthermore, fostering community engagement and participation through dialogue, collaboration, and collective decision-making can effectively empower the community to protect their interests and environment. Raising awareness and education about the impacts of gas/oil exploration and the value of sustainable practices is crucial, and advocating for supportive policies at all levels of government is essential. Lastly, collaborating with environmental organisations can provide valuable expertise, resources, and networking



opportunities to amplify the impact of resilience strategies and strengthen the community's voice in advocating for environmental protection. The inhabitants of Lofoten can continue to handle the difficulties presented by gas and oil exploration while protecting their distinctive ecology, cultural legacy, and sustainable way of life by implementing these recommendations.

As for future research, it is vital for one to be well-versed in the Norwegian language. There is a lot of literature that is potentially useful that is in the Norwegian language. It may enrich a researcher's study when included. Also, knowing the Norwegian language can enhance the pool from which participants can be selected.

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## APPENDIX

### **Are you interested in taking part in the research project...**

*“[The aftermath of climate justice in Lofoten, Norway]”*

**This is an inquiry about participation in a research project where the main purpose is to:**  
Examine the impact of the ruling on conservation and eco-tourism in Lofoten...

**In this letter you will receive information about the purpose of the project and what your participation will involve.**

Purpose of the project

This research is done as part of a Master's Thesis Project at the Department of Geography, University of Bergen.

**Who is responsible for the research project?**

University of Bergen is the institution responsible for the project.

**What does participation involve for you?**

If you take part in this project, it will involve that you sit for an interview which will last approx. 30 minutes. During the interview you will be asked questions regarding [the impact of the ruling regarding conservation and eco-tourism and the ruling preventing further oil exploration].

The interview will not be recorded, but the interviewer will be taking notes. No personal data will be collected and the data will be anonymous.

**Participation is voluntary**

Participation in the project is voluntary. If you chose to participate, you can withdraw your consent at any time without giving a reason. All information about you will then be made anonymous. There will be no negative consequences for you if you chose not to participate or later decide to withdraw.

**Your personal privacy – how we will store and use your personal data**

We will only use your data for the purpose specified in this information letter. We will process your data confidentially and in accordance with data protection legislation (the General Data Protection Regulation and Personal Data Act).

- As there will not be collected any personal data, no one will have access to any data that can identify you.
- In the thesis you will either be given a pseudonym, e.g., “Participant 1”.

### **Your rights**

So long as you can be identified in the collected data, you have the right to:

- access the personal data that is being processed about you
- request that your personal data is deleted
- request that incorrect personal data about you is corrected/rectified
- receive a copy of your personal data (data portability)
- send a complaint to the Data Protection Officer or The Norwegian Data Protection Authority regarding the processing of your personal data

### **What gives us the right to process your personal data?**

We will process your personal data based on your consent.

Based on an agreement with University of Bergen, NSD – The Norwegian Centre for Research Data AS has assessed that the processing of data in this project is in accordance with data protection legislation.

### **Where can I find out more?**

If you have questions about the project, or want to exercise your rights, contact:

- Department of Geography, University of Bergen, Head of Department Peter Andersen, [Peter.Andersen@uib.no](mailto:Peter.Andersen@uib.no)
- Research is conducted by Jennifer Otabe, [Jennifer.Otabe@student.uib.no](mailto:Jennifer.Otabe@student.uib.no)
- Supervisor for this project is Odd Inge Steen, [Odd.Steen@uib.no](mailto:Odd.Steen@uib.no)
- NSD – The Norwegian Centre for Research Data AS, by email: [personverntjenester@nsd.no](mailto:personverntjenester@nsd.no) or by telephone: +47 55 58 21 17.

Yours sincerely,

Jennifer Otabe

Master's student

Department of Geography, University of Bergen

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**Consent form**

I have received and understood information about the project “[The Aftermath of Climate Justice in Lofoten]” and have been given the opportunity to ask questions. I give consent:

To participate in a non-recorded interview

I give consent for my interview to be processed until the end date of the project, approx. 15<sup>th</sup> of May 2023.

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(Signed by participant, date)

## Questionnaires

### **Purpose of the project**

This research is been done as part of a Master's Thesis Project in the Department of Geography, University of Bergen. Climate justice is the collective and individual ability to prepare for, respond to and recover from climate change impacts – and the policies to mitigate or adapt to them – by considering existing vulnerabilities, resources and capabilities. (Banks, et al. 2014) Essentially, climate justice means trying to ensure that people and the planet are treated fairly.

### **Who is responsible for the research project?**

University of Bergen is the institution responsible for the project.

### **This research project aims to:**

- Examine the impact of the ruling on conservation and eco-tourism in Lofoten
- Examine the impact of the ruling preventing further oil exploration
- Examine the resilience strategies adopted by the people in Lofoten.

### **Participation is voluntary**

Participation in the project is voluntary. If you chose to participate, you can withdraw your consent at any time without giving a reason. All information about you will then be made anonymous. There will be no negative consequences for you if you chose not to participate or later decide to withdraw.

### **Where can I find out more?**

If you have questions about the project, or want to exercise your rights, contact:

- Department of Geography, University of Bergen, Head of Department Peter Andersen, [Peter.Andersen@uib.no](mailto:Peter.Andersen@uib.no)
- Research is conducted by Jennifer Otabe, [Jennifer.Otabe@student.uib.no](mailto:Jennifer.Otabe@student.uib.no)
- Supervisor for this project is Odd Inge Steen, [Odd.Steen@uib.no](mailto:Odd.Steen@uib.no)
- NSD – The Norwegian Centre for Research Data AS, by email: ([personverntjenester@nsd.no](mailto:personverntjenester@nsd.no)) or by telephone: +47 55 58 21 17.

Yours sincerely,

Jennifer Otabe

Master's student

Department of Geography, University of Bergen

Instruction: Please tick where necessary and fill in the blanks where necessary too.

**SECTION A: BIO-DATA**

1. Age :

- a. 18 – 25
- b. 26 – 36
- c. 37 – 47
- d. 48 – 58
- e. 59 – above

2. Gender

- a. Male
- b. Female
- c. Prefer not to say

3. What is your level of education?

- a. Elementary
- b. Upper secondary
- c. University
- d. Other

4. Employment status

- a. Self employed
- b. Kommune
- c. Private sector
- d. Unemployed

**SECTION B**

1	Has the restriction of oil drilling improved the Lofoten economy?	Yes	No	Not sure
2	Has the ban on oil exploration had a beneficial effect on Lofoten ecotourism?			



3	Would Lofoten's economy have stood to benefit more from oil exploration?			
4	Do you believe that oil exploration could have taken place without negatively affecting Lofoten's local economies (fishing and tourism)?			
5	Do you believe that oil drilling in the region would have severely harmed Lofoten's key industries, such as fishing and tourism?			
6	Do you expect that the measures taken to prevent oil drilling in Lofoten will have an effect on the future protection of other ecosystems conducive to ecotourism and conservation?			
7	Do you anticipate that in the future, pro-oil parties will oppose the policies put in place in Lofoten to prevent oil exploration?			
8	Do you think that regulations prohibiting oil exploration will force the oil sector to adopt measures that will eliminate emissions from their operations?			
9	Do you think that companies engaged in oil exploration in particular areas should be subject to stricter regulations?			
10	Does the adoption of these laws signify a Norwegian transition away from oil as a source of energy and toward alternative environmentally friendly ones?			
11	Do you believe that more fossil fuel extraction in other parts of Norway will result in a deterioration of the climate crisis?			
12	Do you think that the policies implemented safeguard both land and sea life in Lofoten?			
13	Do you believe that additional policies are required to safeguard land and sea creatures, and to also prevent the deforestation the Lofoten Islands?			
14	Do you think your standard of living would have improved beyond what it is if there was exploration of oil in Lofoten?			

1. What are the resilience mechanism adopted on stopping gas/oil exploration?

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