

Passenger and cruise sector sustainability and sustainable development: The stakeholders' perception

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Abstract

Purpose: The purpose of this thesis is to investigate the stakeholders of the Southern Oslo-Fjord region perception of sustainability within the passenger and cruise sector.

Design/methodology/approach: A qualitative research methodology is applied in this study. Semi-structured interviews were conducted to collect data from various stakeholders located in the Southern Oslo-Fjord. The collected data was analysed manually.

Findings: The findings of this study illustrates various stakeholders' perception of sustainability and sustainable development. Once those perceptions were recognized, the perceptions of sustainability within the maritime domain and further within the passenger and cruise sector were identified. Additionally, stakeholders' contribution to a sustainable community and their sustainable development performance were identified.

Contribution: This thesis contributes to knowledge creation of the different stakeholders' perceptions of sustainability, and further shows their contribution to the community and sustainable development of Southern Oslo-Fjord region.

Originality: This thesis strengthens empirical literature of sustainability in the passenger and cruise sector in Norway.

Keywords: Sustainability, sustainable development, economic sustainability, social sustainability, environmental sustainability, stakeholders' perceptions, maritime

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1. Introduction

The word sustainability is more and more mentioned in media and is often a discussed topic by all the organizations in the world. Back in 1987, the report “Our Common Future” was published by the General Assembly of the United Nations, led by the former prime minister of Norway – Gro Harlem Brundtland. It was named the “Brundtland Commission” and it was describing the definition of sustainable development as the “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (UN, 1987, p. 41). The report is including the three dimensions of sustainability; social, economic and environmental sustainability. There are many major objectives of development, and the satisfaction of human needs and desires are one of the major objects in the report (UN, 1987). Gro Harlem Brundtland (1987) also elaborates about that the environment, not only as a sphere separate from human actions, ambitions and needs, but as a place where we all live; and development as what we all do to improve our place to live. The report “Our Common Future” (1987) is the fundament for sustainable development and the three dimensions of sustainability.

The wide range of pressures in the European marine and coastal ecosystems are the risk for the supplies of vital goods and services that are important to the society, both in regards of the economy and the environment (EEA, 2010). The range of pressures includes, for example pollution, climate change, overexploitation of marine resources and ocean acidification (EEA, 2010). The growth in world trade has been increasing rapidly in the last 50 years, and the emissions has increased along with the trade. Greenhouse gases and CO₂ is a consequence of the generation of energy to trade. Greenhouse gases are essential for the planet, but a surplus of these gases can cause climate changes which are regarded a threat to the environmental

sustainability, the well-being of people and the strength of the economy in the world (Lindstad, Asbjørnslett, & Pedersen, 2012).

For future economic growth, shipping is an essential component, and the International Maritime Organisation (IMO) are working to ensure a strengthened contribution towards a green economy and growth in a sustainable matter (IMO, 2018). IMO (2018) further states that their promotion of sustainable shipping and sustainable maritime development is one of their major priorities in the coming years. The issues covered for a greener and more sustainable global maritime transportation system includes energy efficiency, new technology and innovation, maritime training and education and development of the maritime infrastructure (IMO, 2018).

The lack of research on sustainability in the passenger and cruise sector in Norway has been the reasoning for this study. Further, the high focus on sustainability nowadays has contributed to motivation for researching this topic. The ever concern of the environment and the use of sustainable and environmental friendly transportation has been contributing to the means of this thesis. When the society is elaborating about using more sustainable transportation, it is often by using electrical cars or the railways, rarely about the passenger and cruise vessels. Within the Southern Oslo-Fjord region, there are vessels that travels between cities in both Norway and between Norway and Sweden and Denmark. The concern of being sustainable with many departures each day has been clearly evaluated in this thesis.

The aim of this study is to investigate the stakeholders within the passenger and cruise sector and how these stakeholders contribute to sustainable operations and what they understand of sustainable operations. This thesis covers the stakeholders in the Southern Oslo-Fjord region. There is used a qualitative approach to collect the required data from the stakeholders. To examine the research question, first the literature was investigated and analysed. It follows with interviews of stakeholders from the industry of the passenger and cruise sector and the

relationship between theory and reality. Finally, the link between theory and performance, and understanding of sustainable operations are identified.

There are six chapters in this thesis. After the introduction, the literature review chapter summaries previous and current research on the theory of sustainable development and operations. The literature chapter will also contain some discussion around the sustainable development goals from DNV GL and the Norwegian Shipowner Association. In chapter 3, the methodology is addressed, followed by data analysis and result. The discussion, limitations and recommendations for further research are outlined in chapter 5. The concluding remarks are given in the last chapter.

2. Literature review

This chapter provides an examination of academic literature within sustainability research. The first section reviews literature about sustainability in general and in the maritime sector, and gives an overview of the sustainable development goals. The second section is focused on more in-depth literature about sustainability in the maritime sector. This chapter is concluded with an examination of sustainability in the passenger and cruise sector.

2.1 Sustainability

Sustainable development is defined by a system where the outcome of the combination of environmental, economic and social performances are acceptable (Psaraftis, 2016). The environmental footprint is an increasing concern among the population all over the world. According to the Norwegian Shipowner Association (2017), the levels of impact for sustainability is well connected. The environment is directly impacted by the shipping sector, both through discharges to sea and emissions to air. For the society the shipping industry is connected to the public health and the availability of providing products and food from the global market, thus for social development to increase, it is dependent on a protected

environment. From the economical point of view, there are some challenges within the shipping industry, hence it is important to provide a decent working environment and to facilitate economic growth while reducing impact of the environment. The economic development is built on the environmental and societal level, but is highly impacted by the industry (Norwegian Shipowner's Association, 2017b).

The measurability of emissions is a challenge for the maritime sector. Psaraftis (2016) states that the emissions are only estimates, and should be measured directly to reduce it. Another challenge for reaching a good solution within the sustainability of the maritime sector is the number of stakeholders. Within stakeholders of this area, there are shipping companies, classification societies, shipyards, terminal and warehouse operators, equipment manufacturers, public officials and politicians, nongovernmental organizations, environmental organisations, etc. Because of all the different objectives of these stakeholders, it may be difficult to reach an agreement on a solution among them (Psaraftis, 2016).

The protection of the biosphere is essential for the development of the society and the economy. As shipping has a direct impact on the biosphere through discharges to the sea and emission to the air, it is an important factor for the industry. Within the Norwegian Shipowner Association's (2017) sustainable development goals (SDG) there are a lot of actions shipping companies can contribute to. DNV-GL's report on the SDG's contains four goals to protect the biosphere:

- clean water and sanitation,
- climate action,
- life below water and
- life on land.

The targets of clean water and sanitation are to improve the water quality and to increase the efficiency of water-use. The contribution to these targets are reduction of harmful

discharges to the sea, reduction of hazardous chemicals, sharing of knowledge about technology across industries and to develop solutions that are cost-efficient to transport water.

The targets within the climate action are to raise awareness to the climate change, as well as improve the education. Another target within this category is to implement climate change measures to strategies, planning and policy. The shipping industry can contribute to this by setting requirements for their suppliers within the design and constructions and promoting the awareness of the climate risk and opportunities (Norwegian Shipowner's Association, 2017b). The targets for shipping within the life below water are to prevent and reduce marine pollution, as well as protecting the costal ecosystems. The shipping industry can contribute to this by reducing their discharge of ballast water, waste and sewage, and by introducing regulations to prevent transfer of conflicting species. To restore the life on land, the relevant targets for the shipping industry are to be consequent on the use of inland freshwater use for their systems as well as prevent the introduction of confliction species on land. The industry can contribute to these targets by introducing regulations that prevents transfer of conflicting species (Norwegian Shipowner's Association, 2017b).

The second level of the SDG's is the societal issues, which includes health and social justice. To be able to have social development, a protected biosphere is necessary (Norwegian Shipowner's Association, 2017b). The socio-economics is also important for the societal development, such goals as no poverty, zero hunger, good health and well-being, quality education, sustainable cities and communities, etc. The shipping industry is providing the society with interactions between cultures, in form of tourism, as well as they contribute to the society by achieving the social goals of public health and provision of food and other products.

The target for the SDG's no poverty is to wipe out extreme poverty by reducing their exposure and vulnerability to climate-related risks. The shipping industry can contribute to this by providing affordable transportation of people and goods, access to markets and to create jobs

within the areas of extreme poverty (Norwegian Shipowner's Association, 2017b). The goal of zero hunger aims to end hunger by achieving food security. The relevant target for the shipping industry is to ensure access to sufficient food that is safe and nutritious, and to limit the extreme volatility of food prices. The industry can contribute to this by facilitating to harvesting and production of sustainable food, and to provide the transportation to be affordable and sustainable. The third SDG within the social development is good health and well-being and the targets that are relevant for shipping is to prevent use of alcohol and narcotic drug abuse, as well as reducing the number of deaths and injuries from traffic accidents (Norwegian Shipowner's Association, 2017b). Another target for this goal is to reduce the number of deaths and illness that is caused by pollution to air, water and soil and hazardous chemicals. The shipping industry can contribute by supporting employees who has experienced abuse, provide services to reduce road transport and to continue to reduce discharges as well as reducing the use of hazardous chemicals in operations. The quality of education is also one of the goals for sustainable development within the society, and it aims for lifelong learning and opportunities for all (Norwegian Shipowner's Association, 2017b). The targets for this goal is to ensure equal access to education and to increase the number of educated people in the world. The shipping companies can contribute to this goal by provide education and training within their operations and to support the academies to ensure the future workforce. The last goal that is being discussed in this section are the sustainable cities and communities, which aims to make cities and communities sustainable. The targets for the shipping industry is to reduce the impact the cities and communities are facing, as the poor air quality, as a result of the shipping operations and rather provide access to sustainable transport systems. The shipping company can use shore-based electricity when in port and implement zero-emission solutions to contribute to this target (Norwegian Shipowner's Association, 2017b).

The last layer of the sustainable development goals is the economy, as it builds on both the biosphere and the society. The economic layer's attention is directly towards the industry, as it is concerned about the infrastructure, innovation, productions, consumption and the economic growth. The SDG's within the economic layer are decent work and economic growth, industry, innovation and infrastructure, reduced inequalities and responsible consumption and production (Norwegian Shipowner's Association, 2017b).

The goal "decent work and economic growth" aims to a sustainable economic growth and decent work for all. The targets for shipping companies within this goal are to accomplish higher levels of economic productivity and to accomplish productive employment and decent work (Norwegian Shipowner's Association, 2017b). Further, there are targets as eliminating forced labour, modern slavery and child labour. The shipping community can contribute to this by providing sustainable services that facilitates economic growth and job creation. Shipping can also contribute by providing training and development as well as supporting to sustainable tourism. The second goal within this economic layer is the industry, innovation and infrastructure, and this goal aims to promote sustainable industrialization and to encourage innovation. The targets for the shipping community is to develop and advance to sustainable infrastructure and to support the economic development and human well-being (Norwegian Shipowner's Association, 2017b). The shipping companies can contribute to these targets by upgrading their vessels with new environmental friendly technologies and improve their services in areas where there is a need for shipping. The goal of reducing inequalities is goal that aims to reduce inequalities among and within countries. The targets for the shipping community is to develop economic, social and political involvement for all and to simplify safe and responsible migration for people. The shipping companies can contribute to these targets by ensure wages for their operations and for their suppliers, to ensure safe transport at sea and to work with the governments to enhance rescue activities in areas that are relevant. The last

goal in the economic layer is the responsible consumption and production. The targets for this goal is to achieve efficient use of the natural resources and to reduce food losses within the supply chains. The shipping industry can contribute to these goals by continue to reduce the waste from their operations and to provide efficient transportation of food (Norwegian Shipowner's Association, 2017b).

Table 2. 1 – Sustainability

Study	Research objective	Findings
Psaraftis (2016)	Defines the definition of sustainability.	The combination of acceptable performance of the dimensions
Lindstad, Asbjørnslett & Pedersen (2012)	Demonstrates the effect of emissions	The linkage of the dimensions of sustainability
Kates, Parris & Leiserowitz (2005)	What sustainable development is.	The origin of sustainability
Norwegian Shipowner Association (2017)	The goals of sustainable development	What can be done to the performance of sustainability

Table 2. 2 - Summary of sustainable development goals(Norwegian Shipowner's Association, 2017b)

Economy	<ul style="list-style-type: none"> - Decent work and economic growth - Industry, innovation and infrastructure - Reduced inequalities - Responsible consumption and production
Society	<ul style="list-style-type: none"> - Affordable and clean energy - Peace and justice - No poverty - Sustainable cities and communities - Quality education - Good health and well-being - Gender equality - Zero hunger

Biosphere/environment	<ul style="list-style-type: none"> - Life on land - Life below water - Clean water and sanitation - Climate action
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2.2 Sustainability in maritime operations

About 80 percent of the world trade is transported by ships, as it is the most energy efficient transportation form. As an example of this, hinterland transportation in Norway is still common, while a ship will be able to carry the volume of hundreds of trucks by only be releasing a fraction of the CO₂ emissions all the trucks are releasing (Norwegian Shipowner’s Association, 2017a). The Corporate Social Responsibility (CSR) report states that an analysis shows that by transferring from hinterland to sea transport, there could be a significant reduction in the climate footprint. The report states that the reduction will reduce the costs to the society by NOK 1.3 billion, as a result of a reduction of 300 000 tonnes of CO₂ annually. In addition to the desired reduction of CO₂, there is the Sulphur and NO_x regulations (Norwegian Shipowner’s Association, 2017a).

The Sulphur regulation is a regulation that applies from 1st January 2020, and the purpose of these regulations is to reduce the sulphur content in bunker oil used by ships. The environment for both individuals and communities will be improved by these requirements.

The three pillars of sustainability, environmental, society and economical, are well connected in the operations of the shipping company. By reducing the environmental impact and enhancing the fuel efficiency, the environmental sustainability and the economic success will be directly contributed to. The social sustainability will be contributed indirectly by improving quality of life, as more jobs are created in the shipping industry by more economic operations (Mansouri, Lee, & Aluko, 2015).

The development of ports in the towns' infrastructure is beneficial for the region, for both investors and for the economic development. For the ecosystem there may be some negative effects, such as health and social effects. The society will be influenced both positive and negatively. The society will gain positive influence by the economy of the development, which will lead to jobs within the sector, and negative influence through the negative environmental development. Within the cities where the ports are located the costal ecosystem has a high biodiversity and the emissions from the operations will affect the society negatively (Schipper, Vreugdenhil, & de Jong, 2017). Schipper et al. (2017) states that living in cities are often associated with economic opportunities, although the environment may affect the quality of life.

As mentioned at the beginning of this theory chapter, the word *sustainable* is often used to explain a maritime system that incorporates acceptable economic, environmental and social performances. The definition "acceptable environmental performance" can be defined as an *acceptable level of emissions*. In the recent years there has been increased attention to emissions, both on regional and global level (Psaraftis, 2016). CO₂ and other greenhouse gas emissions are certainly the ones that has attracted the focus from a climate change perspective, and there are ambitious goals to mitigate them set by the world community (Psaraftis, 2016).

The greening of passenger vessels is something that should be addressed from the total life cycle of the vessel. By reducing the environmental impact, the phases of the vessels life time should be considered. The disposal of the vessel is a huge factor as well as the design, construction and operation. By designing a vessel to minimize the environmental impact is the first step of the greening cycle (McKesson & Risley, 2011). Scrapping of end-of-life vessels in an environmental friendly way is one of the challenges ship-owners, recycling yards and governments are facing (Schøyen, Burki, & Kurian, 2017). The hazardous working conditions and the impact on the environment at the recycling site is one of the main problems with ship

recycling (Khan, Chowdhury, Alam, & Kumar, 2012). Ship-owners can choose to sell the end-of-life vessels to scrapping yards that practices beaching, and thereby earn millions of dollars. The environmental friendly way of scrapping the vessels is to sell the vessel to a more developed scrapping yard, where the vessel, its equipment and inventory is recycled in an environmental friendly way. The result of selling an end-of-life vessel to a scrapping yard that practices beaching is negative publicity from media and bad reputation among their customers (Schøyen et al., 2017). Schøyen et al. (2017) states that ship-owning companies is following the safest and best method of recycling, and therefore takes responsibility for green recycling.

There is a significant trend to include the word *sustainability* in article titles or as keywords, but it seems like the authors only are focusing in the economical and/or the environmental dimension, and not on the social dimension of sustainability. From the research done in this thesis, it has been stressed that there is a lack of research on social sustainability, as it is a significant lack of research on social sustainability in supply chain management as well (Martínez-Jurado & Moyano-Fuentes, 2014).

From figure 2.1, we can see the keywords that are included in the social dimension. Safety and security are some of the keywords that are mentioned. Furthermore, the work environment is a part of the social dimension. Other factors that are included in social sustainability are health, safety, security and satisfaction.

There are a lot of factors that affect the work environment, and fatigue is one of them and has been considered as a main psychosocial problem in the shipping industry (Pauksztat, 2017). It is not only a personal cost regarding the seafarer's health and well-being, but it has been listed among the "human factors" that is affecting the safety of vessel and crew, has a significant financial implication for the shipping industry as a result of errors and accidents (Pauksztat, 2017).

The security of a vessel is often challenging, as there is a need for screening of vehicles and containers, and that is partly due to technical challenges. The maritime sector is very complex as an international transportation network, and it is very difficult to secure against and prevail threats (Popa & Strer, 2016). External factors of safety and security can be difficult in the ferry business. The loading and unloading of ferries must happen quickly, and as most ferry passengers travels spontaneously, the checks in advance is impossible (Popa & Strer, 2016). To keep the process running quick, the vehicles travelling on-board the ferry are not easy to monitor (Popa & Strer, 2016). The safety of ports can be a challenge for the port-authorities even if the International Maritime Organization (IMO) has approved and implemented the International Ship and Port Facility Security (ISPS) Code. The Code undertakes the security assessments for ship and port facilities although it did not specify an accepted methodology in carrying out such assessments (Yang, Ng, & Wang, 2013). In terms of implementation this has caused a significant problem as the industrial stakeholders' authorities was unable to motivate according to the security management (Yang et al., 2013). The main problem was that the stakeholders did not see the effect of implementing the assessments (Yang et al., 2013).

The economical dimension of sustainability is closely related to the environmental dimension. The challenge for the maritime industry is two folded – the provision of a decent and safe working environment on-board the vessel, and to facilitate economic growth without being at expense of the environment (Norwegian Shipowner's Association, 2017a). The ocean is a stimulant of development as it offers a solid ground for the development of economic activities (Niavis, Papatheochari, Kyratsoulis, & Coccossis, 2017). The countries that are located with direct access to the sea has a benefit, as it leads to lower transport cost, higher accessibility and greater competitiveness (Niavis et al., 2017). When the context of economy is measured in maritime transport, both operations at sea and port should be considered. There are several economic impacts of ports, and as the scale of the port is increased, the synergy between

port economy and the GDP of the port-city gets noticeable. A negative impact, compared to cities without ports, is that a ports activity leads to the cost for combating pollution and emissions (Hou & Geerlings, 2016).

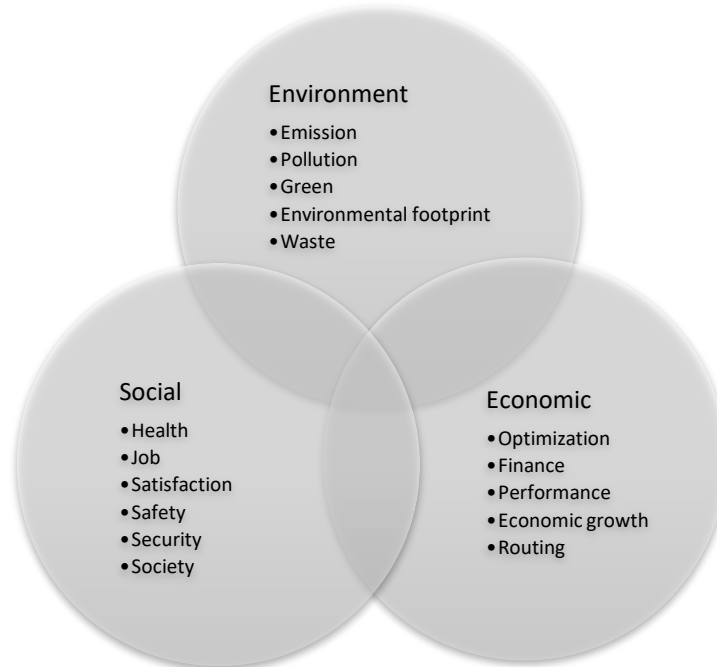


Figure 2. 1 - Keyword of the dimensions of sustainability

Table 2. 3 - Sustainability in the maritime sector

Studies	Research objective	Findings
Norwegian shipowner Association (2017)	Corporate social responsibility	How to be more sustainable by changes transportation mode from hinterland to sea.
Mansouri, Lee & Aluko (2015)	Enhancement of environmental sustainability	How all dimensions of sustainability is linked to the maritime sector
Shipper, Vreugdenhil & de Jong (2017)	Comparing ambitions with achievements in port-city plans	The opportunities of having the port located in the city
McKesson & Risley (2011)	The greening of passenger vessels	How to get the operation of the passenger vessel greener
Paukztat (2017)	Effects of job demand in short sea shipping	The work environment in the maritime industry

Popa & Strer (2016)	Analysis of passenger and vehicle flows on ferry terminals	Safety and security of ferries and the monitoring of possible threats.
Niavis, Papatheochari, Kyratsoulis & Coccossis (2017)	Economic development in cities along the coast	The competitiveness of the cities near the ocean
Hou & Geerlings (2016)	Having ports within the cities	Port activities leads to cost for emissions

2.3 Passenger and cruise sector sustainability

Most researchers within the sustainability area are including the three perspectives - economic, social and environmental sustainability. UNCTAD (2009) also elaborates on these three main perspectives. Within the economic perspective the effective use of the port area, returns on investments and the ability of maximizing performance by the supply of facilities for companies is included. The quality of air, noise pollution and cleaning out of the waterbed are included in the environmental performance. The last perspective, social scope, includes activities within the operations, like indirect employment, the interaction between city and port, the increase of knowledge and education, because of the relationship between port and city and at least, the ability to live in the area of the port (UNCTAD, 2009).

The transition from theoretical to practical sustainable development can be hard to find. The balance of the value the environment and the dominance of the unsustainable interests is a contentious issue in the industry, even if the concept of sustainable development makes an important link between socio-economics and the environment that in example will lead to the quality of life (Johnson, 2002). The sustainability can be embraced by integrating the local peoples’ wishes, having regard for the social responsibility and the environments capacity. The passenger’s willingness to pay for a more sustainable cruise experience than a conventional one, should be considered in the behaviour of the cruise ship passenger. Studies shows that the

passenger might enjoy their vacation and have good conscience if they travel more sustainable (Mantel & Papathanassis, 2016). The study of Mantel & Papathanassis (2016) concludes with that the willingness to pay for sustainable cruise than for conventional ones is eliminated. Their study also showed that the participants did not have any guilt about booking a conventional cruise instead of a sustainable one (Mantel & Papathanassis, 2016).

According to Maragkogianni and Papaefthimiou (2015) the air pollution from cruise tourism is causing health problems for the society where the vessel is berthed (Maragkogianni & Papaefthimiou, 2015). The health problems that has occurred and are proven to be from the air pollution are lung cancer, cardiovascular disease and birth defects (Maragkogianni & Papaefthimiou, 2015). As the ports of cruise tourism are often located nearby cities, the impacts the tourism imposes are crucial for the society in the cities. Maragkogianni & Papaefthimiou (2015) summarizes their view of tourism as it can destroy the demanded environmental attractions, and that tourism kills tourism.

Cruise tourism has had a phenomenal growth the last decades, as the cruise is an alternative to luxury hotels. The cruise sector is the fastest-growing segment in the travel industry, with the increasing of almost doubled the rate of other tourism sectors (Paoli et al., 2017). With all the facilities and passenger capacity on board a cruise ship, the cruise tourism is constituted as one of the most energy-intense form of tourist activities as the generating of emissions and waste is a huge quantity (Paoli et al., 2017). The pollution that is generated by cruise ships will affect the port city, and certainly the air quality of the port city as it is considered that around 6% of the ships' fuel consumption is taken place during port operations (Paoli et al., 2017).

To gain a competitive advantage over existing products or for unselfish reasons as it is the right thing to do for the planet and the people, companies engage in sustainable development (Sheree-Ann, Xavier, & Davina, 2017). The passenger and cruise vessel consumers has become

more aware of environmental issues, and are demanding social and environmental practices (Sheree-Ann et al., 2017).

Table 2. 4 - Passenger and cruise sector sustainability

Studies	Research objective	Findings
UNCTAD (2009)	Review of maritime transport	The effect of having passenger and cruise vessel ports located in the cities
Johnson (2002)	Environmentally sustainable cruise tourism	The issue of being sustainable in the passenger and cruise sector
Maragkogianni & Papaefthimiou (2015)	Evaluating the social cost of cruise shipping	“Tourism kills tourism”
Mantel & Papathanassis (2016)	Willingness to pay for sustainable cruise experiences	Willingness to pay is not present
Paoli et al. (2017)	Economics of cruise shipping	Energy use and pollution from cruise shipping

3. Research methodology

This chapter describes the adapted research methodology in order to answer the research question of this thesis. The first section of this chapter shows the research model. The second chapter submits the research strategy and design. The third section clarifies the data collection process. Further, the forth part is an explanation of the undertaken data analysis, and the end of this chapter is concluded with an overview of reliability, validity and ethical considerations. The databases used for writing the literature review is Oria, Scopus and ScienceDirect.

Keywords used for finding articles and reports have been; *Sustainability, sustainable development, economic sustainability, environmental sustainability, social sustainability, stakeholders' perception, passenger sector, cruise sector, ferries, maritime.*

3.1 Research model

The perceptions of sustainability among the stakeholders in the industry are definitely different. Authors of articles studied in this literature review are often using the word sustainability and are often explaining the three dimensions of sustainability: economical, environmental and societal. Further, in the researched articles the dimensions - economic and environmental dimensions are frequently elaborated, but there seems like there is a lack of understanding of the social dimension.

Due to this, the research model was developed based on the sustainability dimensions considered in the literature review (see Figure 2.2).

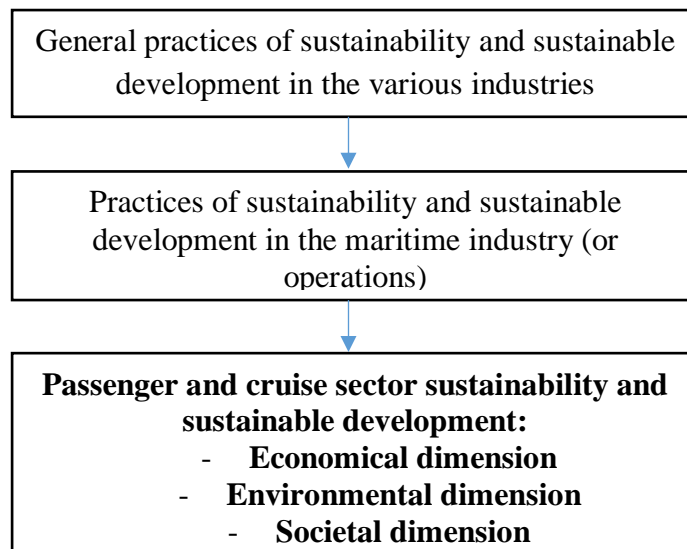


Figure 3. 1 - Research model

The theoretical framework is structured as follows:

- 1) Identification of the general practices of sustainability and sustainable development from various stakeholder's perspective. Identifying the general practices of sustainability is fundamental for the comparison of theory and understanding of sustainability;
- 2) Identification of practices of sustainability and sustainable development in the maritime sector;
- 3) Identification of the sustainability and sustainable development understanding among the stakeholder groups in the passenger and cruise sector.

3.2 Research strategy, design and conceptual framework

Based on the research question and on practical considerations the research strategy of this thesis is designed in a qualitative approach. The interviews will be semi-structured interviews, so that the questions that are asked are worded in the same way and the risk of different wording does not appear. This method of interviews is the most suitable for this research, because it supports the understanding of data, as the wording and number of question is the same for all respondents (Frankfort-Nachmias, Nachmias, & DeWaard, 2015). This research strategy will answer the research question of this thesis by getting a broader understanding of what stakeholders in the passenger/cruise industry understands as sustainable operations.

The research design applied to this thesis had to be investigated in the research question. To be able to answer the research question of this thesis, the research design will be multiple case study design. The comparison between different stakeholders in the industry of passenger/cruise vessels is supported by the design that is chosen for this thesis (Bryman & Bell, 2011).

The conceptual framework was developed based on the theoretical framework. It provides justification for the data analysis and it identifies the key variables and relations among each other (Miles, Huberman, & Saldaña, 2014) (see Table 3.1)

Table 3. 1 - The conceptual framework of my study

Phases	The reference model	The derived model	The model's research focus
Phase 1: Identification of sustainability and sustainable development	Definitions of sustainability (Psaraftis, 2016; Lindstad, Asbjørnslett & Pedersen; 2012)	Mapping sustainability objectives	Similarities and differences between stakeholders sustainability objectives
Phase 2: Identification of sustainability in the maritime sector	Analysis of sustainability in the maritime sector (Mansouri, Lee & Aluko, 2015; Shipper, Vreugdenhil & de Jong, 2017)	Mapping sustainability in maritime sector	Identify the general perception of sustainability in the maritime sector
Phase 3: Identification of sustainability in the passenger and cruise sector	The role of the passenger and cruise sector in a sustainable matter (UNCTAD; 2009)	Analysis of the passenger and cruise sector	The performance of the passenger sector

3.3 Data collection

Research is done by collecting data through interviews with three different stakeholders' groups operating in the South Oslo fjord region. The stakeholders' groups that are interviewed are the society, governmental institutions and operators in the sector. In addition to the

interviews, secondary literature review is done in depth by in-depth analysis of governmental and non-governmental reports and documentation as well as previous conducted literature review within this topic.

3.3.1 Semi-structured interviews

A semi-structured interview approach is used in this study to identify the stakeholders' understanding of sustainable operations. In qualitative research, the research interview is an instrument for data collection and gives a general understanding of the existing perception (Bryman & Bell, 2011).

In a semi-structured interviews', the interviewer typically has a series of questions that is scheduled and categorized in themes (Bryman & Bell, 2011). The interview process is flexible and based on the interviewers practice, further questions can be asked in response to the replies of the participant (Bryman & Bell, 2011).

The interview guide for this study was developed on the basis of the literature review.

The main research questions for this thesis was as followed:

- 1) What do the various stakeholders understand as sustainability and sustainable operations in the passenger and cruise sector?
- 2) How various stakeholders influence the sustainability of maritime operations?

Interviews was therefore focused on the following sub questions:

- 1) What is your perception of sustainability?
- 2) How is your sector working towards sustainable operations?
- 3) How are sustainable operations in the market these days?

The interview guide was made with considerations of what the theory was telling about sustainability, and with some help and advises from supervisor. The questions were revised, regarding supervisors advises. The interviews were recorded by tape-recording. Further, the

interviews were transcribed manually to prepare for data analysis. Transcribing the interviews was a highly time consuming process.

3.3.2 Sampling for the interviews

To decide which stakeholders to involve in this study, considerations of characteristics for this specific research was done. This study explores the understanding of sustainability between three groups of stakeholders – port operators, governmental institutions and society. These three stakeholder groups are chosen with consideration of the theory of sustainability, and in this particular case – the passenger and cruise sector.

The goal for this research was to investigate particular stakeholder groups in the sector. During the interview process the interviewees showed high interest in this study, and other contacts were shared. The interviewees showed great interest in this topic, and were eager to see the results after analysing the data and submitting the thesis.

The contacts of participants were established during the writing and interviewing process. Request for the invitations to the interview was sent via e-mails. It was not easy to collect participants for this study, but as soon as the contacted participants volunteered, finding the right participants was not that difficult. Most of the participants were found in the end of March, 2018, and the interviews were scheduled for April 2018. The actual names of persons, organizations and companies will not be revealed in this study, and the participants were informed about this prior to the actual interview. Analysis of data will therefore not specify any names and titles.

Research sample includes six interviews, in total seven participants, within three different stakeholder groups over a period of one month (see Table 3.2).

Table 3. 2 - The participants interviewed in this study

<i>Participant</i>	<i>Stakeholder</i>	<i>Interview date</i>	<i>Interview</i>
Participant 1- Advisor	Governmental institution	04.04.2018	Face to face
Participant 2- Port operator	Port manager	09.04.2018	Face to face
	Operation manager	09.04.2018	Face to face
Participant 3 – Society	Member of society	10.04.2018	Face to face
Participant 4 – Politician	Governmental institution	16.04.2018	Face to face
Participant 5 – Adm. Director	Vessel operator	18.04.2018	Face to face
Participant 6 - Society	Member of society	17.04.2018	Face to face

3.4 Data analysis

There has not yet been developed any clear-cut rules for analysis of qualitative data (Bryman & Bell, 2011). Qualitative data is collected through interviews in form of a notable amount of structured textual material, and the data can be difficult to analyse (Bryman & Bell, 2011). Although the data collected is filled with valuable information, the ability to find the analytical paths through the richness may be difficult, therefore, the qualitative data analyses often is labelled as “attractive nuisance” (Bryman & Bell, 2011).

The data analysis in this study is based on Miles, Huberman and Saldana (2014) approach regarding qualitative data. The approach explores the three aspects – data condensation, data display and conclusion: drawing and verification (see figure 3.2) (Miles et al., 2014).

Data condensation is done to make the data stronger, and is a “process of selecting, focusing, simplifying, abstracting, and/or transforming the data that appear in the full corpus of written-up field notes, interview transcript, documents, and other empirical materials” (Miles et al.,

2014, p. 14). In this study, the interviews were tape recorded and later manually transcribed and coded. Interviews were analysed to identify the main understandings, the work towards sustainability and the development of sustainability among the stakeholder groups. Comparison between the stakeholder groups were relevant in this study to understand the difference in the stakeholders' perceptions of sustainability and sustainable development.

Data condensation assists conclusion drawing and verification, and is a fundamental part of the analysis as the data gets focused and organized (Miles et al., 2014). The interviews resulted in a lot of relevant data, which may be a result of the high interest of this topic among the participants and the relevancy of the topic nowadays. Data condensation revealed that the participants have a good understanding of sustainability and sustainable development and that they are concerned about operations of passenger and cruise vessels to be sustainable, however, some of the participants left out one of the dimensions of sustainability.

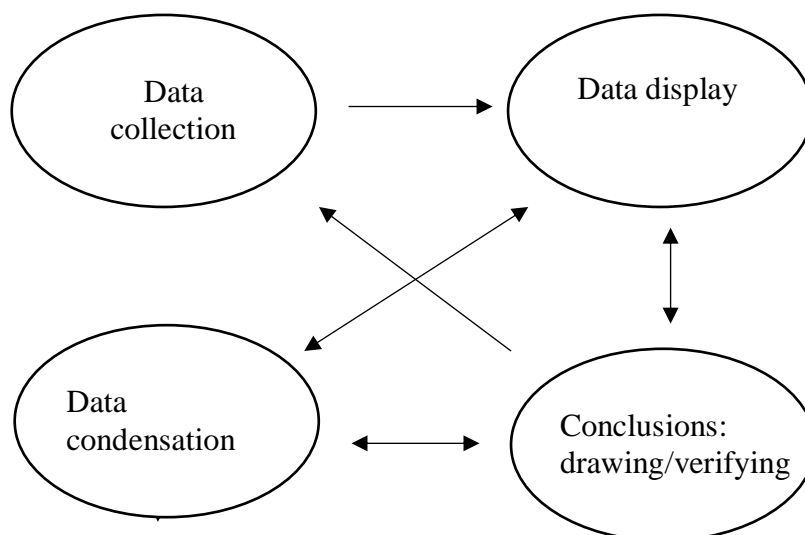


Figure 3. 2– Components of data analysis

(Adapted from Miles, Huberman and Saldana, 2014, p14).

The data display is a highly focused in this study. The data display is organized and a solid construction of information, because of its improvement of understanding of data and the need for a powerful qualitative analysis (Miles et al., 2014). Tools like maps, figures and tables are sufficient to display data for this study. These instruments are needed to organize the information into a compact form, so the analyst can see what is happening, and thereby draw justified conclusions or move on to the next step of the analysis that the display may suggest to be useful (Miles et al., 2014). The elements of data display have assisted to maintain the structure of this study, and additionally, helped with better conclusion interpretation of this study.

The data was coded by manually transcribing the interviews, and furthermore finding the relevancy and connection of the responses.

3.5 Reliability, validity and ethical considerations

To determine the quality of the quantitative research, reliability and validity are fundamental elements. Reliability is concerned whether the findings of the study are repeatable (Bryman & Bell, 2011). There are two types of reliability – internal and external reliability. Internal reliability determines, when there is more than one observe, whether or not the research team agree about what they see and hear (Bryman & Bell, 2011). To ensure a rich collection of data and to approach the internal reliability, the interview questions where carefully designed and structured. External reliability determines to which extent the research can be replicated (Bryman & Bell, 2011). However, it may be difficult to replicate a qualitative research, because of the complication of “freezing” a social setting and the circumstances of a study (Bryman & Bell, 2011). The maritime industry is very time-sensitive, dynamic and easily affected by external factors. It will therefore be possible to replicate this study and get the same results with

an equal case. However, if the case, involved stakeholders, questions and point in time are changed, the results may vary.

Validity is categorized in internal and external validity. Internal validity determines whether or not the theoretical ideas the researcher has developed is a good match with the researcher's observations (Bryman & Bell, 2011). In the qualitative research, the internal validity tends to be a strength, as the researcher ensures a high level of coherence between observations and concepts (Bryman & Bell, 2011). To be able to ensure this coherence and the internal validity, the interviewer's questions should have been developed based on the research literature. External validity determines the extent to which results can be generalized across social settings (Bryman & Bell, 2011). Because of the tendency to exploit case studies and small samples, the external validity is a problem for qualitative researchers (Bryman & Bell, 2011). This study can be generalized to other similar areas in the same setting and the findings may be applicable to stakeholder groups in other areas, which has the same interest as the stakeholders in the Southern Oslo fjord region. Therefore, to provide a clear conceptual framework with authentic explanation of used methodology and results is a problem in this thesis.

This study was conducted according to the academic standards and practice. The interview participants were informed about the consent of this study, and aware of the necessity of their participation, and how the data will be analysed (Bryman & Bell, 2011). Further, the participants were assured that it was the interviewees choice on what kind of information to share. Participant was experienced and therefore felt comfortable with sharing their views about the research topic.

4. Data analysis and results

This chapter provides findings from the interviews and is supported by in-depth analysis of the collected data. Findings are presented in the following way: objectives of sustainability from

the industry's perspective, objectives of sustainability from the governmental institutions' perspective and the objectives of sustainability from the society's perspective.

4.1 Stakeholders objectives on sustainability

This section reviews the findings concerning understandings of sustainability and sustainable development in the passenger and cruise sector of the Southern Oslo fjord region. The awareness of sustainability and sustainable development is essential for the practice of sustainable operations. The practice and awareness of sustainability have been identified based on the intuition of various stakeholder groups in the Southern Oslo fjord region.

4.1.1 Objectives of sustainability from the industry perspective

Sustainable development is substantial for the companies in the passenger and cruise sector. To be economically sustainable is their main business, as they need to have positive accountings to be able to operate. Participant 2 states that "For us to be more sustainable, the prices have to increase. If you see at our financial accountings, the income per employee is very high", which shows that the daily work of the participant's operation is already sustainable in an economic way. Overall, when the word sustainability is mentioned in the interview, participant 2 mentions that there are a lot of sustainability principles from the United Nations, and the environment is one of them. The participant continues with;

I really like the part where it says something about that it should benefit the society, and it also an important part of sustainability. And then we can talk about the workplaces and subcontractors, which I mean is an important aspect of the concept of sustainability. If we in example builds a bridge or a tunnel over the fjord, this aspect of sustainability will disappear – Participant 2.

It is not only the operation of the vessels that needs to be sustainable, but also the operation of the port. The eager to be more efficient and have cost savings is also an important part of being sustainable, and participant 5 states that "Within the passenger sector, the

customer requires more and better services as the years go by. We are always looking at streamlining, and always works to get more efficient”. Participant 2 explains that they are comparing themselves to other ports where they already can see that they are ahead of them with regards of being sustainable. The participant mentions that they have electric cranes, electric bikes (to be accessible all over the port) and that they have a truck that runs on biogas.

I think that the sustainable development, both beneficial for society and environmental friendly, it is almost a requirement for the consumers. What we are doing is somehow an answer to what the consumers and society wants. I think this sector is mostly consumer driven, and the supplier answers by fulfilling this [...]. We are committed to this, and are a part of an intermediate goal for the government where they are following the Paris agreement [...]. – Participant 2

The climate research is one of the reasons why sustainability has become bigger and reinforced. The participants from the industry explains that the reason sustainability is such a trend today is because of the knowledge creation that has appeared the past years. The availability of information is more common today, through social media and through newspapers online, than it was 20 years ago. Participant 5 also claims that “It is easier to act more sustainable when there is a demand from the society, than when it’s only claims from the government”. The stakeholders within the industry may be more likely to initiate their own sustainable development (besides the claims in concessions from the government), when there is an expectation from the society.

To be fully sustainable there is a need for a combination of the environmental, economy and the social responsibility. The media often mentions the environmental footprint of the maritime sector as the main focus, and the participant also mentions this as the biggest focus next to the economy. Participant 5 claims that their main actions to be more sustainable are reduction of fuel and energy use. Both participants also focus’ on the society by engaging the

local community, both as suppliers and employees directly in their operations. The participants add that they are mostly using workforce from the local society, and if not the employees need to be Nordic speaking. Participant 5 states that “We are also focusing on having apprentices to contribute to maritime recruitment and take corporate social responsibility with regards of that”.

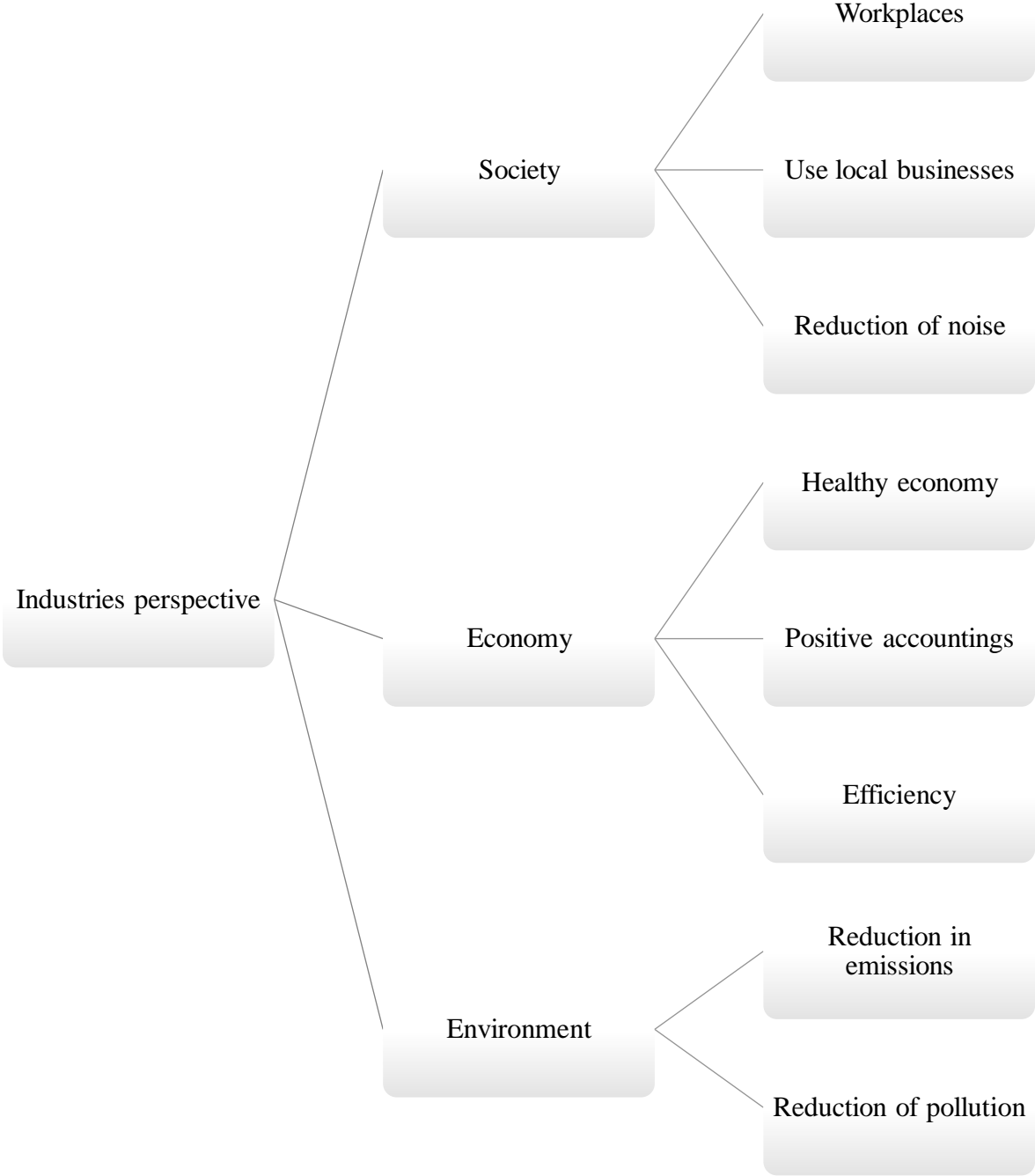


Figure 4. 1- Summary of the understanding of sustainability from the industry perspective

4.1.2 Objectives of sustainability from the governmental institutions perspective

Governmental institutions have a main role of affecting the maritime sector to be more sustainable. In the interviews it was highlighted what their perception of sustainability are in general and in their operational area, and how they are able to affect the industry.

It all falls back on the Brundtland Commission about sustainable development with the three dimensions; economy, environment and society. It should be all three of them, and it should be long-term for the coming generations after us. And we should rather build up, not tear down, which we have not managed yet – Participant 1.

The governmental institutions have a significant role in the sustainable development in the Southern Oslo Fjord region, and only a few years back, the understanding of sustainability in this region was absent. With regards of pollution, both participants mention the passenger and cruise sector of western Norway, where the cities are coated in pollution, because of the vessels use of heavy fuel oil and their high average speed. Participant 4 also mentions some of the fully electrical vessels in some of the fjords of western Norway, and states that that is the future of ferries that have their ports located in the cities.

Interviews was also pointing out the necessity of sustainable development in the passenger and cruise sector, and the participants were very concerned about the emissions and pollutions of the passenger and cruise vessels. The participants (1 and 4) express that the concern for emission from cars/buses and aircrafts are more thought of by the society, than the concern of the emissions from passenger and cruise sector. There is a huge enthusiasm for electrical cars in the society, although the knowledge of what the energy is made of and where it is made is lacking. The total environmental footprint it leaves behind is unknown. Participant 1 states that it may be hard to totally eliminate the emissions, and participant 4 states that “We want to make Norway world leading of sustainable use of natural resources and cleaner energy and to be the world’s first emission free maritime nation”.

There are a lot of actions to be made to be more sustainable within the passenger and cruise sector in the Southern Oslo fjord region. The participants (1 and 4) mention other alternatives of fuel, like hydrogen and biogas as well as fully electrical ferries, and they are expecting that the situation would have changed within 10-15 years.

The word sustainability has become a more common among stakeholders in the industry in the last few years, and then especially for the society. The stakeholders within governmental institutions point out that there have been several peaks of the importance of sustainability, but it has never been as visible as it is today.

The reason that sustainability has become a trend today, is because of the media. It is easier to see that it suddenly is more plastic than fish in the ocean, and people understand that we cannot have it this way, and people are thinking that we have to do something – Participant 4.

There is not only the plastic in the water that is visible for the society, but also that the society and other stakeholders are able to see the change of the environment and the climate. Both participants mention that one of the fjords in this area is so contaminated that the Food safety authorities recommended to not eat the fish within that fjord, and states that they finally have started the clean out of emissions in that specific fjord.

In the question of the focus of all dimensions are equally evaluated both participants from governmental institutions answers that the environment is the biggest concern.

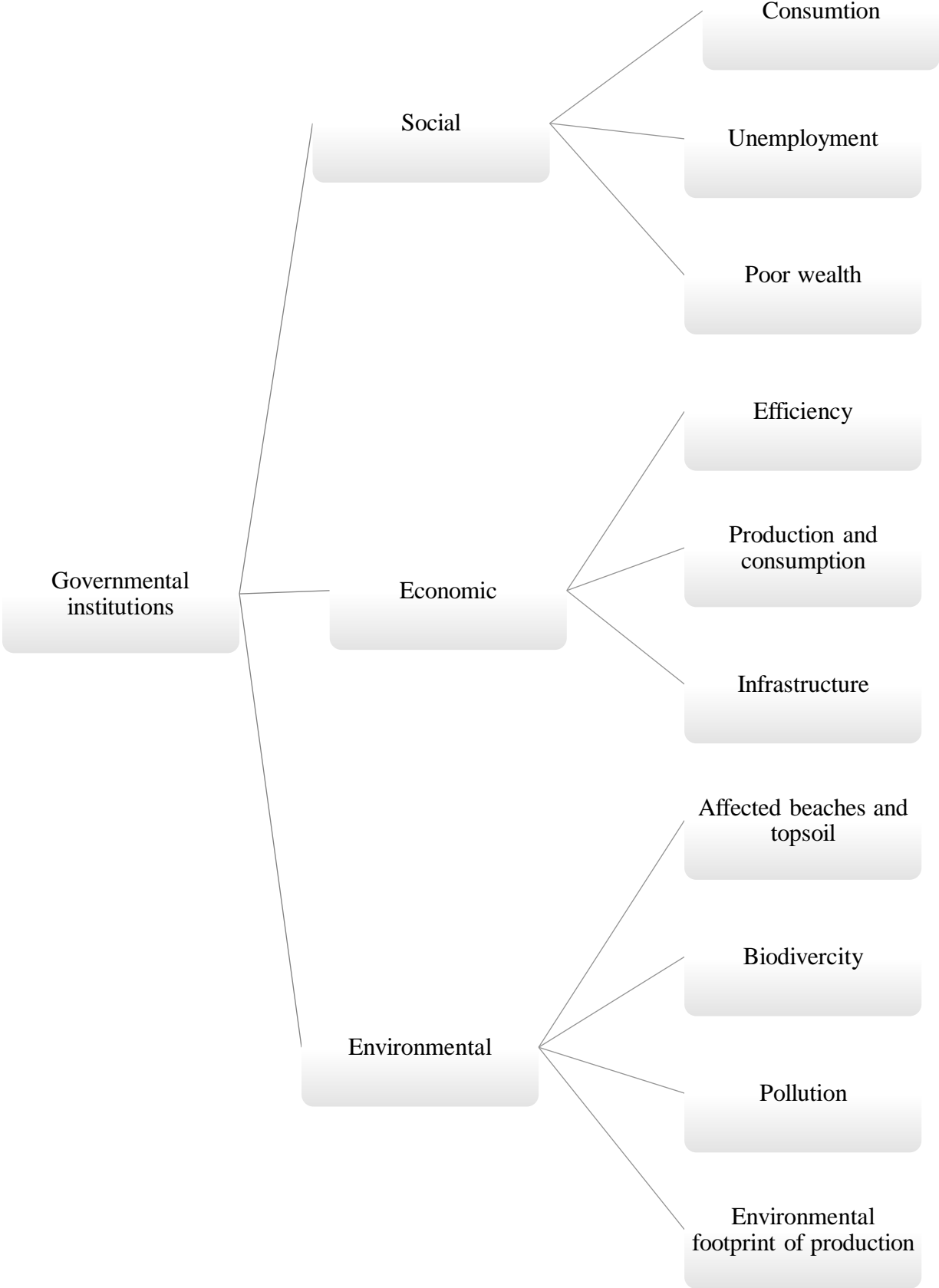


Figure 4. 2 - Summary of the understanding of sustainability by the governmental institutions

4.1.3 Objectives of sustainability from the societies perspective

When selecting interviewees from the society their former knowledge of sustainability was considered. The participants have a background of studying or working within the maritime industry or some former knowledge about sustainability. The society dimension of sustainability is often mentioned in the used literature in this thesis, but not clearly elaborated about. The participants agree that sustainability means not to “over use” or that the operation have a neutral or positive impact on something. When the interviewees are asked what sustainability is for the society all the dimensions of sustainability are mentioned and closely connected. “It’s important to make more people take public transportation, but sometimes I find that the prices are too steep or the travel time are too long or places I need to travel to are badly covered by the public transportation” – Participant 3. It is obviously important for the society to get better connections between the public transportation, such as ferries and buses.

As the other stakeholders interviewed in this thesis, the society thinks that sustainability always have been important, but that its more visible for themselves now than it was before.

When I listen to radio, watch television or uses social media, sustainability is often mentioned. The clothing companies are advertising towards their use of more sustainable fabrics and work environments, as well as the concerns about plastic and other littering of the ocean is a main concern. That really makes me think more about it, that I did in the past. – Participant 6.

This statement from the participant confirms the statements from the interviewees from the governmental institutions and the industry. Participant 3 argues that Norway is now looking at more sustainable solutions after the oil price declined, because the income of the oil has declined. The interviewee also argues that the government have started to invest more in renewable energy.

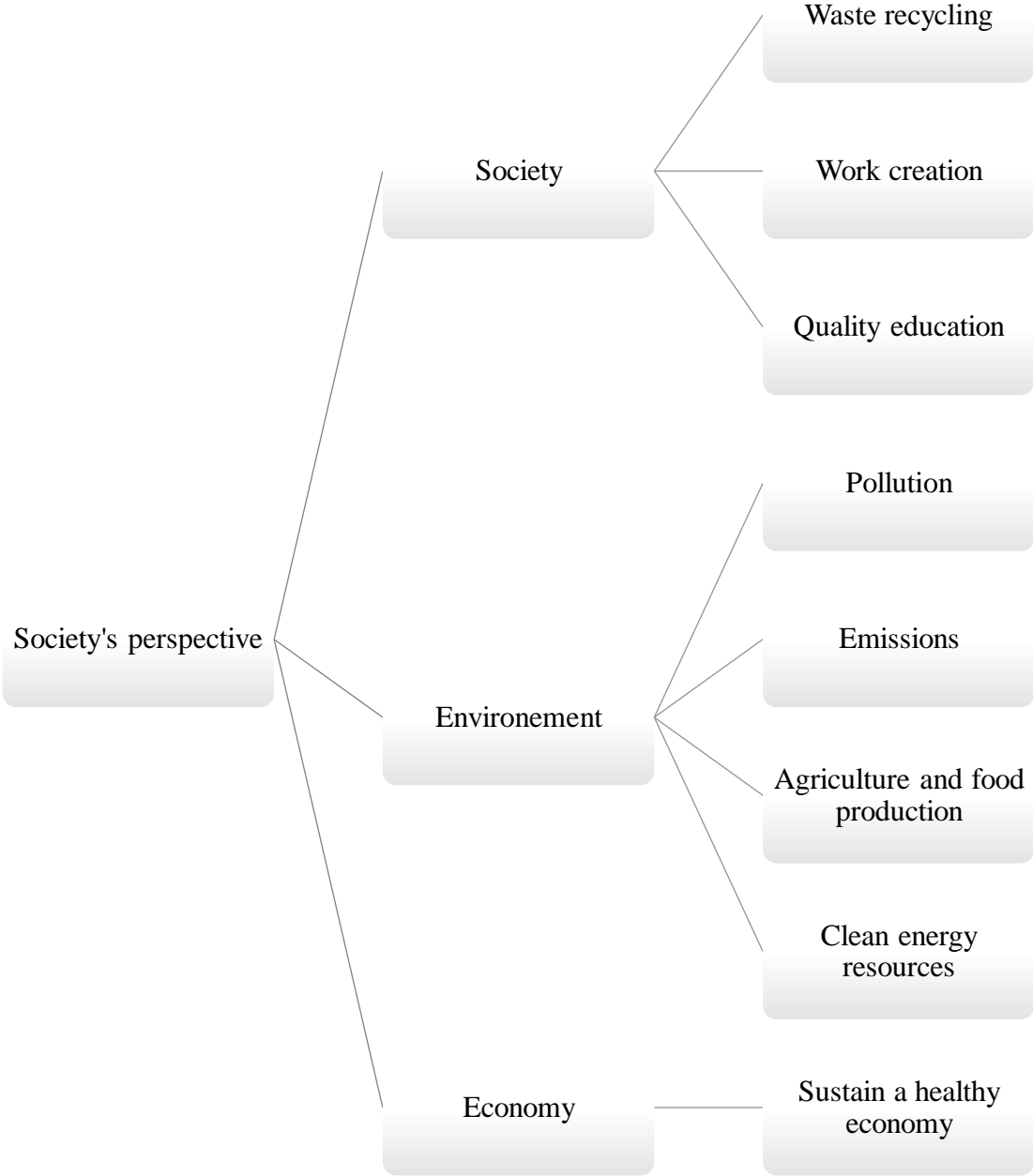


Figure 4. 3 - Summary of the understandings of sustainability from the society

4.2 General perception of sustainability and sustainable development among the stakeholders

From the analysis of interviews, it has been identified that the chosen stakeholder groups have an approximately same perception of sustainability and sustainable development. Interviews revealed that some of the stakeholder groups were concerned about the different dimensions of sustainability. For the governmental institutions and the society, the environment and the climate was the most important dimension, and the economy, followed by the environment, was the main concern for the industry.

The general perception of sustainability among the three stakeholder groups were mostly equal, although the environmental dimension was often more mentioned than the other two dimensions. All the stakeholder groups were concerned about the environmental footprint that is left behind by the passenger and cruise sector, and then especially concerned about the pollution of the cities and the local waters. Some of the participants even mentioned that “one of the fjords here is so polluted that the food security services warned about eating the fish from the fjord”.

The passenger and cruise vessels in the region of the Southern Oslo fjord are still running on heavy fuel oil, but there are some measures done to get them more sustainable. Actions are taken with regards of shore-based electricity, so that the ferries do not pollute or are noisy when they are berthed. One of the companies have also changed the speed of their vessels, to be more efficient and less polluting. The stakeholders from the governmental institutions and the society are also concerned about the air quality in the cities and mentions the cities in western Norway as an illustration of how bad it could be.

The societal dimension of sustainability is mostly mentioned by the industry, where the participants points out that it is important for them to use the local sub-contractors, suppliers, local employees, etc. It is important for this stakeholder group to involve themselves in the local

wealth creation by supporting the local community. From the governmental institutions and the society, the societal dimension is mentioned with correspondence with the society's health and living conditions.

The technological development is mentioned by all the participants as an important factor for further sustainable development, and then the development of autonomous and electrical vessels is mentioned. One of the participants from the government then also mentions that the operation may no longer be very sustainable, with regards of the autonomous vessels and the societal dimension. Participants also mentions that they wishes' that the vessels will be fully electric or use more sustainable fuel, like natural gas.

The attention of sustainability in the media has increased the past years, and all three stakeholder groups agrees that the focus has changed when the society can see the results of not being sustainable enough. The way people can see the change in the world now versus 10-20 years ago has changed rapidly. Participant 2 stated that "when I was young we had to read the newspaper to gain knowledge about what was happening in the world, and nowadays we can learn everything from the media or through the internet". Participant 1 also states that people are becoming even more concerned because they can see the effect of emissions and pollution now. "Even if sustainability has been important for the last 40-50 years, there has been a peak of the importance lately, because of the visibility of the actions" – Participant 1.

Table 4.2 illustrates the summary of the concerns and perceptions of sustainability based on data gathered from the participants of this study. The environmental dimension is definitely the dimension that is mostly concerned by the stakeholders, as well as there is a huge focus of the environment in the media nowadays. The economic dimension is obviously an important dimension for the industry and as we can see from the table below, it is also an important dimension for the society and the governmental institutions as well. With the aspect of the societal dimension, it is mostly the industry and the society it selves that is focused on this. The

participants from the society stated that they can see a development in the industry’s involvement of education, by funding for the universities and other initiatives involving the education.

Table 4. 1 - Stakeholders concern and perception of sustainability

Society	Environment	Economy
Industry		
Society		
Governmental institutions		
<ul style="list-style-type: none"> • Waste recycling • Work creation • Unemployment • Poor wealth • The use of local subcontractors • Reduction of noise 	<ul style="list-style-type: none"> • Pollution • Emissions • Agriculture and food production • Clean energy resources • Affected beaches and topsoil • Biodiversity • Reduction of noise 	<ul style="list-style-type: none"> • Sustain a healthy economy • Efficiency • Positive accountings • Production and consumption

4.3 Stakeholders perception of their work towards sustainability

There is always a need for a change to be more sustainable in the world, and the passenger and cruise sector can be a big contributor to this. The participants in this study are located in

the southern Oslo fjord region, and this is thereby the area that is studied in this research project. The participants have different opinions on how to be more sustainable, and the participants from the industry states that their operations are mostly sustainable with regards of the claims from the government. One of the participant also states that one way of being more sustainable is to have higher incomes. This will in a way only benefit the industry, and may not be the best solution for being more sustainable with regards of the society.

The other participant is elaborating a lot about the environmental changes and the affect the operations of passenger and cruise vessels has on the environment. The passenger and cruise sectors effect of the environment with regards of emissions is a highly focused subject among the participants from governmental institutions and the society, and solutions as fully electrical vessels, gas as an alternative fuel and autonomous solutions are elaborated about among the participants. The autonomous vessels would not be a sustainable solution, with regards of the societal aspect of sustainability. The workforce would probably be shortening down, and there will be less workplaces for the society. The participants from the government are eager to see the change into gas driven or fully electrical vessels, and participant 5 mentions that there would probably be electrical or gas driven vessels within the next concession in 2026.

The weaknesses of the interviewed stakeholders are not prominent, because of their focus towards being sustainable. The interviewees were mostly focused on what they were doing right in the interviews, especially the industry and society. The society's enthusiasm for autonomous vessels was high, and it seems like they were not concerned about the future and the workplaces that would be gone. As mentioned previously in this chapter, one of the participants from the industry stated that it has been hard to develop in sustainable matter when the demand from the society had been absent, and that it is easier to take actions now that the society has more knowledge about sustainability.

To measure sustainability can be difficult, because of the uncertainty of measuring it. Measuring of sustainability can involve the sustainability of environment, societal and economic dimension, but it can also be measured in various combinations of these dimensions. The participants within the industry are measuring their sustainability by their operations by measuring their energy use, their efficiency and their costs. The efficiency use is mostly measured on consumption and emissions of the ferries. One of the participants from governmental institutions states that they just have started to measure their sustainability through climate accountings, were the most important measures will be on emission and consumptions. The other participant from governmental institutions states that the measuring of environmental targets that is for cars and buses today is up and coming in more industries, and should definitely be implemented in the maritime sector to be able to develop further.

The table below (table 4.3) shows the main activities the stakeholders are focused on with regards of sustainability. The table also presents the problems or weaknesses the stakeholders have with regards of the implementation of sustainability. There may be difficulties of having completely sustainable operations and the costs of changing too quickly may affect their economy. Participant 2 states that “we can always get better, but we are learning as we go, and it is something we work with every day”.

	INDUSTRY	GOVERNMENTAL INSTITUTIONS	SOCIETY
MAIN ACTIVITIES	<ul style="list-style-type: none"> - Following the claims from the concessions - Trying to please the demand from the society - Important to use local workforce and subcontractors - Shore-based electricity to the vessels 	<ul style="list-style-type: none"> - Setting claims - Develop a climate plan - Biogas production - Wealth creation 	<ul style="list-style-type: none"> - Enthusiasm for electrical vehicles/vessels - The wish for moving the port outside the city - The industry’s involvement in education
WEAKNESSES	<ul style="list-style-type: none"> - Hard to develop besides the claims and concessions 	<ul style="list-style-type: none"> - No direct claims to the shipping industry 	<ul style="list-style-type: none"> - Not concerned about themselves and the economic growth in the society

Table 4. 2 - The stakeholders work towards sustainable development

5. Discussion

This chapter contains discussion reflecting the findings with the literature review. The aim for this thesis was to identify sustainability and sustainable development of three different stakeholder groups within the passenger and cruise sector – the society, governmental institutions and the industry, as well as understanding their perception of sustainability.

5.1 The perception of sustainability within the maritime sector

The empirical results have identified that the stakeholders in this study have a decent perception of sustainability and sustainable development. All the participants from the industry, governmental institutions and society have a clear understanding of sustainability within all three dimensions of sustainability – environmental, economic and society.

Table 5. 1 - Comparison between the theory and stakeholders perception

Dimensions	Theoretical description	Stakeholders perception
Economy	<ul style="list-style-type: none"> - Decent work and economic growth - Industry, innovation and infrastructure - Reduced inequalities - Responsible consumption and production 	<ul style="list-style-type: none"> - Sustain a healthy economy - Efficiency - Positive accountings - Production and consumption
Society	<ul style="list-style-type: none"> - Affordable and clean energy - Peace and justice - No poverty - Sustainable cities and communities - Quality education - Good health and well-being - Gender equality - Zero hunger 	<ul style="list-style-type: none"> - Waste recycling - Work creation - Unemployment - Poor wealth - The use of local subcontractors

Biosphere/environment	<ul style="list-style-type: none"> - Life on land - Life below water - Clean water and sanitation - Climate action 	<ul style="list-style-type: none"> - Pollution - Emissions - Agriculture and food production - Clean energy resources - Affected beaches and topsoil - Biodiversity - Reduction of noise
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As explained by Psaraftis (2016) the definition of sustainable development are a system with an acceptable performance of the combination of environment, social and economy. Additionally, Kates, Parris & Leiserowitz (2005) elaborates about sustainability with the fundamental theory from the Brundtland Commission from 1987, where the sustainable development was a new concept that specified the connection of environment, economy and social development. The Norwegian Shipowner Association (2017) have developed some sustainable development goals within the dimensions of sustainability, and further some targets to how the maritime industry can contribute to reach these goals.

Interviews confirmed that all stakeholders of the passenger and cruise sector in the Southern Oslo fjord region are highly focused on these dimensions, and their work towards sustainable development. Table 5.1 shows the stakeholders perception of sustainability compared to the theory used in this study. Identified sustainability objects – environmental, economy and society (see section 4.1.1, 4.1.2 and 4.1.3) have a proper connection with the objects provided by the Norwegian Shipowner Association (2017). They have identified all the elements within sustainability and sustainable development. This means that the stakeholders within the Southern Oslo Fjord have a good perception of sustainability, although some participants had a bigger focus of one or two of dimensions than all three of them. The perfect

combination of sustainability can be difficult to fulfil, because of the effect of fulfilling one of the goals in one of the dimensions will affect another dimension negatively.

The literature of sustainability involves decent work and economic growth, industry, innovations and infrastructure, and responsible consumptions and production as the main factors in the economic dimension of sustainability. Interviewees perception of this dimension are in some ways equal – efficiency, sustain a healthy economy and proper consumption and production are the objects identified in interviews. Objects as sustainable cities and communities, quality education, good health and well-being, and affordable and clean energy are included in the theory of the social dimension. Interviews revealed that the participants are to some extent concerned about this dimension of sustainability. The stakeholders were concerned about unemployment, poor wealth, waste recycling and work creation. The economic dimension was the least elaborated about by the participants. Niavis et al. (2017) states that countries or cities which are located along the coast with direct access to the sea has a benefit with regards of lower transport cost, higher accessibility and greater competitiveness – which again is a solid ground for the development of economic activities. The synergy between port economy and the GDP of the port-city is also an important impact of the port and the maritime transport. The participants from the industry elaborate of how to be more sustainable in the economic perspective as increasing their revenue and the development of technology. The other participants elaborate about having a healthy economy and contributing to good wealth as well as having a responsible consumption and production. Mansouri et al. (2015) describes that more economic operations will contribute to social sustainability by indirectly improving the quality of life and further create more jobs. The participants from the industry was concerned about the efficiency of the operation of the vessel, and was ever working towards having an efficient operation. Additionally, the efficiency of fuel use was

highly elaborated by one of the participants. The change of average speed has reduced their fuel consumption, and made the operation even more effective.

The second dimension, society, is also an important factor for in the sustainable development. The Norwegian Shipowner Associations (2017) SDG's states that the environment is dependent on the society. The goals of quality, education, good wealth and well-being, and sustainable cities and communities are elaborated about by the interviewees. For the industry and the governmental institutions, it is important to use the local workforce and subcontractors that are available in the port cities. The interviewees from the society stated that it is good that the industry are getting more involved in education as well as providing funding to the universities. One of the interviewees from the industry stated that they often are contributing with support for the local sports clubs or that they increase the number of voyages the day's festivals or other arrangements are happening. The social dimension of sustainability also includes sustainable cities and communities. In the SDG's, shore-based electricity is suggested as a target to be more sustainable. Three of the participant's states that some of the vessels in the Southern Oslo-Fjord region already have shore-based electricity, which implements a zero-emission solution when the vessel is at port. The implementation of shore-based electricity has reduced the emissions when the vessel is in port, as well as the noise has been reduced, states one of the participants.

Within the last dimension of sustainability – environment, objects like life on land, life below water and climate actions are stated in the literature. This dimension is probably the one the stakeholders had most perceptions about. The concern of emissions, pollutions, food production, clean energy resources and the biodiversity was mentioned in context with the environmental dimension.

Psaraftis (2016) states that the measurability of emissions in the maritime sector can be difficult, because of the use of estimates instead of direct measures. The interviews revealed

that the stakeholders from the industry were measuring their emission and energy use to some degree, but stated that it was hard to directly measure their sustainability and all the factors that are involved. The other stakeholders were concerned about measuring, because of the difficulties of measuring the exact emission and not just by estimates.

The interviewed stakeholders express their concern about sustainable development several times in the interviews, and then specially the concern about the environment. Climate actions is one of the objectives in the SDG's from the Norwegian Shipowner Association (2017). Some of the interviewees expresses that they cannot see any direct actions towards the shipping industry in the climate and energy plan for 2018 from the county authorities. This climate and energy plan elaborates of how to get the region to develop sustainable, then in regards of fuel use for vehicles, the use of railways as transportation mode and the recycling and production of biogas. Further, the shipping industry is not clearly mentioned in this plan, although reduction of emissions is mentioned. The participant that is closely connected to this climate and energy plan elaborates on the needed change in the passenger and cruise sector in Southern Oslo Fjord region and states that one of the vessels in the region is polluting more on one voyage than the whole vehicle fleet in the city it is located.

5.1.1 Stakeholders impact on sustainability in the passenger and cruise sector

There are a lot of actions that can be taken to be more sustainable, and the participants have all something to add to the work that is already done. One of the participants from the industry mentions that they are working to change the packaging of the food in the cafeteria at the ferry. With regards of the huge problem of plastic in the ocean, they have now collaborated with the suppliers of food to get a more sustainable packaging. As the plastic in the ocean has become a big concern among the society, this action will be very positive to the development of sustainability in this area. Additionally, the participant announces that they will have a press

release the day after - the interview about a cooperation to start auto docking their vessels. They have volunteered their vessels as a part of a project where a technological stakeholder is testing and developing the system and technology of auto docking. The participant states that this development of technology would help them get even more sustainable, in both ways as to be more efficient and more dependable for the customers.

Other participants are very concerned about the fuel use of the vessels, and the participants from the government stated that the production of biogas in the region is an important part of the circular economy for the community and society. Biogas as an alternative to heavy fuel oil is a huge opportunity for the passenger and cruise sector to be more sustainable, which again will support the local industries. To get the passenger and cruise vessels to use biogas as the main fuel, would affect both - the environment and the society in a positive direction. It might be more expensive for the industry of passenger and cruise vessels to use biogas as fuel, but the environmental footprint from these vessels will for sure be changed.

As mentioned earlier in the discussion chapter, the implementation of shore-based electricity within the ports in the area has contributed to sustainable development. This implementation has contributed to less pollution and less noise in the port, both when the vessel is berthed and in the night time. In addition to this, the study from Maragkogianni & Papaefthimiou (2015) states that the air pollution in cities with ports are considerable towards the cities without ports. Paoli et al. (2017) states that a cruise ship is using 6% of its fuel consumption in the port operation. The solution mentioned previous, with auto docking is therefore an answer to becoming more sustainable and fuel efficient. With this solution, the fuel consumption will decrease as well as the efficiency of the operation will increase. With a decreased fuel consumption, the air pollution probably also will be decreased.

Mantel & Papathanassis (2017) study on the willingness to pay for more sustainable solutions is a huge contribution to the industry, and shows that the customer is not willing to

pay more for a sustainable solution than a conventional one. Even if the consumers of passenger and cruise vessels are concerned about the change in the environment and are demanding more sustainable operations, their willingness to pay for this is obviously opposite. One of the participants stated that it was easier to act and develop sustainable when the consumers demanded it. The members of the society determined that traveling with ferries and buses as an alternative to their own car was very expensive. This is well connected to the study of Mantel & Papathanassis (2017). Sheree-Ann (2017) study showed that the consumers were demanding the passenger and cruise vessels to be more sustainable as the knowledge of environmental change increased.

Additionally, all participants are concerned about the use of local workforce and are working actively for engaging the locals as a contributor to get the community to be even more sustainable. Even though the social sustainability is nearly mentioned as much as the environmental and economic sustainability in the available literature, the participants had some perceptions of this dimension. As elaborated about in the result chapter, the interviewed stakeholders were concerned about the social aspect of sustainability, and had a lot of perceptions and actions taken toward this dimension. The safety and security were often mentioned among the participants, as the participants from the industry were engaged in always improving the safety and the conditions in the port and on the vessel. The participant mentioning the auto docking solution, also stated that even if they were implementing auto docking there would always be crew on-board to follow up on the operation. Additionally, the participants from the industry are using as much local workforce as possible, and the employees are mostly a resident in the area of the port.

Paoli et al. (2017) elaborates about the huge emissions released from cruise and passenger vessels. The high number of passengers travelling with the cruise and passenger vessels in the studied area per day and the number of voyages is a huge contributor to the

released emissions, both pollution and discharge of waste. The participants are very concerned about this, as the importance of this has increased the last decade. The common knowledge of emissions and discharge of waste has increased the last years, as the society is starting to see the results nowadays. The studied area in this thesis covers vessels that are used as a transportation leg. When the vessel is used as a transportation leg, there is a possibility that it is using more fuel to be more efficient. Some of the participants are mentioning passenger vessels in western Norway that has a top speed of 30 knots, and that they almost can see the emissions that are covering the cities. These participants are very concerned about the sustainability in the port cities, and further mentions that the passenger vessels in the area of Southern Oslo-Fjord are not operating in such way.

One of the participants also mentioned moving the port from inside the city to a place further out in the fjord. This was a wish from some part of the government, since the fjord's seabed recently had been cleaned up. The participant also mentioned that the area of the port could be transformed into a city park and a beach if the port was moved. This would have done a lot for the city's environment. Shipper et al. (2017) states that living in cities is often associated with economic opportunities, but the quality of life with regards of emissions may be weakened. The movement of the port out from the city would also contribute to the biodiversity in the harbour. The participant from the governmental institution states that the food security services warned about eating the fish from the fjord earlier because the fjord was so contaminated. In the proposal of moving the port, the port would still be located in the same municipality, but not all inside the fjord. The participant states that the government have not done anything with it and the future of moving the port does not look bright.

The enthusiasm for electrical vessels is huge among the participants, as well as solutions such as hydrogen or biogas driven vessels are elaborated about. There are some concerns about having fully electrical ferries as it might be difficult to fully recharge the ferry in between the

arrival and departure. One of the participants elaborates then if the energy is produced fully sustainable and environmental friendly, or if the energy is produced in a coal power plant somewhere abroad. This solution may be sustainable for the community and society where the vessel is located, but not where the energy is produced.

5.2 Limitations and recommendations for further research

The stakeholders have a very individual perceptions of sustainability, and the comparison between the society and the two other stakeholder groups can be difficult. The participants from the society had some background from the industry, as they had studied or worked within the field. Furthermore, the study might not be complete with only two participants from each chosen stakeholder group.

Therefore, this study can be used as a foundation for more comprehensive studies about various stakeholders' perception, and invites for more detailed empirical research on stakeholders' perceptions of sustainability in the passenger and cruise sector. It would be useful to investigate the stakeholders' perceptions through the rest of Norway, and then especially along the Norwegian Western Coast, due to the high amount of passenger and cruise vessels operating in the area.

6. Conclusion

This paper contributes to the empirical literature of passenger and cruise sector stakeholders' sustainability perceptions in the Southern Oslo-Fjord. This thesis has been investigating and might improve the stakeholders' perceptions of sustainability and sustainable development.

The application of qualitative approach based in semi-structured interviews and multiple case study design has contributed to show a variety of stakeholders' perceptions of sustainability and the elements of it. The sample indicated that stakeholders has a valid perceptions of sustainability, and that the stakeholders focus mostly on the environmental sustainability. Both economic and social sustainability are focused areas as well, although it's not to the same degree as the environmental sustainability. Stakeholders' has shown the knowledge of sustainability and their contribution to the community and environment to develop sustainable.

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Appendix A

Interview guide

1. What do you see as sustainability? (what your organization understands as sustainability and sustainable development?)
2. And what do you see as sustainability in your sector?
3. What is your opinion on sustainable development in the passenger sector? (do you think sustainable development is necessary for the passenger sector? Is it important to develop sustainable operations? Why particular sustainable operations are necessary in Baltic/Nord Sea region?)
4. Can you describe how your work is heading towards operating sustainable? (Do you have examples how your company/organization is operating in sustainable manner? Do you have plans for the future in order to increase sustainability of your operations?)
5. How do your sustainable operations affect:
 - Society
 - Environment and
 - Economy in the operational area?
6. Do you see any other development tendencies in passenger shipping sectors besides sustainable development?
7. Are your sustainable goals coherent with your operations?
8. What is your opinion on what will change the operations to be more sustainable? And how/what can be done to be more sustainable?
9. Do you feel pressure from your partners, clients and the rest of society for more sustainable approach towards your operations?

10. Do you feel other involved stakeholders are also developing sustainable strategies or operating in sustainable manner?
11. What in your view is the ideal sustainable logistics system for the passenger/cruise shipping? Do you see potential in technological advancements or in innovative business models?
12. Do you feel your contribution to sustainability and sustainable maritime development is significant when compared to other stakeholders?
13. Why do you think sustainability is such a trend today?
14. Are you measuring your sustainability's parameters?
15. Tell me about the past – is sustainability recent years' trend and why we were not concerned about the sustainability in the past?
16. What are the main initiatives behind sustainable maritime development?
17. Have you developed your own unique technique or model for achieving sustainability?
18. Do you have some projects which aims for increasing sustainability?
19. Do you focus on all sustainability's dimensions equally or you focus more on environmental or social or economic dimension?
20. Do governmental institutions support your goal for sustainable development?
21. Do you have some partnerships and projects together with other involved stakeholders regarding sustainability's improvement?