Oil development in Lofoten

A case study of tourism and possible effects from an oil/gas development in Lofoten region

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Fredrik Bakos

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Preface

This master thesis is my final task in the Energy Management program at Bodø Graduate School of Business. I have had a good time at the college in Bodø. With my final work, I have learned a lot, the time has gone very quick and soon I will not be studying but working.

The topic for my master topic I find very interesting and important. I have myself worked in tourism industry in Lofoten. I think the nature is fabulous. Nothing beats fishing in the Sea in Lofoten when you see the midnight sun in the summer. All people have to experience that, one time in their lives.

The studying at Bodø Graduate School of Business and MGIMO in Russia has been interesting and challenging. To go abroad and studying in a total different culture in Russia has been very helpful for me to get personal experience I never would get with to just studying in Norway.

I want to thank the staff and professors at Bodø Graduate School of Business for all help I have received, especially my supervisor Anatoli Bourmistrov for good advices and giving me important and good supervision. I also want to thank my classmates in The Energy Management class, both Norwegians and Russian.

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Fredrik Bakos

Abstract

This master thesis aims to examining the aspects in which effects an oil/gas development outside Lofoten will have for the tourism industry in Lofoten. It is a focused qualitative case study of Lofoten, which investigates the effects on tourism industry of an oil/gas development outside Lofoten. A examining of Lofoten as a tourist destination and potential effects from the oil/gas development is the key words. This thesis uses stakeholder theory, in order to see what an oil/gas development outside Lofoten will have to say for the stakeholder groups. I have had a focus on tourism industry and have used impact assessment with consequence analysis as a tool to see what the oil/gas development effects will have to say for this industry and its interdependent stakeholder groups. I have also used conflict-resolving strategies to see on how the potential conflicts can be resolved.

The final aspects are:

1) How will the development in Lofoten region be for the tourism industry and its interdependent stakeholders without a possible oil/gas development?

2) Sea-bottom development with onshore facilities, offshore development and oil discharge possible effects for the tourism industry, and its interdependent stakeholders.

3) How can oil companies and Norwegian government limit possible effects for the tourism industry and its interdependent stakeholders?

My most interesting findings are that the population in Lofoten region is decreasing. The fishing industry is also declining and the tourism industry is getting more and more important. It is possible to get the visible impact for an oil/gas development limited (Wytch Farm example). An oil/gas development will have a time-period from 25 to 50 years (development/production). An oil discharge can have large negative impacts for the tourism industry, but the reputation can be back to normal in 5 years, but it is depended on how big the oil discharge are. There are examples of positive effects after an oil discharge also; with a different perspective, Galicia region on the western coast of Spain got some positive effects. Larger activity because of the oil/gas development will get positive effects for the tourism business. A good conflict resolving strategy from the stakeholders and oil companies will have a lot to say about how big the effects will be.

Sammendrag

I en tid da petroleum produksjonen på Norsk sokkel er dalende ønsker den Norske stat å finne nye felt på Norsk sokkel for fortsatt å ha gode inntekter. Inntil videre er Feltene Nordland VI/VII og Troms II stengt for oljeutvinning. Det vil komme en ny vurdering i 2010. Lofoten er en region med fraflytting, fiskeriene er mindre og mindre viktig sysselsettingsmessig mens turismen er i fremmarsj. Men turismen i Lofoten er i stor grad basert på fiskerimiljø, der turistene ønsker aktiviteter som fiske opplevelser, turistene bor gjerne i moderne rorbuer.

Hensikten med denne oppgaven er å se hvilke effekter en olje/gass utbygging vil ha å si for turisme næringa både økonomisk og sysselsettingsmessige effekter. I oppgaven vil det og bli fokusert på i hvilken grad et olje søl/utslipp vil ha å si for turisme næringen og dens avhengige aktører.

Denne master oppgaven har en kvalitativ vinkling der dokument analyse er sentralt, men bruken av intervjuer av sentrale personer i turisme næringen, lokal miljøet og eksperter er også foretatt.

Viktige funn i denne oppgava er at det kan både være negative effekter, med reduserte besøkstall men det kan og være ganske nøytrale effekter hvis utbyggingen gjøres på en måte der de synlige effektene blir små. Effektene av et potensielt olje søl/utslipp kan være store, men det er avhengig av om det rammer strand sonen og fisken. Rammer olje sølet/utslippet skreien under gytingen vil dette ha store konsekvenser for fisken og omdømmet til Lofoten som turist destinasjon. Det er eksempler der oljeutbygginger har skjedd i områder der turisme og rekreasjon er viktig der man har bygget oljeanlegg ned i bakken og har dermed skjult store deler av anleggene i bakken, velger man slike løsninger med en god konflikt løsnings strategi vil effektene av en olje utbygging bli relativt.

Historien om petroleum utviklingen på Norsk sokkel er tatt med for å vise hvor viktig petroleum sektoren er for Norge som nasjon. Historien om Hammerfest er og tatt med for å vise hva petroleums utvinning kan gjøre for en fraflyttings kommune i Nord-Norge.

Teori som er brukt i oppgaven er aktør (stakeholder) teori med konsekvens analyse som redskap, dette for å belyse hvilke effekter en petroleums utvinning vil ha å si for turist næringen i Lofoten, konflikt løsnings strategier er også tatt med da det er viktig å få de ulike aktørene til å samarbeide for et best mulig resultat for alle involverte.

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Abbreviations

GHG- Green House Gasses

LNG- Liquiefied Natural Gas

NCS- Norwegian Continental Shelf

NOK- Norwegian kroner

NPD- Norwegian Petroleum Directorate

SCM- Standard Cubic Meter

Glossary

Petroleum-Is a term for all liquid and gaseous hydrocarbons found in a natural state in the substrate. Other substances recovered in connection with such hydrocarbons, is also petroleum.

Rorbu – “Ro” means row,”bu” means cabin. This is a cabin where fishermen’s lived in the past during, the fishery season. Now the rorbu`s are used for accommodation purpose.

Seismic survey – A study of underground formation, is used to find oil and gas by shooting radio waves into the ground.

1. Introduction

The title of this thesis is “Oil development in Lofoten”. The reason why I chose this title is that it is telling about what can happen outside Lofoten. Areas outside Lofoten have been close but it seems that it in the nearest future areas outside Lofoten can be open. Some people may think that this is never going to happen but the Norwegian government has to get revenues from a place, the revenues from the oil/gas industry is standing for a large portion of Norway’s total revenues. Today the Norwegian economy is very dependent of the oil revenues.

1.1 Background

The debate about an oil adventure in North of Norway is not a new debate. After the first findings on NCS in 1969, Tromsø County was early out and made in corporation with Aker and Norcem plans of an oil base and construction facilities outside Tromsø city. Harstad city with good port and mechanic industry was also taking position. There were several regional oil companies in the North, which were established. The expectations of an oil adventure in the North were high in the 1970s. A main reason why the oil companies in the north of Norway got a short life was that the Norwegian government was steering the concessions to the three largest companies, Statoil, Norsk Hydro and Saga petroleum. Some companies in the North of Norway got contracts with the oil companies but most of them got bankrupt. In 1980, Norsk Hydro was search drilling outside Tromsø, but large discoveries were not finding (Jaklin, 2006).

Today it is only two findings of petroleum in the Barents Sea. Snøhvit field become discovered in 1981, and today there are production of LNG for export to US and European market. Goliat were discovered in 2000, and there are plans of production from this field. The Skarv field at the coast of Helgeland will start production in 2011 (Lahn, 2006)

The question about opening Nordland VI/VII and Troms II will come up again in 2010. The oil business is drooling for starting explorations in these areas. Norwegian petroleum’s reserves which is located in these areas has been estimated to 20%. Parts of Nordland VI were open in 1994 for drilling of a limited number of search wells, on special strict conditions. The government in 2001 before all planed drillings was finish closed the area. NPD made some 3-D seismic surveys in the summer of 2008 (KonKraft, 2009).

Lofoten is today a region with decreasing inhabitant numbers, the people who are living in Lofoten are getting older, and young people are moving from the region (LOVE, 2003). The fishery industry has been in the history very important reason why people can live in the region. In the 1960 the first tourist come to Lofoten, they wanted to stay in a rorbu and experience real fishing villages (Destinasjon Lofoten, 2009a). The nature in Lofoten is great and people from all over the world are coming to see this clean untouched nature (Brastad et al, 2002).

A respondent has told me that, *"Today it is actually the tourism industry which has larger value than the first hand value on the fish in Lofoten. When it is a fact today that the tourism industry have gone past the fish industry in the value creation, then this are saying something about the potential for the tourism industry, in employment and value creation"*.

The oil companies and Norwegian government is talking a lot about spreading consequences in relation to an oil/gas development. They want to sell this to the local stakeholders, because they want of course developing new oil/gas fields to secure jobs for their workers and have stable revenues (Bladet Vesterålen, 2007).

In newspapers today, about a possible oil/gas development in Lofoten it is much focus about fishery industry can be hurt of an oil/gas development. The fishery industry is very important for the tourism industry in Lofoten region (Brastad et al, 2002). However, there is a certain lack of research of the tourism industry effects of an oil/gas development. If the fishery industry will be hurt of an oil/gas development then the tourism industry will be hurt. Traditional impact assessment methodology is not seeing on how stakeholders are interdependent.

Impact assessment is important for the Norwegian government when they shall decide if there will be an opening or not of developing oil/gas outside Lofoten. Therefore, it will be very important for the tourism industry to address their demands to the oil companies if there will be an opening. To limited possible negative effects, I think will be no problem if the tourism industry and the oil companies can communicate and agreeing on how they will do things. Maybe it will be some positive effects also. The key word is peaceful co-existing, but this means that the tourism industry and oil companies can communicate.

1.2 Research question

In Lofoten region there have been a lot of debate if there shall be an oil/gas development or not, the political parties is debating and the Norwegian government has decided to wait for more reports about the consequences of an oil/gas development. Therefore, in my thesis I want to investigate the possible effects from an oil/gas development will have for the tourism industry in Lofoten region so my research question is therefore as follows:

What possible effects will petroleum's development in Lofoten have for the tourism industry in Lofoten?

In my thesis I wanted to write about something what interested me, and after my summer job in Henningsvær where me and my girlfriend was running a rorbu facility, and the seismic ships was out in the Sea and environmental organizations was doing some protests against this, I found my research question. In my lessons in the Energy Management course at Bodø Graduate School of business, I have learned that the last undiscovered resources of oil/gas are in the High North. High North development means areas that are more vulnerable, the climate is hard and it means dark winters and light summers. Less people are living in the North than in the South and they are more dependent on the natural resources.

In order to describe and analyze the tourism business in Lofoten and the possible effects from a possible oil/gas development outside Lofoten I have looked at traditional and modern theories. With the basis in co-existent perspective and out from that stakeholders theory I have set a focus on the different stakeholder groups and how other stakeholder groups are important for the tourism business. The possible effects on the tourism industry and its interdependent stakeholders from an oil/gas development, is analyzed with impact assessment methodology with consequence analysis, and strategies for solving conflict are used as a tool to prevent possible conflicts between the different stakeholder groups. I have done three interviews with central persons in Lofoten and have had contact with an expert in oil discharges. I have also studied a lot of documents and reports to get an overview over the issue.

The research is in self-very complex, so to organize data it is important to systemize it. Therefore, I have made a research model to be able to systemize the data and to say something about the research question. The model I have showed below illustrates my

research model, and the model has a base from the case study approach where the research process are explain in three categories; describe, characterize and combine.

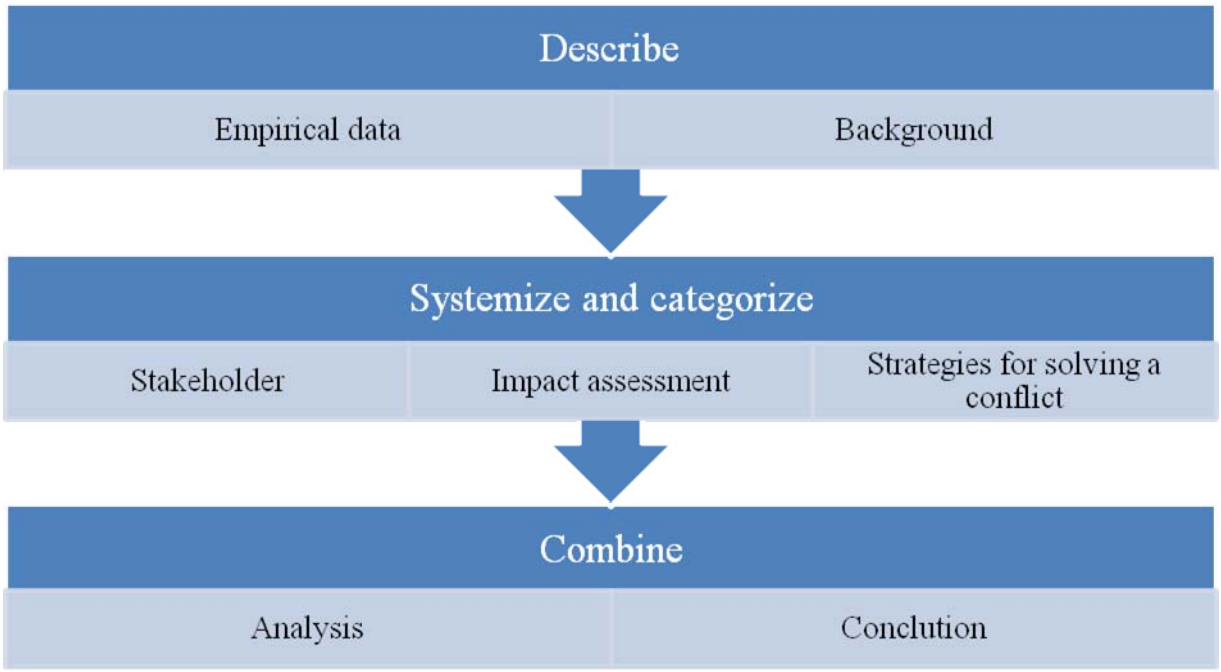


Figure 1-1. Research process, describe, systemize/categorize and combine.

1.3 Contribution

The practical contribution of this thesis is that it will highlight the possible positive and negative effects of an oil/gas development outside Lofoten for the tourism industry in Lofoten; it will also set a focus on peaceful co-existent between the oil/gas industry and the tourism industry. I have to highlight as many effects as possible but there are things that are not taking into consideration. From my perspective, there are things who talks for an opening of oil/gas development outside Lofoten and things who talks against an opening. Lofoten region is a region with decreasing inhabitant numbers, to get young people to stay and move back to the region it is maybe not enough with jobs in the fishery and tourism industries, the young people maybe wants some more challenging jobs. With new jobs in an oil/gas industry and increased technological competence in the region, the young people maybe want to stay and move back. To answer my research question I have collected data about the region, petroleum industry, the tourism industry and other stakeholders groups.

1.4 Outline

Chapter 2 are the methodical chapter, the method is the ground stone of my research. I will here explain how my qualitative research process has been, and why I made choices on the way. The method is the basis of my research and the basis for discussing the results from my interviews.

Chapter 3 is the theoretical chapter. To be able to find the stakeholder groups who are important and why they are important from an oil/gas development. Impact assessment methodology with consequence analysis is been used, to be able to analyze the consequences from an oil/gas development, for the stakeholder groups. Strategies for resolving conflicts are also here.

Chapter 4 is about the Lofoten region and the tourism industry. This was important for understanding what the region stand for today. In addition, to see on tourism industry in the region, and to be able to see if there are any trends which are present.

Chapter 5 is the chapter where I have the possible oil/gas resources in Lofoten and the history of oil/gas industry in Norway. This I have seen on to get a wider understanding why the areas outside Lofoten, now are the next step for the continuing Norwegian oil adventure. Declining of production on NCS is an important argument for opening new areas for oil/gas development.

Chapter 6 is about the treats of an oil development and stakeholder's position to a possible oil/gas development in Lofoten. In order to make a analyze it was important in the way that if for example an oil discharge will hurt the fishermen`s in first hand it will also hurt the tourism industry.

In chapter7, I will discuss my finding and draw the main conclusions. I will use my analytical tools from the theoretical chapter to see on what will be the effects for the tourism industry in Lofoten, from different scenarios.

In chapter 8, I will make my conclusions and sum up the thesis. I will also recommend further investigations.

1.5 Limitations

The discussion about a possible oil/gas development outside Lofoten has many factors. My goal is to evaluate the stakeholder group tourism industry possible effects from an oil/gas development, it is not my goal to evaluate if there will be an opening or not, but some of this aspects will be touched upon. Effects for the tourism industry in Lofoten interdependent stakeholder groups, has also been evaluated. There will be limitations because of the limitation of my time and complexity of the field. I have had short time to do this research so there have been limitations in the number of depth interviews and factors.

2. Methodological Reflections

I am starting with to explain the concept of method, and the purpose with this empirical investigation. Further, I will explain the two main approaches to research methods, qualitative and quantitative approach, and continuing with to give the reason for my approach and scientific position. Further, I will explain the strategic choose of informants and population. In the end, will the concepts validity, reliability, my ethical limitations and their influence in my master thesis.

2.1 What is method?

Method is the methodical practices, which are chose when a research question, shall be solved. Nyeng (2007) is saying that which method that shall or should be choose, is dependent of the problem statement the researcher is facing. The word method comes from the Greek word *methodos*, which means that a certain road is followed, to reach a fixed goal. When the information from reality shall be collected and analyzed, social science method is used, and gets on this way new insight in relations and processes in the society. The whole thing is about collection, analyze and interpretation of data (Johannessen et al, 2004). When a certain method shall be choose, it is taking a starting point in the problem statement. It is several different kind of methods which can be choose, but the main categorizes are qualitative and quantitative method. In the chapter I will lighten the different methods I can choose, and after that I will describe the method I have choose to use.

2.2 Problem statement

What I investigate in my thesis is about the tourism business in Lofoten and the possible effects from an oil/gas development outside Lofoten.

My problem statement in this master thesis is:

What possible effects will petroleum's development in Lofoten have for the tourism industry in Lofoten?

To explain my problem statement I will use qualitative research design. The reason why I will choose this design I will explain later in the chapter. I have done some dept interviews of important persons in Lofoten and experts in the oil/gas development field.

2.2 Research paradigm

Social constructionist is one of other in the group who are referred as an interpretive method (Easterby-Smith, 2008). I have a view as a researcher in this Master thesis, that my view is closer to a social constructivist than a positivist is. This is because I believe that my research will influence the research human subjects who I interact with. I think this is important for the reader of my thesis to know, because this will have influence on how the thesis will look like when it is finish. I found a good table in the book (Easterby-Smith, 2008) that shows the different between the positivism and the social constructionist and I present it here:

	Positivism	**Social constructionist**
The observer	Must be independent	Is part of what is being observed
Human interests	Should be irrelevant	Are the main drivers of science
Explanations	Must demonstrate causality	Aim to increase general understanding of the situation
Research progress through	Hypotheses and deductions	Gathering rich data from which ideas are induced
Concepts	Need to be defined so that they can be measured	Should incorporate stakeholder perspectives
Units of analysis	Should be reduced to simplest terms	May include the complexity of "whole" situations
Generalization through	Statistical probability	Theoretical abstraction
Sampling requires	Large numbers selected randomly	Small numbers of cases chosen for specific reasons

Table 2-1. Contrasting implications of positivism and social constructionist. (Source: Easterby-Smith, 2008:59)

To divide between qualitative and quantitative methods, is also to divide between different scientific theoretical world pictures, which mean that I as a researcher have taken consideration to professionally traditions and academic identity when choosing a method. In a main case, this is located in the dividing with logical positivism and social constructivism. The core element of logical positivism is the focus on objective empirical analyze, a positivist is not taking distinction between the epistemological (pattern in data) and the ontological (learning about what there are), but takes the ontological for grounded. A clean positivist is 100% objective in its research. To be objective as a researcher will say that an observation and measure is independent of my personal experience. Nyeng (2007) is giving an example of this; it is like to describe what is happening on the other side of the window. The researcher will then only could describe what happening without having any relationship with the situation.

Social constructivism claims that it is the social phenomenon is which are influencing our research results. This is an interpretable approach to people and society where it is directly denies existent of lawfulness. A clean social constructivist is basing the knowledge production on information, which not has an empirical connection; this is not acceptable in the science.

Therefore, I have concluded that researchers are rare 100% connected to one clean scientific position. It will often be a combination of both objectivity and subjectivity in the research. My subjectivity have not influence the result because I have an exploratory and descriptive research design, but I have been subjective to be able to interpret the respondent's answers. In the depth interviews, I have act in the way as the theory behind the "hermeneutical circle" describes (Johannessen et al, 2000). It is important to combine subjective points of views with the collected data. During each interview, it has been uncovered unknown information, which has strengthened my understanding of the theme. This I have done with my theoretical background in economic and energy management.
With this as a background, I have made a conclusion that my scientific theoretical position is between positivist and social constructivist, but a little bit closer to social constructivist position. I will also use hermeneutic interpretation.

2.3 Research Method

Qualitative versus quantitative, these are the two main groups of research types. *"Qualitative method is the text speaking, quantitative method is the numbers speaking"* (Nyeng 2007:187). Qualitative research have a focus on interpret who is given in an understanding of a document/people; while quantitative research have focus on interpret of numbers. However, it is not only these interpret of numbers in quantitative and understanding of documents and people in qualitative research. Quantitative research has a large number of respondents and the researcher is getting closer to the research question through different variables, and these variables help the researcher to solve the research question. The researcher uses a large number of interviews and or questionnaire. (Easterby-Smith, 2008) is saying that there are 4 different approaches to quantitative surveys as interview, measure, observation and questionnaire, with a large number of respondents. Even if the main case is numbers that are, being analysis of, there will be to a certain level text materiel analyzed too. In qualitative

method is the selection smaller and there will be a more open approach to the research question.

It is most common to either choose qualitative or quantitative method, but method triangulation is also a possibility. It means that both methods is used on cross to each other as an approach to the research question. The reason why this is often used is that you will get a wider understanding for what which are investigated, this is often used with first using quantitative method, and after to use qualitative method to establish a deeper understanding and reveal information that are not coming out from the questionnaire. The information will be more specific and the respondents can express them self more, than just use a questionnaire.

2.3.1 Data collection

There are two different types of collecting data:

Primary data: "data that are generated by a researcher, who is responsible for the design of the study, the collection, analyze and reporting" (Blaikie, 2003:317).

Secondary data: *"raw data that have been collected by some other than the researcher in question, either for some general information purpose such as a government census or for a specific research project"* (Blaikie, 2003:320).

In this master thesis it is used both primary and secondary data. Theories, which have a base in stakeholder theory, impact assessment methodology with consequence analysis and strategies for conflicts resolving. Articles, which have a base in tourism and oil/gas development, are categorized as secondary data, this will be data that I have used for comparison and to uncover differences. At the same time, this theory has grown my understanding of the industries I have investigated, so I have had the possibility to objective analyze the data, which are collected. It has also been a searched after theory and information out from the industries I have chosen to taken a basis from.

2.3.2 Interview

Collection of data in shape of a depth interviews, is categorized as direct primary data. The question I had made was designed on a way that I putted as little as possible guidance on the respondent, so the answers was most possible correct, this for discovering differences and

correlations between the different variables in the research questions. The approach in the depth interviews I used was semi structured or partly structured interviews, this means that I had a superior interview guide as a basis. I took basis in the interview guide and the most important questions from the questionnaire, and chose the main essence so I got a depth understanding of the most important variables. The questions was structured on a way that there was correlations between them, but to keep the conversations a live I used the possibility to mix the logical order with the effect that the conversation become more social and interesting.

Good documentation is a practical factor for us researchers. I have used digital recorder on the interviews and have taken care of the interview guide and transcribing. The advantage with using digital recorder is that I used the possibility to have focus on the communication with the respondent instead of focus to write down the information, and I used the possibility to go back systematic to collect information, which I needed to analyze closer.

2.3.3 Sampling

In this thesis, I have taken interviews of different local stakeholders and experts I have also used documents, reports and books. Principles in sampling: sometimes a research will gather information from all members in an organization, but this is not so often. I have gathered information from a sample. Examples on this: I have taken out a proportion of important persons in the local society in Lofoten. I have taken a decision on: what the sampling unit is, how many sampling units to take, and found what basis sampling is to do about (Easterby-Smith, 2008). Because of my limited time in this research, I have made a limited number of interviews with important stakeholders and an expert. It is not a big survey with a lot of money involved. Therefore, I have search out my interview subject.

2.3.4 Analyzing Data

Follow (Johannessen et al, 2004), it can be a challenge to get a lot out of the collected unstructured data. The researcher then has to focus to get the meaning content in the text in sight, have as a starting point that a data analyze has 2 intentions, a thematic organization and analyze, and interpretation. Analyze and interpretation is going out from to use the available collected information to analyze and developing interpretations and perspectives. The thematic organization will sort and reduce data material without that the most important

information will disappear. This organization is done, by taking a categorical and cross section based grouping of the information, contextual data organization or to use tables and diagrams. Through a cross section based grouping and the use of mark notes to indexation the information is done, to makes it easier to have control on where the data is located at any time. Through reflexive coding, can the researcher's reaction on the material come forth. The contextual organization looks at unique aspects with a case, context or individual parts of the text (Johannessen et al, 2004).

In this thesis is an analyzing of case studies relevant to use, as a follow that it is tourism industry in Lofoten, which are the case. A analyze of a case study contains 5 phases according to (Johannessen et al, 2004):

- Research question
- Theoretical assumptions
- Analyze units
- Data and assumptions in a logical connection
- Interpret the findings with the help of given criteria's

In an analysis based on theoretical assumptions, will the researcher follow the theoretical assumptions, which were planned from the start of the report, (Johannessen et al, 2004). The analysis in this thesis was done with the theory as a starting point and when the progress have gone forward, have the theory been sharpened to narrow in the focus to avoid a too large specter. Follow to Johannessen et al (2004) this can be explain with pattern matching. It will say that the pattern of data fits in with the theoretical concept and assumption. This will also increase the thesis internal validity.

2.3.5 Validity and Reliability

If this master thesis is going to be use in further investigation, I have made questions about the quality of the work. Questions about the results validity out from the collection and objectivity can be raise. Here I will show and defend the content in the research and this I will do that with explaining the quality terms reliability and validity.

Reliability

Easterby-Smith (2008) is saying that reliability for a positivist is the question if the results will be similar if the data collection is in another point of time. With a thought on how the tourism business, fisheries and economy is changing it will be a large probability for that the results not are directly reliable for the future.

The question if my research is reliable can be explained like this: from an epistemological viewpoint, will the data collection be documented, and carried out in a correct way. The answers will give a pointing pin on eventually critical factors, but it is no guaranties for the same results will come in every research. It will be expected to get similar answers but not identical. The interview objects have been informed about my approach methods, so the information given will not be hindered. I have not given my interview objects under the interview the direct problem statement in this master thesis, but given them the theme.

The use of digital recorder and transcribing of the interviews and digital storage of results and interview will make my thesis more reliable. Then the people who are interested can use my results and track the data to clarify if they are correct.

Validity

When the question is about the research validity says Easterby-Smith (2008) that in follow to the positivism viewpoint it is focus on if the measurements corresponding with the reality. Follow Easterby-Smith (2008) you can diverse validity into internal and external validity.

Internal Validity

This term is a measurement on in what extent the different variables explaining changing in the dependent variables. From the literature I have found 4 presupposes for achieving of internal validity.

1. Show that the problem statements descend from relevant theory.

2. Eventually correlations, have to be show.

3. Demand to time order in theory and empirical data have to be, maintained.

4. The research design has to be capable to uncover false information.

This I have done this by being critical to my empirical and theoretical data collection. To strengthen my internal validity I have used theory and empirical data on a way that it will be no problems to track back correlation between these two.

External Validity

This type of validity is use in surveys based on quantitative approach, and the focus is on the possibility to generalizing from the selection to the population. Is the selection representative for the population in Lofoten region? In cases where managing and communication of external knowledge takes a part of science, it is relevant that the results from the survey can be transfer in time and space. This is in connection with the other important element, if the results from the survey can be transfer to another context. I have only done qualitative investigations in the connection with this thesis. When the population is limited to the Lofoten region, my results are not representative for whole Norway/world.

2.4 Ethics

(Johannessen et al, 2004) is describing how the reality in research work is prepared with an ethical perspective. This because of that the sources consist of private persons, and the information about their business. I who am a researcher have got into areas, which are included in respondent's relations to the market. The respondent's economy and daily operation, this can be sensitive information. It is my responsibility as a researcher to take care of the normative problem statements, which deal about making use of sensitive information. I have been continuous sincerely with the respondents in the use of this information, they have referred to what information I could use and published, and I have referred to them as anonym.

2.5 Summary

In this part of my thesis, I have tried to lighten how I have worked with my thesis and what kind of methods I have used for collecting data, and how I analyzed these data. My scientific theoretical position is closer to social constructivist than a positivist is. I have also had a certain level of hermeneutic interpreting. I have used the knowledge I have to explain the collected data.

I am also only using one type of research design, qualitative research design. This is because of my time limitation and the type of the scale it involves to use quantitative surveys or

combination, methods triangulation. To develop a constructive strategy for the analysis, I am using an exploratory and descriptive case study approach with several analysis units.

3. Theoretical frame of reference

My approach in this master thesis is the co-existent perspective between the oil companies and the tourism business in Lofoten region. I will use stakeholder theory to find out of the relationship between the oil companies and the tourism business in Lofoten and I will use impact assessment methodology with consequence analysis to analyze how an oil/gas development outside Lofoten and Vesterålen will influence the tourism industry in Lofoten this will explain my problem statement. I will also see on strategies for conflict resolution as a tool to prevent possible negative effects from a possible oil/gas development. I have chosen these theories to be able to answer my problem statement; the main theory is impact assessment to be able to evaluate possible effects for the tourism industry, and the other theories to build under the impact assessment methodology.

3.1 Stakeholder theory

3.1.1 Basic definition of stakeholder theory

A stakeholder is a person or organization who have stake (interests) in an organization or its activities. The last 15-20 years there have been disagreements among scholars about the meaning of the stakeholders term (Jones et al 2002:19). The definition who are most used comes from Freeman, he is saying that a stakeholder is *"any group or individual who can affect or is affected by the achievements of an organization`s purpose"* (Freeman 2002:108). My believe is that Freeman`s classical definition is good and can be used in my thesis. In this case will the oil companies be the organization, and the tourism industry and its interdependent stakeholder groups under the definition be stakeholders.

3.1.2 Concept and philosophy of the stakeholder

A central element in the stakeholder approach and stakeholder theory is to try to understand organization in its environment (Mitchell et al, 1997). The philosophy behind stakeholder concept is good explain of Ihlen (2004), he says that the basic idea for an organizations success is dependent on how the organization is managing the relationship with stakeholders, and this can affect the organizations possibility to reach its goals. The most use premise for several scholars is that the organizations their selves don`t choose their stakeholders, but it happens the opposite way. Organizations can not only do an analysis of the stakeholders in the organizations perception of organizations own power and stake is not enough. If an

organization perception is not equally with their stakeholders perception, will all good strategic thinking in the world be wasted (Freeman, 2002).

Many stakeholder maps are if we compare them relative equally, some are more detailed; they can for example specifying groups like competitors, political groups, shareholders, employees, trade organizations with more. Models that are drawing attention to two important aspects are a good map in my opinion. The model who are referred in (Ihlen & Robstad, 2004) are very good, first the model sees on who the stakeholders to an organization are and second the model sees on what kind of relations are there between the stakeholder groups and the organization. Freeman (2002) is concern about the relation between the stakeholder and the organization; he is saying how is the organization with its managers interacting with the stakeholder?

A large part of the scholars is diversifying between the primary and the secondary stakeholders. Carroll & Bucholtz (2003) are defining primary stakeholders as those who have a directly stake in an organization and the success for the organization and they have then influence. However, the secondary stakeholders like public or have special interest are not direct. This will place government in the group of secondary stakeholders. But in Europe and specially in the Scandinavian countries where government influence and ownership are more common than in US it is more likely to consider the government as a primary stakeholder.

3.1.3 Which stakeholders are important for an organization?

If I use the wide stakeholder definition, it will leave us with a very large number of stakeholder groups; this will be an unmanageable amount of stakeholders for the organization to take an account, for. The categorization into primary and secondary tries to deal with the large number of stakeholder groups, but it will still offer only two different categories. It can seems unreasonable and impossible for organizations and for scholars, to approach stakeholder practice and theory without a kind of heuristic framework, regarding which directives shall be used to identify the stakeholders and rank them after how important they are. This can be done, by offering a more finely scaled theory of how stakeholder is important based, on the stakeholder's possession of certain attributes: power, legitimacy and urgency. Mitchell et al (1997) is providing such a heuristic framework for identification and categorization of stakeholders. A clarification of power, legitimacy and urgency:

- Power, is displayed when a part in a relationship is capable to gets its will imposed on the other part. This can be trough force (coercive power), material or financial resources (utilitarian power) or as symbolic resources (normative power).
- Legitimacy is a generalized perception or assumption inside some socially constructed systems of norms, values, beliefs and definition.
- Urgency is the degree to which stakeholder is demanding for immediate attention.

For making things easier, the more attributes a stakeholder has, the more important it will be for the organization to have a good relationship to the stakeholder. The stakeholder class with all 3 attributes included will have the name, definitive stakeholder.

The stakeholder classes with only 2 attributes present will have the name, expectant stakeholders. This group can be divided into dominant stakeholders (power and legitimacy present), dependent stakeholders (urgency and legitimacy present) and dangerous stakeholders (power and urgency present).

The classes with only one attribute present will have the name, latent stakeholders. These groups are divided into, dormant stakeholders (only power present), discretionary stakeholders (only legitimacy present) and the last are demanding stakeholders (only urgency present).

Out from an ethical point of view this categorization can seems a little bit cynical maybe, this because of that a stakeholder who are categorized as legitimate and urgent but don`t have any power to demand their claim, are not among the definitive stakeholders.

I shall not investigate an ethically founded question. This categorization is not a restricting formula for classification of stakeholders, but it is a tool for identification or continuous re-evaluation of the organization stakeholders based on the attributes: power, legitimacy and urgency. The model has the combination of being both normative and positive, these strengths the model. The trait legitimacy is normative, because it assures that, the stakeholders with a legitimate stake are taking into consideration. At the other hand legitimacy is a question of one`s point of view. A group can believe that they have a legitimate claim, and the organization believes that they don`t. With adding power and urgency as attributes, will the

organization have two more scales for measuring stakeholders importance, but the chance for that stakeholders are identified even if the organization don`t recognize their legitimacy.

3.2 Impact assessment methodology

Assessment is a systematic identification of potential effects, prediction of their size, and assessment of their significance (Landscape Institute, 2005).

Assessment impact has a base in information concerning the attributes of the receiving environment, stakeholders and the location, scale and nature of the development.

Information about the development of relevant to the impact assessment needs to be collected:

- Description of the development
- Consideration of alternatives
- Knowledge about the project`s life cycle, from development, production to restoration
- Measures, which are propose to avoid, reduce and if possible offset any significant adverse effects to the environment and stakeholders needs to be address.

A general description of the site, layout and characteristics of the planned development is a formal demand. A clear and concise but comprehensive description can also make the contribution of the credibility and effectiveness of the impact assessment study.

Consideration of alternatives is a formal demand and main reasons of why the choice of a certain development solution, have to be described. This is very important when a choice is located in a sensitive area. Considerations of alternatives approaches to a development are seen as a good development practice and it will in most cases led to a more sustainable development. The 0-alternative has also to be considerate.

Stages in the project life cycle have also to be taking into consideration because effects can vary trough time. Construction, production, decommissioning and restoration phases in a development are characterized by large different physical elements and activities. A separate, self-contained description of the development at every stage in the life cycle will help the prediction of landscape, visual and effects for the stakeholders (Landscape Institute, 2005).

Mitigation

The purpose of mitigations is to avoid, reduce and if it is possible to find solutions to limit the negative effects for the environment and stakeholders of a development.

Mitigations is not only about to limit damage, it is also considering measures that can compensate unavoidable residual effects.

Consequence- analysis

”*The only thing secure with a consequence-analysis is that it is characterized with uncertainty”* (Amdam, 1985:189)

Consequence analysis goes out from effects of different alternatives and comparing effects in a system and the result will be the best alternative for the different parties involved in the project. These effects will not be value-neutral, unlike persons with unlike values and intentions will judge the same conditions different. Consequence-analysis is preparations of grounding to take political decisions (Amdam, 1985).

Consequence-analysis is predictions, and will in the most cases, not be right. Under determined conditions, it can be close, but these predictions will fail. So what is the purpose with consequence-analysis? The thinking is more important than the analysis result. The process is more important than the product. What interests and involved think and mean are more important than a computer can make with numbers and results. The uncertainty about the future is always big, but a good preparation can make the uncertainty smaller. It is not possible to see the consequence-analysis as a static analysis. It has to go hand in hand with all planning and be a learning-process. With all the time filling on new knowledge about the society, changes in the society, alternative actions yourself can start, others actions and the results of interactions in the processes, can man prepare on future situations and like that eliminate uncertainty. This is the reason why consequence-analysis should be done (Amdam, 1985).

Formulation of goals, alternative seeking and consequence-valuation as methods has all a heritage from rationalism, where the principle is to get closer to the ideal situation. Ideal situation is when the goals are clear and unambiguous, all alternatives is known and all consequences of the alternatives. This is theory and an “impossible” situation in real society planning, where often lack of time occurs and decisions have to be made with an incomplete

grounding in many cases. Amdam is saying this in nice words: *"A rationalist can have ambitions about clarify all goals, all alternatives and all consequences"* (Amdam, 1985:160). With growing ambitions in charting, the need for resources will grow like workforce and time.

3.2.1 Consequence-analysis elements and content

Amdam is dividing consequence-analysis in rational planning into 3 steps (very simplified):

a) Describe and judging of the alternatives (also 0-alternative) and the consequences is what to be judged of and a condition-report from the area where this are going to be concerned about.

b) Pointing out of what relationship the different alternatives will influence where, when and how. This is only a prediction in a decision-connection and it is important to give a reason why you believe that you get this effects.

c) Consideration and comparison of the different alternatives, with their consequences against different interest groups goals and values.

Consequence-analysis is going out from and wants to be agreeing on a knowledgebase with a best possible description of most likely effects of a fixed measure and different alternatives of that, or of a strategy, in addition to a valuation and reasons for uncertainty in connection with these. The base must be updated the whole way and be communicated out to the participants in the process. Therefore, it can have the function as a common foundation of knowledge which all the participants can identify them with, and build their own assumption. This will also be a part for putting the foundation of decision dialog between the different parts. True dialog it will grow and change content on the way. Main content must be space dimensions, time, unlike effects/aspects/part systems, extended effects/processes and the whole, the total system.

Amdam is dividing into 4 aspects of relationship, which is becoming influence of measure and developing of places:

Nature foundation and area resources (the physical aspect)

The people and their life situation (the social aspect)

Production machinery and business (the economic aspect)

Administration, political relationship and interest organizations (the political aspect)

The only thing who diversify in relationship to the traditional dividing in society planning is that Amdam have divided administration and political functions as an own group. Overlap and dependence between factors will occur. Local consequences are often important to chart when bigger national measure combining effects on other levels. This because consequences on local level can vary big from place to place, while the regional and national consequences is well pointed out and makes the foundation of the whole process. To decide localizing of measure, an analysis like this has to be done. Here is the main point in a checklist for pointing out local consequences of big measures:

1) *The physical aspect*

Nature and protection of cultural values, recreation and outdoor life, business utilizing of the nature, area resources for building developing, total valuation of nature condition

2) *The social aspect*

Individual bound resources, social conditions, physical conditions, the local social fellowship (network), total gathering valuation of welfare and well-being

3) *The economic aspect*

Business – enterprise economy, house holdings – house hold economy, public economy, total valuation of the economic system, the political/administrative aspect

4) *Political parties*

Political – administrative aspects, permanent interest organizations, ad.hoc – interest organizations, total valuation of power structure and interest conflicts

To do area delimitation that best include the system and the area where effects of a measure will be biggest have to be done. Because full isolation of the area in an open society is impossible it will be other systems which we not take in consideration to in the consequence analysis (defined away from the spot), but will have impact on the result. Delimitation can regard systems geographic delimitation, time delimitation, element delimitation and interest

delimitation. Alternatively, we can delimitation levels and study the effects on each of the levels, like local, regional and national.
After the formal demand which are held of the Norwegian environment government (Miljøverndepartementet, 1990) about consequence-analysis it shall contain following moments (this is regarding in main cases if a measure falls under regulation about consequence-analysis, but content demand will be a good point also for other work with consequence-analysis):

- Plans for measure and implement
- Alternative solutions
- Area use and relationship to local government and county plans
- The measures effects for environment, natural resources and society
- Programs for following up studies, supervision and trying of the measurements consequences afterwards.

The environment as mentioned in dot 4 includes air, water, climate, noise – radiate level, plant – and animal life/ genetic conditions, special valuable nature areas, nature – cultural landscape and cultural monument, is vulnerable for consequences who must map out. The natural resources are also mentioned. In that lays earth and wood resources, water (included ground water), minerals and marine resources. The society relationships including business and employment, establishments, development pattern and house building, regional economic effects, social and welfare conditions and effects for outdoor life and recreation (Miljøverndepertementet, 1990).
What is known is that unlike alternatives, will have different consequences in the future. If no alternatives are known, will not consequences of the result be known either, but the consequences of not doing nothing is known, it is called the 0-alternative. In practice, it is impossible to know all consequences of an alternative.
In all planning processes is a have to a consequence thinking in practice be a part, but it will be unlike practice in how this is emphasizes and what kind of consideration which are used. In cases where few have been a part of the planning process and the planners have limited knowledge or try to push forward their own interests, it will be necessary with a more in-debt

consequence-analysis. This because to see what have happened, if the planning have been good enough and if special interest have played a too big role. Then the decision makers will have a good enough foundation to go out from, both in public and private planning a control like than should be weighted (Amdam, 1985).

It is important that consequence thinking, even if it is not necessary with exhaustive formalized analysis in all cases, pervaded all planning. This because we always plan to achieve fixed effects and these should be think trough (Amdam, 1985).

3.3 Conflict and strategies for solutions of a conflict

There are important to change between the 2 words conflict and disagreement (Jacobsen et al 2002). If there are an conflict between two parts in a case/problem it don't mean that there will end up in an conflict, but there have to some kind of link between the two parts and this makes a kind of dependent relationship. This means that an action of one part can affects the other part in this parts expectations and preferences. If these actions can be associated with emotional reactions, we can say that there is a foundation of a possible conflict. This process will be shaped by the two parts access to scarce resources and their balance of power. Jacobsen et al (2002) have made a figure to show the different components in a conflict:

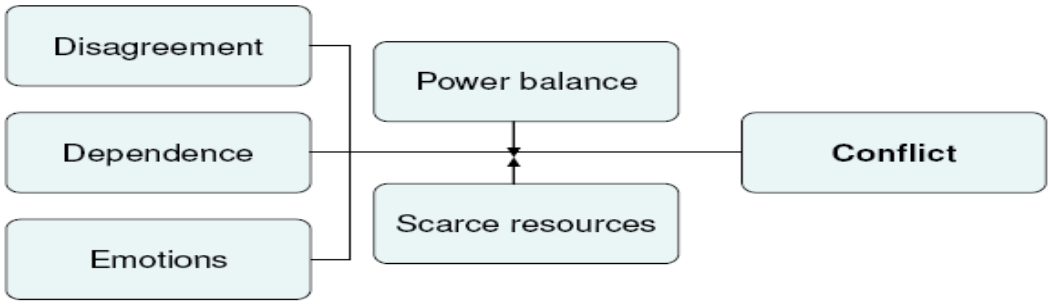


Figure 3-1. The different components in a conflict. Source: Jacobsen et al, (2002:161)

Disagreement, dependence and emotions are the base of conflict. If there is uneven power balance and the stakeholders are, fighting about the same resources there is a ground for a conflict.

Berg (2003) is discussing how conflicts can be resolved. He have made a model based on Thomas (1992) with five different strategies for solutions of avoiding conflict, these are avoiding, accommodation, competition, collaboration and compromise.

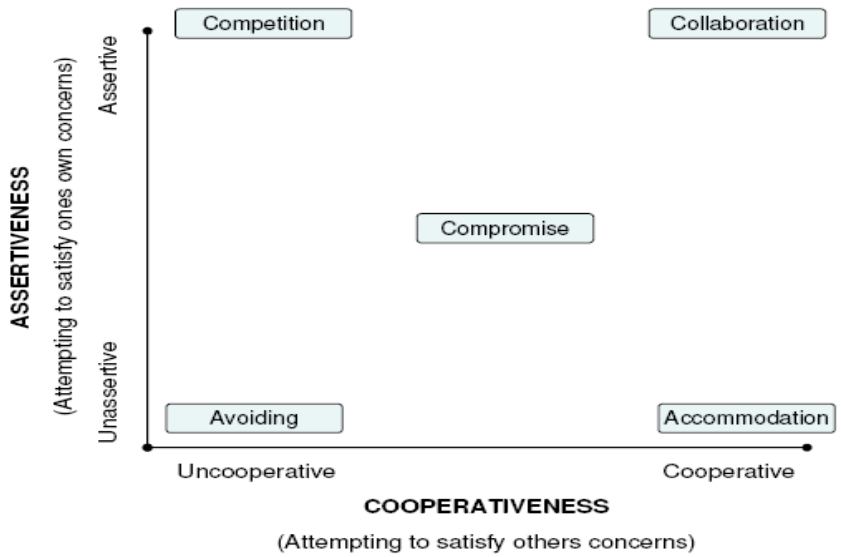


Figure 3-2. Model of strategies in a conflict situation. Source: (Thomas, 1992)

Cooperativeness: This means that a part will try to satisfy other parts concerns.

Assertiveness: This means that a part will try to satisfy one's own concerns.

Avoiding: This means that one or both parts are going to retreat from the conflict. By doing this, the conflict gets a solution. When a solution likes this appear are the case, which there is a conflict over, is not so important or the potential loss of a confrontation is larger than the potential gains. However, one of the parts in the conflict has to inform the other parts about its opinions. It can seem that a solution of the conflict is easy by avoiding it, but if the outcome of the conflict is of not a large interest for one or the other part, this can be the best solution.

Accommodation: This is referring to cases where one of the parts will meet the other parts demand at the cost of its own interests. This solution often takes place in wage negotiations, where one part gives up and accepts the other parts demand. If this was a solution where seen on like a defeat, then this strategy can mean that there will be further conflicts.

Competition: This means that both parts act in an assertive and not in a cooperation willing way. The parts are holding on their own interests, and are not interested in what the other part

are meaning. If the power balance is very asymmetric, one part will in most cases run over the other part, if not and the balance are equally, then this strategy will be destructive for both parts. This strategy can be very hard to justify.

Collaboration: This strategy has a base of that the parts are willing to satisfy the other parts demands and in the same time keeping its own interests. If this strategy are choose the parts will try to find out what they are agree on and what they are disagree on, when the parts have done this they, it will be introduced; concepts and suggestions for finding a solution. This strategy has the aim to create a win-win situation for both parts and ideally, both parts will get what they want.

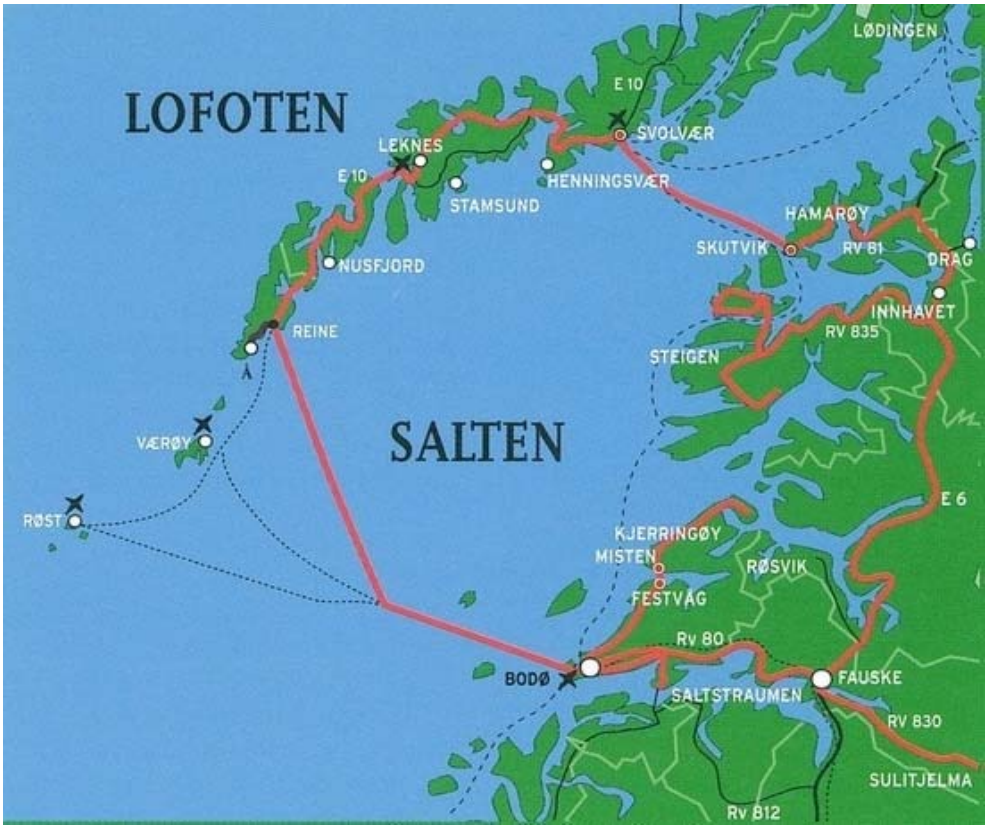
Compromise: This strategy lies in the middle of the model. It means that in this strategy both parts have to give up something to gain something else. With this strategy, there will not be a part, which is the winner, and the other part will be a looser, both parts have to sacrifice something to the other part. For doing a solution like this, it is smart to have a third impartial mediator, this mediator will give advices or it can have the job as a broker between the different parts.

4. Lofoten as a tourist region

In this chapter, I will present the Lofoten region and the tourism industry.

4.1 The municipalities in Lofoten region

The following municipalities are included in Lofoten region: Røst, Verøy, Moskenes, Flakstad, Vestvågøy and Vågan.



Picture 4-1. Lofoten region.

4.2 Lofoten History

The first people come to Lofoten about 6000 years ago. Stone Age people lived from fishery and caught animals in an area with good living conditions. At this time, the whole Lofoten was covered with large pine and birch trees. There was Red deer, bear, wild reindeer, lynx and beaver. In the Sea, there was a lot of fish, seal and wheal (Destinasjon Lofoten, 2009a).

Farming was developing rather early, and for 4000 years ago, there was growing corn in Lofoten. In the Viking, time there was many big chief seats. At Borg in Vestvågøy, there is founds of remaining site of a chief seat with the biggest banqueting hall that is known from

Viking Age in the completely Nordic region. The construction was 8.5 meter wide and 83 meter long. A reconstruction of the building is located at Borg today, and the Lofotr Viking Museum opened in June 1995.

Lofoten fisheries become early important. Kong Øystein found the fishery so important that he in year 1103 made build a church in Vågan, who at this time was the most important place for the fishery. Here he also constructed the first rorbu at year 1120. Stockfish produced of spawning cod was the most important good for resale, and the markets were for the most hole of Europe. Still Italy is the most important market for stockfish of finest quality from Lofoten.

In Kabelvåg can man find location for the Northern cap the only city formation in middle Age, Vågar. From 14th century, become Lofoten Tax-related put under Bergen. This was the beginning of a 600-year long economic dominance, first practice of hanseatic merchant, later of their Norwegian legacy takers. There was changing in economic times, from bad years and poverty, become taking over of periods with good years and big wealth. From the years of 1860 come the large drift of herring, which made the foundation off upcoming, prosperity and people moved to Lofoten. This was the foundation for the people who live in Lofoten today (Destinasjon Lofoten, 2009a).

4.3 Description of the municipalities in Lofoten region

In this part, I will see on the different municipalities in Lofoten region.

Røst

Røst is an island furthest out in Lofoten, approximately 100 km west of Bodø and 115 km north of polar circle; it contains 365 islands, islets and skerries. Røst Island is the largest of the islands in the municipality and the highest point is not more than 12 meter over sea level. South of Røst is the islands Storfjellet, Vedøya, Trenyken and Hærnyken giant monuments I the sea (Destinasjon Lofoten, 2009b).

Surface area: 11 km2.
Inhabitants: 622 (2008)
Municipalities center: Røstlandet

Værøy

Værøy is the second municipality longest to the west. It has all of the typical for Lofoten collected on one place. Midnight sun, white beaches, bird-mountain, troll and an active fish-village with an old history. The mountains are equal steep but it is easier to get to the top. On the east and south of the mountain, section lays Sørland, the islands village-centre. On the North, side of the island lays Værøy old church and priest farm. On the old airport lays now a camping site, art exhibition and pub. 80% of employment in the municipality has connection to the fisheries. There are Lofot-fisheries of arctic-cod in the wintertime, fishing after Greenland halibut, coalfish in the summer and the autumn's herring fisheries. Italy and Spain is the most important stockfish markets and Verøy is a friendship municipality with Venice in Italy (Destinasjon Lofoten, 2009c).

Surface area: 17, 5 km2
Inhabitants: 743 (2008)
Municipalities center: Sørland

Moskenes

Moskenes municipality lays on the southerly part of Moskenesøy. Glacier and other natural forces have shaped the landscape, which some of the wildest and most interesting what Norway can offer. Hermannsdalstind, which is 1029 meter over sea level, is the highest mountain in west-Lofoten. There are a large number of mountain waters with fish. The landscape is characterized by, steep mountains and narrow beach areas. Here you can find Europe's oldest rock species, and these are about 3 billion year old. On the West side of the municipality, it has been settlement until 1950 (Destinasjon Lofoten, 2009d).

Surface area: 117km2
Inhabitants: 1128 (2008)
Municipalities center: Reine

Flakstad

Flakstad municipality consists of Flakstadøy and the northern part of Moskenesøy. The largest part of the settlement in Flakstad is located on the outer side of Lofoten, against the big sea, in

the fishing villages Ramberg and Fredvang. In towards Vestfjorden we find Sund, Skjelfjord, Nesland and Nusfjord (Destinasjon Lofoten, 2009e).

Surface area: 180km2
Inhabitants: 1441 (2008)
Municipalities center: Ramberg

Vestvågøy

West and South part of Vestvågøy is dominated by high and steep mountains. Also in the North and East is the landscape dominated of the mountains but not so high and steed as in South and West. Vestvågøy is the second largest farming municipality in Nordland County and the most important in Lofoten. School offer in the municipality is good from compulsory school until high school. Cultural life in the municipality is very rich with Lofoten Theater, Nordland Figure Theater, cultural school for kids, school music, choir, people dance groups and many sports associations. There are swimming pools, sports halls, track and field site, jump hills, downhill site, light tracks and first class hiking terrain, which invites to activity all year around (Destinasjon Lofoten, 2009f).

Surface area: 422 km2
Inhabitants: 10710 (2008)
Municipalities center: Leknes

Vågan

Vågan municipality includes almost whole Austvågøy, Gimsøya and a number of smaller islands, included Henningsvær and Skrova. A little part of Hinnøya is also belongings to Vågan.
Svolvær is Lofotens “capital” and an important junction for the whole region. The place is also the largest main gate for steady growing tourist traffic to Lofoten. The service business is well developed in Vågan, with both public and private service offices. The region’s most important newspaper comes out in Svolvær, Lofotenposten (Destinasjon Lofoten, 2009g).

Surface area: 477 km2
Inhabitants: 8933 (2008)
Municipalities center: Svolvær

4.4 Tourism industry in Lofoten

Definition: Tourism gives the foundation for business in many different sectors. These sectors are accommodation, serving, transport, arranging-business and activity offers that satisfy tourists and other traveler needs. Tourism businesses identifies out from their dependent of and/or meaning for tourism. An important characteristic with the tourism market is that tourists in most cases demanding a total-product, which contains part-product from different sectors. In addition, this require cooperation on cross of the tourism related sectors (Regjeringen, 1997).

Satellite accounting for tourism

The satellite accounting for tourism sector has connection to the national accounting, and is special adjusted to lightning economic relationship connected to tourism in a national economic relation. The accounting shows the travelers demand after goods and services, tourism consume on the first side and tourism offer on the other side. Offer side shows national-accounting sizes like production, gross-product, employment, investments and so on in the tourism sector, and total offer of tourism products.

Tourism sector is identified, by their dependency of and/or meaning for tourism, and includes:

Overnight accommodations – hotel, camping and other overnight accommodations

Serving – restaurants, bars, cafeteria, catering

Transport – bus, taxi, train, fly, domestic sea transport, ferry transport between Norway and foreign countries, cruise

Arranging – travel agency, tour operator, renting of car

Events – amusement park, circus, sports, entertainment and spare time activities and so on

The satellite accounting for tourism gives also information about the connection between the travelers demand and tourism sectors production. An important point is that tourism sectors also deliver a large part of their total production to other than tourists (Regjeringen, 2000).

4.5 Statistics about tourism in Lofoten

Development in inhabitants in Lofoten region.

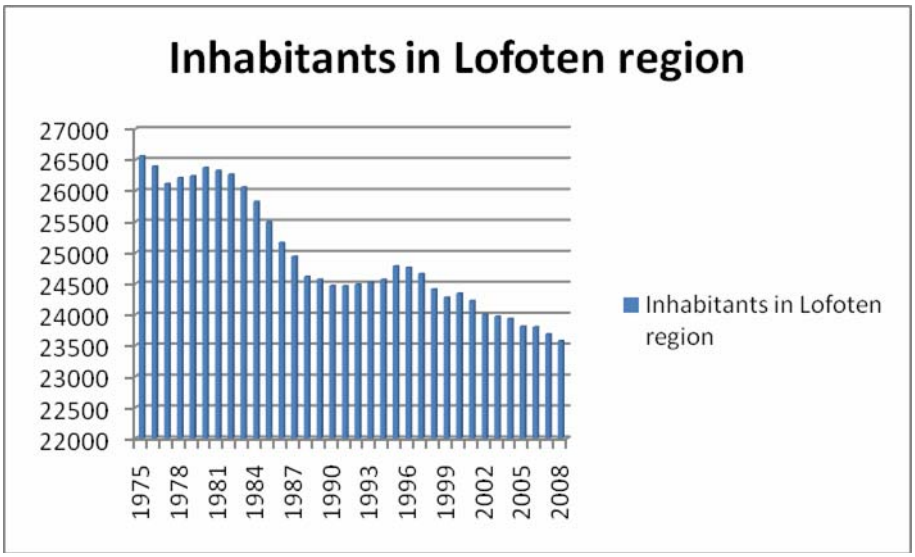


Figure 4-1. Inhabitants in Lofoten region. Source: (SSB, 2009).

The number of inhabitants has decreased the last 33 years in Lofoten region from about 26500 people in 1975 until about 23500 in 2008. It was a more or less steady inhabitant number in the start of the 80s but a decrease in the mid 80s. It flattens out in the 90s but in the start of the 2000, a new decrease began.

Development in inhabitants in Lofoten region, after municipality.

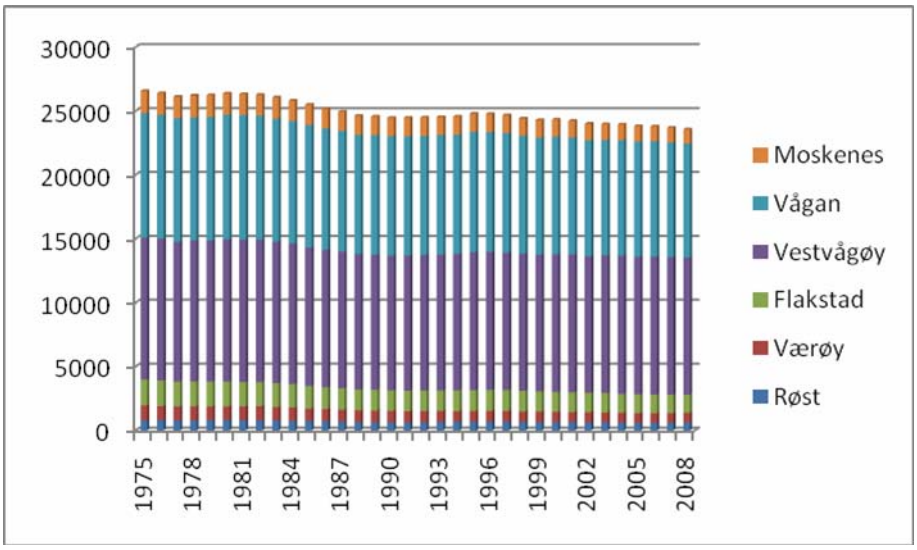


Figure 4-2. Development in inhabitants in Lofoten region, after municipality. Source: (SSB, 2009).

Development in employment in Lofoten

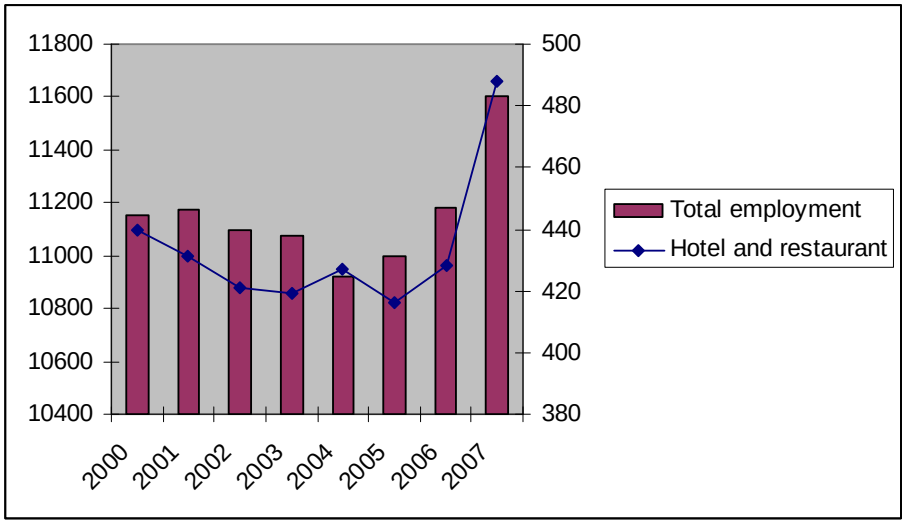


Figure 4-3. Total employment after settlement and employment in Hotel and restaurant sector in Lofoten. Source: (SSB, 2009).

The employment in Lofoten region has been similar in the start of 2000 and a small increase has occurred in the middle of 2000. There has also been an increased employment in the hotel and restaurant business.

4.6 Norway VS Lofoten

It is a good position to compare Norway towards Lofoten to see what trends, which are present, and to see what is special with Lofoten.

Norway

These statistics foundation has been collected, from SSB. SSB has collected numbers from all hotels in Norway and the numbers shows what kind of purpose people has in a overnight stay at hotel have. 15 % has relation to seminar and conference, 40% has relation to work trips and 45 % has relation to holidays. This is total numbers for foreign guests and Norwegians.

	All	%
Stays in all	18221657	100%
Seminar/conference	2627557	14,41%
Profession	7238149	39,72%
Holliday/spare time	8355951	45,85%

Table 4-1. Stays at hotels in Norway after purpose with the stay in the year 2008. Source: (SSB, 2009)

There is also interesting to see in what months the different visitors are visiting the hotel and see in what purpose they have with their stay.

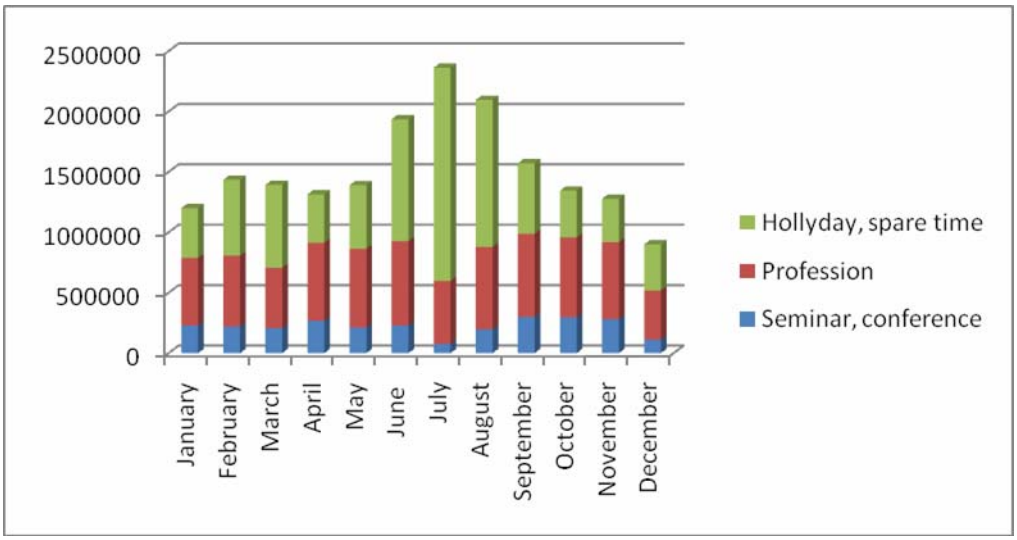


Figure 4-4. Stays at hotel in Norway after purpose (2008 numbers). Source: (SSB, 2009)

The summer months: June, July and August have the largest visitor's numbers and it is in the purpose of holiday the visitors are in the hotels.

It is also interesting to see from what countries the visitors are coming from.

	Total all year		Summer months	
Country	In all	%	In all	%
In all	18221657	100%	6394718	100%
Foreign countries in all	4893806	28,86%	2378387	37,19%
Norway	13327851	73,14%	4016331	62,81%
Denmark	540630	2,97%	124010	1,94%
Finland	67649	0,37%	27149	0,42%
Sweden	579329	3,18%	168925	2,64%
France	201231	1,10%	145732	2,28%
Italy	139001	0,76%	93919	1,47%
Netherlands	309379	1,70%	203636	3,18%
Poland	139970	0,77%	51460	0,80%
Spain	213336	1,17%	155697	2,43%
UK	562212	3,09%	206758	3,23%
Russia	127708	0,70%	78417	1,23%
Switzerland	62884	0,35%	39952	0,62%
Germany	729381	4,00%	462798	7,24%
USA	289944	1,59%	147840	2,31%
Other countries	931152	5,11%	472094	7,38%

Table 4-2. Sleep over guests at hotels after nationality at hotels in Norway totally. Source (SSB, 2009).

Norwegians have most visits at the hotels. For the whole year, the Norwegians share is about 73 % and in the summer months, they have a share of about 63 %. Visitors come mainly to

Norway from the neighbor countries. In addition, the visitors from the countries: UK, Netherlands, Germany is most represented.

Lofoten

	All	%
Stays in all	142045	100%
Seminar/conference	18455	12,99%
Profession	27727	19,52%
Holliday/spare time	95863	67,49%

Table 4-3. Stays at hotels in Lofoten region after purpose with the stay, from November 2007 until October 2008. Source: Nordland reiseliv 2009/SSB 2009.

There are totally 142000 visitors in hotels in Lofoten region from November 2007 until October 2008. In the year 2007 it was 135000, this was an increase of 5 %. 13% of the stays are related to seminar/conference, 20 % are related to work and 67 % is related to holydays.

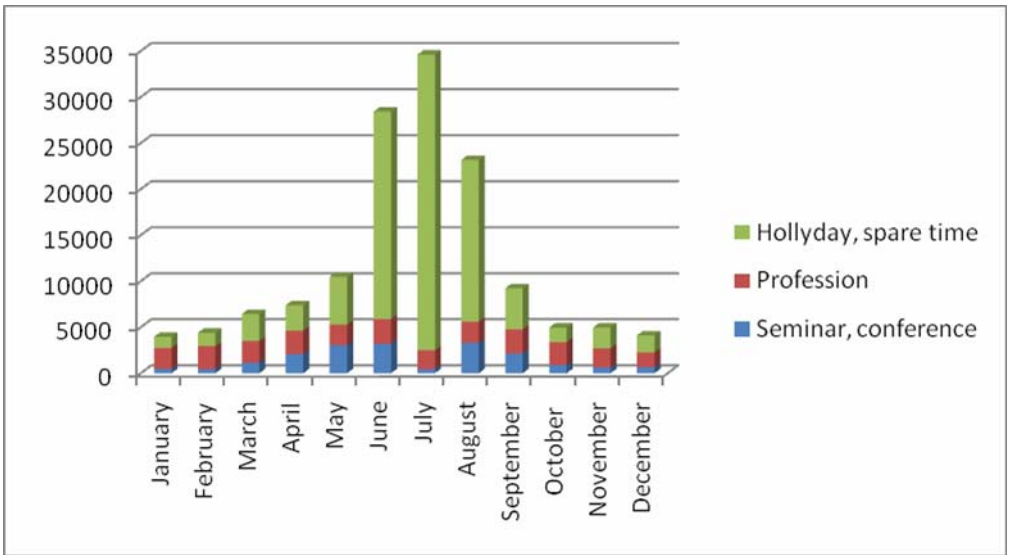


Figure 4-5. Overnight stays in Lofoten after purpose with the stay, from November 2007 until September 2008, for every month. Source: Nordland Reiseliv 2009/SSB 2009

In the summer, month's holydays purpose stands for almost all of the visits at the hotels.

	Total all year		Summer months	
Country	In all	%	In all	%
In all	142045	100%	86178	100%
Foreign countries in all	46775	32,93%	38652	44,85%
Norway	95270	67,07%	47526	55,15%
Denmark	3279	2,31%	3050	3,54%
Finland	922	0,65%	816	0,95%
Sweden	4607	3,24%	3740	4,34%
UK	1354	0,95%	838	0,97%

Netherlands	2866	2,02%	2581	2,99%
Germany	16989	11,96%	14899	17,29%
France	3740	2,63%	3304	3,83%
Spain	1321	0,93%	1212	1,41%
Switzerland	1499	1,06%	1096	1,27%
Italy	5178	3,65%	4206	4,88%
Poland	885	0,62%	300	0,35%
USA	718	0,51%	541	0,63%
Other countries	3417	2,41%	2069	2,40%

Table 4-4. Overnight stays at hotels in Lofoten region after nationality. Source: Nordland Reiseliv 2009/SSB 2009

Visitors from Norway stands for 67 % of the visits in the hotels in Lofoten region for the whole year and in the summer months the Norwegians have 55 % of the visits. The guests from Germany have a large share with 12 % all year and 17 % in the summer, followed by Italians, Swedish and French people.

Camping and cabins

	Total all year		Summer months	
Country	In all	%	In all	%
In all	194544	100%	157705	100%
Foreign countries in all	98049	50,40%	87623	55,56%
Norway	96495	49,60%	70082	44,44%
Sweden	8831	4,54%	7894	5,01%
Denmark	3895	2,00%	3744	2,37%
Finland	4279	2,20%	3986	2,53%
UK	4417	2,27%	3082	1,95%
Netherlands	7872	4,05%	7384	4,68%
Germany	32843	16,88%	29896	18,96%
France	8263	4,25%	7515	4,77%
Switzerland	4471	2,30%	3748	2,38%
Italy	5078	2,61%	4760	3,02%
Other countries	18100	9,30%	15614	9,90%

Table 4-5. Overnight stays at camping sites and cabin sites (from October 2007 until September 2008). Source Nordland Reiseliv 2009/SSB 2009.

The total number for visitors in Camping and Cabin sites is about 194000 visits. The Norwegians have a share on about 50 % for the whole year and in the summer month 44 %. The Germans are most represented from foreign countries, with a share of about 17 % for the whole year and 19 % in the summer. The next foreign countries are Sweden, France and Netherlands.

Overnight stays for Lofoten region is 142000 from hotels and 194000 from camping/cabins, that will say that it is about 340000 stays totally for the year 2008.

Summing up

Employment in Norway (2007)	2484000
Employment in Lofoten region (2008)	11602
Lofoten share of employment	0,47 %
Inhabitants in Norway (2008)	4737171
Inhabitants in Lofoten region (2008)	23577
Lofoten share of inhabitants	0,50 %
Hotels stays in Norway (2008)	18221657
Hotel stays in Lofoten region (Oct.2007-Sep.2008)	142045
Lofoten share of hotel stays	0,78%
Hotel summer guests in Norway (2008)	6394718
Hotel summer guests in Lofoten region (2008)	86178
Lofoten share of hotel summer guests	1,35%

Table 4-6. Lofotens share of inhabitants, employment, hotels stays all year/summer against total number in Norway.

The table shows that Lofoten region have a larger part of hotel stays all year and especially in the summer. This shows that tourism is more important for Lofoten as a region than it is for Norway as a country.

4.7 Tourist consume in Norway

Tourist from foreign countries spending in Norway 2007		
	Car tourists	Air tourists
Accommodation	Paid in Norway	Paid in Norway
Hotel	900	900
Cabin rent	370	
Camping/camping cabin	470	
Family and friends	300	610

Table 4-7. Spending from foreign tourists in Norway in 2007. Source: (TØI, 2008).

In a table I have not taken with pre paid expenses, the pre paid expenses is in a large part covering transport costs. In statistic from TØI and SSB, the actual spending in Norway has

not been split up, from total spending on the trip. These statistics are made with surveys based on quantitative principles and are not based on real numbers. For Norwegian tourist on trips in Norway it is not done any surveys from TØI since 1995, the numbers from SSB is just total numbers and they are not split up in how many people and how many guest days. Therefore, I will use the numbers from the foreign tourist in Norway as a base from my estimates in the analysis.

4.8 Why does tourists come to Lofoten

The Lofoten Islands is ranked high in international comparisons and are ranked as the world and Europe`s most beautiful Islands and travel goal. In October 2007 was Lofoten ranked of the travel magazine National Geographic Traveler as the 3rd best Islands in the world after the Faeroes Islands and Azorean. An international panel with 522 experts in sustainable destination development ranked 111 chosen islands in the world after criteria's ass traditions, eco systems, and culture, landscape and future views. Lofoten did also win the Norwegian holiday in a Norwegian newspaper Dagbladet of the readers (Rindahl, 2008).

What wants tourists do when they are visiting Lofoten

Visiting numbers in the most popular attractions in Lofoten from May 1 to August 31, 2008	Numbers
Gallery Harr/Lofotens Hus (Henningsvær)	65528
Lofotr (Viking museum Borg)	62673
Lofot aquarium (Kabelvåg)	50052
Sund Fishery museum	22800
Petter Dass museum (Alstadhaug)	15580
Gallery 2 (Stamsund)	13000
Magic Ice (Svolvær)	12456
Norwegian Fish village museum Lofoten (Å)	10953
Gallery Espolin (Kabelvåg)	10495
Lofotmuseum (Kabelvåg)	9295
Lofoten war memory museum (Svolvær)	6000

Table 4-8. Visits in Lofoten`s most popular attractions in summer 2008. Source: Nordland reiseliv 2009/SSB 2009.

According to market chief Gro Jannicke Westerlund in Euro Hotels have the tour operators become the last couple of years become more demanding on the behalf of their customers. *"Majority of charter tourists will now participate on trips that bring them closer to the Norwegian nature. Earlier it was only a small number of tourists who wanted to experience fishing of King crabs, mosques safari, and wave rafting. Now the majority demands the these*

and other activities is offered close to the hotel, says Westerlund in a press release" (Hammernes, 2004).

Westerlund means that the tourists want experiences that are more exotic. However, at the same time shall the trips be so adjusted, that it is not needed with any extra physical to participate.

Anniken Enger in Innovasjon Norge (Innovation Norway), earlier called Norges Turistråd (Norwegian tourist council), believe that it is more reasons why Norway tourists have become more demanding. Enger means that the tourist's physical shape is better, and the tourists are more experienced than they were for some years ago.

However, it is a big difference on what Norwegians and foreign tourist is considering as physical activity. For the Norwegians it means a whole day trip, but for the foreign tourists it means a half hour stretch in their feet (Hammernes, 2004).

4.9 Summary

Lofoten are an old region, Lofoten fisheries become early important and was the base of why people were settling down in Lofoten. The number of inhabitants in Lofoten region has decreased the last 33 years from about 26500 people in 1975 until about 23500 in 2008. The employment in Lofoten region has been similar in the start of 2000 and a small increase has occurred in the middle of 2000. There has been an increased employment in the hotel and restaurant business. Tourism gives the foundation for business in many different sectors; accommodation, serving, transport, arranging-business and activity offer that satisfy tourists and other traveler needs. There were totally 142000 visitors in hotels in Lofoten region in 2008, in 2007, it was 135000, and this was an increase of 5 %. Of the hotel stays, 13% have relation to seminar/conference, 20 % have relation to work and 67 % have relation to holydays.

5. O&G resource/development in Lofoten

5.1 Norwegian petroleum history

The discovery of Gas in the Netherlands in 1959, made people believe that it could be oil/gas on the Norwegian continental shelf (NCS). In October 1962, Philips petroleum sent an application to the Norwegian authorities, for exploration in the North Sea. Philips wanted to explore on the Norwegian property in the North Sea. They wanted to pay 160,000 dollars per month. However, the authorities in Norway were in doubt to hand over the rights to one company; they wanted more than one company (Regjeringen, 2008).

In May 1963, the government of Norway wanted the sovereignty over the NCS. This new regulation led to that the State owns all natural resources on the NCS, and only the State (government and King) can give licenses for exploration and production. In 1963, companies were given the possibility to preparatory explorations. They could only do seismic surveys not drilling.

Norway had proclaimed sovereignty of big offshore areas, but there were some serious clarification remaining, on how Denmark, Great Britain and Norway should share the continental shelf. In March 1965 the agreement with dividing the continental shelf was reached, they divided the continental shelf with accordance with the median line principle.

The first licensing round came in April 1965. There were 22 production licenses for 78 blocks, and these were awarded to companies and groups of companies. These production licenses gave exclusive rights for exploring, drilling and production in the certain license area. The first drilling of a well on NCS was dry; this was in the summer of 1966.

The Norwegian oil adventure started for real in 1969, with the discovery of Ekofisk. The production from Ekofisk started in June 1971, and in the following years there were a number of important large discoveries made. Explorations which was made in the 1970s where located south of the 62nd parallel. NCS was gradually opened, and there were only a restricted number of blocks, which was awarded, in every licensing round. Companies from foreign countries were dominating exploration in the initial phase, and these companies were responsible for developing the first oil and gas fields on the NCS. The Norwegian state own company was created in 1972, this was the foundation of 50% state participation in each

production license. However, this rule was later changed so that the Norwegian Stortinget (parliament) can in each case choose the level of participation (if it should be lower or higher), depending on the circumstances.

In January 1985, there was a reorganization in the State`s participation in petroleum operations. The participation for the state was split in 2, one was linked to the company and the other was that the state`s Direct Financial Interest (SDFI) in petroleum operations. SDFI is an arrangement where the State owns interests in a number of oil and gas fields, pipelines and onshore facilities. The government takes it decide when the production license is awarded, and the size can vary in every case. The state like the other participators takes their share of investments and costs and they receive a share of the income. In 2001 the Norwegian Stortinget decided to sell a 21.5% part of their asset in SDFI, 15% was sold to Statoil and 6.5% was sold to other licensees. This sale of SDFI shares to Statoil was seen as important factor in successful listing and privatization of Statoil. In June 2001 Statoil was listed, and they now operate on the same terms like the other companies on the NCS. In May 2001 the Norwegian State established Petro, this is a state-owned company who shall manage the SDFI on behalf of the state (Regjeringen, 2008).

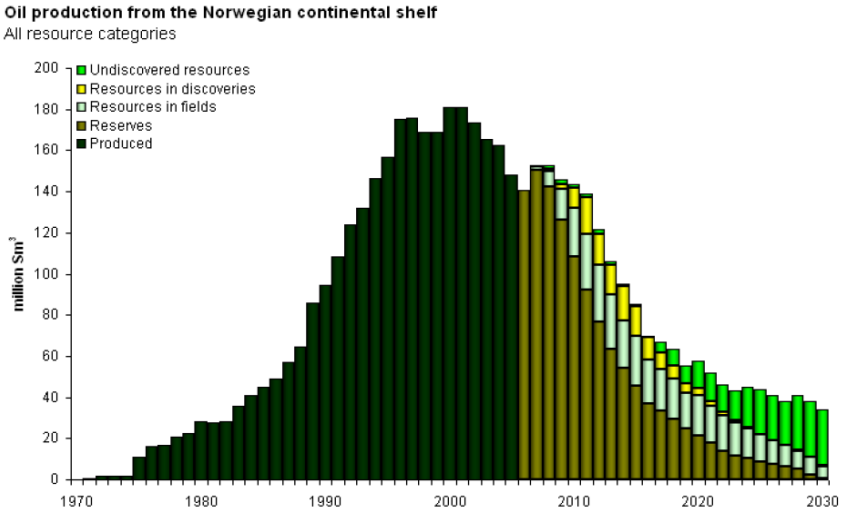


Illustration 5-1. Oil production on the NCS. Source: NPD

In the end of 2006, 52 fields were in production on the NCS. These fields produced 2.8 million barrels of oil per day this includes NGL and condensates and 88 billion standard cubic meters (SCM) of gas per year.

The petroleum activities on the NCS have contributed very much to an economic growth in

Norway. Trough the last 30 years of production, the petroleum industry has created values of 5000 billion NOK, in current terms. The petroleum sector accounted for 25 % of the total value creation in Norway. This is double the value of production in the manufacturing industry and about 18 times value creation in primary industries.

Since the start of petroleum industry in Norway a huge amount of money have been invested in exploration, field development, transport infrastructure and on shore facilities. In the end of 2006 this investments had come up in 2000 billion NOK in current terms. The investments for the year 2006 were 95.7 billion, or 24 percent of Norway's total real investments.

After 30 years of production on NCS, there is only been pumped up 1/3 of the total expected resources. The plateau level was reached in 1995 with a day production of about 3 million barrels, the oil production is decreasing but it is expected that gas production will take over and the total petroleum production will grow. The gas production accounted for about 35 % of totally petroleum production in 2006, and is expected to grow until more than 50% of total production in 2013. A critical factor for Norwegian production is discoveries of new fields and the price of oil so smaller fields which is not profitable now can be that in the future (Regjeringen, 2008).

5.2 Opening of Lofoten oil/gas field

Nordland VI, VII and Troms II are for the time not open for the industry for searching after oil/gas. The new consequence reports who the Norwegian Stortinget has asked for, before they want to discuss an eventually opening is going to be presented in 2010. After this the Stortinget will take position if parts or the whole area is going to be opened, this has been estimated to happen in 2011 or 2012. If the Stortinget decides to open the areas, can Nordland VI be ready for announcements straight after opening, this because the necessary consequence reports was done when the area was open in the mid 1990.

The consequence reports are being produced for the Norwegian government. NPD is responsible for the reports and they are using consultants and public and private science agencies to work out the reports. Stakeholders are not active involved in making these reports (NPD, 2009).

For Nordland VII and Troms II there have to be done different consequence reports, this normally takes 1-2 years (KonKraft, 2009).

The Stortinget treated administration plan for Barents Sea and Sea areas outside Lofoten in the summer 2006, it was decided to explore petroleum's deposits in the ground. The NPD was going to do the job, which was collecting and interpret seismic data in the areas Nordland VII and Troms II. The program Seapop (knowledge about sea birds) and Mareno (sea ground knowledge) was also going to be used. These three collecting programs shall be a part of foundation when Stortinget is going to consider administration plan in 2010 (NPD, 2008).

Time perspective oil/gas development on NCS

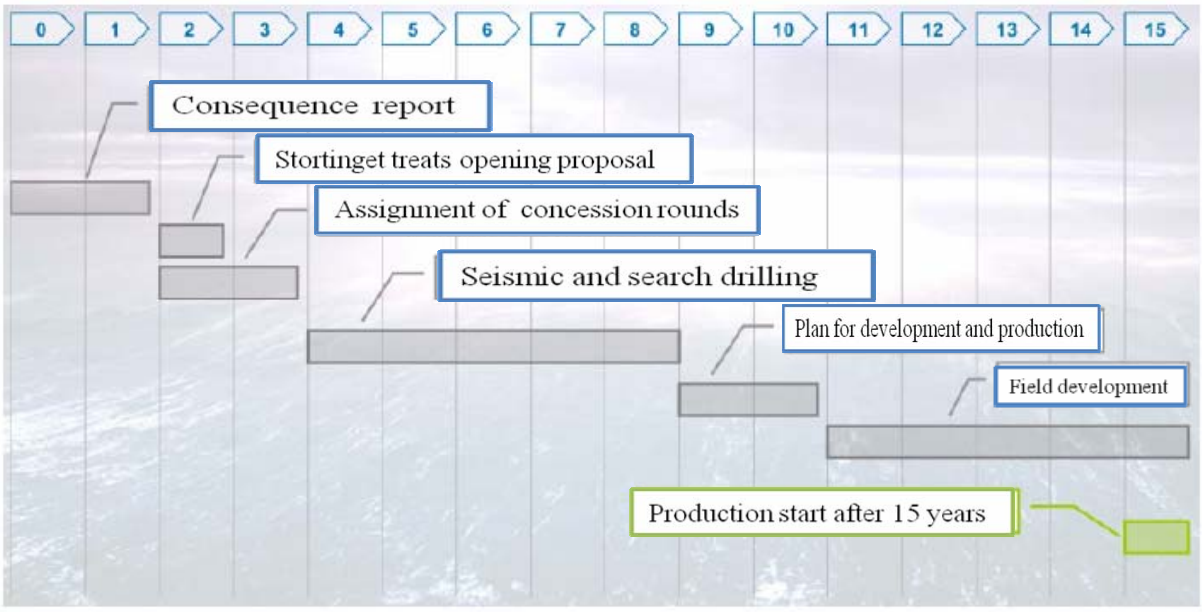


Illustration 5-2. Time schedule from opening till production. Source: StatoilHydro.

In Norway it has taken in average about 18 years from permit is given until production is running in the first field in the permit. The latest years there have been a reduction in this time, but the average is still very long. It is only a few fields in newer time which have used less time than 10 years from permit till production (Draugen and Tune took both 9 years, Jotun 5 years and Ormen Lange 11 years). If a similar trend will continue will the first production from the areas outside Lofoten and Vesterålen at earliest be in 2025-2030 (KonKraft, 2009).

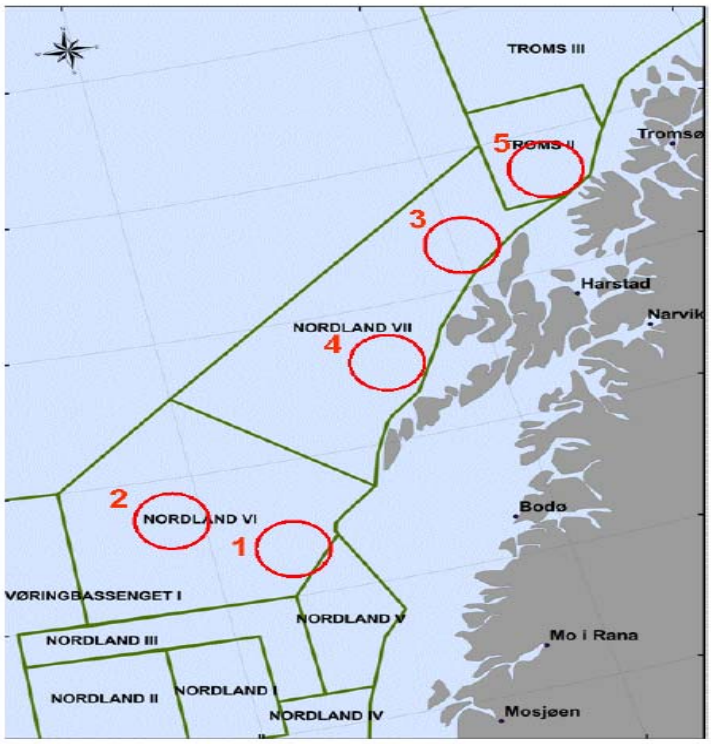
5.3 Overview over O&G resources in Lofoten

5.3.1Oil and gas resource estimates Nordland VI, Nordland VII and Troms II

It is a large number of uncertainties connected to estimates of undiscovered petroleum's resources. The estimates are based on many different assumptions.

NPD gave estimates for the area outside Lofoten and Vesterålen in a resource report in 2003 to be about 20 % of undiscovered resources in Norwegian Sea, which the NPD on that point of time stated to be 1.5 billion barrels oil equivalents. NPD has in their 2 latest reports not giving estimates about the resources because many uncertainties about the factors, which gives a large range between resources estimates.
StatoilHydro have in different situations given an estimate for this area to be 2 billion barrels oil equivalents.
In KonKraft (2009) report the estimates for the resources in the area is about 3.5 billion barrels oil equivalents. It is in the report pointed out that it is a large number of uncertainties in the resource estimate, with a recommendation on using a range between 0.5 – 10 billion barrels oil equivalents.
The differences between NPD estimate and KonKraft estimate can be explained with NPD uses the theory that the area Nordland VI, Nordland VII and Troms II covers 20% of the total area of Norwegian Sea, and this means that the 20 % of the total resources is located in these areas.
The KonKraft (2009) has used a method where they have interviewed a number of oil companies, which have good knowledge of Norwegian shelf. The spreading in the estimates was relative large, which is reflected of the uncertainty in the area, and can be explained with limited information about seismic surveys and wells in this area. A comparison with the area outside Lofoten/Vesterålen and the Haltenbanken area, in relation to the size, it can be possible to find 10 billion barrels oil equivalents. A finding probability of 35 % results in a calculated risk of 3.5 billion barrels oil equivalents to be found (KonKraft, 2009).

5.3.2 Where the most interesting oil/gas areas outside Lofoten are located



Picture 5-1. Most interesting oil/gas fields localization. Source: KonKraft

1- Ribbanbassenget, 2-Utrøsthøgda, 3 – Northern part of Nordland VII, 4-Central/south part of Nordland VII, 5-Troms II. Source: KonKraft 6-report.

The KonKraft (2009) report ranked the areas after which are who was most interesting on what they knew at the day the report was published (March 3, 2009)

1. Nordland VI - Ribbanbassenget
2. Nordland VI – Utrøsthøgda – Northern Trænabassenget
3. Nordland VII – Central/Northern part
4. Nordland VII – Southern part
5. Troms II

Nordland VI

Area south west for Røst, the so called Ribbanbassenget and in Utrøsthøgda which is located longer out in the sea against west, is 2 areas where there is a good possibility for finding oil/gas. These fields are located 100-200km from mainland and ca 100km from main islands

in Lofoten. It is reasonable to believe that it can be done both large and small findings in this area. The geologists are expecting that the rock species will be like longer south in the Norwegian Sea and it will not be high pressure. This means that the fields will have need for pressure support in form of injections of water or gas already in an early stage of production (KonKraft, 2009).

Nordland VII

The northern and central/south parts is areas where there are expected to be findings of both oil and gas, this is one of the areas NPD did choose to collect seismic data from in 2008. This also the area outside Nordland County where the where oil/gas resources can be located closer to land. Outside Andøya is the interesting areas located only 20 – 40 km from land. Outside Lofoten, longer south, the interesting areas stretches 60 km from the coastline. It is not expected that it is special high pressure or high temperature in the reservoirs (KonKraft, 2009).

Troms II

In the same way as in Nordland VII this is also an area where there is expected to be found both oil and gas. This is an area, which is little known, and the uncertainty is large. NPD collected seismic data here in 2008. The distance from land is 20 – 40 km (KonKraft, 2009).

5.4 Different kinds of development solutions of oil/gas fields in Lofoten

Sea-bottom development

Sea-bottom development includes wells and production equipment on the sea-bottom, pipes and cables to onshore and onshore facilities. These facilities give no visible offshore impacts, only when production wells is drilled and equipment shall be maintained. Onshore facilities it has to be constructed large facilities. Examples of Sea-bottom development on NCS is Ormen Lange and Snøhvit (StatoilHydro, 2009a&b).

In Nordland VI sea-bottom development can be an alternative. In most cases an onshore facilities will be located closest as possible to the offshore facilities. The closest island to the possible oil/gas fields in Nordland VI is Røst. However, this is a small island and is of nature and settlement factors not a current location for facilities like this. The alternative for onshore facilities in Nordland VI will be on one of the main islands in Vesterålen/Lofoten. It can be an

option to construct a small pump station on Røst/Verøy because with the technology today oil/gas cannot be transported over large distances, and this can be done to bring the gas/oil to a onshore facilities in Vesterålen/Lofoten. With a sea-bottom solution, will there be jobs and activity with not so large nature interference. New technology with compressors on sea-bottom is today untried but can be an option when/if Nordland VI shall be developed. In Nordland VII and Troms II sea-bottom, development is also good alternatives. In addition, onshore facilities can be located so it can process oil/gas from Nordland VI/VII and Troms II in one facility (KonKraft, 2009).

Onshore facilities will be visible in the landscape, three examples.

Gas terminal Ormen Lange, Nyhamna

The project start was in 2003 and in 2007 the project started to produce and export gas to the market in UK. It is estimated that this project can cover 20% of the gas market in UK for the next 40 years. It has been one of the largest and complex industry projects in Norway of all times. The field is laying on 800-1100 meters dept from sea level, it is subsea installations, the onshore facilities is located on Nyhamna in Aukra municipality, here the processing and export of the gas takes place. After processing in Nyhamna, the gas is exported through the pipeline Langeled, it is 1200 kilometers long and the end is in Easington on the East coast in UK (StatoilHydro, 2009a).

Picture 5-2. Nyhamna. Source: (Maskindynamikk, 2006)

LNG terminal, Melkøya

This was the first development of a petroleum field in the Barents Sea. The gas field have no installations on the surface of the sea, there is only installations on the sea bottom, the field is located on 250 to 345 meter under sea level, the field are located 120 kilometers from land, the gas from the field are transported from the field to onshore by pipes who are 143 kilometer long. The processing facilities are located on the island Melkøya a stone throw from city center in Hammerfest. The facility is huge and is very visible from the city center.

Picture 5-3. Melkøya. Source: Bjornmella

The Snøhvit project started in 2002 and the first gas for delivery was ready in 2007. The field was discovered in 1984, but technology and economy in the field was not ready for development first 20 years later. The project expected running time in production is estimated to 20 years. The project deliver LNG is an important factor for Norway to deliver gas to US market (StatoilHydro, 2009b).

Wytch Farm the Invisible Example

However, there are examples of onshore facilities that not are so visible; Wytch Farm in South of UK is the largest onshore oil field in west Europe. It is located where nature, holiday and recuperation area is important factors for the inhabitants. It is one of UK most popular holiday areas and there is a large tourism business. The development consists of drilling and well facilities, collection stations, processing facilities, gas storage and oil/gas pipes. Together

the visible facilities covers about 45 hectare. The oil is exported on tankers from an oil terminal close to Southampton. What make this project so interesting are the efforts that are done in connection to nature, environment and tourist interests to create accept for so large facilities where nature intervention is in so small extent accepted. This development has won a number of environment prices and prices for landscape protection. The focus has been on to make the facilities so little dominating as possible and light use in the dark is limited. The owners of the facilities have had good communications with different interest organizations to make best possible solutions (BP, 2009).

Picture 5-4. Wytch Farm. Source: Panoramio

Offshore solution

An option to sea-bottom development is offshore development. In cases in Nordland VI/VII and Troms II this is a option with floating installations with buoy loading of the oil and the gas will be send in pipes directly to, for example Åsgård transport system. The floating installations can function as a center for other fields when they are ready for development. This kind of solution stand for well-known and well-tested technology, and boats near the coastline is avoided. The area offshore needed for installations is minimal and the nuisance

for the fishing industry will be low. Onshore area will not be occupied of this solution. Transport services will be needed from a close onshore air base. An oil/gas development offshore will in most cases, use less energy than an onshore solution (KonKraft, 2009).

5.5 Summary

The Norwegian oil adventure started for real in 1969, with the discovery of Ekofisk, in the end of 2006, 52 fields were in production on the NCS. The petroleum activities on the NCS have contributed very much to an economic growth in Norway. Trough the last 30 years of production, the petroleum industry has created values of 5000 billion NOK, in current terms. The petroleum sector accounted for 25 % of the total value creation in Norway in 2006. The oil peak production on NCS was in 2000-2001. The Norwegian government will discuss an eventually opening of Nordland VI/VII and Troms II in 2010. NPD gave estimates for the area outside Lofoten and Vesterålen in a resource report in 2003 to be about 1.5 billion barrels oil equivalents of oil, KonKraft report in (2009) was estimating that there is 3.5 billion barrels oil equivalents, they use different methodology. Onshore and offshore solutions have been discussed in this chapter. The example from Ormen Lange and Snøhvit shows how an onshore solution is visual, and Wytch Farm is the invisible example.

6. Treats of oil development

6.1 Oil discharge

Discharges on NCS

Under it is discharges shown, which have happen accidentally on NCS.

Year	Discharge quantity (m3)	Description
1977	12700	Largest discharge on NCS happened on Ekofisk Bravo in connection with a weeklong blowout.
1992	946	Oil discharge on Statfjord field as a follow of a safety valve on a hose to a loading buoy, was leave in open position.
2003	750	Discharge of crude oil from a break in the connection to the sea-bottom installation on Draugen field.
2005	350	Oil discharge on Norne field when a manual safety valve in the system for produced water stood in wrong position.
2007	4400	Oil discharge from a under water hose who break off in connection with oil loading from Statfjord A to a tanker.

Table 6-1. Discharge on NCS. Source: SFT 2009

There are always larger possibilities for oil discharges in an area when oil development is present. The risk in Lofoten can be reduced with systems and efforts for those incidences happen. There are a lot of work done in Norway to minimize the danger both from the oil industry and the government side. Strong laws and good operational procedure makes the probability for a serious happening on NCS low. The largest relative risk is in search drilling and certain maintenance operations, while production drilling representing about 1/3 of probability relative to search drilling. The search drilling in vulnerable areas is in most cases limited in time periods to avoid the most vulnerable periods, and the consequences of a happening are limited. This kind of year time periods can also be present to introduce connected to planed maintenance work under all year production (Steensnæs, 2003).

The (Steensnæs, 2003) report takes a basis of estimates out from different levels of development in Nordland VI/VII and Troms II. The base level of development is 2 fields. Base level + smaller fields (5 fields) and a high activity level with 6 oil fields and 4 gas fields. The blowout like on Bravo in 1977 there has been estimated that a similar accident outside Lofoten can happen one time between 1300-460 years. It has been estimated that there is

between 1 and 3% probability for the period 2005-2020 (this numbers are old in this report for production outside Lofoten) these numbers are for basis and high activity level.

Other types of happenings which can occur in a production is connected to leaks from pipes, discharges from production and storage ships and discharge from ship transport. Based on international statistics it is large and of a short time period pipe leaks which is considered to represent highest consequence potential. It is considerate a statistic probability for a happening for every 2200 to 320 year. That will say 0.7 and 4.7% probability for basis and high activity level for the estimated fields. Similar probability for a large oil discharge from a production ship is every 3000 to 750 year.

All year petroleum development in the area Lofoten Barents Sea involves also considerably ship traffic for transporting raw materials/products to the markets. This relative large activity is found to represent a relatively high probability for larger unintended oil discharge in relation to the risk connected to exploration after and production of petroleum. Without efforts it is estimated that an oil discharge can occur in vulnerable areas, can be expected every 15-20 years. The probability is biggest for piles discharge but probability for discharge of crude oil is considerable lower (in the range of 1/10). An important effort among other things is to establish large drag force in the area. Important risk reducing efforts includes also efforts to limit extent and durability of the discharge, and efforts in shape of oil protection.

Both physical and operational relations can have limits. It is special challenges connected to oil protection in the wintertime with dark and low temperatures. The oil protection preparedness relative effectiveness, given the prevailing wind wave and light conditions is in general found to be about similar to the North Sea.

The steering of risk-filled activities inn periods with good effectiveness can thus reduce consequences in an eventually happening and have to be considered up against the different areas totally season vulnerability.

With growing preparedness resources in the area and reduced response time, the stranded oil can be reduced further and increase uptake quantity.

Within fisheries is season fisheries and coast fisheries in the areas Nordland VI/VII most vulnerable. Experiences from ship destruction in foreign countries shows that larger oil discharges can have consequences for ocean farming business in several years after the

incident. In addition will an oil discharge could give consequences in shape of reduced sales (reputation effects) throughout the direct influenced area. These kinds of consequences can also be relevant in connection to fisheries and sales of fishing products.
For the tourism industry, will the impacts after an oil discharge could have durability on up to 5 years, but the employment effects will be of limited extent totally (Steensnæs, 2003).

Field	Beach	Sea bird	Sea mammal	Fish
Troms I	*	***	**	*
Nordland VI	***	***	***	***
Nordland VII	***	***	***	***

Table 6-2. Relative environment risk (by accidental discharge of oil) for the respective field and resources indicated by relative levels from low (*) to high (***). The table is based on discharge scenarios from fictive oil fields.

Oil discharge from ship destruction

From 1971 until 2008 it have been 25 ship destructions along the Norwegian coast. 1000 of tons of oil have leaked in these accidents, 1000 of birds have died and a number of kilometers with beach lines have been messed up. The latest large accidents happen in 2004 with the "Rocknes" destruction where 18 seamen died. Bunker oil leaked and 45 kilometers of beach line had to be cleaned. In 2007 "Server" meets destruction, 380 tons bunkers oil leaked. 40 kilometers with beach line were messed up. 3200-8000 sea birds and a 10 number of otter died of oil damages (WWF, 2009a). With oil/gas, development in Nordland VI/VII and Troms II it will be a large grows in ship traffic near the coast of Lofoten and this will of course increase the probability of ship destruction in the area.

Discharges from petroleum`s activity

Under the discharges from petroleum`s activity on NCS can be seen. This discharges comes from production and are happening in relation with produced water, drain water from the oil platforms and from displace water. As the figure, shows the most important discharge source is produced water (Miljøstatus, 2008)

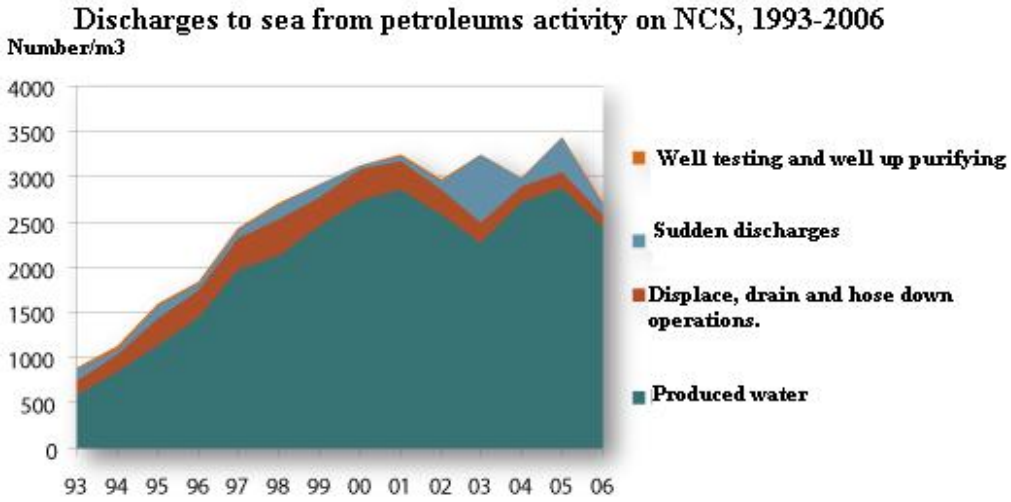


Figure 6-1. Shows discharges to sea from petroleum's activity on NCS, 1993-2006. Source: (Miljøstatus, 2008)

6.2 Examples from tourism destinations who has experienced oil discharges

Exxon Valdez (Alaska)

In 1989 the tanker Exxon Valdez run aground against a reef, the oil discharge was more than 250000 barrels of oil. The discharge moved and polluted large parts of the coastline in south of Alaska, 750 kilometers from the accident location. (McDowell group, 1990) made a report about the effects, and they found that it had been a negative effect on the tourism business. 59% of the businesses in the affected areas reported about canceling with the reason discharge, and 16% reported about less sales because the discharge. The area Anchorage that was not directly affected of the discharge, did also have effects there they experienced decreasing in tourism activities on 40%.
Other surveys have estimated that in the summer of 1989, the summer traffic from tourists had decreased with about 2.2%.
In a longer term it is claimed that Alaska`s reputation in connection with clean and un touched nature have been weakened, and in the summer after 1990 it was 12% of the tourism businesses who said that they had effects of the discharge.

Braer (Shetland)

In 1993 the tanker Braer run aground south of Shetland, the oil discharge was about 620000 barrels of oil. In a report from (McDowell Group, 1997), it is concluded that the weather

condition made the consequences less than they first feared. One year after the discharge it was no visible sign that a discharge had taken place. The media covering of the disaster shows that there have been negative effects for the tourism business. In 1993 the loss of bookings had been on 1.3 million pounds in the tourism business and travel incomes had a loss on 1.3 million pounds.

Prestige accident near Galicia, western coast of Spain

Prestige was broken and split in two in November 2002 in Atlantic near the western coast of Spain - Galicia region. She carried 77 thousand tons of heavy fuel oil.

Akvaplan-niva (is a private organization who is doing research) had a visit in the Galicia region two years ago this was five years after the accident. The purpose with Akvaplan-niva`s visit was to see on the long term effect on local communities. They had meetings with local people, fisherman`s and mayor of the community that was most affected by the oil spill, research institutes and aquaculture industry. There are a lot of documents and reports about this accident and all or most of them are sad stories. Akvaplan-niva was looking at the actual results from for the local population.

Most of the local population in Galicia was living from fisheries. The large *Prestige* accident was bringing a lot of attention to the region, the environmental problems and the economical losses. According to the local people/fishermen, when Prestige sank the fishing in the area was closed for 2 seasons. During this closing period the fishermen`s was getting economical compensation for lost income. In addition, these locals were working for cleaning up the coastal line. Their villages were receiving volunteers who come to the region to help cleaning up the coast. The local inhabitants were paid for providing these volunteers with accommodation and food. These volunteers got to know the region (it is a nice nature and good gastronomic tradition there), the region are different form rest of the Spain, and later these volunteers came back as tourist, and they brought their friends and families with them.

Therefore, this gave start to a tourism development in the region. When the fisheries was opened again the local fishermen`s went out again and they caught 1.5-2 times more than they had done before the closing (the nature and the fishing tribes relaxed from the fishing pressure). Akvaplan-niva is describing that the local inhabitants looked happy and not depressed after the accident. National and international finances were used to invest in Galicia

into aquaculture and developments in order to replace decreased fishing and to secure jobs for the people as an aim. The result today is that Galicia is the second largest farmer of seafood (oysters, shellfish and so on) after China. There have also been large investments in marine environment research, oil spill response, environmental management, legislation and pollution prevention measures after the oil spill.

So with looking at the oil spill with other eyes it is not only negative effects for the local community who are experience an oil spill, but positive effects are dependent on public and governmental actions at both national and international level (Bambulyak, 2009).

Summary

There are always larger possibilities for oil discharges in an area when oil development is present. The risk in Lofoten can be reduced with systems and efforts for those incidences to happen, there is a lot of work done in Norway to minimize the danger of oil discharges. Strong laws and good operational procedure makes the probability for a serious happening on NCS low. Exxon Valdez and Braer are examples of loss in tourism industry after an oil spill. The Prestige accident near Galicia is another example; there it was not only negative effects for the local community, but also positive effects like increased fisheries, revenues for local people, and increase of tourist traffic.

6.3 Views on the threats and development from different stakeholders

The Norwegian Continental Shelf Quarterly (NCSQ, 2008) published an article in 2008 about the stakeholders and stated that the communication between them had not been good. The article are starting with to identify the two main categories for the stakeholder focus; economical and environmental focuses, and this are related to an risk perspective. The article has an environmental focus of opening for an oil/gas development, which is concentrated on environmental risk, and economic risk of not opening for an oil/gas development in the region. In this article, three stakeholder groups are indentified, oil/gas cluster, environmental interests and local interests.

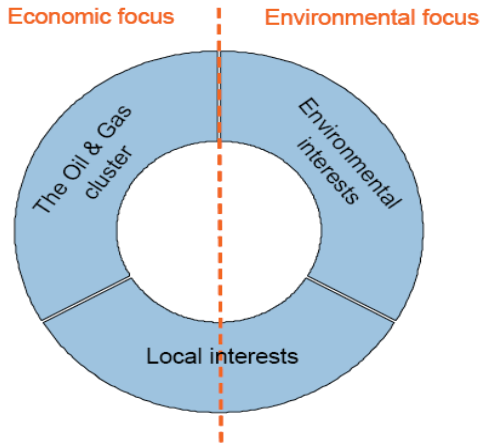


Figure 6-2. The stakeholders. Source NCSQ (2008:21)

The oil/gas cluster

This group of stakeholders is in terms of actors are widely defined, but the oil/gas industry is the main group, the group is in first hand focused on what economic benefits they can have with an oil/gas development and environmental risk is in their eyes a burden. This is also today in many cases true, but now are the oil industry using environmental standards as a question of legitimacy and "license to operate" and they are not only seen as simply regulations and burdens. This cluster will of course support an oil/gas development outside Lofoten and Vesterålen. They are looking at this area with the same eyes, which they have looked at oil/gas activity on rest of the NCS. This includes cash flow to the governments, local and regional development and new jobs (NCSQ, 2008).

The oil/gas industry have concerns about the declining petroleum's production on NCS, they have to search for new fields. The industry are looking at Lofoten and Vesterålen for a possible opening because they will keep up production and a total closing of these areas is seen as damaging of the industry. The oil/gas industry is of course aware of the possible conflicts with interaction with especially the fishing industry in Lofoten and Vesterålen, so they are trying to work in relationship with the local stakeholders. They are seeing that it is very important to work with the relationship to the local stakeholders to build up trust and acceptance and this relationship will be vital for an oil/gas development in the region (NCSQ, 2008).

When the case is about possible local environmental impacts, if there will be an oil/gas development outside Lofoten and Vesterålen, the oil/gas industry is answering that they know about these challenges. Oil/gas industry are arguing that they have been working with this for a long time, and there have been a decrease in chemical and petroleum emissions the last years.

StatoilHydro, Helge Lund

"The possibilities for new jobs are large, even if it will not come new nursing homes or kinder gardens up of the oil wells" (Bladet Vesterålen, 2007).

"Nordland VI/VII is the most promising fields on NCS" (Bladet Vesterålen, 2007).

"It is not possible to conclude about solutions for oil/gas development before the areas are mapped out (Bladet Vesterålen, 2007)".

"Permanent protection underestimates competence and experience in the Norwegian petroleum's crowd, and are not reflecting what we have delivered on the environment area before" (Bladet Vesterålen, 2007).

"But I don`t think oil companies can develop without trust from local societies. And I don`t know any elephant which have done success in a glass shop" (Bladet Vesterålen, 2007).

Lund use Snøhvit as an example where there are possible to develop strong supply environments in North-Norway:

"Statoil is in three years in a row have been selected to the best oil company out from resource and environment considerations, that NCS is the petroleum's province with the lowest CO2 emissions in the world, and the latest's drilling in the north can deliver in relation with the 0 emissions demand" (Bladet Vesterålen, 2007).

"I am not going to be disrespectful, but I believe that fishing industry shall get troubles with matching our emissions" (Bladet Vesterålen, 2007).

He also means that oil business is ready to live with other businesses in north.

"It means step by step advancing with opening of some few blocks at the time, to have largest possible extent of onshore solutions, solutions with installations and pipes it is possible to fish over, and the most vulnerable periods for spawning and fish larva is avoided" (Bladet Vesterålen, 2007.

LOVE Petro

LOVE petro is an interest organization for the industry in Lofoten and Vesterålen, in the summer of 2006, the organization had 176 member businesses. LOVE petro has an aim to give inhabitants, industry and public business in Lofoten and Vesterålen information about the petroleum industry. The organization shall set a focus on optimal society profit of a possible petroleum development in the regions and they shall create an optimal interest for businesses who wants to take a position as suppliers to the petroleum industry (LOVE petro, 2007).

Environmental interest

The group of environmental stakeholders contains several environmental organizations and these are Bellona, Friends of Earth (Naturvern forbundet), Nature & Youth (Natur og Ungdom) and WWF. The Norwegian political parties as Liberal party and Social Left Party are also a part of this group. The environmentally groups are against an oil/gas development outside Lofoten and Vesterålen, and they are supporting a permanent closing of these areas. The article is also seeing on the common platform that the environmental organizations and social movements have created. The social movement organization "Lofotaksjonen" are claiming that the fishing business can have better growth potential without a possible oil/gas development in the High North, than with development (NCSQ, 2008).

The environmentally stakeholders are only focusing on negative effects with an oil/gas development and not on possible positive effects. In follow to NCSQ (2008) the environmentally stakeholders can`t see any positives effects at all for the local communities or the Norwegian petroleum's industry.

The environmentally organizations have the main focus on climate change issues and they are stating that an opening of areas outside Lofoten and Vesterålen will increase the carbon emissions to the atmosphere, and this will help global pollution. Their main arguments have a focus on that Norway should contribute to reducing GHG, and that Norway has a responsibility to reduce the worlds dependency of fossils fuels. So the environmentally organizations claims that Norwegian State incomes can`t justify an opening and development of the fields outside Lofoten and Vesterålen (NCSQ, 2008).

Bellona, Greenpeace and WWF are present in Appendix 1.

Fishing industry stakeholders

The fishing industry stakeholder has traditionally been against a possible oil/gas development outside Lofoten and Vesterålen because of the potential conflicts about the areas and the problems due to co-existence. However, the fishery organizations are not seen as agree in the case either. Norsk Kystfiskarlag and Norges Fiskarlag are the two major fishery organizations and they have different view of an oil/gas development. Norges Kystfiskarlag are representing the smallest fishing boats and coastal fishing, are against oil/gas development and the seismic activity, which have been done outside Lofoten and Vesterålen. Norges Fiskarlag is representing the larger fishing boats. Has a more positive view of an oil/gas development, and the leader of this organization are positive about if there will be technological solution for the oil business and the fishing industry, if they can co-exist, they will not be against oil/gas development, but it don`t mean that they are high supporters against the development. It can seems that Norges Fiskarlag have a better relationship with the oil/gas industry, than Norges Kystfiskarlag. Norwegian oil industry organizations are saying that the relationship between themselves and the fishermen`s organizations are good because some of the fishermen`s associations are partly positive about oil/gas development. But the fishermen`s organizations have a key issue about the possible effects on the fish tribes (NCSQ, 2008)

6.4 Local stakeholders position

Petroleum Free Area in Lofoten and Vesterålen (Petroleumsfritt område utenfor Lofoten og Vesterålen; PFLV) and Lofotaksjonen is two local organizations who are against petroleum development in Lofoten and Vesterålen.

Lofotaksjonen

Lofotaksjonen is an organization who is working for a petroleum free area outside Lofoten and Vesterålen. It has also a purpose of keeping the coast outside of Lofoten and Vesterålen free for searching and development of petroleum. It will try to achieve its goal to organize all who want a development of the 2 regions without development of petroleum. The organization shall have no political party connections. It shall have contact with other people and organizations that have the same goal. The organization shall also; participate in debates round the general administration plan for the High North, run different form of mobilization to increase the interest around the question about oil/gas development outside Lofoten and Vesterålen and correction of wrong information (Lofotaksjonen, 2009).

The local inhabitants in North of Norway are split in their views of a possible oil/gas development. Their opinions are split in those who fears than an oil/gas development will threaten traditional industries and the inhabitants who believe than an oil/gas development will bring value in form of economy and employment to the region (NCSQ, 2008).

The local stakeholders, who are supporting the oil/gas development, are mainly based on positive effects this can bring to the region. The local politicians, who are positive, believe that it is possible to make solutions for the fishing industry to co-exist with the oil companies. The interviews in the NCSQ (2008) article are showing that local politicians believe that an oil/gas development is important to build up the region with new industry, new jobs, and more inhabitants. However, the effect can also be that the fishery and tourism business have a lot to lose with and oil/gas development.

Respondent's answers

One of my respondents is showing to a study (LOVE, 2003) which is about Lofoten and Vesterålen with and without petroleum development towards 2025. The conclusion of this report are stating that if the inhabitant's numbers are going down and the peoples in the two

regions are getting older towards 2025, it is not enough growth in the primary industries to prevent a reduction in employment and that the peoples are getting older. The respondent is also showing to the KonKraft (2009) report, which is stating that there will be a growth in employment with an oil/gas development. The respondent is also saying that there will be a new optimism among the industries with an oil/gas development. It will be like an engine in the development of the region, even if you maybe not can count new work places so will the new optimism in the industries in the regions be like a medicament.

The respondent was answering to a question that there are two important industries in Lofoten, it's the fish industry and the tourism industry, and today it is actually the tourism industry have larger value than the first hand value on the fish in Lofoten. When it is a fact today that the tourism industry have gone past the fish industry in the value creation, then this are saying something about the potential for the tourism industry when it is about employment and value creation. The respondent is saying that then you can say that the oil/gas development will treat the fish and tourism industry, but the respondent believes the solution to co-exist. The respondent also believes that clean sea and clean nature to enjoy for the fishing and tourism industry still will be present with an oil/gas development outside Lofoten.

My respondent told me that NHO Reiseliv is saying that they are not for or against an oil/gas development. For the tourism industry it is important with activity, it means sales of hotel beds and it means that people are traveling to and back from their work place. My respondent is saying that he don`t know about any tourism destinations which have lost sales because of an oil/gas development. My respondent has also an example from Netherlands the little island Ameland has a gas facility, which is operated of Shell in the middle of a nature reserve. The island has 3000 inhabitants and about 650000 tourists. My respondent have by its own person asked the mayor in Ameland if it began to be enough tourists. The mayor answered and said that maybe the roof of tourists had been reach.

Economical profit for the region

According to a respondent, the municipalities in Lofoten and Vesterålen region has a corporation of getting property tax if there will be an onshore solution. It means nothing for my respondent where the onshore facility shall be located, if it shall be good for the region and the country part. It is important to see on the oil/gas like we know shall be our most important energy for the next decades in the future. Therefore, my respondent said it is

important to see on Lofoten out from 3 reasons. The first reason is that the world needs energy, Norway needs energy for having the economy to keep up the welfare, which we have today. 80-90% of the profit from oil/gas production on NCS goes to the Norwegian government, it means that the municipalities in Norway can have good public services as; nursing homes, schools and road plough and so on, the finance of these services are coming from a place. My respondent is saying if these incomes are going away so will, the municipalities struggle. The third reason are that the Lofoten region needs new growth impulses which are renewing work places and create the need for getting the younger people back, because this fight the Lofoten region looses every day.

Today it is a debate on how the regions can get more of the profit of an oil/gas development in Lofoten and Vesterålen, and today it is no models who threats regions specific and my respondent are saying that Lofoten have been a raw material supplier for centuries. My respondent is saying that this time is over, and that Lofoten and Vesterålen shall be a stone hard political actor in the discussion. It is not only property tax the regions want but also risk fund and compensation fund for example loose of fish export and other looses. They also want more standby capacity against oil discharges a respondent has told me.

A respondent is also seeing on what other things the oil/gas development/production can drag to the region. The respondent is saying that the petroleum industry has a lot of technology, power and competence in alternative energy. Lofoten has a lot of alternative energy resources like wind and ocean currents which they want to use in a positive way. In the Lofoten region they have, previous had an application to Enova about support to set out a pilot, which is an ocean power plant a tidal water based facility, but they got rejection. My respondent is saying that this is a paradox when there is a discussion about an opening of oil/gas development. By answering my questions my respondent was saying that it is important to do both, that the time are been use constructive to get Lofoten as an important participant in alternative energy when the oil one day takes an end.

Tourism industry stakeholders

Brastad et al, (2002) made a qualitative and quantitative survey in 2002 among the important persons in the tourism industry (the qualitative survey) and local inhabitants (the quantitative survey).

Qualitative part of Brastad et al. survey in (2002):

The values of fishing resources in Lofoten are in a large extent connected to the clean sea. For the tourism is also the great and relative untouched nature a central value, since tourism in the area in main cases can be described as marine tourism. Marin tourism in Lofoten includes activities as offshore rafting, bird watching, fish tourism and diving and all this usually in combination with rorbu camping. Rorbu and fish tourism includes also sales of fishing trips, fish sightseeing, fish festivals (World championship in arctic cod fisheries).

Following to Brastad et al. (2000) is this type of tourism based on people in sophisticated city societies wants a more active shape of holiday and a type of challenges which they don`t find in daily life. This shape of fish tourism can have character from sports fishery and fishing of food. Much of the background for this shape of active and experience-based tourism is in a large scale connected to the cultural and the authentic. It is especially the connection between living fishing villages integrated in, and reasonably in harmony with a great nature, which is important for the tourism, which Destination Lofoten is marketing. Often is the question if culture is what people does or people have done, and in the case with Lofoten it is totally clear that tourism in a large part is based on what is going on of genuine activities, even if the rorbu concept in a small part is relevant for today's Lofot-fisheries.

The tourism is in largest parts of Lofoten closely integrated in the fishing villages, or in all cases a local society with a considerable element of fishing. A central representative for the tourism business is showing to that the only tourist facility in Lofoten which not are integrated in a traditional fishing village/fish harbor environment, have not been possible to run profitable, but has the function as a asylum accommodation today. A living fishing village is then a requirement for the type of tourism which today is dominating in Lofoten, and then fishing politic also becomes tourism politic, and oil/gas industry and other relations with the fisheries gets an indirect influence for the tourism industry.

However, the oil/gas business can also have direct consequences for the tourism business. People describe Lofoten as a global trademark, and examples of what they are saying:

"Lofoten as a trademark builds on fisheries, clean food, clean air and closeness to the nature (unknown person in leading position in tourism industry in Lofoten, Brastad et al, 2002)"

"Tourism is harvesting of the nature. We are selling the nature. This harvesting of the nature can be broken with an oil/gas development. The understanding of clean can be destroyed. Black, sticky oil breaks this down (unknown person in leading position in tourism industry in Lofoten, Brastad et al, 2002)"

"Oil in the birthplace for the cod makes the region unclean (unknown person in leading position in tourism industry in Lofoten, Brastad et al, 2002)"

Tourism product in Lofoten is sold in a large share in the shape of ecotourism, and many has the understanding that this eco stamp can go away if the oil business becomes noticeable and visible in the region. The picture of small local societies where people lives simple but strong lives in closeness and in harmony with the nature is the foundation with this type of tourism. People are coming to Lofoten for experience the opposite of industry, technology, stress, noise and big city life. Illusion, the emotion or atmosphere this tourism is build on, can easily be broken down, and if this happens, will many years of marketing and trademark building could be lost, and it will be difficult to build it up again. Many put also weight on that this is about a subjective "image" and a negative flow of rumors or a couple of negative media publicities can be enough to damage this establish tourism picture of Lofoten.

Some people are showing to that the Bird Mountains and bird stocks, especially the puffin can be mention in this connection, it is very important for the tourism and the oil business presence and danger for the bird stocks makes the tourism and oil business not consistent.

Some people are arguing on the other side, that the tourism will not be affected of the oil industry, because:

"The oil platforms will not be visible from land (unknown person in leading position in tourism industry in Lofoten, Brastad et al, 2002)"

Several of the bigger tourism actors in the east in Lofoten gives expression for that oil business can make a growing in the tourism; they are not specifying what this connection eventually shall be. East in Lofoten there is a number of hotels and a certain catering capacity. In West Lofoten, where the tourism has a more one-way base of the rorbu concept, they are not seeing any special possibility to utilize oil business in any positive way.

"It is a goal for future generations shall have it equally good or better than we have it today. If the oil development is going out over the fish, it is not certain that we manage this (unknown person in leading position in tourism industry in Lofoten, Brastad et al, 2002)"

"Something we have to offer the young people (unknown person in leading position in tourism industry in Lofoten, Brastad et al, 2002)"

Survey from people in North of Norway response to the question: "Are you in favor of, or opposed to permitting oil drilling offshore Lofoten and Vesterålen?"

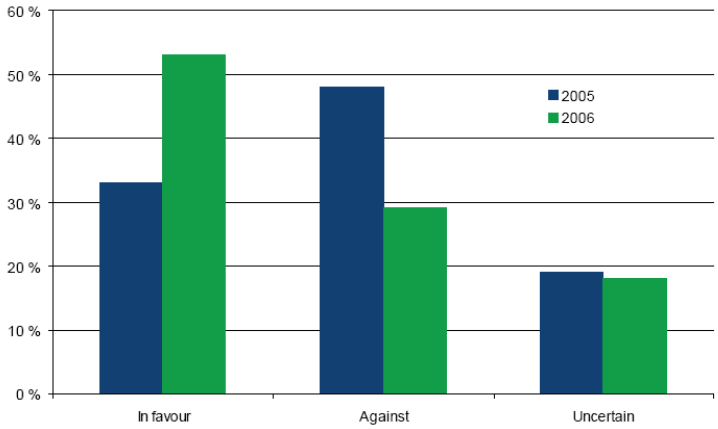


Figure 6-3. People in North of Norway's view on an opening of oil/gas activity in Lofoten and Vesterålen. Source: Norsk Respons (NCSQ, 2008)

Above 30% was in favour of an opening of areas outside Lofoten and vesterålen in 2005, this numer had increased to above 50% in 2006. Under 50% was against an opening of the areas outside Lofoten and vesterålen in 2005, this number had decreased to under 30% in 2006.

Central government

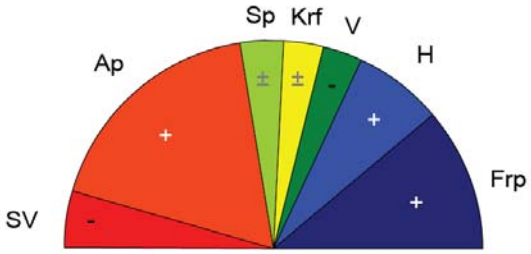


Figure 6-4. Shows the political parties in Norway perspectives about an opening of Nordland VI/VII and Troms II. Source: (NCSQ, 2008).

Here the size of area are the size of the party in the Norwegian parliament (- against, + for or ± have not decided yet, this are indicating their position in relationship about an opening).

SV = Norwegian socialistic left party, AP = Norwegian labor party, SP = Norwegian center party, KRF = Norwegian Christian people party, V = Norwegian left party, H = Norwegian right party and FRP = Norwegian Progress party.

6.5 Summary

Stakeholders that I have decided to watch on in connection to an oil/gas development in Lofoten are; oil companies, local inhabitants, environmental organizations, fishery industry and tourism industry. Their views split from people who think that this will not benefit the region to they who does.

7. Analysis

In this chapter, I will combine the different theories in order to analyze the situation in Lofoten. The theories I have chose has given me a good idea in what I should look for. The aspects I have found important are, the different stakeholder groups and especially tourism industry and local inhabitants. The selection of these aspects has its basis from the co-existing perspective and stakeholder theory.

The decision about opening Nordland VI/VII and Troms II will not come up in the Norwegian Stortinget before 2010 (KonKraft, 2009). Nobody knows if there will be an opening or not at that time it can be decided to wait for further years about an opening, maybe the politicians needs more time, more reports have to be done and so on. Therefore, I will show what the effects for the different stakeholder groups I have choose to analyze can be with an opening and I will have a focus on the tourism industry and especially the accommodation sector. They are standing for the largest portion of employment and revenues in the tourism industry. I will also in my analyze use the consequence analysis and conflict solution strategies. In this chapter I will analyze my primary and secondary data to could answer my research question; **what possible effects will petroleum's activities in Lofoten have for the tourism industry in Lofoten?**

7.1 Impact assessment

7.1.1 Assessment of O&G development

The Hammerfest example

The trend in Hammerfest was that people was moving from Hammerfest, to new optimism among the inhabitants in Hammerfest when developing Snøhvit. Until 2002, the Hammerfest municipality experienced a trend where younger people moved from the municipality. This led to a society where people were getting older and older. In 2002 a new trend started, when developing the Snøhvit project, settlement have increased with 1% every year since 2002, and it is specially in the year group 20-46 years old there have been a net increase in settlements, there has also been a net birth profit (Angell et al, 2006).

The deliveries to the project from North of Norway, estimated to 3.3 billion NOK per January 1, 2007. Before the project started it was estimated to be 600-700 million NOK.

Totally18.000 people from Norway had worked with the project from 2002-2008, 3300 people of these was from Finnmark county. In relation with business development the consequences has been in relative terms larger locally than regional. The direct local effects of the Snøhvit development have been connecting to deliveries from business registered in Hammerfest. In autumn 2007, this was about 1.5 billion NOK. The deliveries are primary connected to sectors where closeness to the construction site is important, like construction and construction site, commodity trade, hotel. The deliveries from business services are also large (about 320 million NOK), and shipbuilding yard (about 80 million NOK). Totally 62 businesses in Hammerfest and Alta who delivered business services to Snøhvit development had increased sells with 37 % in the period 2002-2004. This was 11% over the average sells increase in these two municipalities. The increased employment in the businesses in Hammerfest has been 4, 3% in the period 2002-2007(Angell et al, 2006).

Public incomes

The Hammerfest municipality meets the development of Snøhvit with property tax. In the year 2008, alone the municipality got property tax from StatoilHydro on about 147 million NOK, and there have been estimations that this will increase to 150 million in 2009. This tax has given the municipality opportunity to build out welfare offers and other public efforts. The tax have given the municipality opportunity to build new buildings and maintenance of old building, this have led to that the construction business is still high even of the development of Snøhvit is over (Eikeland et al, 2009).

Estimated spreading consequences for the regions connected to Nordland VI/VII and Troms II

Totally, for the regions connected to Nordland VI/VII and Troms II it will be around 1000-2000 workplaces direct and included spreading consequences. However, it is hard to say where the workplaces, will be localized, because it is not decided where possible onshore facilities shall be localized yet. The spreading consequences can be bigger, but it is only the effort of the municipalities and businesses in the regions, who can decide how big they will be. Offshore development will create fewer jobs than a sea-bottom development with an onshore solution. The 1000-2000 numbers is only estimates, the possible development can be larger or smaller, only the time will show how much workplaces there is possible to create, if the area will be open for an oil/gas development (KonKraft, 2009).

I will use Amdam (1985) rational planning to see on the effects for the tourism industry of an oil/gas development in Lofoten.

7.1.2 Assessment of O&G development in Lofoten

1) **No O&G development in Lofoten**

Local stakeholders

Lofoten region is today a region where the inhabitant's number is going down and the people are getting older (LOVE, 2003). When I asked one of my respondent the respondent answered that the inhabitant number is going up and down. However, when looking at the numbers from SSB (2009) the numbers of inhabitants has decreased the last 33 years in Lofoten region from about 26500 people in 1975 until about 23500 in 2008. However, it is hard to assume what the future will bring to Lofoten region inhabitants numbers.

Fishery industry

In 1990 had 2.980 persons fishery as main work in Lofoten and Vesterålen, in 2007 this number had dropped to 1.805 persons. The decrease in numbers in this period was 40%, if this trend is continuing in the future, will the fishery industry in Lofoten soon not be so important (KonKraft, 2009).

Tourism industry

There were totally 142000 visitors in hotels from November 2007 until October 2008. In the year 2007 it was 135000 visitors, this was an increase of 5 % (Nordland reiseliv 2009). If this trend will continue in the next years, the tourism Industry in Lofoten will grow. According to one of my respondent which are an leading actor in the tourism industry in Lofoten he saw no sign of that the tourist traffic to Lofoten would decrease, the respondent saw only possibilities for an grow in the tourist traffic, this was in the case with no oil/gas development.

2) Opening for O&G development Local stakeholders

Sea bottom solution (onshore)

For Nordland VI a sea bottom development can create estimated 400-500 jobs. 200 jobs will be in the onshore facility, and 200-300 in deliveries, consumption and increased tax entrance to the municipalities. In Nordland VII, there have been estimations, which are saying that an onshore facility will create jobs for 800-900 people. Around 500 will be on the facility, and 400-500 in deliveries, consumption and increased tax entrance for the municipalities. In a development in Troms II, that this will give estimated 200-300 jobs. 100-150 will be in the facility and rest in deliveries, consumption and increased tax entrance (KonKraft, 2009).

An onshore solution will give the most positive effects for the Lofoten region. It means more employments and the gas will be prepared here and that will give more demand after employments. An onshore solution will also give more spreading consequences for the region, with administration of the facility and so on (KonKraft, 2009). However, visual pollution can make problem`s like they have in Hammerfest on the Snøhvit project, there is soot a problem. However, it is possible to develop solutions in connection with a development of an onshore facility. It can be possible to pick an area for the development which are located a place where people don`t see it, in Hammerfest the onshore facility is located 120 kilometers from the gas wells (Angell et al, 2006). It is possible to hide the facility as best as possible, example here are the Wytch Farm facility in UK (BP, 2009).

Offshore solution

In an offshore solution on Nordland VI, it has been estimations, which are saying that 100-300 direct workplaces will be create. The number is dependent on size of the development. In Nordland VII, it has been estimations, which are saying that an offshore solution will give 50-150 direct workplaces. An offshore solution for Troms II will give estimated 50-150 workplaces (KonKraft, 2009).

An offshore solution will not give so much positive effects for the Lofoten region as an onshore development will give. The need for workers will not be as high as there will be if an onshore solution and the spreading consequences in the region will not be as high as an onshore solution (KonKraft, 2009). There will be a chance for that the oil/gas are pumped out from the area and no one will see the oil/gas in the region, and do they need an administration

in Lofoten or Vesterålen if an offshore solution is chosen? The oil/gas platforms will not be visible from land and no large onshore facilities will be needed one of my respondent answered to my question.

The local inhabitant will get more jobs from an oil/gas development but if the possible new jobs will be more than the possible loose in fishing industry and tourism industry is hard to say. It is estimated in the KonKraft (2009) report that an oil/gas development in Lofoten and Vesterålen can give about 1000-2000 new jobs in these regions. However, where the jobs will be located is hard to assume and the number of workers needed to the facilities is dependent on what type of development, which will be, choose, onshore or offshore solution.

There is work done by the municipalities to secure revenues from a possible the oil/gas development. The 12 municipalities in Lofoten and Vesterålen are working together, and are agreeing to split and eventually property tax. They are also working with a fund which they shall use if there will be an oil discharge. A respondent from Lofoten told me that Lofoten had been a raw material supplier for centuries, “these times was over”, “they wanted some more back”. Lofoten are also a region with a lot of potential energy in wave and wind and they wants to use this energy with the help of the oil companies (who today are energy companies with a lot of technology and competence of new energy sources) a day in the future when we have to go over to new energy sources.

Oil discharge

An oil discharge will also have effects on the local inhabitants in the case that they are also using the nature in Lofoten for recuperation and relaxation. If an onshore solution is chose it will mean visual pollution and effects like soot, but it is dependent on where the onshore facility will be located. The local inhabitants can also get possible revenues from an oil discharge; people are needed to clean up the oil (Bambulyak, 2009).

Summary

For the local inhabitants the best solution will be an onshore development if the base is on economic, spreading consequences and employment. However, if the base is on visual and local pollution as soot, the best option will be an offshore solution.

A possible oil discharge will give negative effects as; it can hurt important recuperation and relaxation areas. Possible positive effects will be employment in cleanup work and investment in new industry (Bambulyak, 2009).

3) Opening for O&G development Fishery industry

Onshore

In a production of oil/gas there will be no problems for the fishing industry to do their fisheries as normal if there will be solutions who are not occupying their areas. Problems they can face are that customers who look at the fish food as clean can change and the demand of fish from these areas can go down (Brastad et al, 2002).

Offshore

In an offshore alternative there can be conflict between the oil companies and the fishing industry, because it might happen that the oil platforms are located in important areas for the fishing industry.

Fishery industry, oil discharge, negative effects

An oil discharge is very dependent on how the weather and wind are the actual day it occur, has one of my respondents told me. However, in a worst-case scenario if the oil discharges will be under the arctic cod fisheries in the winter it can damage the fish tribe very hard. If the oil discharge are not so large and the climate condition are on the fish side, the impact don`t need to hurt the fish at all. However, this can hurt the fishing industry anyway because it will have negative influence on the customers and the demand of fish can go down (Steensnæs, 2003).

Fishery industry, oil discharge, positive effects

If there will be a large oil discharge, the fishing industry will most likely receive compensations for their lost incomes from accident funds or insurance, answer from one of my respondents. Some of the fishermen’s will maybe also be a part of cleaning up after the oil discharge. The area most likely is close for fishing, after the oil discharge have happen and when the fishery starts again it can possible be more fish in the Sea. In addition, maybe the region receives compensations for building up new industries like farming of seafood (see

example from Prestige accident near Galicia). However, the environmental damage will of course be large, and the demand for fish from this region can be decreased (Bambulyak, 2009).

Summary

For the fishing industry, the best solution will be an onshore solution, because this solution will not interfere their fishing areas, possible ship traffic from supply boats and tankers will also not be a problem with an onshore development.

An oil discharge will have negative effects on the fish tribes if the oil discharge hits the fish in a worst-case scenario. The demand for fish can go down from this are. However, an oil discharge can help the fish tribes to grow if the fisheries are closed after an oil discharge, and the fishermen's can get economic compensation and get revenues from cleanup work. Eventually new industries, which can be started, can help the fishermen's to diversifying them so they have more legs to stand on.

4) **Opening for O&G development Tourism industry**

For the tourism industry in Lofoten they can experience that tourist traffic is declining because of that tourist are coming to Lofoten because of the untouched and clean nature (Brastad et al, 2002).

Onshore

The effect of a large onshore facility is that the onshore facility can have visual pollution effect. If a solution like there have been on Snøhvit or Ormen Lange are chose, but this can be limited, like a solution at Wytch Farm example. I have estimated in an extreme situation that the Lofoten region can lose 25% of their tourist. With use of numbers from TØI and SSB for a tourists daily spending I have estimated that the total loss for the tourism industry will be about 2357 million NOK in a 45-year period in an extreme situation (5 years development and 40 years production (calculations in appendix 2).

Onshore positive effects

More activity in form of more conference and seminar activity, this will only be for hotels, rorbu and camping sites don`t have these facilities.

Offshore

For the tourism industry, this may be the best solution. Visual pollution will be limited, because the tourists will not see the facilities from land. However, the reputation for tourist destination Lofoten can be hurt, because tourists are coming to Lofoten to experience untouched and clean nature (Brastad et al, 2002).

Offshore positive

The oil platforms will not be give visual pollution (Brastad et al, 2002).

Oil spill

I have used two surveys; these are examples of what possible effects there can be of an oil discharge. The examples are from Skagerrak in Norway and Bohuslän in Sweden.

Skagerrak

(Holmengen, 1992) made a survey over economic consequences for the accommodation business of an oil discharge on the Skagerrak coast. This is a report of a possible discharge on the Skagerrak coast. The report takes a starting point in the beginning of the tourist season. If the discharge happens longer out in the season, the consequences will get smaller impact. The survey data have been picked from user investigations, which were done in 1990 among user groups in Risør municipality. Statistics from SSB`s accommodation and tourism survey is also used in this report. It has been estimation, which is saying that 52% of the camping guests and 42% of the hotel guests will leave the area if an oil discharge will hit the area.

Bohuslän

Kleven (1995) has made a report who see on consequences from an oil discharges on visitors in Bohuslän coast. In the Kleven report, there are estimations done which shows that 50% of the hotel and camping guest will not come to the area if the area experience an oil discharge.

If I am using the numbers from the Skagerrak survey in 1990 and the Bohuslän survey in 1995. I have done an estimate for negative effects from an oil discharge, the negative effects will last for 5 years and the first year it will come 50 % less tourist because of the oil discharge. It will have a negative impact on 220.5 million NOK over a 5-year period. It is expected that after 5 years it will have no negative impacts for Lofoten`s tourism business.

This is an estimate, how it will be if a possible oil/gas development occurs and an oil discharge will affect the tourism business is hard to say (calculations in Appendix 2).

Summary

The best solution for the tourism industry will be an offshore solution; because this will not have any visual pollution effects and there will not be local pollution as soot. Onshore effects can be limited with choosing solutions like the Wytch Farm example. Positive effects can be increased activity, more conference and seminar activity. Negative effects can be destination Lofoten's damaged reputation. A possible oil discharge can have both negative and positive effects for the tourism industry.

7.1.3 Conclusions that can be draw from the impact assessment analysis

When I here have used Amdam (1985) analysis, there are no easy conclusions that can be made. However, possible estimates of effects can be shown. The effects can occur if the organization (in this case oil companies and Norwegian government) is doing certain actions, and the stakeholders can then get certain effects of these actions. The possible conclusions/decisions have a base in assumptions I am putting into the model, because I can put whatever I want into the model. However, I have tried to stay neutral in my research and tried to see on both possible positive and negative effects for the stakeholder groups. However, there can be effects I have not made assumptions of, because there will be effects I don`t know about and I have not seen when I have done my data collection, but I believe that I have seen on some of the most important effects. The assumptions I have put into the model comes from researchers, companies and stakeholders and so on.

If there is possible to get an "objective" impact assessment evaluation when the model is dependent upon conflicting assumptions?

The answer have to be yes and no, yes because the possible negative and positive effects can be estimated from a objective view, from a neutral person and if facts that can be measured (Landscape Institute, 2005).

No, because when I putt preferences from stakeholders into the model, it will be "subjective" preferences (Landscape Institute, 2005).

7.2 Stakeholder perspective

Definition of a stakeholder; *"any group or individual who can affect or is affected by the achievements of an organization`s purpose"* (Freeman 2002:108). Ihlen (2004) says that the basic idea for an organizations success is dependent on how the organization is managing the relationship with stakeholders, and this can affect the organizations possibility to reach its goals.

Impacts of stakeholders and their interdependence

The reason why I am taking these other stakeholder groups into the analysis is that for example the fishing industry is important for the tourism industry. Like mentioned earlier, tourism industries in Lofoten are mainly located in living fishing villages (Brastad et al, 2002). Persons who come to Lofoten wants to experience great nature and living fishing villages. Therefore, if the fishing industry is hurt of an oil/gas development it will have consequences also for the tourism industry. The conflict between the tourism industry and local inhabitants can be that the local inhabitants wants more job possibilities and revenues, this can an oil/gas development help to do, but the tourism industry can have losses of an oil/gas development.

Traditional impact assessment does not focus on interdependent relationship between different stakeholders. In the case of Lofoten, I think this is very important so I will see on the interdependent relationship in the following chapter part.

The different stakeholder's interests and values

I will use the figure 3-1 (Jacobsen et al (2002) to discuss the different stakeholder's interests and values:

Disagreement:

Local inhabitants: The figure 6-3 from 2006 was stating that above 50% was in favour of an oil/gas development, under 30% was against an oil/gas development in Lofoten (NCSQ, 2008). The opinions from inhabitants from North of Norway are split in those who fears than an oil/gas development will threaten traditional industries and the inhabitants who believe than an oil/gas development will bring value in form of economy and employment to the region (NCSQ, 2008).

Fishery Industry: The fishing industry stakeholder has traditionally been against a possible oil/gas development outside Lofoten and Vesterålen because of the potential conflicts about the areas and the problems due to co-existence (NCSQ, 2008).

Tourism industry: For the tourists, who are, visiting Lofoten it is the great and relative untouched nature is a central value, the tourism in Lofoten is marine tourism, in living fishery villages (Brastad et al, 2002).

Oil companies: The Norwegian oil companies want to keep up production, and there are potentially large resources in the disputed areas outside Lofoten (KonKraft, 2009).

Dependence:

Local inhabitants: Are dependent on primary industries as fishery industry and tourism industry, because of jobs (NCSQ, 2008).

Fishery industry: Are dependent on possibility to catch fish (NCSQ, 2008).

Tourism industry: Are dependent on clean and untouched nature, living fishing villages (Brastad et al, 2002).

Oil companies: Are dependent on oil/gas resources (Regjeringen, 2008)

Emotions:

Local inhabitants: The emotions are different for inhabitants from North of Norway. Some fears that it will treat traditional industries and some believe in more jobs and spreading consequences (NCSQ, 2008).

Fishery industry: Some are afraid that it will take their areas, and a possible oil discharge is the big ghost (Brastad et al, 2002).

Tourism industry: Afraid of decreased tourism activity, some have hope of increased activity leads to increased conference and seminar activity (Brastad et al, 2002).

Oil companies: Hope that the areas outside Lofoten are going to be open for oil/gas development (KonKraft, 2009).

Power balance:

Local inhabitants, fishery industry and tourism industry: Have possibility to influence the Norwegian government decision about an opening or not opening of development outside Lofoten.

Oil companies: Can develop oil/gas outside Lofoten if Norwegian government deciding an opening. If the Norwegian government decides an opening, will oil companies have much more power than the other stakeholder groups, because they have permission to develop, oil companies are large and have a lot of money.

The power balance is uneven.

Scarce resources:

Local inhabitants: Fish tribes and clean and untouched nature are scarce resources.

Fishery industry: Fish tribes are scarce resources.

Tourism industry: Clean and untouched nature is scarce resources.

Oil companies: Oil/gas resources which are located in the area where the fish tribes is and a development can led to that the nature are seen on as not clean and untouched.

Summary stakeholder's interests and values

The possibility for a conflict is high when all levels in the conflict figure are different for all stakeholders, the power balance is uneven and they have scarce resources in the same area.

7.3 Strategies for solutions of the conflict among the stakeholders

Follow to Thomas (1992) it is five different strategies for solutions of avoiding a conflict, these are avoiding, accommodation, competition, collaboration and compromise.

Avoiding: This is not a possible strategy in this case, local inhabitants, fishery industry and tourism industry will stay in the area even if there will be an oil/gas development or not. However, oil companies can avoid the areas outside Lofoten, but if there will be an opening of the areas outside Lofoten they will develop oil/gas if there are oil/gas resources in the fields.

Accommodation: This is a possible strategy in this case, local inhabitants, fishery industry and tourism industry can give oil companies access to the disputed areas outside Lofoten and can get positive and negative effects from an oil/gas development.

Competition: This is a possible strategy in this case. Oil companies can run over the local inhabitants, fishery industry and tourism industry, because they are large and have economic power.

Collaboration: This is also a possible strategy in this case; then the oil companies and stakeholders can work out strategies together to limit possible effects for local inhabitants, fishery industry and tourism industry.

Compromise: This strategy is also possible to use, it will make all stakeholder groups to give something to get something.

Impact assessment should be a tool for moving towards “compromise” and “collaboration”, if the stakeholders shall reach the approach the state of co-existence. On the one hand, stakeholders have assertiveness, where stakeholders try to satisfy their own concerns and on the other hand, stakeholders have cooperativeness, where stakeholders try to satisfy other stakeholders concerns. If stakeholders stay on the assertiveness approach, the stakeholders will never co-exist. Stakeholder groups as fishery industry, tourism industry and local inhabitants are not in the process of making official impact assessment reports (NPD, 2009); it will maybe be a better solution for NPD to take these stakeholder groups into the process of making these reports, to highlight their needs. Cooperativeness can be improved by, when synergies to the parties are explained and clearly demonstrated.

Impact assessment methodology is as a neutral tool when the facts put into the model has a base in measurable facts and professionally judgment. But if the facts are based on public preference will impact assessment methodology be seen as subjective (Landscape Institute, 2005), impact assessment is by law decided from the Norwegian government to be used before an oil/gas development occur, and it is a important tool to decide if there shall be an development or not.

Impact assessment is a tool for promoting dialog between stakeholders in the way that the oil companies will better understand the effects of a development. This can lead to that, the

stakeholders can better arguing their rights towards the oil companies and the Norwegian government, which in this case are responsible for the development of oil/gas.

If the oil companies and the Norwegian government do not do an impact assessment analyze of the development with preferences from important stakeholder groups, they can later experience that the stakeholders can experience effects that are more negative. Impact assessment will show different effects from different kinds of development solutions (Landscape Institute, 2005), the stakeholders can argue for what kind of development they want, and they can argue for how the solution can be like. Therefore, the possible negative effects can be limited, so in this case will the impact assessment methodology be a tool for promoting a dialog between stakeholders and the developer. However, if it shall be a promoting tool the developer have to take the stakeholders serious and see them as an important factor in the development.

It can be a problem with the impact assessment analyze can focus on how positive effects of one stakeholder group and more or less forgetting other groups. Example here is that the oil companies like StatoilHydro (Bladet Vesterålen, 2007), and the Norwegian government is focusing on spreading consequences for the local inhabitants and local industry, and industries like the tourism industry are pushed back in the debate. The tourism industry in Lofoten have a base in clean untouched nature and living fishing village's environment (Brastad et al, 2002). The tourism industry has a potential loss of an oil/gas development, so it is very important that this stakeholder group can promote their demands.

If there is going to be an oil/gas development outside Lofoten it is important for the tourism industry to have a good communication with the oil/gas industry, of which visible effects an oil/gas development will have. If it will be an onshore solution, the onshore facility can give negative effects as visual pollution and soot from flaring (Angell et al, 2006).

The petroleum industry and Norwegian government have a 0-discharge goal in these areas (Bladet Vesterålen, 2007), so the fish and the aquaculture will not have negative effects from an oil/gas development if the oil companies achieve their goals. However, it will be important for the fishing industry that there will not be an oil discharge and the solution is not taking areas where the fishery is important.

To have a good dialog strategy is very important if an oil discharge occur. It can be very damaging for Lofoten as a tourism destination to experience an oil discharge, has a respondent told me. The tourism destination can maybe not prevent damage when the crisis is going on, but after the crises it can built up again the reputation. People are forgetting things after time. A discharge who is hitting for example the beach line, it will be possible to clean up again the oil. However, if the discharge for example hits the arctic cod under spawning under the Lofot-fisheries in the wintertime and this damage the arctic cod tribe, it can take longer time to build up again the reputation for the Lofoten destination.

Summary

The stakeholders should find a strategy for co-existence. If the stakeholders are not cooperating with each other it can led to larger impacts for the different stakeholder groups. Collaboration and compromise is the two strategies where the impact/effects will be most limited. For stakeholder groups that are not in the process of making official impact assessment reports, it will maybe be a better solution to take them into the process of making these reports.

8. Conclusions

To estimate what the effects of an oil/gas development will be for the tourism industry are very much to speculate in uncertainties. Amdam (1985) is saying this in a good way; ”*The only thing secure with a consequence-analysis is that it is characterized with uncertainty”* (Amdam, 1985:189). The only way we can find out how the effects will be for the tourism industry are to look at the industry when the development is a fact, if there will be an development. Helge Lund are also saying this on a good way; *“What happens in Hammerfest tells me more than 1000 consequence reports. It shows also how modern industry workplaces crates spreading consequences and optimism. Here it is large possibilities for Vesterålen and Lofoten, but it will demand long time and a lot of hard work* (Helge Lund, co StatoilHydro, Bladet Vesterålen, 2007)”.

The Lofoten region needs new optimism to reverse the decrease in inhabitants and maybe an oil/gas development will help a new optimism, with new jobs and spreading consequences. To get the fishing industry (which are interdependent to the tourism industry) and tourism industry to not get negative effects (if it is possible) if there will be an oil/gas development it is important that the oil companies are working with these industries so they can create solutions so the possible negative effects will be as small as possible. It can be helpful to take these stakeholder groups preferences and their interdependent relationship into the process, when making impact assessment reports. To find a base and strategies for peaceful co-existent will be very important. I don`t think these stakeholder groups will be agree about everything so they follow a strategy where they have to give and take, maybe the compromise or collaboration strategy will be the best in this case.

It will be very interesting to hear what the Norwegian Stortinget does in 2010 about the question about an opening of oil/gas development outside Lofoten and Vesterålen.

8.1 Implications and suggestions to further research

This master thesis can be useful for other master students trying to find possible effects for stakeholder groups in any types of conflict and conflict solutions. This thesis can also be useful for people who want to know more about possible effects of a possible oil/gas development outside Lofoten. The area, which I have researched in my thesis, is very complex, so students who want to investigate this area more can use some of my findings as an introduction to further investigation of a possible oil/gas development outside Lofoten.

This thesis has a qualitative approach concerning the stakeholders and especially tourism industry in Lofoten. My study has a base on both primary and secondary data collection, to improve the thesis it could have been interviewed more people in the process, to get a broader aspect to the case. A quantitative survey should also been done among tourist, to see if they wanted to visit Lofoten if there was going to be an oil/gas development.

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10.APPENDIX

Appendix 1

Bellona

Bellona was founded in 1986, ant it is an independent, ideal organization who has the purpose to work for increased ecological understanding and protection of nature, environment and health. Bellona is working without economical support from the governments and their brand is illustrated with people interest combined with a high professional level and a long term strategy for the work they are doing.

Bellona is saying that the Sea areas outside Lofoten and Vesterålen are among the most valuable in the world. An oil/gas development here will threaten nature values and the fish resources, and increase Norwegian GHG; this is why Bellona is against an oil/gas development outside Lofoten and Vesterålen.

Bellona is stating that:

- An oil/gas development outside Lofoten and Vesterålen will threat important natural wealth as; fish, sea-animals, sea birds and coral reefs.
- Today`s oil protection standby is to bad to function effective outside Lofoten and Vesterålen.
- Shooting of seismic is frighten away the fish and displaces the fishery industry
- The climate crisis is demanding that fossil energy phases out (Bellona, 2009).

Greenpeace

Greenpeace is an international environmental organization who is both economic and political independent. Greenpeace was first, established in Norway in 1988. In Norway Greenpeace are working with climate change, energy questions, the problem with health damaging environmental toxics and fishery and sea questions (Greenpeace, 2009a).

Greenpeace are giving the question; how much risk shall we accept in vulnerable areas? They are stating that a oil/gas development who are satisfying the demand of 0 discharge, will not remove the risk of a large or small discharge which can give very serious consequences.

Greenpeace have the opinion that some areas are so vulnerable that a additional risk from oil/gas development shall not be allowed.

Greenpeace are saying that it is small chances for that an oil/gas development will contribute to considerable employment in the region. They are saying that the number of work places in the petroleum industry is on the way down, and that today's employees will commute to North of Norway instead of changing industry, and the example from Hammerfest shows that a lot of workers from foreign countries was participating in the development.

They are also stating that an oil/gas development will treat both fishery and tourism, and these two industries are employing more people today than an oil/gas development will do Greenpeace, 2009b).

The World Wildlife Fund (WWF).

WWF is an international organization and the Norwegian division was founded in 1970. WWF is working for protecting and preserving the natural value and the biodiversity in the sea, at the coast, in the forests, in the leaks, the rivers and in the mountains, they are also working for to improve the environmental politics in Norway (WWF, 2008).

WWF is working for protection of Lofoten and Vesterålen against oil/gas development. Some places must the consideration to the nature and nature based industry going before the demand for more oil in the Norwegian government pension fund. The visitors from all over the world are coming to Lofoten and Vesterålen to explore the beautiful and vulnerable arctic nature (WWF, 2009).

Appendix 2

Estimating of possible effects from an oil/gas development on tourism industry in Lofoten

No surveys (which I have found/heard about) have been from the tourist view if they will come or not come to Lofoten if there is going to be an oil/gas development outside Lofoten. Here I will give estimates on what can happen in extreme situation and examples of positive effects for the tourism business of an oil/gas development outside Lofoten.

Negative effect from a development in an extreme situation

I have made an estimate of that 25% (the 25% number is based on that tourist will not come to Lofoten, because Lofoten is not longer seen as untouched and clean) of the tourist who comes today. If tourists will not come to Lofoten because of the oil/gas development, then the tourism industry will have these impacts over a 45-year (5 year development, 40 year production period) estimated time period:

	Hotel	Camping	Total
Guests 2008	142045	194544	336589
Spending in Lofoten	128 million NOK	82 million NOK	210 million NOK
Guests 45 years without oil/gas development	6.392.025	8.754.480	15.146.505
Loss in guest with oil/gas development	1.598.000	2.188.620	3.786.620
Loss of spending with oil/gas development	1.438 million NOK	919 million NOK	2357 million NOK

Table 10-1. Estimated numbers of a negative effect of oil/gas development over a 45 year period.

Here I have used numbers from TØI and SSB for a tourists daily spending. In this table it is not expected growth in guests and it is estimated with cash flow today. (The camping colon is average between cabin/camping).

Therefore, I can estimate that the total loss for the tourism industry will be about 2357 million NOK over a 45-year period in an extreme situation.

Estimating of negative effects for tourism business of an oil discharge

I have used the numbers from the Skagerrak survey in 1990 and the Bohuslän survey in 1995. I have done an estimate for negative effects from an oil discharge. The negative effects will last for 5 years; the first year will it come 50 % less tourist:

	Hotel	Camping	Total
Guests 2008	142045	194544	336589
Spending in Lofoten	128 million NOK	82 million NOK	210 million NOK
1 Year	50%	50%	50%
Loss guests	71022	97272	168294
Loss spending	64 million NOK	41 million NOK	105 million NOK
2 Year	25%	25%	25%
Loss guests	35511	48636	84147
Loss spending	32 million NOK	20,5 million NOK	52,5 million NOK
3 Year	15%	15%	15%
Loss guest	21300	28180	49480
Loss spending	19,2 million NOK	12,3 million NOK	31,5 million NOK
4 Year	10%	10%	10%
Loss guests	14205	19454	33659
Loss spending	12,8 million NOK	8,2 million NOK	21 million NOK
5 Year	5%	5%	5%
Loss guests	7100	9730	16830
Loss spending	6,4 million NOK	4,1 million NOK	10,5 million NOK
Total guests loss	149138	203272	352410
Total spending loss	134,4 million NOK	86,1 million NOK	220,5 million NOK

Table 10-2. Loss in guest and spending in Lofoten region. In the case with of an oil discharge. In this table it is not expected growth in guests and cash flow are present value.

An oil discharge will have a negative impact on 220.5 million NOK over a 5-year period. It is expected that after 5 years it will have no negative impacts for Lofoten`s tourism business. This is an estimate, on how an oil/gas development and a oil discharge outside Lofoten will affect the tourism industry in Lofoten.