

# The social priorities in unsustainable development

## An empirical approach

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## SUMMARY

From the late 1980s onwards, a generally accepted conception of sustainable development as a balance between the social system, economic system and biophysical environment has emerged and serves as an underpinning for global knowledge building and human striving into the future. However, the global academic community has thoroughly and meticulously shown that current global development is not progressing towards sustainability understood as such a balance. Why is this? During a period of five years, three studies on the challenges of sustainable development in the Geiranger area, Norway, have shed light on this question. Covering the themes of crowding, visitor expenditure and perceptions of sustainable development, these studies have diverged theme-wise, methodologically and in relation to informant groups. Still, using a three-pillar sustainable development lens, the findings from the studies turned out to have some striking similarities regarding the predominance of the social aspects for understanding the challenges to sustainable development. Therefore, using abductive reasoning, a hypothesis-testing study was conducted in the same geographical area. The results stand in stark contrast to the dominant systems-oriented three-pillar conception of sustainability, namely, *as an individual, social issues are generally prioritised over economic and environmental issues related to sustainable development. As geographical distance increases, individuals are more inclined to prioritise environmental issues. Still, when accounting for all geographical levels, if economic or environmental issues are prioritised, the reason for this is that these issues lead to higher level of social gains.*

Hence, the current thesis proposes that the basis of unsustainable development may lie in humans' predominantly social priorities and preferences related to sustainable development. These discoveries may have far-reaching consequences for the understanding of the concept of sustainable development and the driving forces behind the perceptions, values and behaviour related to such a development, as well as how to proceed politically towards the aim of sustainability.

In this cumulative doctoral thesis, the hypothesis-testing study is presented first, forming a frame highlighting the most surprising findings and implications of the three preceding studies. However, the three studies on the challenges of sustainable development also have interesting findings in their own right regarding the themes of perceptions of sustainability, perceived crowding and visitor expenditure. A summary of the studies is presented in Table 1.

**TABLE 1. SUMMARY OF THE TOTALITY OF THE THESIS.**

<b>Else Ragni Yttredal and Jörg Löffler: The social priorities in unsustainable development. An empirical approach</b>		
<b>Hypothesis-testing study</b>	Research objective and hypothesis	Hypothesis-testing study, investigating the abducted hypothesis: 'As an individual, social issues are generally prioritised over economic and environmental issues related to sustainable development'.
	Literature foundation	Conceptual knowledge and studies related to sustainable development.
	Research design/data sources	9 semistructured interviews with inhabitants in Geiranger, prominent within their fields of expertise.
	Data analysis	NVivo software for coding of data and Excel for comparison between stakeholders.
	Main findings	As an individual, social issues are generally prioritised over economic and environmental issues related to sustainable development. As geographical distance increases, individuals are more inclined to prioritise environmental issues. Still, when accounting for all geographical levels, if economic or environmental issues are prioritised, the reason for this is that these issues lead to higher level social gains.
	Social dimensions of findings highlighted	Same as main findings.

Paper 1	<b>Else Ragni Yttredal and Nathalie Homlong (published): Perception of sustainable development in a local world heritage perspective</b>	
	Research objective	Understanding perceptions of sustainable development among stakeholders within a local community.
	Research question	What are the perceptions of sustainable development of the Geiranger area among stakeholders?
	Literature foundation	Concept and perceptions of sustainable development, human perceptions and environmental beliefs, attitudes, values and behaviour.
	Research design/data sources	23 semistructured stakeholder interviews and 8 answers to the same open-ended questions in written form. Literature review. Document studies.
	Data analysis	NVivo software for theme analysis, emergent pattern analysis, group comparisons and development of 'what is not there' (WINT) analysis.
	Main findings	*In stakeholders' perceptions of sustainable development, social dimensions dominate environmental and economic issues. *Stakeholders' perceptions of local sustainable development form into a sustainability chain of logic, with social issues as an end point. *Perceptions of local sustainable development are context dependent and depend on social issues close to people's lives.
	Social dimensions of findings highlighted	Same as main findings.
Paper 2	<b>Else Ragni Yttredal and Nathalie Homlong (published): Travel format versus nationality as drivers of the perception of crowding in a rural tourist destination</b>	
	Research objective	Understand the perception of crowding in a rural tourist destination.
	Research question	How and to what degree does nationality and travel format influence tourists' perception of crowding in the Geiranger area?
	Literature foundation	Perception of crowding and visitor satisfaction.
	Research design/data sources	Survey with 474 responses from visitors to the Geiranger area. Literature review.
	Data analysis	Preparation of overview report. Bivariate and regression analysis, ANOVA, consecutive T-tests, and Mann–Whitney U-tests.
	Main findings	*Travel format is the main factor contributing to differences in perceptions of crowding. *Travel format also moderates the relationship between perception of crowding and other factors, such as satisfaction and transport.
Social dimensions of findings highlighted	The findings suggest that factors close to peoples' lives and experiences explain differences in perceptions of crowding, factors like: 1. Personality, 2. Expectations, 3. Exposure.	
Paper 3	<b>Else Ragni Yttredal and Nathalie Homlong (forthcoming): Understanding the blurry picture of tourism expenditure in a cruise destination. Geirangerfjord—Norway</b>	
	Research objective	Understanding expenditure patterns in a tourist destination.
	Research question	What are the expenditure patterns of cruise visitors, day visitors land and overnight visitors on land, respectively, in the destination Geirangerfjord, and which factors can explain these patterns?
	Literature foundation	Expenditure in destinations and their explanations.
	Research design/data sources	Survey with 304 completed responses from visitors to the Geiranger area. Literature review.
	Data analysis	Preparation of an overview report. Bivariate and regression analyses.
	Main findings	Expenditure patterns in the Geiranger cruise destination differ between day visitors land, cruise visitors and visitors on land staying overnight, as do explanatory variables explaining this expenditure. A framework for understanding opportunities for individual expenditure in a destination is presented.
Social dimensions of findings highlighted	The findings suggest that factors close to peoples' lives and experiences explain the differences regarding expenditure in a destination.	



# FRAME ARTICLE: THE SOCIAL PRIORITIES IN UNSUSTAINABLE DEVELOPMENT. AN EMPIRICAL APPROACH

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(submitted)

## AUTHOR CONTRIBUTIONS

Else Ragni Yttredal was the primary driver of concept and idea, study design and methods, data collection and analysis and manuscript preparation. Jörg Löffler contributed to the idea and manuscript preparation.

## INTRODUCTORY INFORMATION

In this cumulative doctoral thesis, the present study serves as the frame of the entire work. Based on the most interesting findings from articles 1, 2 and 3 the hypothesis: *“as an individual, social issues are generally prioritised over economic and environmental issues related to sustainable development,”* is tested and elaborated on through an independent data collection and analysis. The three baseline studies, preceding the present study in time, are subsequently presented.

## ABSTRACT

The global academic community has meticulously shown that current development is not progressing toward sustainability understood as a balance between the social system, economic system and biophysical environment. Using a three-pillar sustainable development lens, this article proposes that the basis of such unsustainable development may lie in humans' predominantly social priorities and preferences related to sustainable development. The findings are based on three studies over 5 years in the Geiranger World Heritage Site, Norway, followed up by a hypothesis-testing study using semistructured interviews. The findings can have far-reaching consequences for the understanding of the concept of sustainable development as well as how to proceed politically towards this aim. Furthermore, the findings may alter our understanding of the driving forces behind our perceptions, values and behaviour. Based on our study and the theoretical underpinnings and inferences from evolutionary theory, new findings in neuroscience and theories of human values we propose a new hypothesis to be further investigated to further understand the mechanisms of unsustainability.

**Keywords:** Sustainability, sustainable development, values, unsustainable, Norway, Social geography, tourism

## 1. INTRODUCTION

Ever since the publication of "Our Common Future" by the World Commission on Environment and Development in 1987 (United Nations, 1987; Vermeulen, 2018), in academia and politics alike, the discourse on sustainable development has broadened. Still, more than 30 years after "Our common future," the global community is struggling to achieve sustainability. Human activities now represent the dominant driver of environmental change (J. Rockström et al., 2009; Steffen et al., 2015), and an overwhelming strand of the literature from all over the globe has shown that humans are no longer living within the limits of our earth systems (IPCC, 2019; Randers et al., 2019; J. Rockström et al., 2009; Johan Rockström et al., 2009; Steffen et al., 2015). Thus, although knowledge about (the lack of) sustainable development is increasing, humanity is not able to progress towards sustainability (Hoekstra & Wiedmann, 2014; IPCC, 2021).

Against this backdrop, the current article builds on surprising findings from five years of research into the challenges of sustainable development in Geirangerfjord Norway that have indicated that the social aspects of individual perceptions (Yttredal & Homlong, 2020a, 2020b) and actions (Yttredal & Homlong, Forthcoming 2022) may form a basis of unsustainable development. We have also performed a follow-up study further examining the emphasis on social issues in these perceptions. What we have found has implications for the concept of sustainable development and how humanity can and should proceed toward the aim of sustainable development both in a local, national and global context.

In the following we give a short introduction to the three pillars of the concept of sustainable development before proceeding to present the study area and preceding studies which ends in a hypothesis and hypothesis-testing study (section 2 and 3). The findings are subsequently discussed and summed up in a conclusion.

### 1.1 THE THREE PILLARS OF SUSTAINABLE DEVELOPMENT

Although many definitions have been given, the most referred to definition of sustainable development is still the one from the 1987 World Commission on Environment and Development report; "Our common future" (The Brundtland report). In the report sustainable development is defined as follows:

".. development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:

- the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and
- the idea of limitations imposed by the state of technology and social organisation on the environment's ability to meet present and future needs."

(United Nations, 1987. Chapter 2, subsection 1)

Although it may be argued that sustainability and sustainable development are old concepts (Ciegis, Ramanauskiene, & Martinkus, 2009; Lumley & Armstrong, 2004; Purvis, Mao, & Robinson, 2019; Roberts, Reynolds, & Dolasinski, 2022; Wingate, 2019), the sustainable development concept and definition presented in the Brundtland Commission's report represents a turning point in the global discourse on ecological and environmental issues. This definition merges two goals previously seen as contradictory: to ensure security and wealth for all people, the goal of development and economic growth and "to live and labour in accordance with bio-physical limits of the environment" (Ciegis et al., 2009, p. 30). The report subsequently gives the terms sustainable development and sustainability political credibility, and sustainable development became part of a common language framing the formal environmental and development agenda (Macnaghten, Grove-White, Jacobs, & Wynne, 1995; Roberts et al., 2022). Since then, sustainable development has received many and varied contents and definitions (Ciegis et al., 2009; Mebratu, 1998; Saarinen, 2014). There, however, seems to be a general agreement on some aspects: inter- and intragenerational equity, concern for the future, the conservation of nature, the protection of natural resources and balancing development economically, socially and environmentally.

The conception of sustainable development as a balance between the pillars of environmental, social and economic systems has its roots in writings from the 1970s and 1980s but was first visualised and conceptualised by Barbier (1987). A generally accepted understanding of these three pillars envisions them as separate entities and sustainable development as the field in which the three spheres are in balance (figure 1a). However there has been a controversy in the sustainability discourse between seeing the parts or the whole as a starting point. For example, Mebratu (1998) has developed a more holistic approach. In what he calls the "cosmic interdependence model," he argues that the human universe and economic and social cosmos have never been independent of the natural universe (Mebratu, 1998. Retrieved from Mebratu 1996). He illustrates the difference as shown in figure 1b. Griggs et al. (2013) propose a similar holistic model and reframe the three elements within sustainable development as "the earth's life-support system", "society" and "economy", as shown in figure 1c. In line with such an understanding they also propose redefining sustainable development as "development that meets the needs of the present while safeguarding Earth's life-support system, on which the welfare of current and future generations depends" (Griggs et al., 2013, p. 306). The three pillars conception has inspired sustainable development efforts in various sectors of life and at diverse geographical levels (see e.g. the sustainable business model literature: Bocken, Short, Rana, & Evans, 2014; Elkington, 1999; Joyce & Paquin, 2016). By 2015 the UN General Assembly adopted the Sustainable Development Goals (SDGs) (UN General Assembly, 2015), which are commonly perceived as the guidelines for the global endeavour toward sustainability both by scholars and in the political sphere. With 17 goals and more than 100 subgoals the SDG's cover a broad range of human life, economy and ecology even though the goals are not labelled as such.

The concept of 'sustainable development' has been criticised from different angles; for being vague and unspecified (Ciegis et al., 2009; Harding, 2006; Lélé, 1991; Purvis et al., 2019; Saarinen, 2014), for the potential for emphasising individual aspects rather than the whole (Aall, 2014) and for legitimising continuous neoliberal economic policies rather than promoting an environmentally sound economy (Kambites, 2014; Purvis et al., 2019; Wingate, 2019). Some scholars have argued that the concept should be replaced with concepts of more clarity (Lélé, 1991). Vermeulen (2018) provides rather harsh counter arguments of this criticism; he maintains that pragmatic choices are needed, and despite the vagueness of the concept of sustainable development there is a rough consensus of what it involves. Trying to balance the three elements of sustainability; prosperity, people and planet, using an input – output – outcome logic from political process models (Easton, 1965), Vermeulen (2018) visualises what he calls a "rough consensus" on sustainable development (Appendix 2). His argument is that part of the confusion about the concept is because of a misunderstanding on what are the inputs, outputs and outcomes and that the ultimate outcomes of sustainable development are planetary and

human wellbeing while the other parts of the sustainable development discourse should be placed elsewhere in the input – output – outcome chain.

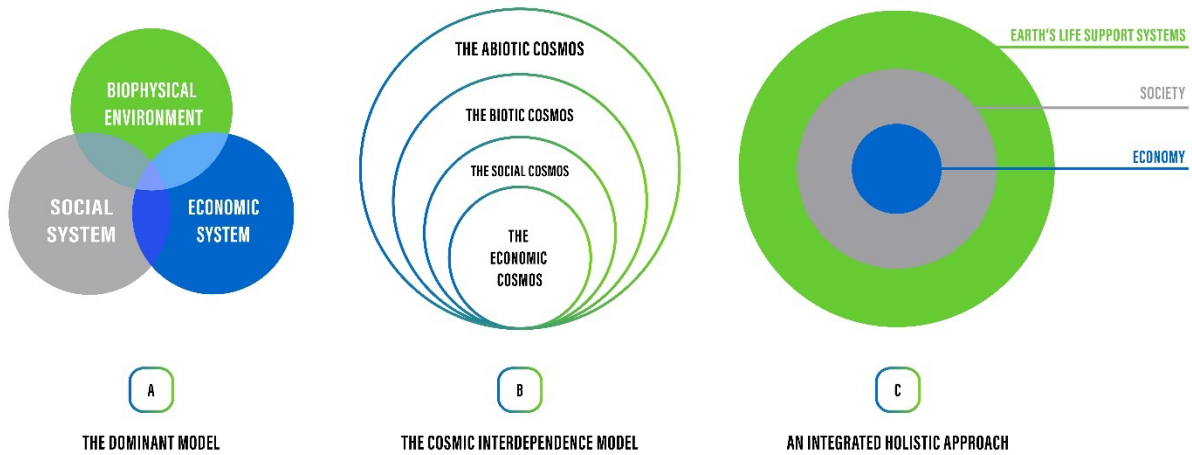


Figure 1. Different conceptualisations of sustainable development. (A) The dominant model of three separate but balancing pillars originating from Barbier (1987) (B). The cosmic interdependence model based on Mebratu (1998, p. 513). (C) An integrated holistic approach with emphasis on the earth’s life support systems based on Griggs et al. (2013, p. 306).

Although the Brundtland report, the SDGs and the above-mentioned studies all hold a system perspective, and although the criticism of the sustainable development concept has been to a large degree conceptual (Saarinen, 2014) the crisis facing our globe has a distinct individual starting point as pointed out by Wingate (2019):

«... the crisis of sustainability is the cumulative result of ordinary people going about their lives, trying to improve their lot for themselves and their families. It is everyday life, around which society is built, and upon which society depends. The crisis confronted by sustainability is not borne of an external threat or an exceptional event, it is the prospect that simply by being alive in the world, and doing nothing special, we might all be complicit in our own demise.» (p. 3)

Wingate’s observation makes the current study particularly relevant, because it approaches the sustainable development discourse from below, – building from individual empirical data.

## 2. THREE STUDIES LEADING TO A HYPOTHESIS

### 2.1 THE STUDY AREA AND CONTEXT

In 2005, together with Nærøfjord, the Geirangerfjord area was inscribed on the UNESCO World Heritage List as the World Heritage Site "West Norwegian Fjord Landscape" (United Nations Educational Scientific and Cultural Organization (UNESCO), Accessed February 7, 2022). Only 235 people live year-round in the village of Geiranger (Statistics Norway SSB, 2021). In contrast to this, pre COVID-19, just below 1 million tourists visited the narrow valley each year, mainly during the summer months of June, July and August. Cruise tourism contributed to roughly one-third of these visitors (Yttredal, Babri, & Diez, 2019). Agriculture was traditionally the livelihood of the inhabitants in Geiranger, but with a more than 100-year history of tourism, year-round settlement in the village now completely depends on tourism.

As a main attraction in Norwegian tourism, there have been ongoing debates surrounding the sustainable development of the Geiranger World Heritage Area. During the study period and prior to COVID-19, crowding and congestion have been issues of complaint and debate. Smog in the air over Geirangerfjord, which leads to poor air quality, has been another issue. Both issues have contributed to research and debates on sustainable development and solutions (Lange, July 12, 2019, March 3, 2018; Löffler, 2018, 2019, 2020, 2021). The discourse has reached regional and national decision makers (see e.g.Sjøfartsdirektoratet, 2017) spurring site specific environmental policies (Meld. St. 41 (2016-2017)). As an international tourist destination COVID-19 hit the Geiranger area hard in 2020 and 2021. Therefore, the local stakeholders' focus has shifted to coping with these challenges.



Figure 2. The Geiranger area on the west coast of Norway. (Photo: Nathalie Homlong).

The Geiranger area is ideal for a case study of sustainable development within a local context for two reasons. First, being a World Heritage Site, an area of “outstanding universal value” (United Nations Educational Scientific and Cultural Organization (UNESCO), Accessed February 7, 2022), sustainable development should, normatively speaking, be at the core of local priorities. Second - the natural geographic delimitations; the mountains, the fjords and only one narrow all-year-round open road to the village of Geiranger - give this area the resemblance of a laboratory as natural conditions ease the delimitation and understanding of actors and driving forces.

## 2.2 THE HYPOTHESIS

During a period of five years, three studies on the challenges of sustainable development were performed in the Geiranger area. The studies diverge theme-wise, methodologically and regarding informant groups. Still, in using a three-pillar sustainable development lens, they turned out to have some striking similarities when it comes to the importance of the social aspects of sustainable development, as they in each instance appeared to have more explanatory power than expected. The findings are summarised in Table 1. Using abductive reasoning (Schurz, 2008; Thagard & Shelley, 1997) this led us to a more general explanatory hypothesis related to individual choices in (un)sustainable development:

*As an individual, social issues are generally prioritised over economic and environmental issues related to sustainable development.*

The relationship between the previous findings and explanatory hypothesis is illustrated in figure 3. Based on this reasoning, a hypothesis-testing study, was performed.

**Table 1. Summary of main findings of the articles, and their social dimensions highlighted.**

Title	Main findings	Social dimensions highlighted
<b>Article 1</b> Perception of sustainable development in a local world heritage perspective (Yttredal and Homlong 2020a)	<p>The social dimensions of sustainability dominate the environmental and economic dimensions.</p> <p>The stakeholders' perceptions of sustainability form into a sustainability chain of logic, with social issues as an end point.</p> <p>Perceptions are context dependent and depend on the topics close to people's lives.</p>	<p>The social dimensions of sustainability dominate the environmental and economic issues in people's perceptions.</p> <p>Stakeholders' perceptions of local sustainable development form into a sustainability chain of logic, with social issues as an end point.</p> <p>Perceptions of local sustainable development are context dependent and depend on social issues close to people's lives</p>
<b>Article 2</b> Travel format versus nationality as drivers of the perception of crowding in a rural tourist destination (Yttredal and Homlong 2020b)	<p>Travel format is the main factor contributing to differences in perceptions of crowding.</p> <p>Travel format also moderates the relationship between perception of crowding and other factors like satisfaction and transport.</p>	<p>The findings suggest that the factors close to people's lives and experiences explain the differences in perceptions of crowding: 1. Personality, 2. Expectations and 3. Exposure</p>
<b>Article 3</b> Understanding the blurry picture of tourism expenditure in a cruise destination (Yttredal and Homlong 2022 Forthcoming)	<p>The expenditure patterns in the Geiranger cruise destination differ between day visitors on land, cruise visitors and visitors on land staying overnight, as do the explanatory variables explaining this expenditure.</p>	<p>The findings suggest that factors close to people's lives and experiences explain the differences of expenditure at a destination.</p>

## A hypothesis testing study – structure of logic

Surprising findings highlighting the social dimension of sustainable development

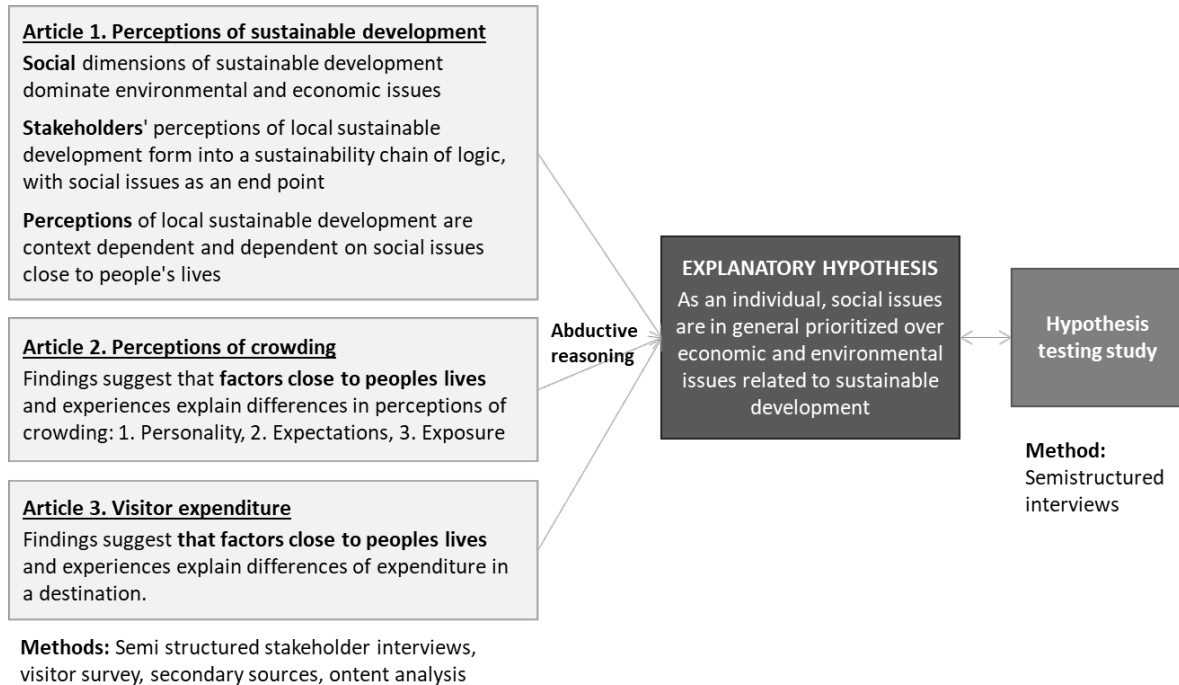


Figure 3. The social dimensions of previous findings and abductive reasoning behind the new hypothesis and the present hypothesis testing study.

### 3. A HYPOTHESIS-TESTING STUDY

#### 3.1 METHODS AND ANALYSIS

Nine semistructured interviews comprised the foundation of the hypothesis-testing study. The aim of the interviews was to map the individual priorities related to sustainable development at a private, local, national and international scale. Hence the informants were first asked which 5 issues they prioritised on these different scales, then how they prioritised these issues before finally giving the reasons for their priorities. For instance, at a local level, the interviewees were asked the following questions: "What are the five most important issues related to sustainable development in your local community? Can you prioritise them? Why do you think these are the most important, and why do you prioritise as you do?" Similar questions were asked at more aggregate levels (see Appendix 1 for the interview guide).

The interviewees were selected based on three criteria. 1. They needed to live and work in the Geiranger community. 2. They were to be prominent representatives within their field of interest or profession. 3. They were to represent diverse fields of interest, different age groups and gender. For one person, the first criterion was stretched, because the interviewee had recently moved away from the area. Four of the interviewees had been interviewed before during the five years research period, while five had not.

Partial transcription was conducted during the interviews and subsequently followed up on by a full transcription, because all of the interviews were recorded. NVivo software was used for the analysis. However, because the interview questions were directed at priorities, the findings were also put into Excel sheets that were then used to compare the priorities between informants and provide an overview of patterns. The original version was filled with text substantiating the sum-up versions presented below (Tables 2 to 6). Within the Excel

sheet, the prioritised issues were categorised into social, environmental or economic issues defined in the following way:

1. **Social issues** are matters predominantly concerned with the interviewee, their immediate social relations or different levels of society, meaning a larger group of people living together in an organised way (Cambridge Dictionary, Accessed March 7, 2022).
2. **Economic issues** are matters predominantly related to the monetary system and inter-related production, consumption and exchange activities (Store Norske Leksikon, Accessed March 7, 2022). Work has a special standing in this respect. Even though in a strict sense, work is related to the production system (economic issues) the interviewees' rationales behind prioritising work in the interviews, more often than not belong to the social sphere, such as "Having meaningful and exciting work, also on a daily basis" (quote from an interview). Hence, in the interviews, if work as a priority is grounded in social issues, we would categorise it as a social priority and, if not, as an economic priority.
3. **Environmental issues:** In the sustainable development debate, the term ecological or environmental is used interchangeably as the third pillar of sustainability (Purvis et al., 2019; Roberts et al., 2022). While "ecology is the study of relationships between living organisms, including humans and their physical environment." (The Ecological Society of America, Accessed March 7 2022accessed March 7, 2022.), the term "environment" is broader, and focuses on the "circumstances, objects or conditions by which one is surrounded" (Merriam Webster dictionary, Accessed March 7, 2022) ), thus including both the social and biophysical environment. In this study the term "environment" is, however, restricted to the biophysical environment (Randers et al., 2019).

The interviewees were also asked to give reasons for their priorities. These reasons are important for our categorisation of the informants' answers, as illustrated above in the quote related to work.

### 3.2 RESULTS

Using keywords and colours, Tables 2 through 6 show informants' priorities. The number for each interviewee varies in the tables to ensure that no single person is identified through their response patterns. The grey boxes are priorities interpreted as social, green boxes indicate environmental priorities, and blue boxes are those priorities categorised as economic.

Table 2 shows that prioritised **private issues** are overwhelmingly social. The informants' explanations for the few times they have environmental priorities, further highlight the social emphasis because environmental priorities are rationalised in ways related to themselves or social issues:

This is not very well thought through, but the nature around me here is of course an important thing.... You can say family, friends and nature then, in that order. And then I think mostly of the nearby nature... (Interviewee 5)

Nature is both for me and for tourism... (Interviewee 6)

In the interview guide, private priorities were also measured in a different form. A list of items within the economic, environmental and social fields were presented to the interviewees and they were asked to give these fields value in prioritised order. Table 3 shows the same pattern as Table 2. Social elements (grey boxes) are of the highest priority among the informants: a child (9.4 average), to have work (with social explanations, 8.3 average), and then with a somewhat lower score, the more general term "socialising" (6.9 average). The list of items is ambiguous and does not actually consist of comparable sizes, which is also the intention because the informants are allowed to put their own interpretation into their answers. Therefore, the explanations for their priorities are interesting. One interviewee explains the prioritisation in general terms:

... I think that first and foremost are people, human activity, then all living things, and then other things. That is perhaps what I would say are the main points at issue when it comes to my priorities (Interviewee 7)



Economic issues are almost absent from private priorities and rank the lowest on the list.

Priorities concerning the **local community** are shown in Table 4. The social issues are again dominant in the informants' priorities. The most prominent top social priority of sustainable development can be represented by a quote from one of the interviewees:

Yes... then I think now that... it (the local community) must be a good place to live; it is important that people have both a job to go to and something to live from, and that it is a good place to visit. (Interviewee 1, own addition in brackets.)

The environmental issues are, again, not seen as the most important. Furthermore, the reasoning behind environmental priorities is social. An interviewee's support for the decision by the Norwegian Parliament to only allow Zero-emission cruise ships into the Geiranger fjord from 2026 onwards illustrates a rather common line of reasoning for the priority of environmental issues:

I would say that, perhaps the most important thing is that the zero-emission decision is maintained (Decision in parliament). Because as the situation has been, it has not been sustainable. This applies to both air and water pollution. I often wonder what it really looks like at the bottom of the fjord, in the mud right here where cruise ships have been anchoring for 100 years with bottom lubrication falling off down to the bottom... Is it healthy to eat crab and crayfish that live in the fjord right here? Or should you go further away in the fjord when fishing for those species? (Interviewee 9, own additions in brackets.)

The quote is coded as an environmental priority, but as we can see from the above, the reasons behind turn out to be human centred. In a local context, pure economic issues are almost absent (One blue box).

Table 2. Interviewees' answer to the following question: what are the five most important things, people, animals, nature or anything else in your life? Can you prioritise them?

	Priority 1	Priority 2	Priority 3	Priority 4	Priority 5
Interviewee 1	The kids	Rest of the family	To be social		
Interviewee 2	Closest family	Meaningful work	Nature, fjord, mountains close		
Interviewee 3	Closest family	Dog	Rest of family, friends	Close nature and farm	
Interviewee 4	Closest family	Dog	Friends	Closest nature	
Interviewee 5	Job and what it brings	Nature around Geiranger	Travel	Social life	Family
Interviewee 6	Health	Family	Income and work	Communications	Nature
Interviewee 7	Closest family	Friends	Nature around Geiranger		
Interviewee 8	Social life	Economy and work	Family	Animals	Move freely in nature
Interviewee 9	Family	Closest (social) environment	Unsure, maybe dog		

Table 3. Total and average of points given to different predefined elements answering the following question: can you prioritise these elements from 1-10 in relation to how you perceive their value? (10 is the highest value)

	A child	To have work	Social interactions	A bird	A fish	A dog	An elephant	A tree	An amoeba	Lottery win (1 mill NOK)
Total points	85	75	62	56	47	45	41	40	23	21
Average	9,4	8,3	6,9	6,2	5,2	5,0	4,6	4,4	2,6	2,3

Table 4. Interviewees' priorities answering the following question: what are the five most important issues related to sustainable development in your local community? Can you prioritise them? Why do you think these are the most important, and why do you prioritise them as you do?

	Priority 1	Priority 2	Priority 3	Priority 4	Priority 5
Interviewee 1	Viable local community	Clean local community	Viable businesses	Social life and well-being in the community	
Interviewee 2	Less plastic	Hydropower			
Interviewee 3	Development for the community of Geiranger	Infrastructure; electricity, parking, roads			
Interviewee 4	Good place to live	Work - something to live from	Good place to visit	Security	Cope with crowding
Interviewee 5	Good place to live, work	Security	Cope with crowding		
Interviewee 6	Diversity of offers to tourists	Unity	Security	Places to live, houses, flats	Transport to and from
Interviewee 7	Not too much tourism	Contamination from cruise, sewage	Agriculture is gone	Population size in Geiranger	
Interviewee 8	Living conditions, work, house, well-being	Not too much tourism			
Interviewee 9	Maintain Parliament 0 emission decision for cruise ships	Place to live	Not too many tourists		

Table 5. Interviewees' priorities answering the following question: what are the five most important issues related to sustainable development on a national scale? Can you prioritise them? Why do you think these are the most important, and why do you prioritise them as you do?

	Priority 1	Priority 2	Priority 3	Priority 4	Priority 5
Interviewee 1	Energy and national security	Education on environment	Work	Environment	Infrastructure
Interviewee 2	Zero-emission for cruise in Norway	Continue transition to electric cars	Norwegian food production	Consumption	Energy production
Interviewee 3	Lower plastic use	Reuse, lower consumption	Utilise hydropower natural energy	Prevent deforestation	
Interviewee 4	Mass tourism	Tourism minister	Develop world heritage places		
Interviewee 5	Work in the districts	Work and economy in general	The environment.		
Interviewee 6	Work against centralisation	Too little production			
Interviewee 7	Utilise local resources	National independence			
Interviewee 8	Incentives for climate and districts	Green development	Use the whole country	Sustainable tourism	
Interviewee 9	Land use	Less use of oil, but needed	Less consumption		

Table 6. Interviewees' priorities answering the following question: what are the five most important issues related to sustainable development internationally? Can you prioritise them? Why do you think these are the most important, and why do you prioritise them as you do?

	Priority 1	Priority 2	Priority 3	Priority 4	Priority 5
Interviewee 1	Don't know				
Interviewee 2	Incentives for sustainable dev. in developing countries	Best case examples	Binding international agreements		
Interviewee 3	Challenge of energy	The environment	Education	Poverty	
Interviewee 4	Pollution and littering	Food production	Animal welfare	Less travel	
Interviewee 5	Env. friendly tourism				
Interviewee 6	Centralisation	Less and different transport	Work against war		
Interviewee 7	Struggle against poverty	Climate cooperation	International cooperation		
Interviewee 8	Plastic	Food waste	Less consumption	Renewable energy	Prevent deforestation
Interviewee 9	Climate gas emissions	Land use	Transport		

Looking at the **national context** (Table 5) the picture starts to change. Although the social issues still dominate the priorities, the purely environmental issues are more pronounced, even more so in an **international context** in which two patterns emerge (Table 6). First, environmental issues dominate the priorities, as can be seen from the dominance of green colours in Table 6.

.... I think it (priority 1) must be to reduce pollution and littering... eeehhh... yes, and (change)... "the use-and-throw-away society" that we in the Western world represent ... (Interviewee 4, own addition in brackets)

The reasoning for the environmental priorities is also more related to nature and ecology than in a local or private context – but not without a glimpse of the priority of human well-being, as shown in the following quote:

...(the priority of ) pollution is quite obvious... we have to change the way we live in the whole world, in a way, you see how.... it is scary to see where we're going. If we do nothing... it's very sad to see .. as I have seen some of his documentaries... what is his name again... in the BBC... David Attenborough... about how to preserve... how things are interrelated in nature and in ecosystems, like... what happens if they collapse, in a way.... and being able to preserve the earth, and make it liveable for future generations as well. We already see many consequences from the way we have lived... extreme weather... (Interviewee 4, reasoning about priorities on an international scale, own addition in brackets.)

Secondly, concerning international issues, a feeling of discouragement and intractability occur among the informants. An informant who was unable to mention any priorities expresses:

Internationally... it depends on the major countries and leaders, doesn't it? And then there is money again, politics.... I don't know what to say, it is like... in a way I do not have very much confidence that ... emissions are reduced .... I cannot answer that (question). (Interviewee 1)

Another informant does not have any problems in expressing those priorities related to sustainable development internationally, but has the same concerns:

Ooooh, that's difficult,. ... you can somewhat loose heart when you see what Russia is doing and China and in general, some of the authoritarian states that do not want to acknowledge either one or the other ... (Interviewee 2)

At the same time, the informants express an understanding of the interconnectedness and complexity of international affairs:

Actually, I can say, I like to think that, this climate problem is a bit... very important and is very closely related to... it is closely linked to the fight against poverty, but poverty is ... much more tangible for many who are in it, so I would think that it is a more important issue in the short term, or ... short term, of course it is a little weird to say, but first and foremost, and then climate can be number two... (Interviewee 7, reasoning about priorities on an international scale.)

Economic priorities are almost absent also on the international level, as shown in Table 6.

Could the reasons for these priorities be a lack of knowledge about sustainable development and particularly about ecological issues and the economy? Because of this potential objection, the selected informants are prominent representatives within their fields of expertise. They live in an area where discussions on sustainable development have been quite pronounced and most of them have been active in local endeavours related to sustainable development issues.

**Table 7. How well do you know the concept of sustainable development would you say? On a scale from 1 (least knowledge) to 10 (most knowledge)? Can you tell us a little bit about what the concept entails?**

Interviewees	Knowledge	Keywords representing individuals' perception of sustainable development
Interviewee 1	8	Three pillar balance: Social, economic and environmental
Interviewee 2	9/10	Three pillar balance: Social, economic and environmental
Interviewee 3	7/8	Balance between development and "sustainability" (understood as environmental concerns)
Interviewee 4	6/7	Environmental focus: Development that does not destroy nature
Interviewee 5	10	Environmental focus: Development that does not destroy the planet
Interviewee 6	6	Resource focus: Not to use non- renewable resources
Interviewee 7	7/8	Time dimension: Development that can function for a long time
Interviewee 8	7	Intergenerational equality: Not to destroy opportunities for future generations
Interviewee 9	8	Resource focus: Not to consume more than we have to

In the interviews, the informants were in addition asked to rate their knowledge on sustainable development and explain what their perceptions of the concept were. As can be seen from Table 7, they consider their knowledge on the issue to be quite high, even though their perceptions of sustainable development differ, as shown in the right column. The interviews further strengthened the impression that the informants were knowledgeable about the concept of sustainable development.

#### 4. OVERARCHING DISCUSSION

Our findings suggest that although we may have a cognitive rational understanding of the need for a balance of economic, social and environmental factors for sustainable development, we do not have individual priorities, especially in the private and local sphere, that underpin such a balance. Rather, the economic and environmental aspects seem to be means to our social ends, as indicated by the baseline articles for this hypothesis testing study (Yttredal & Homlong, 2020a, 2020b, Forthcoming 2022). In short, the results deepen the initial hypothesis, indicating the following:

*As an individual, social issues are generally prioritised over economic and environmental issues related to sustainable development. As geographical distance increases, individuals are more inclined to prioritise environmental issues. Still, accounting for all geographical levels, if economic or environmental issues are prioritised, the reason for this is that these issues lead to higher level social gains.*

In this way, the discoveries, illustrated in figure 4, may underly and explain the most interesting and surprising findings of the underlying studies (Yttredal & Homlong, 2020a, 2020b, Forthcoming 2022).

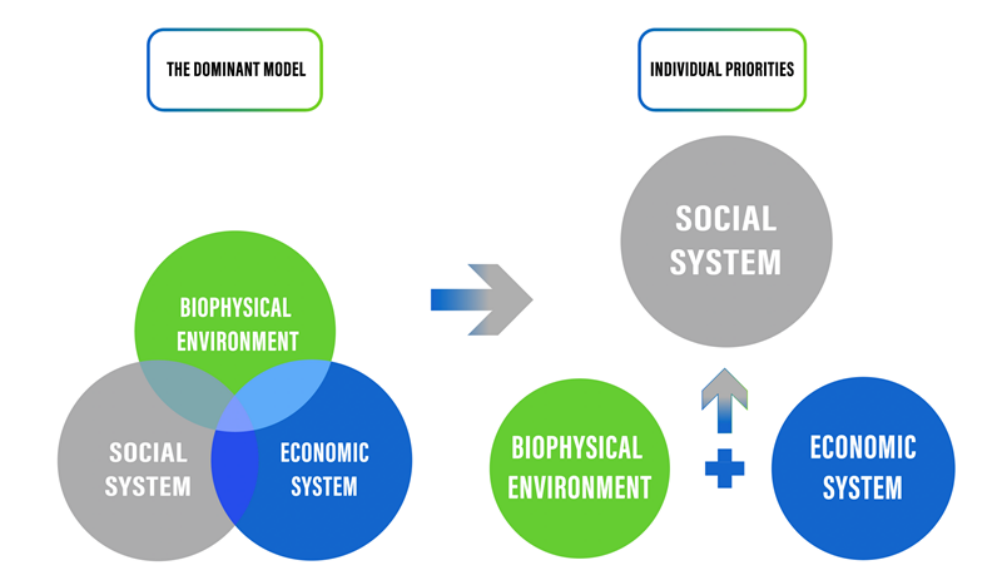


Figure 4. Dominant system thinking: sustainable development as a balance between the development of the social system, economic system and biophysical environment (originating from Barbier (1987)), compared with the priority of components of sustainable development perceived by informants (based on Yttredal and Homlong (2020a)).

Furthermore, the social inclinations of individuals unearth a gap in the logic of sustainable development because there seems to be weak bonds between the expressed goals on a global and systems scale, and the actual priorities of individuals on private and local scales. Thus, individual priorities would probably be a hindrance in transforming the goal of balance among the social, economic and environmental aspects into actual sustainable behaviour. For example, such a discovery is substantiated by the “attitude-behaviour gap” found in research on environmental behaviour in business and marketing (Emil Juvan & Dolnicar, 2014; E. Juvan & Dolnicar, 2016; Yttredal & Homlong, 2019).

In some ways the findings of the baseline studies (Yttredal & Homlong, 2020a, 2020b, Forthcoming 2022) that have been supported and elaborated on in the present study concurs with the input – output model of Vermeulen (2018. See also appendix 2). The similarities are based on the fact that both studies understand human well-being as the ultimate goal and top priority of humans. In addition, both the present study and in Vermeulen’s framework the priorities are substantiated with storylines where elements are in causal order – a way of thinking that seem to be a special feature in human cognition (Barrett, Henzi, & Rendall, 2007; Dautenhahn, 2001). On the other hand, Vermeulen (2018) argues that such a consensus makes discussions on the concept of sustainability abundant. Our findings, however, indicate that such priorities and line of thinking may turn out to be highly problematic in achieving sustainable or environmentally sound development. The reason for this is that, if social priorities dominate real-life actions from the small individual steps onto larger global political priorities, this compromises our ability to achieve balanced sustainable development. Such a reasoning has recently been substantiated on a global scale by the contrast between the slow processes in the Western world meeting the global climate change compared to the quick response in many countries to the challenges of COVID–19. While the first crisis has environmental but, so far, intangible long term social effects the latter had immediate social consequences – thus higher priority. In this way, our findings underpin the critique of Aall (2014) highlighting the sustainable development concept’s potential for emphasising the individual aspects within the concept rather than the whole and, thus, being detrimental to sustainability (Kambites, 2014; Purvis et al., 2019; Wingate, 2019).

Are the findings generalisable? The context might be too specific (Henrich, Steven, & Norenzayan, 2010); however, the precedence of social issues may be interpreted as an expression of an anthropocentric worldview and therefore should not be a surprise. Since antiquity there has been an awareness of mankind’s human-centred way of perceiving the world (Encyclopedia Britannica, accessed March 9, 2022; Kopnina, Washington, Taylor, & Piccolo, 2018; Padwe, Accessed March 9, 2021 accessed March 9, 2022). Even though there may be diverse lines within such a position (Goralnik & Nelson, 2012), people with an anthropocentric worldview perceive items like animals, plants and minerals as resources to be used for human gain. In our view, the whole concept of sustainable development is expressed in an anthropocentric way. In the Brundtland report (United Nations, 1987), the mere definition expresses the need for a development that meets the needs for both present and future generations. The anthropocentric approach has since been substantiated in the sustainable development discourse, in SDGs and in other writings (UN General Assembly, 2015). Even the more holistically oriented frameworks of sustainable development have strong anthropocentric elements (Griggs et al., 2013; Mebratu, 1998) despite having a more eco-centric starting point (Amérigo, Aragonés, Frutos, Sevillano, & Cortés, 2007)

There are also interesting implications of these findings from a value perspective. The definitions of values are manyfold (Hofstede, 2011; S. Schwartz, 1987; Shalom H. Schwartz, 2012; Tadaki, Sinner, & Chan, 2017). Schwarz (1994, p. 20) claims there is widespread agreement in the literature on five features of values: “A value is a 1. Belief 2. Pertaining to desirable end states or modes of conduct, that 3. Transcends specific situations, 4. Guides selection or valuation of behaviour, people, and events, and 5. Is ordered by importance relative to other values to form a system of value priorities.” In this vein, sustainable development and the SDGs may be interpreted as universal sets of values (Kates, 2012). However, a question remains as to whether a holistic understanding of these values is internalised by individuals. Our findings indicate that the answer is no, or rather that the SDGs’ 17 values will be prioritised by individuals in favour of achieving social goals. From a value perspective, we interpret our informants’ priorities of social issues within the sustainable development concept as a manifestation of a set of dominant values underpinning human behaviour. Furthermore, behaviour is claimed to be determined by four factors; values, knowledge, opportunity and habits (Brox, 1999; Paul C. Stern, 2000; Paul C. Stern & Dietz, 1994). Schwarz (1996, p. 121) states that “values may play little role in behavior except when there is value conflict—when a behavior has consequences promotive of one (or more) value but opposed to others that are also cherished by the person.” Schwarz and Bardi (2001) also point to the fact that value hierarchies are strikingly similar across cultures. With this in mind, our findings suggest that if the social priorities

in a broad sense constitute a dominant set of values, they may be the most important driver for behaviour in general and for unsustainable behaviour in particular. If this is the case, it would also explain why increased knowledge about the earth's unsustainable development (represented by e.g. Hoekstra & Wiedmann, 2014; IPBES, 2019; IPCC, 2014, 2019, 2021; Randers et al., 2019), also when known and understood among individuals as in the Geiranger case, fails to materialise into sustainable actions that really matters.

Following this line of reasoning, questions about the explanations for individuals' social priorities have emerged. Although this is a question quite removed from our research, as far back as 1871, Darwin (2013 [1871]) argued that sociability, fidelity and cooperation may have developed as a result of natural selection, and that social development accompanied intellectual development. There are also vivid discourses in evolutionary psychology and brain research pointing to distinct features in human cognition and behaviour compared with other animals in general and primates in particular (Bandura, 2006; Loredano-Narciandi & Castro-Tejerina, 2022; Silk & House, 2015; Tomasello, Carpenter, Call, Behne, & Moll, 2005; Zagaria, Ando', & Zennaro, 2020). "The social brain hypothesis" (Barrett et al., 2007; Dunbar, 2009) argues that large brains have evolved over time as a response to the social and ecological conflicts inherent in group living. In addition, a line of neurological research indicates that the mirror neuron systems play a role not only in the imitation of movements and motoric actions, but also in understanding other people's intentions and emotions (Fabbri-Destro & Rizzolatti, 2008). An integrated biopsychosocial model of human unsustainability has also been suggested (Pratarelli, 2014). The nuts and bolts in the relationship between brain development, social behaviour and human evolution are far from understood. The findings of our study, however, imply that a closer connection between the social sciences and studies into the biological and neurological base of behaviour would increase our understanding of sustainable development and sustainability.

#### 4.1 IMPLICATIONS FOR POLICIES ON SUSTAINABLE DEVELOPMENT

The above elaboration brings forward four politically oriented issues for further consideration. **First**, because individuals have social priorities, the present study suggests that it cannot be expected that the three dimensions - social, economic and environmental considerations - be balanced in actual behaviour. **Second**, the findings indicate that knowledge about nature and natural processes is not enough to change behaviour either at the individual or aggregated level. Global knowledge development ((IPBES, 2019; IPCC, 2021) is a notable example of such a shortcoming because knowledge building has been immense while our change in behaviour has been relatively minor (IPCC, 2021). Our findings suggest that this unsustainable development may be based on our inherent social priorities. **Third**, the behavioural sciences state that behaviour in general and environmental behaviour in particular are determined by a complex mix of opportunity, values, knowledge and habits (Brox, 1999; Paul C. Stern, 2000). Because our study indicates that socially deeply rooted values are working against balanced sustainable development and it seems that knowledge building is not enough, the findings imply that there is an urgent need to change the opportunity structure for unsustainable actions both in the social and economic fields. Because of the urgency of the matter, radical and comprehensive changes on a system level are needed. Making environmentally hostile actions unsocial (and uneconomic) is pivotal to making marked changes towards sustainability in the short and long term. **Finally**, it is necessary to keep in mind that it will be difficult to prioritise the necessary actions for sustainable development in the political sphere if they are against what is perceived as (short-term) social gains, because the latter will always be a priority for voters and citizens.

## 5. CONCLUSION

The present study has unearthed that the goal of sustainable development as a balance between economic, social and environmental factors is not supported by individuals' priorities regarding sustainable development. Rather, individual priorities are primarily social. Following from this, environmental concerns will be consequently down prioritised when choosing among options – unless these environmental issues provide social gain.

The mechanisms behind the social priorities presented here are far from understood, but based on the theoretical underpinnings and inferences from evolutionary theory, new findings in neuroscience and theories of human values we want to propose a new hypothesis to be further investigated:

*Natural selection, which led to the evolution of humans' social brains, is the root cause of unsustainable development.*

To further explore this hypothesis, further interdisciplinary research is needed and must involve diverse disciplines such as evolutionary science, gene technology and neuro- science, psychology and social sciences. Furthermore, there is a need for testing the choices and preferences in other contexts and real-life situations, especially those related to the connection between social, economic and environmental values.

No matter how the mechanisms of unsustainability work, to enhance sustainable development in real life we see it as pivotal to be aware of the self-riding social forces within individuals. The policies for sustainable development need to build on this fact, acknowledging that environmental considerations will not be prioritised among actors. Hence, the remaking of the opportunity structure for (unsustainable) behaviour is crucial, and we need more research on how to reframe the economy so that ecologically sound actions give social and economic value – and thus are prioritised.



## APPENDIX 1: INTERVIEW GUIDE

### 0. Background

- Name
- Date of interview
- Work / position
- Gender
- Age
- Interviewed before?

### 1. What are the 5 most important things, people, animals, nature or anything else in your life?

- Can you prioritise them?
- Why do you think these are the most important, and why do you prioritise as you do?

### 2. What are the 5 most important issues related to sustainable development in your local community?

- Can you prioritise them?
- Why do you think these are the most important, and why do you prioritise as you do?

### 3. What are the 5 most important issues related to sustainable development nationally?

- Can you prioritise them?
- Why do you think these are the most important, and why do you prioritise as you do?

### 4. What are the 5 most important issues related to sustainable development internationally?

- Can you prioritise them?
- Why do you think these are the most important, and why do you prioritise as you do?

### 5. How well do you know the concept of sustainable development would you say?

- On a scale of 1-10?
- Can you tell us a little bit about what the concept entails?

### 6. Can you think of anything you did to contribute to sustainable development - privately, in business, communities, nationally, internationally? Why did you end up doing just that?

### 7. In the future, if you were to do something to contribute to sustainable development privately, in business, local communities, nationally, internationally what would you choose to do? Why?

### 8. Can you prioritise these elements from 1-10 depending on how you perceive their value? (1 as the lowest, 10 as the highest) Why do you prioritise like this?

1. A bird
2. Socialising
3. A fish
4. An amoeba
5. A child
6. A tree
7. A lottery win of NOK 1 million
8. An elephant
9. Having a job
10. A dog

## APPENDIX 2: AN INTEGRATED FRAMEWORK OF SUSTAINABLE DEVELOPMENT

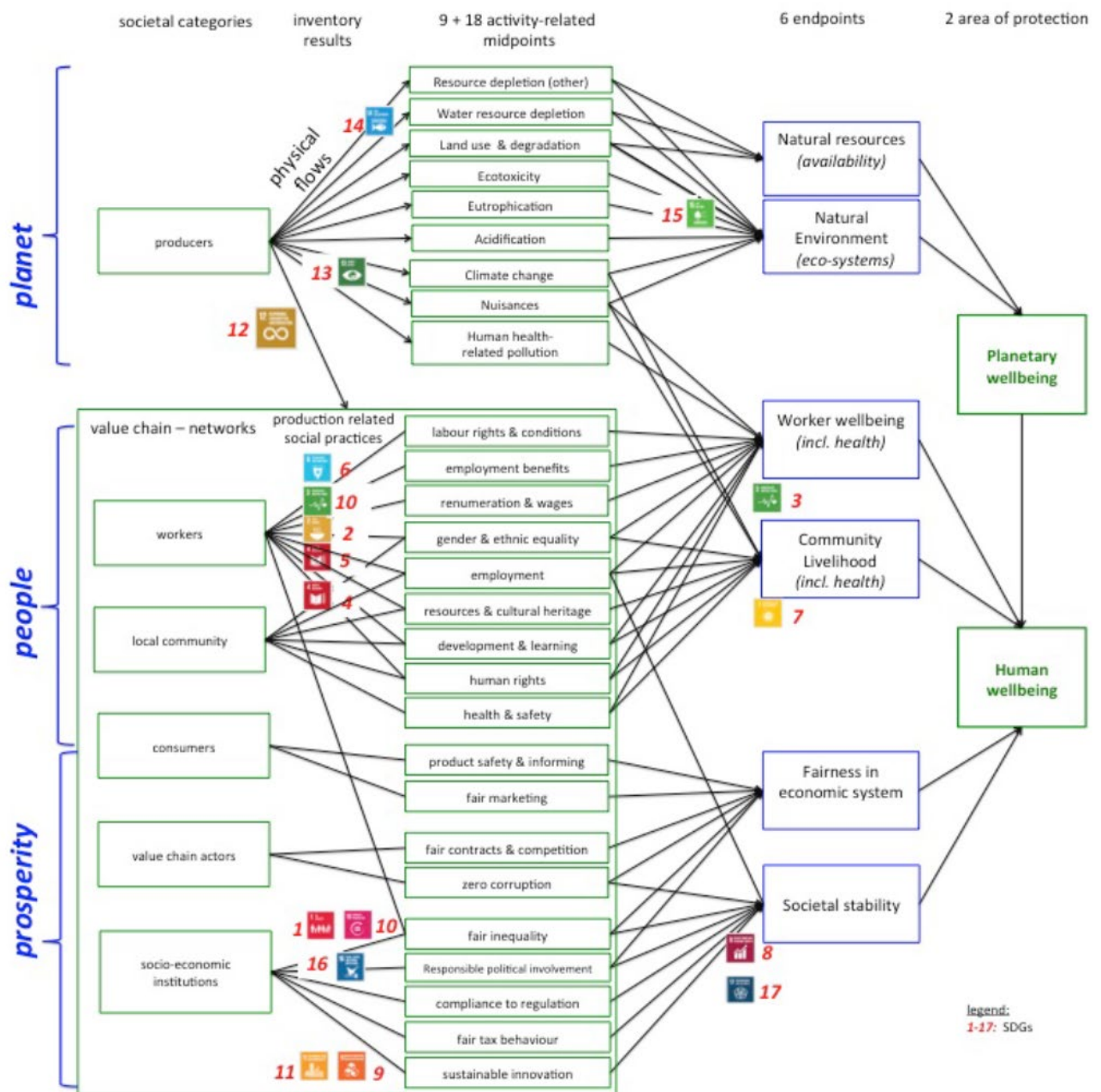


Figure 5: Copy of Vermeulen's (2018, p. 83) integrated framework based on a "rough consensus in global scholarly practices of sustainability assessment and the 17 United Nations Sustainable Development Goals in a logic model representing the dual SD agenda. Legend: 1-17 = SDGs."

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# ARTICLE 1: PERCEPTION OF SUSTAINABLE DEVELOPMENT IN A LOCAL WORLD HERITAGE PERSPECTIVE

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## AUTHOR CONTRIBUTIONS

Else Ragni Yttredal was the primary driver of concept and idea, study design and methods, data collection, data analysis and -interpretation and manuscript preparation but Nathalie Homlong was involved in all parts of the process.

## SUMMARY

Many frameworks, theories and tools exist to help operationalize and comprehend the concepts of sustainable development and sustainability. However, knowledge about how the concepts are perceived at a local level is scarce. The objective of article 2 “Perception of Sustainable Development in a Local World Heritage Perspective” is therefore to gain such insight. Among the results of the study at hand is that social dimensions of sustainability dominated the perceptions of stakeholders. The study also suggests that stakeholders’ perceptions of sustainable development form into a sustainability chain of logic. Stakeholder perceptions are furthermore context-dependent and formed by sustainability issues that are close to people’s lives.


The article is based on semi-structured interviews with 23 stakeholders related to the Geiranger area transport system during the period fall 2017 to spring 2018. Several methods of analysis were used in the paper, namely, theme analysis, emergent pattern analysis and group comparisons. Furthermore, an approach called “What Is Not There (WINT) analysis” was developed to identify themes that are part of the sustainability discourse, but that were not part of stakeholders’ perceptions.

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Article

# Perception of Sustainable Development in a Local World Heritage Perspective

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**Abstract:** Many frameworks, theories and tools exist to help operationalize and comprehend the concepts of sustainable development and sustainability. However, knowledge about how the concepts are perceived at a local level is scarce. The objective of this paper is therefore to gain such insight and, through this, to contribute to the understanding of local sustainability dynamics. A study of perceptions of sustainability was carried out in Geirangerfjord, a UNESCO (United Nations Educational, Scientific and Cultural Organization) Natural World Heritage Site in Western Norway. Using semi-structured interviews, stakeholders were asked about their perceptions of what sustainable development in Geirangerfjord entails. Several methods of analysis were used, namely, theme analysis, emergent pattern analysis and group comparisons. Furthermore, an approach we call the “What Is Not There (WINT) analysis” was developed to identify themes that are part of the sustainability discourse, but that were not mentioned by stakeholders. Among the results of the analysis are that social dimensions of sustainability dominated the perceptions of stakeholders. Stakeholder perceptions are furthermore context-dependent and are formed by sustainability issues that are close to people’s lives. The study also indicates that place of residence is a strong determinant of perceptions. In this way, the article adds to the existing literature on perceptions of sustainability.

**Keywords:** perception of sustainability; sustainable development; stakeholder groups; World Heritage Site (WHS); protected area tourism

## 1. Introduction

“A global agenda for change,” nothing less, was what the UN (United Nations) World Commission on Environment and Development was asked to formulate when they started their work in 1983 [1]. In what has later been called “Our Common Future” or the Brundtland report, the Commission defines and describes sustainable development, a concept that has since become a paradigm of change all over the globe. More than 30 years later, the world is still struggling to achieve sustainability. Following from the global interdependence of sustainable development is the fact that it can only be achieved through the change of perceptions, beliefs and actions of individuals, groups and communities all over the globe. Actions on a small scale add up to the global totality, and stakeholders in local communities are thus important actors [2,3].

It has been argued that there is an overarching agreement about the content of the term “sustainable development” [4]. A balance between the social, economic and natural domains, and intergenerational equity are generally perceived to constitute the main elements of such a development [5,6]. However, others point to the fact that the concept is socially and politically constructed, and that perceptions therefore logically will vary [7–9]. Human perception is about individuals and groups making sense of the world. The perception process includes a complex interplay between objects, human senses and the brain. The details of the process are yet to be understood [10–12]. What is known is that

perceptions are influenced by, for instance, physical conditions, cognitive capacities and context [10,13]. It is thus to be expected that perceptions differ. Empirical studies strengthen this argument, showing that the perceptions of sustainability among stakeholders differ between geographical levels, different segments of society and depending on personal situations [8,9,14–16]. Studies about perceptions of sustainability are, however, scarce. The same applies to studies of the relationship between perceptions of sustainability and sustainable behavior. There is, however, a broad line of literature looking into the relationship between attitudinal variables like values, beliefs and norms, and sustainable or environmental behavior [17]. Since these variables interplay with perceptions, we also draw on this line of literature to discuss how perceptions of sustainability may influence behavior.

We acknowledge that there is a complex interplay between diverse factors to explain sustainable behavior, and we are not aiming at investigating these to their full extent. The objective of this paper is to gain insight into perceptions among local stakeholders about the concept of sustainability. Such insights form a basis for the understanding of sustainable and unsustainable actions on the local level. Geirangerfjord, a UNESCO (United Nations Educational, Scientific and Cultural Organization) Natural World Heritage Site (NWHS) in Western Norway, serves as a case study. Given the so far scarce literature on perceptions of sustainability, we have used an inductive approach to data collection and analysis.

As one of Norway's most visited destinations, especially within the segment of nature-based tourism, Geirangerfjord is an icon of Norwegian tourism. Pre-COVID (coronavirus disease)-19 numbers show that 235 inhabitants were hosting just below one million visitors a year (2018) [18]. Sustainable development has thus been high on the agenda. A NWHS represents the globe's most valuable natural areas. Especially in these places, knowledge about inhabitants' and other stakeholders' perceptions of a sustainable community development is important if sustainable policies are to succeed.

This article will first give a general introduction to the concept of sustainability and research on perceptions, perceptions of sustainable development, and research on sustainable behavior. We then continue to present the study area, methods of data collection and analysis, followed by the results. We discuss the findings in the light of the literature. Conclusions and implications of the findings are presented at the end.

## 2. Literature Review

The concept of sustainability did not emerge in a vacuum in 1987. As a way of thinking, it has been part of religious teachings, medieval philosophies and traditional beliefs for centuries [19–21]. The UN report "Our common future," however, gave "sustainable development" and "sustainability" content and political credibility, defined as:

*"1. Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains two key concepts:*

- *the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and*
- *the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs."* (Section 2.1)

Ever since, the concept of sustainable development has been central in the discourse of future developments and has received varied contents and definitions, both in academia and in politics [4,19,22–26]. By 2015, the UN General Assembly adopted the Sustainable Development Goals (SDGs) aimed at serving as guiding principles for future global developments. With 17 goals and more than 100 sub-goals, the SDGs cover almost all aspects of human life [6].

Various concerns have been raised about the concept—that it is vague, that it attracts hypocrites, that it is in danger of fostering delusions, and that there is a potential for emphasizing individual aspects rather than the whole [7,19,27]. Despite these concerns, there seems to be a general agreement

on many aspects of the content, including inter- and intra-generational equity, the protection of natural resources, and balancing development economically, socially and ecologically. It is also argued that the consensus on goals and process goes way beyond these more general terms [4].

### 2.1. Perceptions

To serve as global goals and to guide future development, sustainable development needs to be perceived, interpreted and acted upon in a consistent and coherent way in different geographical settings and contexts. Given the complexity of the concept, this is not a straightforward precondition. Defined as “the process or result of becoming aware of objects, relationships, and events by means of the senses” [28], human perceptions are highly complex.

The process of perception has been subject to scrutiny from Plato onwards within as diverse fields as philosophy, neuroscience, psychology and communication [29]. Physiologically, perception is about the interplay between sensory information like vision, hearing and touch and the brain [13]. The perception process, however, is to a large extent unconscious and involves cognitive processes [11,29,30] in selecting, organizing and interpreting stimuli. Such a perception process involves several parts of the brain and complex neurology. Even with steadily more sophisticated methodology, the exact physiology of perception is still an enigma [12,13].

Perceptions are influenced by a number of factors [31]. Physical location and orientation of the body is one such factor [10], context and information environment are others [29]. Tversky and Kahneman [32] also showed that choices between alternatives are highly influenced by the framing of the problem. It is widely recognized that perceptions are also influenced by characteristics of the individual [33]. Factors individuals bring into the situation, such as experience, background, knowledge level, beliefs, attitudes, values and personal preferences influence the process of perception [10,13,29]. For instance, Dunham and Banaji [29] claim that objects are not perceived as they are, but are partially constructed and interpreted out of what is already inside our minds.

Attention is another factor widely presumed to influence the perception process [34,35]. Humans tend to miss information that they do not expect. They also fail to see what they are looking at, unless attention is directed at it [35]. Lueg [10] argued that “failing to notice information that could be relevant to a task at hand is not an exception but rather to be expected.” The reasons for this are cognitive and perceptual systems that have evolved to perceive only a fraction of the information available.

### 2.2. Perceptions of Sustainable Development

Literature on perceptions of sustainable development is scarce. Robinson [7] found that “one of the most striking characteristics of the term sustainable development is that it means so many different things to so many different people and organizations.” Macnaghten et al. [8,9] had several interesting observations in this regard. They found in a study of perceptions of sustainability in Lancashire, England, that environmental concerns are largely expressed in local terms like beach pollution, litter and dog mess. They also found that day-to-day concerns are important, most prevalent in the form of job insecurity or unemployment. They explained this phenomenon not with ignorance about the global issues of climate change or by a lack of concern, but rather by the perceived intractability of the global problems for local residents, and lack of trust in information providers. With this comes a lack of sense of agency, a felt inability to influence the situation. In their discussions, Macnaghten et al. [9] also found that people in most population groups express a strong identification with local place, especially related to their immediate communities. Pearson [36] pointed to the fact that the perceptions of the problems related to sustainability are an issue of scale and agency. In the example of land management, perceptions differ greatly from farmers to global actors. Principal agents also change depending on administrative and geographical levels. Pearson argued that approaching sustainability thus should be done from the bottom up in participatory processes: defining the problem and then finding ways to solve the particular problem. He also argued that the perceptions of sustainability are fluent in time and influenced by risk.

Related to the themes of locality and attachment, O'Toole et al. [15] pointed out that perceptions of sustainability are dependent on geography and scale. In their study, they found that perceptions of sustainable development differ depending on the experience of local residents. For instance, in communities where populations are in decline, population growth is an important issue related to perceptions of social sustainable development. Where there are concerns about employment, employment is an important ingredient in a sustainable future. These findings are supported by Jones et al. [37], who found that local residents rated employment as the most important factor for sustainable development in their community. Tiani and Charnacle [38] underlined that there is a certain agreement across different stakeholder groups about the criteria of sustainability, but that there are differences in the weighting of issues. These studies thus show that sustainability issues need to be contextualized.

Literature touching on perception of sustainability more indirectly shows that lack of involvement and perceived benefits of the local stakeholders is perceived to negatively influence attitudes toward nature conservation and protected areas [14,39]. Research suggests that economic incentives motivate people to become committed to the environment and conservation, particularly in remote protected areas [14,40,41]. In a study in a tiger reserve in India, Sekhar [42] found that a majority of the residents who experienced economic benefits from tourism also had positive attitudes towards tourism and nature conservation. Sekhar also emphasized the importance of including the local population in management planning, and of ensuring that residents get a fair share of tourism income. Also, Sirivongs and Tsuchiya [43], in a survey conducted among residents of a Natural Protected Area in Lao, showed that residents' willingness to participate in protection of a natural forest area was closely tied to local participation and economic benefits from tourism.

### *2.3. Environmental Beliefs, Attitudes and Values—And Sustainable Behavior*

While research into the effect of perceptions on sustainable behavior is scarce, there is a wide range of research aimed at comprehending the relationship between attitudinal factors like beliefs, values and norms and environmental behavior. As perceptions are influenced by and influence these factors in a complex interplay, this line of literature is also relevant for the understanding of the relationship between perceptions and behavior.

Environmental beliefs may be divided into three groups: an anthropocentric approach based on the instrumental value of the environment for human beings (humans above nature), a biospheric approach that values the environment for its own sake (natural balance), and an ego-bio-centric approach that values human beings within nature as a whole [44–46]. Imran et al. [14] investigated these beliefs, comparing different stakeholder groups, namely, protected area authorities, local communities, tourists and tourism enterprises. They found that the first two groups have a significantly higher eco-centric interest in the environment, but that there is a complex mix of ecological orientations among the stakeholders, depending again on a complex mix of contextual factors. Their results support Macnaghten et al. [9] and O'Toole's [15] findings that context is important in understanding perceptions of sustainability. Furthermore, they found a tendency among all stakeholder groups to endorse pro-ecological values, but that these values were not of top priority.

There are also numerous studies assessing how environmental attitudinal factors influence behavior [14,44,45,47]. This relationship is not straightforward. In environmental psychology, Stern et al. [44] have developed the value-belief-norm (VBN) theory to explain environmental behavior. They point to the fact that environmentally significant behavior can be divided into different groups: activism, private-sphere environmentalism, and non-activist public-sphere behavior. They show that these different types of behavior depend on different mixes of values and beliefs. Another example of this complex relationship between attitudes and behavior stems from business and marketing literature on sustainability. In this line of literature, the "attitude-behavior gap" is widely known. Consumers in general, and tourists in particular, are concerned with environmental issues and have intentions of environmentally friendly behavior. There are, however, huge gaps between intentions and what people actually do when in a situation of choice. In a bibliographical study on environmentally friendly

tourism behavior conducted by Juvan and Dolnicar [48,49], a large proportion of tourists expressed a pro-environmental attitude, but they found that the category of tourists both intending to and actually performing environmentally friendly behavior varied between 2% and 20%, much depending on the methodology of the research.

A line of research studied the relationships between environmental connectedness and environmental behavior. Arnberger et al. [50] looked into the relationship between the affinity for an Austrian national park by visitors and their attitude towards nature conservation and visitor management measures. Greater affinity went hand in hand with more positive attitudes. Also, two studies conducted among residents in or near protected areas in Italy showed that positive regional identity of the respondents was linked to higher support for protection [51]. In line with this, Davis et al. [52] conducted two studies about environmental connectedness and commitment to the natural environment among students at a university in the United States. The studies showed that higher commitment predicted higher levels of pro-environmental behavior.

Studies trying to explain pro-environmental behavior have diverse starting points, diverse dependent variables and they also use concepts in different ways. Through a thorough literature review, McDonald [17] constructed an integrated framework aimed at understanding the complex relationship among different factors leading to pro-environmental employee behavior in the work place. She found that influencing variables may be divided into four categories: 1. Intrapersonal factors like demographics, attitudes, habit and values; 2. Motivational factors like work satisfaction, intrinsic and extrinsic motivation; 3. Interpersonal or social factors like social norms and self-identity; and 4. External factors like facilitating conditions and organizational factors. The factors do not necessarily have a direct effect on environmental employee behavior, but are to a large extent mediated by other factors.

### 3. Materials and Methods

#### 3.1. Study Area

As can be seen in Figure 1, Geirangerfjord is located in Western Norway. In 2005, the area was inscribed on the UNESCO World Heritage List together with Nærøyfjord as the “West Norwegian Fjord Landscape.” Pre-COVID-19 figures show that just below 1 million tourists visited the narrow valley each year mainly during the summer months of June, July and August. Cruise tourism contributes roughly to one third of these visitors [18]. Only 235 people live year-round in the village of Geiranger [53]. Agriculture has traditionally been the livelihood of people living there. However, having a more than 100 years long history of tourism, the sector now provides employment to most people in the village, either directly or indirectly. Year-round settlement in Geiranger is totally dependent on tourism.



**Figure 1.** The Geiranger area on the west coast of Norway. (Map: Imagery © 2020 TerraMetrics, Map data ©2020 Google, GeoBasis-DE/BKG (©2009)) (Photo: Nathalie Homlong).

As an icon of tourism, there have been ongoing debates in, around and about the Geiranger World Heritage Area. Crowding and congestion have, during the study period and prior to COVID-19, been issues of complaint and debate. Smog in the air over the Geirangerfjord, witnessing poor air quality, has been another. Both issues have contributed to research and debates on sustainable development and solutions [54–60]. The local World Heritage administration has been an important actor, pushing the process forward. The discourse has reached regional and national decision makers and has been a matter of national concern [58]. In 2018, the national assembly adopted a law allowing only tourist ships and ferries with zero emissions to enter the fjord from 2026 [61].

### 3.2. Data Collection

The main set of data for this study was collected through 23 semi-structured stakeholder interviews and 8 responses from a questionnaire with the same open-ended questions. The period of data collection was fall 2017 to spring 2018. The information from the data collection was supplemented by document studies and participation in meetings related to ongoing discussions on environmental, social and economic issues in the area. Discussions about these issues, relevant studies carried out in the region, as well as international literature on sustainability formed the basis for the creation of the interview guide and the questionnaire. Stakeholders for the interviews were identified based on Freeman's [62] broad definition of stakeholders as all who are affected or are affecting an organization. Our definition was thus formulated as "any group or individual who can affect or is affected by the transport system in the Geiranger area as it is today, or changes to it." The reason for the wording of the definition was that the entire project this study is connected to was about the sustainability of the tourist transportation system in the area. Knowledge about stakeholders' perceptions of sustainability was thus essential.

An initial list of more than 200 stakeholders was made and grouped before picking informants for a first round of 9 interviews. The aim of this preliminary phase was to identify major stakeholders, to add missing stakeholders, and to understand how various stakeholders affect or were affected by the transport system. Following from this, a short-list of 40 main stakeholders along three dimensions was developed: 1. Place of residence—local versus non-local; 2. Whether they were mainly affected by or rather affected the transport system; and 3. Whether they represented the categories of inhabitants without direct economic interest in tourism, public authorities, nature conservation, tourism businesses, or other. The main bulk of interviewees were inhabitants of, or closely connected to, the area. The interviews were conducted face to face or by telephone. Transcripts and/or recordings were made. The interview guide raised different themes, with perceptions of the transport system and sustainability being the main issues. In addition to the main themes, information on the interviewee's personal and organizational background and interests in the matter was recorded and used in the analysis. Several questions regarding sustainability were used in the interviews. The main question for this analysis was an open question about what sustainable development of Geirangerfjord and surrounding areas entailed for the interviewees. This open question was followed up by an encouragement to address economic, social and environmental factors. Furthermore, the interviewees were asked what they perceived to be main challenges to sustainable development for the area. Interviews were halted at 23, when it seemed that little new information was gained from additional interviews. Themes from the 8 questionnaires with open-ended questions overlapped with the themes from the interviews and helped to confirm that data saturation had been reached.

### 3.3. Data Analysis

NVIVO software (QSR: Burlington, MA, USA) was used to store and analyze the data. Several approaches were used in the analysis. Firstly, an inductive approach was used for coding of themes. After several rounds of coding and grouping of different themes, main themes were identified. Secondly, we looked for emergent patterns across themes [63]. Memos, including notes on specific findings were created as a starting point. Findings in the memos were then further elaborated through a second round of coding of the data. Thirdly, we used stakeholder attributes to compare perceptions between

stakeholder groups by importing an Excel sheet with background variables to NVIVO. The data were then again analyzed with the aim of looking for differences and similarities across, for instance, geographical boundaries, roles and sectors. Themes in the text were also counted.

The fourth and last approach used was developed during the process and called the “What Is Not There (WINT) analysis.” The approach needs further elaboration. Discourse analysis in the linguistic tradition reveals that not only what is explicitly communicated is significant, so are also, for instance pauses, vocalization or issues that are not there [64]. Critical discourse analysis, in addition, points to the fact that themes left out of a discourse highlight power relations [65]—referring to writers like Foucault [66] and Lukes [67]. We are following a discourse analysis tradition, using what is present in the interviews also to identify what is not there. We do this by contrasting the data to what is known to be part of sustainability discourses locally and globally. Are the official definitions of the concept, including intergenerational equity and the balance of social, economic and ecological systems represented? Are global concerns, like climate change and discourses on waste, prominent in the interviews? Is the local and national discourse on air quality present? Contrasting the data in this way brings up interesting new perspectives on perceptions. However, in the WINT analysis, we do not go all the way to analyzing the interviews in a power perspective or in a linguistic sense.

The different approaches to data analysis are presented in Table 1.

**Table 1.** Approaches to data analysis in the study schematically presented. Source: own table.

Method of Analysis	Unit of Analysis	Main Question Raised in Analysis
Theme analysis	All stakeholders	What are the stakeholders’ main perceptions and concerns?
Emergent pattern analysis	All stakeholders	Do the stakeholders’ perceptions form into patterns or relations of themes, or even into a specific logic?
WINT (What Is Not There) analysis	All stakeholders	Which themes emerge when comparing what is in the data to what is expected to be there? (In this case, contrasting the findings to knowledge about local and global sustainability discourses)
Stakeholder group comparison	Stakeholder groups	Are there similarities and differences of themes and patterns across groups?

## 4. Results

The presentation of results, related to perception of sustainable development, are structured by the methods of analysis presented in the preceding section. Firstly, the main themes are introduced. Secondly, emergent patterns found during the analysis are presented [63]. Thirdly, looking for missing themes and patterns, in the perspective of prevailing perceptions of sustainability are introduced (WINT analysis). Finally, similarities and differences related to these themes, patterns and missing themes are compared across stakeholder groups using place of residence and professional roles as dividing lines.

### 4.1. Main Themes

There are two main themes presented by the stakeholders when asked about what they perceive sustainable development in the area entails. The first theme, about settlement, addresses the social aspect of sustainability. The second theme, traffic, can also be described as mainly social, but touches upon environmental aspects.

#### 4.1.1. Increase in the Number of Inhabitants in the Community

There is a strong trend of urbanization in Norway, a fact that is widely documented in statistics and publications [68]. This development leaves rural areas and villages with steadily shrinking populations. This is also the case for the Geiranger area. The most prominent and recurring theme in the interviews is thus increasing settlement. Sub-themes related to this main theme differ. One of the issues is the maintenance of basic public services like school and kindergarten, but also social activities like choirs and sports. A local businessperson living in the Geiranger area expresses it like this:

*“We want people to live here, have children in school and kindergarten. This is important for the future. We are almost down to 20 kids from 1st to 10th grade here (in school). (The problem is) . . . the municipality, finances, no residential plots... When people are not able to build houses, they move, there are no houses for sale, they are inherited by (outside) relatives.” (Interview with local businessperson, own addition in brackets)*

Another sub-theme concerning local settlement is outside businesses coming to the village for a few months each year, making profits in peak season at the expense of local businesses. They are then perceived to be leaving the village without contributing to the community:

*“I am not happy about those who are here three to four months, and do not have residential addresses in Geiranger or Stranda municipality . . . So be it, but the social part is absent. We just see them passing by, none of them contribute to (social activities like) skiing, bazaars or choirs. The biggest challenge (related to sustainability) is people. There is nothing wrong with those “surfing” and making money only in summer, but maybe they should stay half of the year . . . How can we develop an area or village when we’re only 200 inhabitants?” (Local resident and businessperson, own addition in brackets)*

Other informants point at what needs to be done to increase the local population. Plots for housing are mentioned above. Extending the tourist season and creating local jobs are closely related to the main theme of attracting new inhabitants. Several of the stakeholders point to the need to extend the season. The two months from mid-June to mid-August have traditionally been the peak season. In the last years, prior to the COVID-19 situation, the season has been extended to last from May to the end of September in the village of Geiranger. The main reason for this is the global trend of increasing tourism, in combination with the fact that Norway is perceived as a safe and attractive tourism destination. A goal for single enterprises and for the area as a whole has thus been to further extend the season to build a basis for all-year-round businesses. This is also reflected in the local masterplan for tourism, which was developed in a participatory process:

*“Geiranger 2030*

*The overriding goal is to create a vibrant local community through sustainable year-round tourism.” [69]*

The aim of local all-year-round jobs is another version of the same sub-theme. Year-round jobs are seen as an important stepping-stone on the way to sustainability for the community, and is formulated like this by one of the local businesspersons:

*“There may be too much traffic in July. There is an incredible interest during the Norwegian holiday weeks. There are huge contrasts between 20 July and 1 October. Everyone wants to spread the traffic, but people have holidays in summer . . . . The whole village loses money from 1 October to 1 May. If we fail to make money during summer so that we can keep the businesses open in winter, the snowball will roll the wrong way. Now we earn reasonably well in summer, because of this we can keep open in winter. Accountants ask why we do not just close in winter, but we want the village to be alive all year round. We will continue to try, it is a goal for us living here.” (Interview with a local resident and businessperson.)*



#### 4.1.2. Traffic

Issues related to traffic are the second most important theme related to sustainability in the interviews. Also, in this case, the approach of the stakeholders differs. There is considerable focus on capacity expansion to solve the congestion issues—for instance, through better roads and more parking spaces. Several different interconnected measures are mentioned. One interviewee seemed to debate with himself about different measures raised in the local sustainability and traffic debate:

*“I would think that, for example, for cruise lines to survive in the future they must change to more environmentally friendly ways. They (Geiranger) may have to get a new cruise quay in the long run. Remote parking (one of the solutions discussed) is not possible, I do not believe in it, the cars must be able to drive through here. If there was a tunnel ( . . . ), we could then have electric buses so that people could drive down here. I do not envision now that we can start with remote parking. If you are going to (drive) through and you cannot park in the valley... (It is) not a simple question. There will probably be more electric cars eventually . . . we do not have a charging station in the center, (then the visitor) must drive to the Fjord Center to charge a car. I am thinking that Geiranger cannot pioneer everything, we are so few inhabitants here, all inhabitants here are needed.” (Local resident and businessperson, own addition in brackets.)*

A recurring theme is the redistribution of tourists in time and space. One of the stakeholders expresses that sustainable development is to:

*“.. reduce the number of tourists during the peak summer months and spread tourism throughout the year—at least spring and autumn season.” (Interview with local inhabitant and businessperson.)*

Others claim that a shift from mass tourism to more focus on individual travelers with a higher willingness to pay would be a solution to the traffic problem.

*“I am thinking that if we had been clever enough to get tourists all year, especially during the shoulder season... that focus on mass tourism was not so strong, that we had a better product for the individual travelers . . . .” (Interview with local inhabitant and businessperson.)*

There are also other sub-themes related to traffic. New technologies as a solution to the emission problem is one example, restrictions on number of visitors both on sea and land is another.

#### 4.2. Emergent Patterns

Emergent patterns are about the patterns that seem to come up from the comparison of interviews along themes, viewpoints and emphasis [63]. Two marked patterns emerging from the data are presented below.

##### 4.2.1. An Anthropocentric Worldview

An anthropocentric worldview is vividly present in the interviews. The natural environment is frequently turned into a means to human benefit in the interviews:

*“Interviewer: Would you say that you and/or your organization have interests related to how the natural environment develops in the Geirangerfjord and surrounding areas?”*

*Interviewee: I’d say that’s what they (tourism enterprises) live from.*

*Interviewer: In what way?*

*Interviewee: . . . . people come here to experience the area, silence, tranquility, the same as in 1886, it is the main reason why people travel from home and spend a lot of money . . . .” (Interview with public official related to Geiranger. Own addition in brackets)*

The focus is straight away shifted from nature itself to nature as a basis for tourism and business. In this case, the wording of the question might have led the informant in such a direction, but the anthropocentric viewpoint is a pervasive theme present all through the interviews. For instance, asked openly about what the challenges to sustainability are, there is a similar turn from another informant:

*“ I think I would rank environmental challenges as number one, and by this I mean both on land and in the fjord, because it creates these images of Geiranger, this with the blue smog—that we are approaching a level of pollution that is harmful to health. Then preserving the cultural landscape as number two, it is dependent on farmers who cultivate the land. ... So, one, the environment, two, the cultural landscape.” (Interview with public official related to Geiranger area.)*

Or this passage, when a local stakeholder is asked about what sustainability entails:

*“When tourists write letters on their own ... (about crowding/air pollution) ... we live after all off the market, (then we) must do something. We have received NOK 2 million to develop a master plan for Geiranger to preserve world heritage, nature and cultural qualities.” (Interview with public official related to the Geiranger area. Own addition in brackets)*

The quotes from the interviews illustrate informants stating that the natural environment is important to them, because it is important to tourists, which again is important to businesses. The anthropocentric viewpoint is also present in various documents. One example is the letter of assignment from the Norwegian Maritime Authority to the Norwegian Environment Agency to reduce emissions from cruise ships in the world heritage fjords because of “the environment and health” and because, among other considerations:

*“The ship calls also periodically cause aesthetic pollution consisting of visible clouds consisting of particles, NOx, sulfur oxides (SOx) and water vapor.” [70]*

The anthropocentric world view is also clearly present in the Outstanding Universal Value of the world heritage site. Already in the opening sentence of the brief synthesis it is stated:

*“The starkly dramatic landscapes of Geirangerfjord and Nærøysfjord are exceptional in scale and grandeur in a country of spectacular fjords ... .» [71]*

The focus is on how the landscape appears—for humans. It is also worth to bear in mind that even the concept “environment” refers to the environment of humans and is basically a human-centered concept.

#### 4.2.2. The Interconnectedness of Issues—With Settlement as the Endpoint

The stakeholders appear to have a general knowledge about the term sustainability and of what it implies. Some also mention this directly when presenting their perception of sustainability:

*“Hm, I do not know ... . where you can leave as few traces as possible, but at the same time have a basis for thriving and living” (Interview with public official and regional resident.)*

A more conspicuous discovery is, however, how few of the informants point to this balance in their perceptions of sustainability. Rather, the balance appears to be replaced by causal links. For instance, one stakeholder sums up sustainability in his own written words like this:

*“Tourism = business = making a living and developing the community. 600—1000 inhabitants (as a goal).” (Questionnaire answer in writing from local resident and businessperson. Own addition in brackets.)*

In addition, and as can be seen from the statement above, settlement seems to be the end point of a sustainability chain of logic. These two statements illustrate this point:

*“(Sustainability is . . . ) 1. Year-round tourism, year-round workplaces. 2. Opportunity to find a place to live—to have access to labor, to be able to run the business all year. Then the rest will go by itself.” (Interview with regional official. Own addition in brackets.)*

*“... Want it to be financially sustainable for businesses, while still taking care of natural qualities. That Geiranger as a community still has a social life. All year round jobs.” (Interview with regional resident and official.)*

Such a chain of perceived sustainable development seems also to be the logic underlying the importance of an extension of the tourist season. The aim of such an extension is to attract new citizens to the local community:

*“To reduce the number of tourists in the peak of summer, spread visitation throughout the year, at least spring and autumn season... Creating the basis for a larger proportion of year-round residence that can provide a “caretaker company”—locals who can take care of what is necessary to take care of in the area. “ (Interview with local resident and businessperson.)*

#### 4.3. WINT Analysis—What Is Not There

So far, we have been looking into themes and patterns that are present in the interviews. To give additional depth to the analysis, we are in the following presenting issues that are not explicitly present in the data. Potentially such a WINT analysis may include many issues. To pick topics, we therefore concentrated on what we found to be the most conspicuous findings based on our knowledge about the discourse on sustainability globally and locally. What is strikingly missing?

A prominent theme in the local sustainability discourse is air pollution, or rather the visible condensation clouds above the fjord landscape. Tourist and tour operator complaints have been important in raising the issue. The search for solutions has been fronted by the local World Heritage administration, but has also been taken up by regional and national authorities [58]. Knowledge about the problem has been built through research and development projects, courses and seminars. Subsequently, measurements have shown that the concentration of small particles in the air ( $PM < 2.5 \mu\text{g}/\text{m}^3$ ) can be dangerous to health [54–57,72]. Seen in this perspective, it is surprising that this discourse is not prevalent in the interviews about sustainability.

Furthermore, local challenges that are not visible seem to fall out of mind and are not mentioned in the interviews. Pollution of the sea is one such example. While receiving some attention in the local sustainability discourse, nothing is mentioned about this in the interviews. Having in mind that the fjord is the main attraction for the visitors, and that the fjord landscape is the basis of the World Heritage status, this is surprising. Using a wider geographical approach, it seems that issues that are out of reach to the stakeholders also fall out of their perceptions of sustainability. Issues that come to mind are, for instance, climate change and plastic waste. Both are huge issues in national and international sustainability discourse, but barely mentioned in the interviews.

Seen in the perspective of sustainability as a balance between economic, social and environmental values, surprisingly little attention is given to this balance as such, and to economic and environmental issues. Only one person involved in tourism, but not living in the village, addressed economic issues directly when encouraged:

*“The financial results have to be positive. Most preferably positive enough to expand (business). If we are unable to have positive financial results, most things will stop by themselves.” (Interview with business representative. Own addition in brackets.)*

There are very few quotes with such a clear economic reference. Most interviewees talk about business as a means to an end, about businesses to create jobs and subsequently local year-round settlement.

When scrutinizing the role of the natural environment in the stakeholders' perception of sustainability, there is strong agreement among them that they have a strong interest to preserve it.

The issue of nature preservation is, however, not a prominent theme and usually only arises when the interviewer encourages the informant to bring up environmental issues. Then again, if raised, nature is perceived as a means to serve human needs. The latter is further elaborated in the previous section about the anthropocentric worldview. Interestingly enough, the issue of world heritage status is also almost absent in the interviews and is only brought up by stakeholders working directly with world heritage on a daily basis.

#### 4.4. Comparison across Groups

Stakeholders have diverse and multiple roles as citizens, neighbors, employees, shop owners, parents, children, etc. This is not new [73,74]. This overlap of roles seems particularly prevalent in the Geiranger case, where many of the main stakeholders and interviewees are both inhabitants of a small community, and at the same time have an official role, and a business interest. It is also a fact that which role is played out is influenced by context. A couple of stakeholders reflected on this mix of roles and how it influences answers in the interview:

*“(Sustainability entails . . . ) the solutions that first and foremost take care of the natural environment, that must be my role, I am less concerned if (the solutions are) financially sustainable. This might have been different if I was answering as a private person . . . .” (Interview with public representative. Own addition in brackets.)*

The overlap of roles thus makes it difficult to know which role is actually playing out in the interview situation. To divide stakeholders into groups is therefore demanding, and we have chosen to make several types of distinctions in the analysis. To make the presentation of the main findings in the following easier, we are only using two of them: the first divide is based on place of residence, namely local, regional or national/international. The second divide is based on a common division in different types of stakeholder analysis, the divide between tourism business, public administration and inhabitants. Based on the abovementioned role mix of the stakeholder group, the last divide is not straightforward, since the interviewees were not asked to answer on behalf of a particular role in the interview.

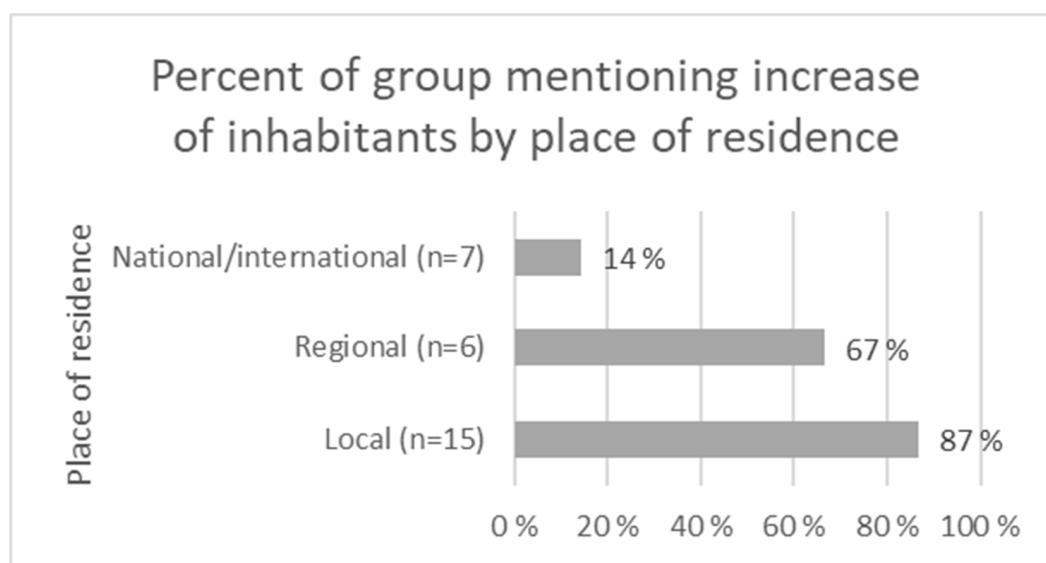
The following figures are meant to illustrate main similarities and differences between groups. The findings are supported in other ways in the main body of the text from the data collection. It is important to have this in mind, as using percentages for such a low number of respondents can be misleading.

The comparative analysis highlights three important findings. Firstly, there are major differences of perceptions of sustainability across the divide of place of residence. This is particularly visible analyzing stakeholders' views on increasing the number of inhabitants. The closer to the village of Geiranger the stakeholder live, the more focus is on this theme as the main ingredient of sustainable development. While 13 out of 15 (87%) of local residents mention this as an important ingredient of sustainable development, 4 out of 6 (67%) stakeholders regionally and only 1 out of 7 (14%) of the stakeholders residing outside the region or internationally mention this. The point is illustrated in Figure 2.

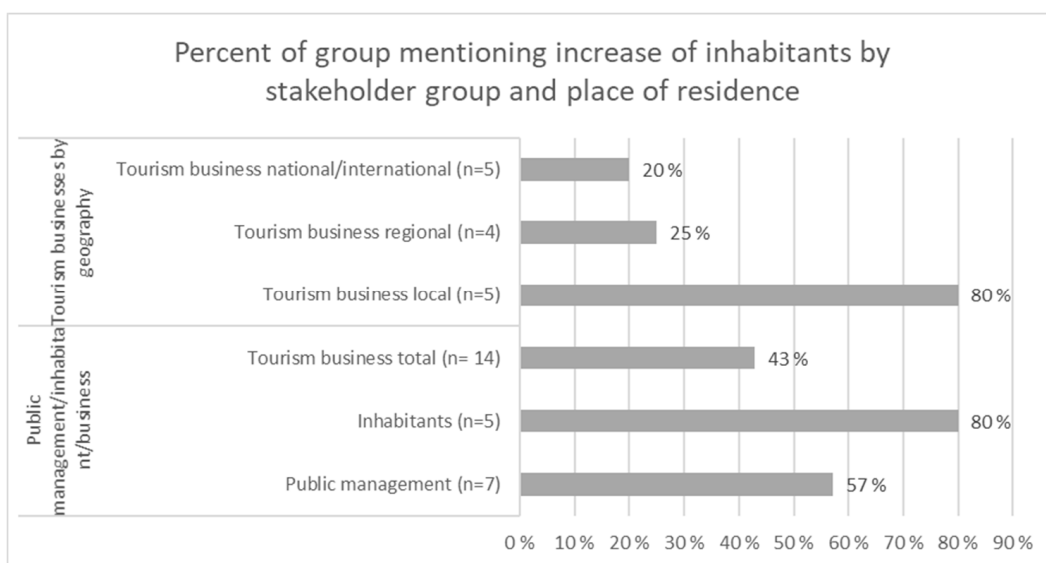
Secondly, place of residence seems to be a stronger background factor influencing stakeholder perceptions than other divides. This is illustrated in Figure 3. At first glance, there appears to be a difference of focus on number of inhabitants between tourism businesses, inhabitants and public management (lower part of the figure). Among tourism businesses, 6 out of 14 (43%) mention this aspect, while 4 out of 5 (80%) of the local inhabitants mention the same.

This divide however disappears when looking more thoroughly at the tourism business group (upper part of the figure). Informants residing locally and representing tourism businesses have just as much focus on increasing number of inhabitants as the group of local inhabitants without such business interest; 80% (4 out of 5) mention this theme. By comparison, of national and international

tourism businesses, only one out of five mention the theme (20%). Of the regional businesspersons, one out of four mention the same (25%).

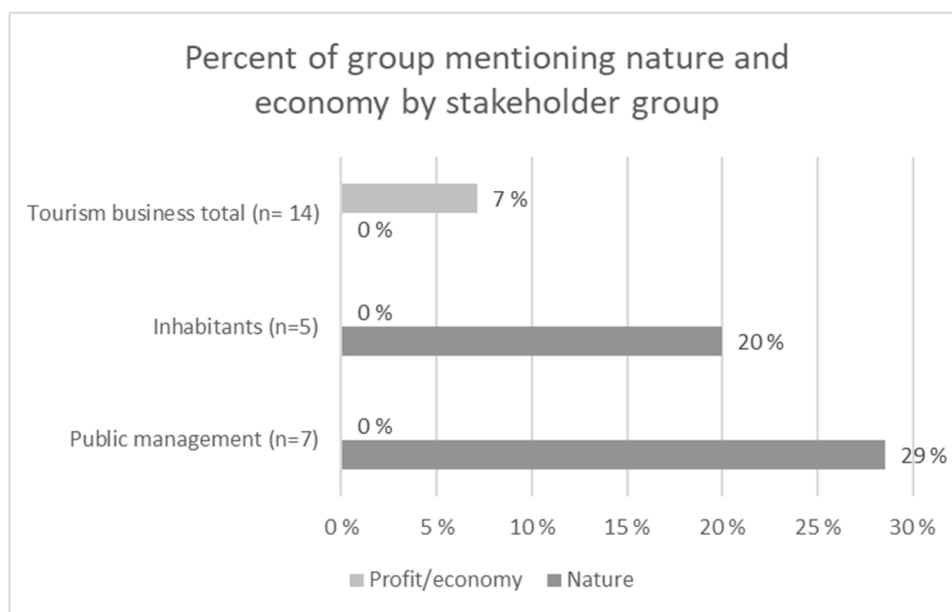


**Figure 2.** Percentage of each group of stakeholders mentioning increase of inhabitants as an ingredient of sustainable development for the area—depending on place of residence (Total N = 28).



**Figure 3.** Percentage of each group of stakeholders mentioning increase of inhabitants (lower part). Percent of tourism businesses divided by place of residence (upper part) mentioning the same (N total = 26, N total business group = 14).

Thirdly, scrutinizing the data material in search for the natural or economic dimensions of sustainability, the main impression is that no group of stakeholders is particularly focused on any of them (illustrated in Figure 4). The public managers group seems to have more focus on nature aspects than other groups (2 out of 7, 29% mention this). The group of public managers includes protected area managers and people representing the world heritage and environmental organizations. The stakeholders seem to have even less focus on economy and profit. Only one stakeholder representing the tourism businesses is directly mentioning economy and profit at all in any of the interviews (1 out of 14, 7%).



**Figure 4.** Percentage of each group of stakeholders mentioning nature and economy as an ingredient of sustainable development for the area ( $N$  total = 26).

## 5. Discussion

As shown above, the main themes of the stakeholders' perceptions of sustainable development in the Geiranger World Heritage area are to increase the number of inhabitants in the community and issues related to traffic. The latter includes subthemes like crowding and congestion, air pollution and transport accessibility. Furthermore, there are two conspicuous patterns of stakeholder views: firstly, an anthropocentric worldview; and secondly, perceptions seem to be put together in a coherent line of reasoning. WINT analysis further reveals that issues out of sight and reach disappear in interviewees' perceptions of sustainability. These issues are, for instance, air pollution, climate change and sea pollution. The value of the economy and nature by and for itself are not included in their immediate perception of sustainability, either. Analyses across groups further show that while place of residence influences perceptions of sustainable development in the area, other group memberships do not seem to have a substantial effect.

More broadly speaking, we have three main findings. Firstly, the interviewed stakeholders seem to be aware of the official definition of sustainability. When encouraged, stakeholders mention both social, environmental and economic aspects related to sustainability, and some refer to the balance between the three. The findings thus do not oppose the view that there is a form of consensus about what sustainability means in the public sphere [1,4,6]. However, the priorities of local stakeholders do not include all three aspects of sustainability equally. Increasing the local population is of greater importance than the environmental and economic aspects. Also, the other main theme related to traffic is not predominantly an ecological issue. The emphasis of the stakeholders is on crowding, congestion and mobility of tourists and locals. Even with an environmental indicator like air pollution, stakeholders point out that air pollution is problematic, not so much for environmental reasons, as for the impact it has on the experience of tourists and thereby the image of the Geiranger area as a tourist destination. The perceptions of sustainability locally thus seem to reflect a hierarchy of values with main emphasis on social values, rather than a balance between the economy, nature and society (illustrated in Figure 5).

Secondly, the results strengthen the argument that stakeholders' perceptions of sustainability vary according to context [7–9,14,15,38]. More specifically, in this context, the local stakeholders' perceptions of sustainability appear as a sustainability chain of logic, illustrated in Figure 6. The environment is precious because it is important for tourism and serves as a basis for jobs and economic viability,

since nature-based tourism is the basis of the economy. The overarching goal is to attract more inhabitants to the community. In line with this, geographical scale seems to influence the emphasis on different aspects of sustainability. For instance, the sustainability chain of logic presented above is quite similar for many of the individuals, but is much more prominent among stakeholders living in the Geiranger area.

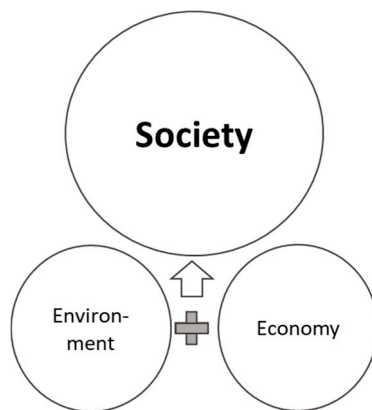


Figure 5. Hierarchy of components of sustainability by stakeholders. Source: own figure.

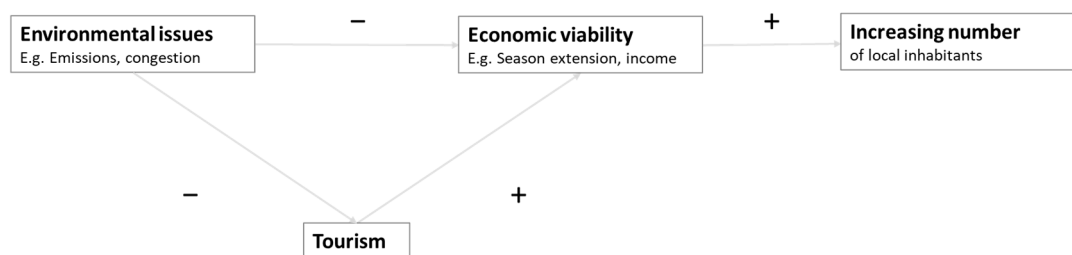


Figure 6. The stakeholders' sustainability chain of logic. Source: own figure.

Thirdly, our study supports the findings by several studies [8,9,15,37] that sustainability issues perceived as most important by stakeholders are topics very close to people’s lives. They are visible and traceable to stakeholders. In addition, it seems like interviewees’ current experiences are important to their expressed perceptions of sustainability.

How is this to be interpreted? This is a single, explorative case study and thus does not create a strong basis for generalizations. This being said, given the literature on human perception [10,12,13,29], it is not surprising that perceptions of sustainability differ. These discrepancies are, however, under-communicated and not well understood. A better understanding can be crucial to understand local dynamics in the strive for sustainability.

More surprising, from the perspective of human perception, is the fact that the perceptions of the stakeholders broadly speaking are quite similar. They are focused on social issues, not economic and ecological ones. Stakeholders perceive the concept from a quite similar anthropocentric viewpoint. Through perceptions’ interplay with values and beliefs [10,29], these findings may lead to the conclusion that social issues are of higher value than economic and environmental concerns. Such likeness could stem from similarities of the perceptual system of humans [10]. If this is the case, then such findings have major implications for how to approach and achieve the balance of sustainability [1,4,22]. Taking this one step further, the findings support the findings of O’Toole et al. [15], indicating that the most prominent social concern of the community constitutes the main issue of local perceptions of sustainability. If generalizable, the immediate local context of the stakeholders can be expected to be the main issue in local inhabitants’ perception of sustainable development in communities. The “sustainability-chain of logic” might be a key to understanding local mechanisms of sustainability.

The fact that place of residence seems to be the strongest determinant of perceptions, in our case much stronger than for instance occupational background, is in line with literature which shows that physical space and placement are strong determinants of perceptions [10]. Put together with the finding that stakeholders seem to accentuate issues that are close to their lives, and that issues outside the local inhabitants' sight and sphere of influence are not a part of local perceptions of sustainability, this could be indications of a pattern of perceptions of sustainability.

## 6. Conclusions

This paper contributes to a clearer understanding of perceptions of sustainability in local communities. It shows on the one hand that findings are consistent with an understanding of perceptions of sustainability shaped in complex individual and group processes and through discourses on different geographical levels. On the other hand, the perceptions are surprisingly similar at the local level. Through interplay with attitudinal variables and context, perceptions thus may influence decisions and actions in the local community and thereby the global strive for sustainability.

In this way, this article adds to the scarce existing literature on perceptions of the concepts of "sustainable development" and "sustainability". To be able to generalize about these perceptions with any certainty, further research should compare across communities and geographical levels. There is also a need to look more thoroughly into the mechanisms creating the local perceptions and to understand what these perceptions mean to local actions in a sustainability perspective.

Furthermore, the findings have implications for sustainable policies. They indicate that there is a need for further contextualization of what constitutes sustainability in local settings, and following from this, also a contextualization of policies. Research has shown that involvement and perceived benefits are necessary for support of environmental challenges [14,39]. Giving attention to local concerns related to sustainability should therefore be an integral part of sustainable policies. There is a need to focus both on global and local sustainability concerns for the global agenda for change to be realized.

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## ARTICLE 2: TRAVEL FORMAT VERSUS NATIONALITY AS DRIVERS OF THE PERCEPTION OF CROWDING IN A RURAL TOURIST DESTINATION

Else Ragni Yttredal

Nathalie Homlong

### AUTHOR CONTRIBUTIONS

Else Ragni Yttredal was the prime responsible for the study design and methods, data -collection, -analyses and -interpretation. Yttredal and Homlong was together forming the idea of the article and prepared the manuscript.

### SUMMARY

Internationally many tourist destinations, both in cities and in rural areas, are confronted with the problem of heavy visitation, which tourists may perceive as crowding. In previous studies different factors have been investigated as drivers of the perception of crowding. Paper 2 focuses on travel format (individual travel on land versus group cruise travel) and nationality. Among key findings was that travel format is a significant driver of perceived crowding, whereas nationality can only to a limited degree explain variations. In addition to this, travel format is a moderating factor between the perception of crowding and certain aspects of visitor satisfaction (Figure 5).

There is no logical causal link between travel mode (cruise ship) or travel format (group travel) and perceptions of crowding. Our interpretation of these findings is therefore that they can be understood as 1. A personality factor, different personality traits choose different ways of travelling and vacating (Kalisch & Klaphake, 2007; Sayan, Krymkowski, Manning, Valliere, & Rovelstad, 2013). 2. An expectation factor; the choice of vacation form guides the expectations for the trip and expectations about the destination (Zehrer & Raich, 2016). 3. An exposure factor; the destination being accustomed to cruise travellers have systems taking care of and accommodating for the loads of tourists coming by cruise ship, while the individual travellers are more exposed to the negative sides of crowding, like queues, traffic congestion and difficulties with parking. 4. A site customization factor (Moyle & Croy, 2007; Sanz-Blas, Buzova, & Schlesinger, 2019).

The findings are based on a survey conducted among 474 tourists in the Geiranger area 2018. While the current article focuses on travel format versus nationality, the choice of variables presented is based on a report evaluating a broad range of determinants of the perception of crowding, including for instance environmental inclinations, perception of environmental issues in the local setting and diverse socio-economic background factors (Yttredal & Homlong, 2019).

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## Travel Format versus Nationality as Drivers of the Perception of Crowding in a Rural Tourist Destination

By Else Ragni Yttredal\* & Nathalie Homlong<sup>‡</sup>

*Internationally many tourist destinations, both in cities and in rural areas, are confronted with the problem of heavy visitation, which tourists might perceive as crowding. In previous studies different factors have been investigated as drivers of the perception of crowding. This study focuses on travel format (individual travel on land versus group cruise travel) and nationality. A survey was carried out in the rural tourist destination of Geirangerfjord in Western Norway, where a village of 235 inhabitants hosts almost one million tourists every year. Among key findings was that travel format is a significant driver of perceived crowding, whereas nationality can only to a limited degree explain variations. In addition to this, travel format is a moderating factor between the perception of crowding and certain aspects of visitor satisfaction. Explanations of the findings are connected to a "site customization factor", a "personality factor", an "expectation factor" and an "exposure factor", all factors close to the visitors' perception and experience. In this way the study adds to and deepens the understanding for the mechanisms behind perceived crowding.*

**Keywords:** *crowding, nationality, travel format, visitor management, cruise travel*

### Introduction

Popular tourist attractions with a mix of visitors coming by cruise ships and traveling on land, like Venice and Barcelona have experienced major challenges related to crowding (see e.g., Garay et al. 2014, Russo 2002). Such challenges are not confined to larger metropolitan areas. In rural Norway, rural cruise destinations such as Geirangerfjord, Flåm, and Svalbard, represent unique challenges to visitor planning in this regard. Identifying factors that influence the perception of crowding is therefore of key importance to visitor planning and management. In line with this, this study explores the relationship between nationality, travel format and perception of crowding.

Congestion and crowding are terms often used interchangeably in the context of heavy visitation to tourist attractions. The two terms however point to different aspects of visitor density. Congestion relates to the physical conditions of high visitation. Visitation numbers are typically a way to describe congestion (Manning and Lime 1996). The term can also be a description of situations when the infrastructure of a tourist site reaches its limits of capacity and visitors compete for the use of services or parking spaces (Lime et al. 1996, p. 10). Crowding, on the other hand, relates to tourists' perception of the presence of other tourists. The

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concept of crowding comprises both descriptive information, relating to the density or number of tourists in a tourist site, and evaluative information – an individual's interpretation of the density of tourists (Vaske and Shelby 2008). As a psychological construct, perceived crowding lies within the mind of individuals. Visitors' perception of crowding in a tourist site is therefore a comparison of the relevant indicators of congestion and visitor density with personal standards of acceptable visitation (Manning and Lime 1996, Vaske and Shelby 2008).

## Literature Review

### *Determinants of Perception of Crowding*

The threshold at which the number of other tourists is seen as disturbing varies among visitors. Personal or group standards may differ, and studies have identified various determinants of groups' and individuals' perception of crowding. Several studies show that nationality influences perception of crowding (see e.g., Jin et al. 2016, Kiliçarslan and Caber 2018, Sayan et al. 2013, Sun and Budruk 2017). Cultural differences are seen as the main reasons for these differences (Sayan et al. 2013). Tourists from cultures which are considered more collectivistic, such as from Asian and African countries, have been found to have a higher tolerance for crowding than more individualistic cultures, such as tourists from countries in Europe and North America (Jin et al. 2016). In addition to nationality, distance from the place of residence to the tourist destination is a factor that can influence perception of crowding (Arnberger and Brandenburg 2007). In line with this, prior experience and attachment to the destination lead to higher sensitivity to crowding – a characteristic rather in place with local visitors than with visitors whose residence is further away from the tourist site (Eder and Arnberger 2012, p. 574).

Travel format relates to the composition of the visitor group – free and independent travel versus group travel in package tours is a main distinction (Sun and Budruk 2017). In the case of package tours itineraries are set beforehand. The tourists purchase a bundle of services – e.g., air travel, accommodation and other services – from a travel retailer (Hyde and Lawson 2003). For tourists this form of travel reduces risks connected to language and cultural barriers, and the needs to acquire information and for orientation in an unfamiliar setting. At the same time package tours go hand in hand with larger groups, which in turn add to congestion and crowding in the tourist site (Sun and Budruk 2017). Research on the influence of travel format is scarce (Sun and Budruk 2017). There is some research on the experience of crowding for certain types of transport and travel mode, for example of cruise tourists (Sanz-Blas et al. 2019). Some research indicates that group travelers tend to have a higher tolerance than individual travelers of being surrounded by other tourists. This was for example shown in a study conducted in a German national park (Kalisch and Klaphake 2007). A study about the satisfaction of individual travelers versus package tours in Vietnam on the other

hand found that travel format did not influence perception of crowding (Truong and Foster 2006).

A range of other factors potentially influence perception of crowding. Socio-demographic characteristics of the visitors are found to be a factor (Moyle and Croy 2007, p. 520). Activities that visitors are engaged in at the tourist site and characteristics of the site is another aspect (Moyle and Croy 2007, p. 520). Major motivations for undertaking a visit, as well as expectations about the level of crowding at the tourist site were found to influence the perception of crowding in several studies (Zehrer and Raich 2016, p. 92). Typically, perception of crowding has a tendency to be different among visitors who seek solitude in contrast to those who state social interaction as a motive for their visit (Arnberger and Haider 2007, p. 669). Characteristics connected to encounters with other tourists also tend to play a role in the perception of crowding. Where the encounter takes place is relevant. For example, front-country users are willing to tolerate more tourists than backcountry users (Popp 2012, p. 52). The number of perceived encounters has an effect (Kalisch and Klaphake 2007, p. 110). Also, the behavior of encountered tourist groups, e.g. with respect to noise and littering, and types of visitors met were shown to influence whether visitors tolerated other visitors in the same tourist site and in which number (Cole and Hall 2009, pp. 29–32, Manning and Lime 1996, pp. 29–31). Investigations into the effect of length of stay have been performed by several studies. Typically, only small differences are found, but in a study of wilderness visitors, day visitors were less likely to be sensitive to crowding than overnight visitors (Cole and Hall 2008, p. 35).

#### *Crowding and Visitor Satisfaction*

Congestion and perceived crowding can limit tourists' ability to engage in desired activities, lead to undesired social contacts and stimulus overload (Kiliçarslan and Caber 2018, p. 58, Sanz-Blas et al. 2019). Due to the potential negative impacts of crowding on the visitor experience, crowding is an important element in visitor satisfaction. This is especially the case in protected natural areas, where visitors tend to expect solitude and privacy (Cole and Hall 2008, pp. 12–15, Moyle and Croy 2007, p. 519). While crowding typically is seen as negative, this is not always the case – e.g. in bars and sports stadiums crowding has been found to be perceived in a positive way (Kiliçarslan and Caber 2018, p. 56, Popp 2012). Also, even in wilderness areas where visitors tend to seek solitude, most visitors do not wish for complete isolation, but would rather experience wilderness in small groups – "alone together" (Cole and Hall 2010, p. 67). A distinction between negative and positive crowding is thus made (Popp 2012).

Also increased visitation does not automatically result in degraded visitor experiences. This was demonstrated by a series of studies carried out in the same tourist locations, several years apart or over several years. They showed that even though visitor density had increased over time, the perception of crowding was less negative (Kuentzel and Heberlein 2003, Vaske and Shelby 2008, p. 113). Changes of standards of acceptable visitation may partly explain these results. In addition, visitors, especially those most sensitive to crowding, tend to use coping

strategies to deal with heavy visitation. These coping mechanisms include actions like relocation to other tourist sites, choosing a different time to visit, engaging in different activities than would have been chosen in less crowded settings, and re-rationalization and redefinition of the experience and standards of the visit (Moyle and Croy 2007, pp. 520–521).

## **Hypotheses**

The aim of this study is to explore to what degree and how nationality and travel format influence tourists' perception of crowding. Based on literature and previous research, two hypotheses were formed:

1. Nationality influences visitors' perception of crowding based on cultural differences and distance.
2. Travel format (represented by cruise travelers and individual travelers on land) influences visitors' perception of crowding.

## **Stylized Facts – Study Area**

In 2005, Geirangerfjord together with Nærøyfjord was inscribed on the UNESCO World Heritage List as "West Norwegian Fjord Landscape". As one of Norway's most visited destinations, especially within nature-based tourism, Geirangerfjord is an icon of tourism in Norway. Only 235 people live year-round in the village of Geiranger (Statistics Norway 2019), while the number of visitors to the area was estimated at around 1 million in 2018 (Yttredal et al. 2019). The inhabitant-visitor ratio is then approximately 1:4200 per year, while a ratio of 1:5.3 or more is estimated to be a high-risk tourism intensity in cities (McKinsey & Company and World Travel & Tourism Council 2017, p. 22). Tourists are mainly visiting during the summer months of June, July and August. In the peak of month of July, an average of about 10,000 people, visit Geirangerfjord daily. Even in this peak period, however, the number of visitors and therefore congestion fluctuates depending on the time of the day. There is a peak number of visitors between 11:00 am and 7:00 pm, with an extra peak between 1:00 pm and 5:00 pm (Yttredal et al. 2019). This is also the time period in which most cruise ships dock. Visitors who come to Geiranger during peak season but outside this time period, can experience the center of Geiranger as quiet, peaceful and almost empty. The extent of congestion and crowding also varies geographically, with a concentration of visitation in the center of the village Geiranger and on main attractions.



**Figure 1.** Map of the Geiranger Area as Defined in the Study

Source: WMS © Kartverket.

Geirangerfjord and the village of Geiranger are surrounded by steep mountains. To enter Geiranger village, which is the center of the destination, visitors can use one of three access ways – two by narrow and winding roads from the North and South, and the fjord – either by cruise boat or by car ferry (Figure 1). In recent years, the number of cruise passengers has been restricted by limitations on the number of ships per day and was in 2017 and 2018 stable at just below 350,000 (Yttredal et al. 2019). Cruise thus contributes to roughly one third of the visitors to the area.

## Methodology

### *Data Collection*

Data was collected in the Geiranger area Mondays through Fridays between July 9<sup>th</sup> and August 3<sup>rd</sup>, 2018. The period of data collection thus covered both peak season for leisure visitation during the period of general Norwegian staff vacation, and daily peak visitation period. Questionnaires were only handed out to visitors on their way out of the area, to make sure that they had completed their travel experience in Geiranger. To make clear which area was the subject of inquiry, a map was included in the questionnaire. The participants in the survey could choose between several languages, namely Norwegian, English, German, French, Spanish, and Mandarin. 474 tourists answered questionnaires digitally on tablets or by link.

The questionnaire included several aspects related to perception of crowding and congestion, such as noise, traffic congestion, access to transportation services and parking. The survey also included questions on overall satisfaction –

willingness to recommend the tourist destination and whether nature experiences lived up to expectations. All questions were formed as assertions using a five-point Likert scale ranging from 1 "completely disagree" to 5 "completely agree." The question on perceived crowding was phrased to make sure that it was negative crowding the respondents related to (Popp 2012).

### *The Sample*

**Table 1.** *Socio-Demographic and other Background Variables of the Sample. Percent of Total, Cruise Visitors and Individual Travelers on Land (N Total = 474)<sup>1</sup>*

Variable	Values	Percent of total sample	Percent of cruise visitors	Percent of ind. land
Transport mode to area	Cruise passengers	29		
	Individual travelers on land	71		
Gender	Female	46	48	45
	Male	54	52	55
Highest level of education	High school or lower	29	28	29
	Bachelor degree	31	26	33
	Master or higher	40	45	38
Household income per year	Lower than 40,000 EUR	21	24	20
	40,000–79,999 EUR	31	22	35
	80,000–119,999 EUR	26	23	27
	120,000 EUR and above	22	30	18
Age	0–34 years	36	31	38
	35–54 years	43	41	44
	55 years or older	21	28	18
Day-visitor or overnight stay	Day-visitor	58	100	40
	Overnight stay	48	0	60
Country of residence	Norway	24	6	32
	Germany	22	33	17
	Other western European countries	36	30	38
	North America	8	23	2
	Others	10	8	11

Source: Own data collection.

<sup>1</sup>The sample includes mainly respondents from Western Europe, USA and Canada. The main reason for this is that cruise-passengers and visitors traveling individually on land are mainly from Western countries (Europe and North America), while for example Asian tourists travel mostly in groups by bus. This study focuses exclusively on cruise tourists and individual travelers on land (418 respondents). Bus tourists are excluded from the analysis.

The proportion of cruise visitors (29%) in the sample reflects the proportion of the total number of visitors quite well. The respondents have a broad and relatively even distribution of socio-economic background factors, such as gender, education, income and age. The proportion of day visitors is 58% while 42% percent have stayed overnight (Table 1).

### *Method of Analysis*

To test hypothesis 1, "nationality influences visitors' perception of crowding" several subsequent comparisons of perception of crowding between Norwegian visitors and other countries or groups of countries were performed. T-tests and Mann Whitney U tests were used, checking for differences of mean and median and the significance of these differences. To test hypothesis 2; "travel format (represented by cruise travelers and individual travelers on land) influences visitors' perception of crowding", comparisons of the perception of crowding were made between cruise passengers and individual travelers on land using T-tests and Mann Whitney U tests. The group "cruise passengers" consists of visitors arriving in the Geiranger area by cruise ship or by bus, but as part of a trip with a cruise ship. Crew from cruise ships was excluded. The group "individual travelers on land" includes visitors arriving to the area by road or ferry mainly using car or motorhome but also motorbikes, public bus transportation or by foot or bicycle.

In the dataset, nationalities arriving in the Geiranger area on land are different from nationalities arriving by cruise ship (see Table 2). German visitors are the only nationality broadly represented both in the group of cruise passengers and in the group of travelers on land. To check for nationality as a confounding variable explaining differences in the sample as a whole, analysis was thereafter restricted to the German subgroup of the sample. The survey measures perception of crowding directly, but also includes other aspects of congestion like perception of parking and traffic congestion. It also includes measures of satisfaction. To understand more thoroughly the relationship between travel format, perceived crowding and other variables, several bivariate correlation analyses were performed for cruise passengers and individual travelers on land separately, and then compared. Both Pearson's  $r$  and Spearman's  $\rho$  were used. To have comparable group sizes and situations, the analysis was confined to day visitors only.

There is considerable controversy over the use of parametric methods to analyze datasets with dependent variables using Likert scales. Arguments are diverse both opposing (Bentz et al. 2016, Jamieson 2004, Oh 2001) and in favor (Bishop and Herron 2015, Carifio and Perla 2008, Knapp 1990, Murray 2013) of using such methods. Tests of the data from the Geiranger area show that the data are non-normally distributed and that especially the "satisfaction variables" are highly skewed, thus violating assumptions underlying parametric analysis. Furthermore, single Likert type variables are used both as criterion (dependent) and independent variables. To compensate for these characteristics of the dataset, both parametric and non-parametric methods are used in the analyses. The two methods in general create compatible results.

## Results

Visitors' overall impression of the Geiranger area is positive. 91% of the visitors completely or partly agree that the nature experience lives up to their expectations and 87% would recommend the area as a tourist destination to others. When it comes to perception of crowding, 46% of the visitors completely or partly disagree with the assertion that "I did not experience the Geiranger area as too crowded". 43% completely or partly agree to the same assertion.

### *Hypothesis 1: Nationality and Perception of Crowding*

Testing hypothesis 1: Nationality influences visitors' perception of crowding in the Geiranger area based on cultural differences and distance.

**Table 2.** *Perceptions of Crowding. Norwegians and other Nationalities and Groups of Nationalities Compared (1="Completely Disagree" – 5="Completely Agree")*

	"I did not experience the Geiranger area as too crowded"						
	T-test			Mann Whitney U test			N
	Mean	Difference of means to Norwegians	Sig. of difference	Median	Difference of median to Norwegians	Sig. of difference	
Norwegians	2.58			2.00			89
All foreigners	2.92	0.34	0.05	3.00	1.00	0.04	285
Nordic countries except Norway	3.22	0.64	0.02	4.00	2.00	0.02	38
Western Europe except Nordic countries	2.81	0.23	0.22	2.00	0.00	0.20	175
Distant visitors (Asia, Oceania, South America, North America)	3.05	0.47	0.05	3.00	1.00	0.05	59
Southern Europe (Italy, Spain, France)	2.56	-0.02	0.93	2.00	0.00	0.93	34
Germany	2.77	0.19	0.37	2.00	0.00	0.30	82

Source: Own data collection.

Both a T-test ( $p=0.05$ ) and a Mann Whitney U-test ( $p=0.04$ ) analyzing the whole dataset show that there is a small but significant difference between Norwegian visitors' perceptions of crowding and all foreign visitors' perception of the same (Table 2). To check if and how distance influence the perception of crowding (Jin et al. 2016, Sayan et al. 2013), foreigners were grouped into Nordic visitors except Norway (Denmark, Sweden, Finland), Western European visitors except the Nordic visitors, and distant visitors (Asia, Oceania, South America, North America). There are significant differences of the perception of crowding between Norwegian visitors and other Nordic visitors ( $p=0.02$  for both tests), and between Norwegian visitors and distant visitors ( $p=0.05$  for both tests). There is no significant difference in the perception of crowding between Norwegian visitors

and Western European visitors from outside the Nordic countries. Additional tests comparing Norwegians to Southern European (Italy, France and Spain) and German visitors showed no significant results.

### *Hypothesis 2. Travel Format and the Perception of Crowding*

Testing hypothesis 2: Travel format (represented by cruise travelers and individual travelers on land) influences visitors' perception of crowding.

**Table 3.** Differences in Perception of Crowding between Cruise Passengers, Individual Travelers on Land (All) and Individual Travelers on Land (Day – Visitors) (Scale: 1="Completely Disagree" – 5="Completely Agree")

	"I did not experience the Geiranger area as too crowded"						N
	T-test			Mann Whitney U			
	Mean	Difference of means to cruise passengers	Sig. of difference	Median	Difference of median to Cruise passengers	Sig. of difference to Cruise passengers	
Cruise passengers	3.19			4.00			118
Ind. travelers land all	2.71	-0.48	0.00	2.00	-2.00	0.00	283
Ind. travelers land day	2.47	-0.72	0.00	2.00	-2.00	0.00	112

Source: Own data collection.

Analyzing differences in the perception of crowding for the whole dataset using a T-test and Mann Whitney U-test, there is a statistically significant difference of means and medians between cruise visitors and all independent travelers on land ( $p=0.0$  for both tests) (Table 3). In the group travelers on land, there is a mix of day visitors and visitors staying overnight. Since cruise visitors are day visitors to the area, such a mix of visitors who stay over night and day visitors in the comparison group might influence the results. T-tests and Mann Whitney U-tests were therefore performed for day visitors only. The difference of means between cruise visitors and visitors traveling on land increases when the analysis is confined to day visitors (-0.72), while the difference of median is the same (2.00). The difference of both median and mean is statistically significant ( $p=0.0$ ).

**Table 4.** Differences in Perception of Crowding between German Cruise Passengers and Germans Traveling Individually on Land (Scale: 1="Completely Disagree" – 5="Completely Agree")

"I did not experience the Geiranger area as too crowded."							
T-test				Mann Whitney U			
	Mean	Difference of mean to cruise passengers	Sig. of difference	Median	Difference of median to cruise passengers	Sig. of difference to cruise passengers	N
Cruise passengers	3.18			4.00			38
Ind. Travelers land	2.41	-0.77	0.00	2.00	-2.00	0.00	44

Source: own data collection

Table 4 shows that there is a quite large and significant difference of means within the German group, with visitors traveling by cruise ship being less sensitive to crowding than those traveling individually on land. The results from the German group thus strengthen the findings that there is a difference in perception of crowding depending on travel format.

#### *Travel Format, the Perception of Crowding and Indicators of Satisfaction*

Finding significant and quite large differences between travel format and the perception of crowding made it expedient to look deeper into possible dissimilarities between cruise passengers and individual travelers on land also for other variables.

**Table 5.** Bivariate Correlations between the Perception of Crowding and Overall Satisfaction (Scale: 1="Completely Disagree" – 5="Completely Agree")

"I did not experience the Geiranger area as too crowded."						
	Cruise passengers			Individual travelers on land day		
	Pearson Correlation	Spearman's Rho	N	Pearson Correlation	Spearman's Rho	N
I would recommend the Geiranger area as a holiday destination to others.	0.06	0.09	117	0.32**	0.39**	110
The nature experience of the Geiranger area lived up to my expectations.	-0.02	-0.03	117	0.32**	0.34**	110

\*=sig. at a 0.05 level

\*\*=sig. at a 0.01 level

Source: Own data collection.

Table 5 shows bivariate correlations between the perception of crowding and variables indicating overall satisfaction with the stay. The analysis is confined to day visitors. Pearson's  $r$  and Spearman's  $Rho$  are based on different assumptions, but are in this case coinciding when it comes to detecting significant correlations. A medium strong and significant correlation between the perception of crowding

and indicators of overall satisfaction is found; Pearson's  $r=0.32$  and Spearman's  $Rho=0.39$  and  $0.34$  for the two variables. For cruise passengers there are no significant bivariate correlations between perception of crowding and measures of overall satisfaction.

**Table 6.** *Bivariate Correlations between the Perception of Crowding and Perception of Other Variables related to Congestion (Scale: 1="Completely Disagree" – 5="Completely Agree")*

	"I did not experience the Geiranger area as too crowded."					
	Cruise passengers			Individual travelers on land day		
	Pearson Correlation	Spearman's Rho	N	Pearson Correlation	Spearman's Rho	N
It was easy to get access to transportation services in the Geiranger area.	0.11	0.17	94	0.257*	0.276*	66
It seems easy to find a place to park in the CENTER of Geiranger.	0.16	0.19	46	0.47**	0.49**	80
Traffic congestion (DID NOT) negatively influences my impression of the Geiranger area.	0.32**	0.32**	98	0.31**	0.33**	105
Noise does not seem to be a problem in the Geiranger area.	0.32**	0.29**	117	0.37**	0.38**	104

\*=sig. at a 0.05 level

\*\*=sig. at a 0.01 level

Source: Own data collection.

Table 6 shows bivariate correlations between the perception of crowding and other parameters relating to congestion. For cruise passengers, perceived crowding is significantly correlated with parking (Pearson's  $r=0.32$ , Spearman's  $rho=0.32$ ,  $p<0.01$ ) and noise (Pearson's  $r=0.32$  and Spearman's  $Rho=0.29$ ,  $p<0.01$ ). For individual day travelers on land, crowding is also correlated with access to transportation services (Pearson's  $r=0.26$  and Spearman's  $Rho=0.276$ ,  $p<0.05$ ) and strongly correlated with parking (Pearson's  $r=0.47$ , Spearman's  $rho=0.49$ ,  $p<0.01$ ).

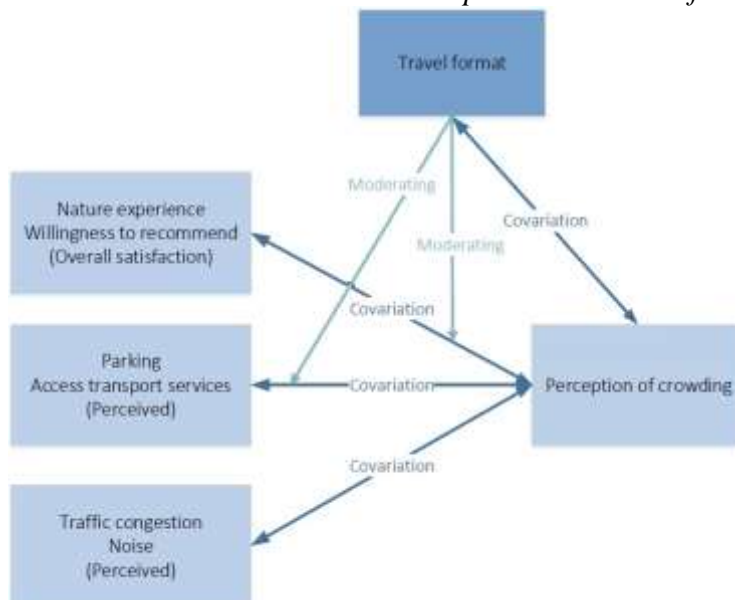
## Discussion

Firstly, the results do not support hypothesis 1: Nationality of visitors influences the perception of crowding due to cultural differences and distance from the tourist destination. There is very little evidence suggesting that there are large differences of perception of crowding between groups of countries or single countries. In addition, there is no distinct pattern suggesting that perception of crowding is increasingly positive with distance or is different due to cultural differences. For instance, compared to visitors from the most distant countries, Norwegians are more critical to crowding. This is consistent with the hypothesis. However, visitors from the Nordic countries, who should be the closest to

Norwegians both culturally and geographically, are also more tolerant to crowding than Norwegian visitors, while other Europeans are less.

Secondly, the results strengthen hypothesis 2: Travel format (represented by cruise travelers and individual travelers on land) covaries with the perception of crowding. There is a significant and quite large difference in perception of crowding between group visitors arriving by cruise ship, and individual travelers on land. Furthermore, travel format seems to be a moderating factor (Baron and Kenny 1986) for the relationship between perceived crowding and indicators of overall satisfaction (nature experience and willingness to recommend). The same is the case for the relationship between perceived crowding and the perception of parking and access to transportation services. Travel format does not seem to moderate the relationship between perception of crowding and perception of traffic congestion or noise.

**Figure 2.** *The Relationship between Travel Format, Perceived Crowding and Other Variables related to Visitor Experience and Satisfaction*



Source: Own figure.

The relationships are illustrated in Figure 2. The causal directions between the variables in the analysis are not possible to determine from the analysis. The relationship between the variables can also be a type of cluster effect, variables covarying without a clear causal connection.

#### *Mechanisms behind the Results*

There is no logical causal connection between the type of transport itself, represented by cruise travelers, and independent travelers on land, and perception of the area. However, as shown in the study in Geiranger, mode of transport is also a difference in travel format: Free and independent travel versus group travel by cruise ship (Sun and Budruk 2017). There are several dimensions in the literature



that can help understand the relationship between travel format and the perception of crowding found in the study.

Sayan et al. (2013) show that visitors' tolerance for congestion differ. Such a difference could be manifested in the choice of travel format, with people choosing to travel by cruise ship being more tolerant to congestion than people traveling individually on land. Some studies support this assumption (Kalisch and Klaphake 2007). In this line of reasoning the differences of the perception of crowding between cruise tourists and tourists traveling on land could be explained by different personal preferences and personality traits. Such an understanding of the mechanisms could be called a "personality factor".

Previous research shows various relationships between knowledge, motivation, expectation, behavior and satisfaction (Gnoth 1997, Hsu 2009, Huang et al. 2015). The results can then also be understood on the basis of an "expectation factor". The expectation factor consists of at least two dimensions. One dimension relates to the choice of vacation form. A cruise ship to the Geiranger area often has between 2000 and 5000 passengers (Information from Stranda Port Authority). This means that visitors choosing this mode of transport are surrounded by large numbers of fellow travelers throughout their journey. When visitors choose group travel on a cruise ship, they do not and cannot expect to be alone. The other dimension is related to the destination. Zehrer and Raich (2016) show that expectations about the destination influence the perception of crowding. Most individual travelers on land need to have a minimum of knowledge about individual destinations to organize their trip - leading to pre-travel expectations. On the other hand, cruise travels are organized and mediated by a tour operator. Individual cruise tourists' expectations for specific destinations might therefore not be as clear.

In addition, our data by itself indicate that there is an "exposure factor". The results show that exposure to negative experiences connected to one aspect of congestion and crowding seems to affect the perception of other relating factors. For instance, visitors traveling on land are, by definition, more prone to be exposed to parking problems than people traveling by cruise ships. Our analyses show that parking covaries with the perception of crowding only for visitors traveling on land. Furthermore Figure 2 shows that the perception of crowding covaries with the perception of traffic congestion and noise both for cruise tourists and visitors arriving by cruise ship. While only visitors traveling on land are exposed to parking problems, also cruise travelers moving around the site can be exposed to (negatively) perceived noise and traffic congestion. Since there does not seem to be a clear causal effect between the variables, the data indicates that there is a cluster effect – an exposure factor. If visitors are exposed to one negative effect of congestion, they also perceive other factors related to congestion negatively.

When tourists first came to the Geiranger area in the second half of the 19th century, traveling on the fjord was the only way of entry. Because of this, tourism in the area has developed along with the increase of cruise tourism. Infrastructure, logistics, shops, guided tours and activities are adapted to visitors arriving by sea in bulks. Moyle and Croy (2007) found that such characteristics of the site

influence the perception of crowding. A "site customization factor" thus seems to exist. Characteristics of the site intermediate between travel format and the perception of crowding. Such an assumption is strengthened by two additional findings: Moyle and Croy (2007) also find that the type of activities that visitors participate in can influence the perception of crowding, and Sanz-Blas et al. (2019) found that guides have a mediating effect on the perception of the area. This corresponds with how the destination Geirangerfjord is organized for cruise tourists. Many of them participate in pre-booked tours. They are then guided from the boat to already waiting transportation and are brought to the respective sites. In this way the exposure to negative crowding is minimized.

## Conclusion

In this study we show that travel format is the most important driver of the perception of crowding in the Geiranger area. We identified four factors to understand our statistical findings; "a personality factor", "an expectation factor", "a site customization factor" and "an exposure factor". Thus, on an individual level, factors connected to expectations and personalities have explanatory power. On a system level, explanations related to the site itself cause differences in perceptions. In addition, travel format seems to implicate different exposures to the negative sides of crowding.

Drivers of perceived crowding are thereby close to the visitors' experience. They are about the visitors' expectations and preferences meeting experiences on site; traffic congestion versus smooth driving, about easily finding parking spaces, access to transportation services and about noise. Factors further away from the actual experience cognitively or physically, like nationality, do not seem to have the same effect on their perceptions. Our study in this way adds to and deepens existing knowledge on perceived crowding and contributes to the understanding of the mechanisms behind the perceptions.

Our findings have several implications for visitor planning. Firstly, they indicate that visitor planning should address crowding in different ways, depending on visitors' travel format. Furthermore, such planning should have the purpose of addressing the four factors identified above. In the Geiranger case, measures to address the personality factor could include directing persons with a low tolerance for crowding to parts of the area with few other visitors and at times outside the peak season or peak time of day. To address the expectation factor, information and marketing could build on images that portray the situation during peak visitation times realistically. Addressing the exposure factor and site customization factor includes an array of possible measures like traffic signs, additional parking spaces, limitations on the number of visitors and regulations.

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## **ARTICLE 3: UNDERSTANDING THE BLURRY PICTURE OF TOURISM EXPENDITURE IN A CRUISE DESTINATION. GEIRANGERFJORD – NORWAY**

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(Forthcoming)

### **AUTHOR CONTRIBUTIONS**

Else Ragni Yttredal was the prime responsible for the idea, study design and methods, data collection, analysis and interpretation. Yttredal and Homlong were together responsible for manuscript preparation.

### **SUMMARY**

Tourism expenditure in destinations is an important element of tourism research and has been the subject of numerous studies. Article 3 seeks to understand the complex pattern of expenditure within a distinctly defined geographical area, namely the destination Geirangerfjord in Western Norway. This is done by using a new approach where total expenditure is divided into three different measures of expenditure, which are then used to compare spending patterns of three important visitor groups in the destination - cruise visitors, individual visitors on land and land visitors staying overnight. By investigating socioeconomic, travel related, destination related and psychological explanatory variables - drivers of expenditure for each of the three groups are compared. The study reveals that different groups visiting Geirangerfjord diverge with respect to spending patterns, as well as factors explaining these patterns. Based on the findings and previous literature in the field, the article proposes a new integrated “opportunity framework” in which to understand spending in a destination.

The findings are based on a survey conducted in 2018 among tourists in the Geiranger area with 304 completed questionnaires.

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# Understanding the blurry picture of tourism expenditure in a cruise destination Geirangerfjord – Norway

## Abstract

Tourism expenditure in destinations is an important element of tourism research and has been the subject of numerous studies. This paper seeks to understand the complex pattern of expenditure within a distinctly defined geographical area, namely the destination Geirangerfjord in Western Norway. This is done by using a new approach where total expenditure is divided into three different measures of expenditure, which are then used to compare spending patterns of three important visitor groups in the destination - cruise visitors, individual visitors on land and land visitors staying overnight. By investigating socioeconomic, travel related, destination related and psychological explanatory variables, drivers of expenditure for each of the three groups are compared. The study reveals that different groups visiting Geirangerfjord diverge both with respect to spending patterns, as well as factors explaining these patterns. Based on the findings and previous literature in the field, the article proposes a new integrated “opportunity framework” in which to understand spending in a destination.

## Keywords

Tourist expenditure, cruise destination, cruise, destination

## Introduction

Before the start of the COVID-19 crisis, cruise tourism experienced sustained growth rates over several years, even in the years following the Great Recession. In the decade from 2009 to 2019, the number of cruise tourists worldwide almost doubled, from 17.8 to 30 million (Centre for the Promotion of Imports from developing countries, 2021). However, the popularity of this segment of tourism was countered by criticism of its effects, with contrasting arguments dominating the public debate. Several studies have shown that negative externalities affecting the local population and the natural environment can be attributed to cruise tourism (Sanz-Blas, Buzova, & Schlesinger, 2019; Yttredal & Homlong, 2020). At the same time, this form of tourism can also be linked to positive effects, mainly by generating income, which in turn helps sustaining or creating employment in ports-of-call. The income can be produced directly by the cruise operators, passengers and crew, or indirectly by purchases of direct suppliers (Juan Gabriel Brida & Zapata, 2010). When it comes to these positive economic effects, the magnitude of the contribution of cruise tourists to total tourism expenditure is often unclear. Knowledge about tourist expenditure and their explanations at cruise destinations is crucial, as this insight enables diverse actors in tourism to develop destination strategies accordingly (Lin, Mao, & Song, 2015). The information proves useful both for tourist enterprises, destination marketing organizations, and local governments.

Uncertainty and public debate about the role of cruise tourism can also be found in one of the top cruise destinations in Norway, in Geirangerfjord. Over many years stakeholders in Geirangerfjord have been discussing which types of businesses benefit from cruise tourism, and whether these benefits weigh up for negative impacts on the destination. Focusing on the case of Geirangerfjord, the purpose of this paper is to understand expenditure in the destination by comparing expenditure by three diverse but important visitor groups, namely cruise visitors, day visitors on land, and visitors on land staying overnight. We analyze the three groups with regard to three questions:

- Comparing the three groups, what is the total expenditure of each group?
- How does spending on different categories differ in these three groups?



- Which drivers influence expenditure of the three groups respectively?

Most of the literature on expenditure has its focus on determinants of spending in a tourist destination either by tourists in general (See for instance Mayer & Vogt, 2016; Ying Wang & Davidson, 2010), or by one group – e.g. cruise tourists – specifically (Mudarra-Fernández, Carrillo-Hidalgo, & Juan Ignacio, 2019). More in-depth analyses of spending in a destination are rare. Furthermore, the current literature on expenditure does not present a coherent picture of expenditure or its potential explanations. Hence, this study contributes to the literature on expenditure in tourist destinations in three important ways. Firstly, the current study analyzes differences of spending patterns between tourist groups in the same destination. Secondly, this research also compares explanatory variables relevant to explaining the spending patterns in the three abovementioned visitor groups (cruise visitors, day visitors on land, and visitors on land staying overnight). Finally, we propose what we call an “opportunity framework” as a new way to understand expenditure in a cruise destination. In this way, the paper provides crucial insight for local tourism planning in the Geirangerfjord area, but also potentially for tourist destinations worldwide.

In the following, the literature on explanatory variables for expenditure in tourist destinations is presented. Thereafter, the methods used for data collection and analysis are introduced, followed by results, discussion and a conclusion.

## Literature review

A whole range of variables affecting expenditure by tourists has been investigated in various studies. These include on the one hand sociodemographic background factors related to the visitors, like place of origin or residence, gender, occupation, income, as well as cultural, social, psychological and economic factors. On the other hand, travel- and destination related variables and their impact on tourist expenditure have been analyzed (Mayer & Vogt, 2016; Mudarra-Fernández et al., 2019; Ying Wang & Davidson, 2010). In the following, we shed light on the discourse on tourism expenditure by

presenting examples of studies of expenditure in destinations, followed by studies related to cruise tourism. Both sections illustrate the diversity of research interests and contexts. Finally, the expenditure discourse is summed up and research gaps are identified.

#### *EXPLAINING EXPENDITURE IN DESTINATIONS*

There is a strand of literature on tourism expenditure from a micro perspective, focusing on specific destinations. Aguiló et al. (2017) for instance carried out a decomposition analysis between personal daily expenditure and duration of stay on the Spanish island of Mallorca. The authors distinguished between expenditure in and outside accommodations, and expenditure types included restaurants, food and drink from supermarkets, entertainment, transport, excursions and souvenirs. As a result, the authors identified tourist segments with different expenditure and length of stay. Among variables affecting daily spending and duration of stay in the destination were household income, country of origin, and motivation for the choice of tourist destination. Furthermore, the study points to a number of inconclusive and contradicting results in the literature pertaining to the effect of both socioeconomic background factors and travel related factors explaining tourism expenditure. Also analyzing duration of stay and daily expenditure, Gomez-Deniz and Perez-Rodriguez (2020) made a study based on a tourist expenditure survey on the Canary Islands. Among other findings, the authors discovered a negative correlation between the number of days tourists spent at the destination and daily expenditure.

Vetitnev (2015), on the other hand, investigated the connection between trip-related variables and visitor characteristics related to tourist spending. The study was carried out at three Russian resort destinations. While several factors were found to influence total expenditure using bivariate analysis, only five underlying factors proved to affect total tourist expenditure when applying structural equation modelling: length of stay, resort, distance travelled to destination, party size and holiday organization mode. Furthermore, Vetitnev found that tourists' spending patterns were different in the various resort destinations studied.

In their study carried out at the Mediterranean coast of Spain, Garcia-Sanchez et al. (2013) investigated trip characteristics, tourist characteristics and tourist activities and their impact on tourist expenditure. Among the results was that alternative activities like sports and gastronomic events, which were offered in addition to the tourism product centered around sun and sand, significantly contributed to additional spending. Increasing numbers of days spent in the area were found to be associated with decreased daily spending. Another study that looked into the relation between tourist experiences and tourism spending was conducted by Disegna and Osti (2016) in the Dolomites in Northern Italy. The authors distinguished between different aspects of satisfaction and their impact on total expenditure, as well as diverse categories of expenditure. The study revealed quite diverse effects of satisfaction, depending on expenditure category, but concluded that expenditure at the destination was closely linked to the standard of the service offered. Having a similar group focus, Fredman (2008) analyzed determinants of expenditure by different tourist groups visiting a Swedish mountain region - general visitors, skiers, snowmobilers and backpackers. The study found that while household income, choice of activity, occupation, duration of stay, choice of accommodation and participation in an organized trip influenced spending at the destination, factors like travel mode, gender, distance and the attitude towards activities were determinants of expenditure outside the tourist destination. Furthermore, downhill skiers were identified as big spenders, consuming on average three times more than backpackers and 50% more than snowmobilers.

In a case study about North York Moors National Park in the UK, Downward and Lumsdon (2004) distinguished between public transport and car-based transportation as travel modes. Also, other trip-related factors as well as sociodemographic factors were taken into account. The authors found that expenditure of visitors travelling by car was higher, but also duration of stay for day visitors and group size affected spending. Some more uncommon variables and interactions were investigated as well. Wilkins et al. (2018) analyzed what effect a change of weather conditions related to climate change had on tourist spending. Comparing three tourist destinations in Maine, USA, the study found

that while warmer temperatures had a positive effect on expenditure in summer and fall, the effect was more varying in winter. Precipitation, snow depth and stormy weather did not influence expenditure. In this context, it is also worth noting that the study found that influential factors and their effects on expenditure varied across destinations and time of the year.

Gomez-Deniz and Perez-Rodriguez (2020) created a tourism expenditure model, in which they included both tourist expenditure made at the country of origin, such as reservations for transportation and accommodation, and expenditure at the tourist destination. They based their analysis on a tourist expenditure survey in the Canary Islands, with special focus on German and British tourists. They calculated the tourist budget share, putting tourist spending at the destination into relation with the total trip expenditure and found that the determinants of the tourist budget share spent at the destination were in line with earlier findings about causality of aggregate or daily tourist expenditure. While they are less common, some studies look at expenditure categories and their potential determinants. Van Loon and Rouwendal (2017) analyzed spending patterns of urban tourists in Amsterdam. Their study showed that trip purposes influenced total daily expenditure as well as budget shares. In their study carried out in the Midwest of the USA, Wang et al. (2006) studied the effects of socioeconomic, psychographic and travel-related variables on travel expenditures. Spending categories included accommodation, meals, transportation, shopping, entertainment and attractions, as well as total spending. Income, number of adults in the travel party and length of stay were found to have the strongest effects on expenditure across expenditure categories.

#### *CRUISE TOURISM AND EXPENDITURE IN DESTINATIONS*

There is also a strand of literature on tourism expenditure with cruise tourists at their center of attention. Brida et al. (2012) for instance focused on cruise passengers' spending in the Caribbean port of Call Cartagena de Indias. They identified that heavy spenders were distinguishable from other segments based on income levels, age, duration of stay on land, expenditure patterns and nationality. Based on the survey, the authors also developed profiles of typical cruise tourists with

high spending in different expenditure categories, such as tours, souvenirs, food and beverage and jewelry. For instance, the tourist most likely to spend on jewelry has a high income and travels in a group and for the first time on a cruise, while the visitor most likely to spend on food and beverages is a young man without a high income who has previously taken other cruises. Using a different approach, some of the same researchers (Juan Gabriel Brida, Fasone, Scuderi, & Zapata-Aguirre, 2014) later studied factors that may determine spending by cruise passengers in two ports of call in Uruguay. Several factors were not found to be determinants of spending, among these were gender and age. On the other hand, satisfaction with food and drink, as well as tranquility of the destination had a positive effect on spending. Of special interest in the study is the difference of spending between the destinations explained by differences in infrastructure solutions.

Marksel et al. (2017) analyzed characteristics of cruise tourists and their experiences during their visit at the Port of Koper in Slovenia. While age, frequency of cruise travel and time spent at the hinterland of the port did not turn out as significant factors influencing expenditure, gender showed a statistically significant connection. The majority of both men and women reported spending of below EUR 50 while onshore, however, all the high spenders, with over EUR 250, were male.

Furthermore, nationality was a significant factor. Of the 17 nationalities in the sample, cruise tourists from Finland were the group that was exclusively represented in the highest spending group.

Experiences with transport services like taxis, busses and trains were another factor that affected spending for those visitors who visited the hinterland. Casado-Díaz et al. (2021) investigated several trip characteristics to analyze expenditure of cruise passengers. On the one hand, they focused on the spatial behavior of tourists in the destination, distinguishing between cruise passengers who visit only a single node, those visiting multiple nodes, and a third group that visits the hinterland of the port city. Another angle addressed the nature of shore excursions – individual versus guided. Finally, the connection between cruise price segments – from standard to luxury – and expenditure was analyzed. The model developed by the authors was tested in the Spanish city of Valencia. The authors found that expenditure was highest among cruise passengers who visited single nodes, and

those with individual shore excursions. Among the price segments, only the highest category had a positive effect on spending.

In one of the few studies focusing primarily on destination specific factors, Parola et al. (2014) carried out a study of a 10-day cruise to six destinations in the Mediterranean to investigate the impact of tourists' destination satisfaction on spending. The authors also included the moderating effect of organized tours in their study, by testing the hypothesis that the purchase of excursion packages enhances the impact of destination satisfaction on cruise tourists' expenditure. The study confirmed the positive connection between destination satisfaction and expenditure, as well as finding that excursion packages acted as positive moderators of destination experiences, both by enhancing experiences in the destination, and by providing tourists with additional shopping opportunities. Pino and Tovar (2019) collected information on tourist expenditure of cruise tourists to the Canary Islands over six cruise seasons. Using a latent class model, they identified three distinct tourist groups depending on their level of spending, ranging from low over medium to high. They showed that explanatory factors influenced expenditure differently in each group. Furthermore, they observed that cruisers' expenditure was higher in the ports of Tenerife and Gran Canaria than in the other ports on the Canary Islands. The authors argued that the class model allows for a better basis of addressing target groups. Similar findings pertaining to differences in spending between destinations are found in Brida et al. (2020). Using a multivariate prediction Copula model, they categorized spending by cruise tourists in Uruguay into food, shopping, transportation, and tour expenses. Residence of the tourists and port-of-call were key variables determining spending, but explanatory variables varied according to group and season of the year. Similar results were found in Brida et al. (2018) using different a methodology.

Moving to the Norwegian context, Larsen et al. (2013) compared spending by cruise tourists and other types of tourists in Bergen, Norway from 2010 to 2012. The two main findings were on the one hand that expenditure by cruise tourists was clearly below average compared to other types of

tourists. On the other hand, the study found that cruise tourists had a higher tendency to overestimate their spending. Also, the duration of stay of cruise tourists was significantly lower. Interestingly, the authors found that per hour spending was similar comparing cruise and other tourists, indicating that the duration of stay is an important factor for lower spending by cruise tourists. There are also several studies published as reports measuring total tourism expenditure in Norwegian tourist destinations. The studies vary both pertaining to geographical unit (national, regional, or local studies) and results (Dybedal, 2019; Yttredal & Homlong, 2019). The reason is for a large part that the studies are based on rather different assumptions, methodologies, and definitions, and are thus difficult to compare.

#### *SUMMING UP AND RESEARCH GAPS TO BE FILLED*

The studies presented above vary both with respect to research aims, choices of dependent variables and explanatory variables. Hence, there are differing and contradicting results in the literature explaining expenditure in destinations pertaining to the effects of socioeconomic background factors, travel related factors, destination related factors and psychologically oriented factors – a fact also pointed out for instance by Aguilo et al. (2017), Gomez Deniz and Perez-Rodriguez (2020) and Wang and Davidson (2010).

There have been attempts to sort out this blurry picture in several reviews over the last 15 years (See for instance the reviews by Mayer & Vogt, 2016; Mudarra-Fernández et al., 2019; Ying Wang & Davidson, 2010). While differing in scope and focal points, there are some common denominators across the reviews and the studies referred to above. Firstly, in the literature there has been a certain consensus on the grouping of explanatory variables into socioeconomic, travel- and destination related variables. A class of more psychologically-oriented background variables like seeking stability or excitement (Youcheng Wang et al., 2006), but also more trip-related psychological determinants like motivation for choosing the destination (Aguiló et al., 2017; Marksel et al., 2017) and trip purpose (García-Sánchez et al., 2013; Gómez-Déniz & Pérez-Rodriguez, 2020; van Loon & Rouwendal,

2017) have been included in a few studies. For an overview of the explanatory variables in the mentioned studies, see Table 7 in Appendix 1.

Secondly, there are some variables that seem to influence expenditure across diverse settings and methodologies. Of socioeconomic background factors, the most prominent are income and nationality, the latter is especially prevalent in cruise studies (Juan Gabriel Brida et al., 2014; Juan Gabriel Brida et al., 2020; Marksel et al., 2017; Pino & Tovar, 2019). In addition, age seems to influence expenditure in a curvilinear way, the middle-aged appear to spend more than the young or old visitors (García-Sánchez et al., 2013; van Loon & Rouwendal, 2017). Among the more resilient travel related factors explaining expenditure are length of stay (number of days) and accommodation type (see for instance Aguiló et al., 2017; Fredman, 2008; Vetitnev, 2015). Especially in the cruise studies, length of stay in the course of a day is also an issue (Juan Gabriel Brida et al., 2012; Casado-Díaz et al., 2021) .

Thirdly, destination-specific variables are few and understudied, often related to satisfaction with the destination (Disegna & Osti, 2016 makes a thorough study in this respect), rather than actual destination specific variables. This, despite the fact that several studies show that spending differs between tourism destinations in general (Mayer & Vogt, 2016; Mudarra-Fernández et al., 2019; Ying Wang & Davidson, 2010), and more specifically resorts (Vetitnev, 2015), islands visited (Pino & Tovar, 2019) and ports-of-call (Juan Gabriel Brida et al., 2014; Juan Gabriel Brida et al., 2020). In a similar vein, more psychologically oriented variables appear in few studies, and only variables like motivation for choice of destination and reason for the trip seem to be relevant background factors across studies. Also, there appears to be no consensus on which factors belong to the categories “destination-based variables” or “psychographic” variables (Mudarra-Fernández et al., 2019; Ying Wang & Davidson, 2010; Youcheng Wang et al., 2006).

Finally, the totality of the literature also draws a picture of a complex interaction between various antecedents of tourism spending, depending on contextual factors within or outside the tourist



destination. Still, there are no studies, as far as we know, trying to map and understand the totality of visitor expenditure in a single destination.

This study therefore addresses research gaps by seeking to understand the totality of expenditure within a distinctly defined geographical area, the destination Geirangerfjord. This is done by firstly comparing spending patterns of three important visitor groups in a destination. Secondly, by including a battery of destination specific variables in the study as well as (a smaller number of) psychological background variables in addition to socioeconomic and travel related variables. Thirdly, by comparing expenditure patterns within the destination as well as variables explaining these patterns.

## Methods

The overall aim of the study is to better understand the expenditure patterns in a cruise destination, using the cruise destination Geirangerfjord as a case. Special emphasis is placed on similarities and differences between cruise visitors and individually travelling visitors on land. The survey design is therefore rigged towards this purpose.

### *STYLIZED FACTS – STUDY AREA GEIRANGERFJORD*

Geirangerfjord is one of Norway's most visited destinations, especially within the segment of nature-based tourism. Only 232 people live year-round in the village of Geiranger (Statistics Norway SSB, 2021) , while the number of visitors to the area was estimated at just below 1 million in 2018 (Yttredal, Babri, & Diez, 2019).

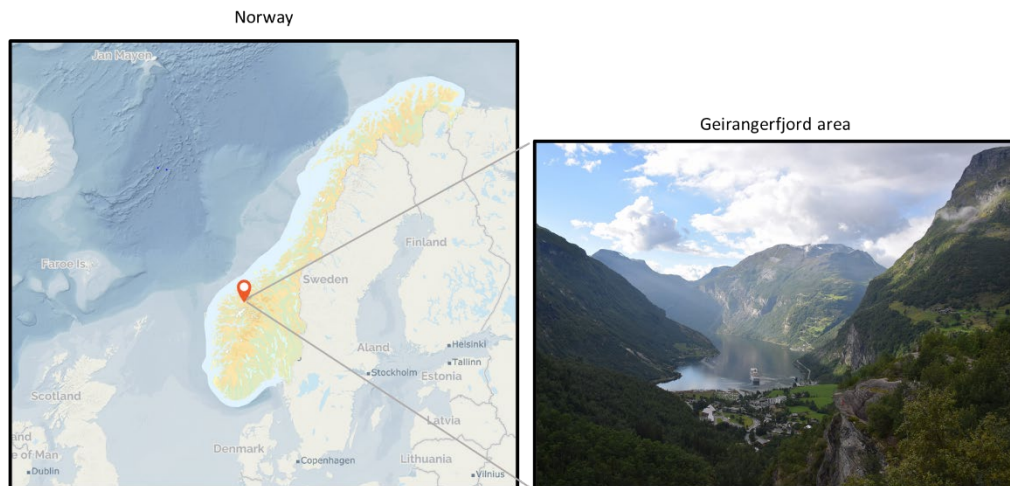


Figure 1: Geirangerfjord area on the West Coast of Norway. (Map source: WMS © Kartverket. Photo: Nathalie Homlong)

Prior to Covid-19, the annual number of cruise passengers was stable at around 350,000 (Yttredal et al., 2019). Cruise tourists thus contributed to roughly one third of the visitors to the area. There is an ongoing debate between stakeholders about whether tourists on land or cruise tourists contribute most to the local economy, and about which tourists contribute most to negative aspects of tourism, such as crowding, congestion and pollution (Larsen & Wolff, 2016; Larsen et al., 2013; Löffler, 2019).

#### DATA COLLECTION AND ANALYSIS

Data was collected using a digital survey in the Geirangerfjord area Mondays through Fridays between July 9th and August 3rd, 2018. The period covered the peak leisure travel season. Daily data were collected from approximately 9 AM to 5 PM, the peak visitation time. A tablet with the questionnaire or a link to the online questionnaire were handed out exclusively to visitors on their way out of the area. This was primarily to make sure that they had completed their expenditures in the Geiranger area when filling out the form to prevent recall errors (Stynes & White, 2006). To make clear which area was the subject of inquiry, a map was included in the questionnaire. The participants in the survey could choose between six languages. The questionnaire included questions about the tourist experience and spending. 304 completed questionnaires were included in this study. Categories of expenditure in the questionnaire were: overnight stay, food and beverages at bars and restaurants, shopping including groceries and gifts, activities (sports, museums, tours, etc.), and other things (for instance fuel, travel, etc.). In addition, pre-paid purchases from cruise boats or

cruise operators were defined as a separate category, but could include both activities, transportation and food. The total sum of spending was then calculated based on spending categories. Following Wang and Davidson (2010), Mayer and Vogt (2016) and Mudarra-Fernández et al. (2019), tourist-, travel- and destination-based variables and also some more psychologically oriented variables were included in the questionnaire. The ones most relevant for the following presentation and analysis are listed in table 1.

Table 1: List of variables included in the analysis.

<b>Travel related variables</b>	<b>Psychologically oriented factors</b>
Transport mode	Environmental consciousness
Time in Geiranger area (ashore)	Importance of learning about local community
Type of accommodation	Importance of being physically active in nature
<b>Destination related variables</b>	<b>Socioeconomic background factors</b>
Recommend the area in the future	Country of residence
Perception of...	Region of residence (within Norway)
nature experience	Age
weather	Size of home town/village
cleanliness	Level of education
access to transport services	Household income
congestion	Gender
access to parking	Marital status
crowding	Main status of employment
noise	
exhaust from cars and buses	
visible smoke from cruise ships	

In our questionnaire, informants' perceptions of diverse variables like air pollution, crowding and congestion were included. All perception questions were formed as assertions using a five-point Likert scale ranging from 1 "completely disagree" to 5 "completely agree." For comparative analysis, the sample was divided into three groups: day visitors on land travelling individually (day visitors, N=82), individual visitors staying overnight on land (overnight visitors, N=120), and cruise visitors (N=102). The groups "day visitors" and "overnight visitors" include visitors arriving to the area by road or car ferry mainly using cars or mobile homes, but also motorbikes, public bus transportation or travelling on foot or by bicycle. The group "cruise visitors" consists of visitors arriving in the Geirangerfjord area by cruise ship or by bus as part of a trip with a cruise ship. Crew from cruise ships were excluded from the analysis, as were group visitors on land travelling for instance by bus. Expenditure patterns in the destination Geiranger have at least three components. Firstly, for all groups it is possible to buy tours, overnight stays and activities in advance through online booking or other advance booking options. Secondly, there are plenty of opportunities to buy food or activities or to shop when in Geiranger. Thirdly, cruise passengers also have the opportunity to buy prepaid tours through the cruise operator. Total expenditure for the first two categories will mainly benefit

the local business community, while the expenditure on the latter will be divided between the cruise operators and local providers. Our undertaking is to understand expenditure patterns in the local destination. It is therefore important to distinguish between what benefits the local businesses and what benefits other actors in the value chain. Previous studies have used a 50/50 split of expenditure between local and cruise operators for prepaid tours from cruise operators (See for instance Dybedal, 2019). The same proportion is used in this study to calculate local expenditure. The proportion will, however, differ between cruise operators, ships and tours.

To understand the dynamic between the three groups, our analysis thus differentiates between three estimates of expenditure all pertaining to the last 24 hours:

1. **Spontaneous spending:** Local consumption, paid beforehand or on the spot. Accommodation and advance purchase from cruise ship or cruise operator are not included.
2. **Day spending.** Spontaneous spending plus 50% of advance purchase from cruise boat or cruise operator. Accommodation is not included.
3. **Total spending:** Local consumption including both advance purchase from cruise boat or cruise operator and accommodation.

For day visitors, the three estimates will overlap. For cruise visitors, day spending will overlap with total spending. For visitors staying overnight spontaneous and day spending will overlap. All types apply to expenditure related to products or services per person bought for the last 24 hours in the Geiranger area (as indicated in in Figure 2).

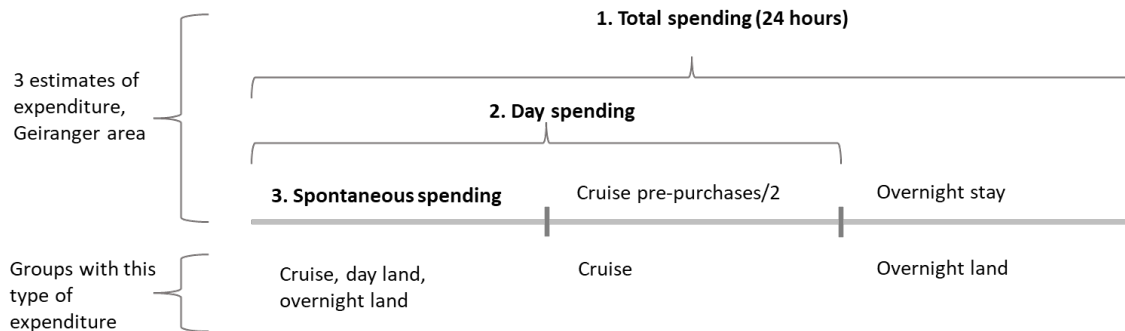


Figure 2: The study uses three different estimates of expenditure last 24 hours in the Geiranger area as dependent variables.

### THE SAMPLE

Table 2 sums up some socioeconomic background factors for the group of respondents in the sample. We see that most of the respondents (80%, 70%, and 81% respectively) are between 25 and 64 years of age. Furthermore, they are quite well educated, around 70% in all groups have a bachelor degree or higher, and different household income groups are represented. Slightly more males than females have answered the questionnaire and just below 30% are single in all groups. Not all respondents answered all the questions on background information, therefore N differs between variables.

Our interpretation is that there are no conspicuous differences between the groups with regard to the variables, except for the background factor of nationality. As can be seen in Table 2, the proportion of visitors from different regions of the world differs between the three groups. The difference should not be a problem for a comparative analysis of expenditure patterns between land and cruise, as we interpret the differences to be characteristics of the groups, rather than a bias in the sample.

Table 2: Profiles of socioeconomic background factors for day visitors land, cruise visitors and overnight land compared.

<b>Variable</b>		<b>Day visitor land</b>	<b>Cruise visitor</b>	<b>Overnight land</b>
<b>Age</b>	0-24	13 %	20 %	16 %
	25-44	44 %	29 %	43 %
	45-64	36 %	41 %	38 %
	65+	8 %	9 %	3 %
	Number (N)	80	99	119
<b>Level of education</b>	Up to bachelor	28 %	28 %	31 %
	Bachelor degree	40 %	27 %	29 %
	Higher than bachelor	32 %	45 %	40 %
	Number (N)	78	96	117
<b>Household income</b>	0-39,999 EUR	17 %	22 %	21 %
	40,000 - 59,999	21 %	16 %	21 %
	60,000 - 79,999	6 %	8 %	19 %
	80,000 – 99,999	21 %	8 %	14 %
	100,000-119,999	10 %	14 %	14 %
	120,000 +	25 %	31 %	13 %
	Number (N)	63	83	102
<b>Gender</b>	Male	51 %	54 %	56 %
	Female	49 %	46 %	44 %
	Number (N)	79	98	116
<b>Marital status</b>	Single	27 %	28 %	26 %
	Cohabiting partner	22 %	12 %	30 %
	Married	51 %	60 %	44 %
	Number (N)	78	98	116
<b>Nationality</b>	Nordic	57 %	5 %	40 %
	Other Western Europe	32 %	65 %	45 %
	North America	1 %	24 %	3 %
	Other	10 %	6 %	11 %
	Number (N)	81	100	119

## Results

The results are presented in three sections, each addressing the research questions presented in the introduction. In due course, estimates of expenditure made in the last 24 hours in the area, expenditure categories and explanatory variables for the three groups in question, day visitors and overnight visitors land and cruise visitors are compared.

### ESTIMATES OF TOTAL EXPENDITURE COMPARED

As presented in the methods section, three categories for local expenditure are used: spontaneous spending, day spending and total spending. A large proportion of visitors are low spenders, as these numbers show: 29% of day visitors on land, 16% of cruise tourists and 8% of visitors staying overnight do not spend any money in the Geirangerfjord area and 78% of day visitors, 47% of cruise passengers and 36% of visitors staying overnight have a total consumption of EUR 50 or less during their stay.

Table 3: Different estimates of expenditure in EUR. All expenditures made in the Geiranger area during the previous 24 hours (or if shorter, for duration of stay)

		<b>Spontaneous spending</b>	<b>Day spending (including cruise pre-purchases)</b>	<b>Total spending (Including cruise pre-purchases and accommodation)</b>
<i>Day visitor land</i>	Mean	38	38	38
	Median	20	20	20
	Mode	0	0	0
	N	82	82	82
<i>Cruise visitor</i>	Mean	46	81	81
	Median	18	70	70
	Mode	0	0	0
	N	102	102	102
<i>Overnight land</i>	Mean	73	73	135
	Median	50	50	93
	Mode	0	0	0
	N	120	120	120

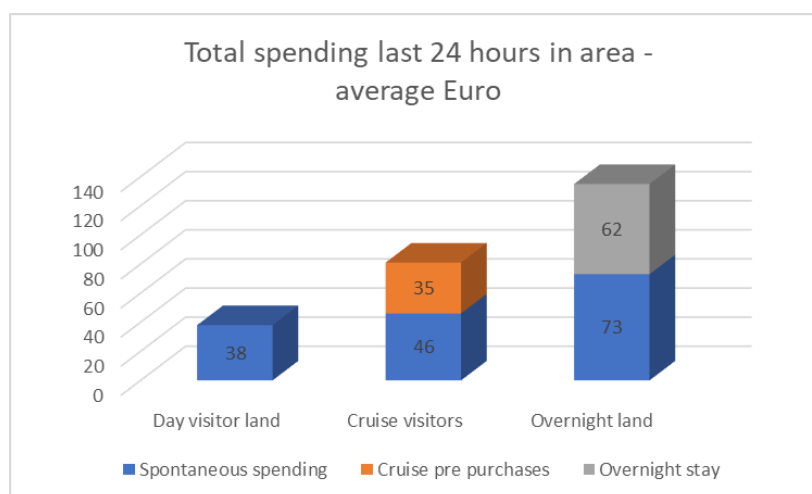


Figure 3: Average spontaneous spending (blue), day spending (blue + red color) and total spending (blue+red+grey color) for the three groups.



Table 3 shows both mean, median and mode for the different estimates of spending. Mode of total spending for all three groups is 0. Day visitors on land have a median total spending of EUR 20, cruise passengers of EUR 70 and visitors staying overnight EUR 93. Figure 3 illustrates that mean spontaneous spending is quite similar for day visitors on land (EUR 38) and cruise visitors (EUR 46), while visitors staying overnight have a much higher level of spontaneous spending (EUR 73). Moving to day spending - spontaneous spending plus cruise pre-purchases - this picture changes. Cruise visitors display higher day spending (EUR 81) than visitors who stay overnight (EUR 73), while visitors staying overnight have the highest mean total spending of all groups (EUR 135). For spontaneous spending a one-way ANOVA, consecutive T-tests and consecutive Mann Whitney U-tests show that the differences in spontaneous spending between visitors staying overnight and the two other groups are significant. The same tests show that for day spending the differences between day visitors and the two other groups are significant and for total spending the differences between all three groups are significant.

#### *EXPENDITURE CATEGORIES COMPARED*

The proportion of total spending on different categories for the three different groups are presented below.

*Table 4: Proportion of total expenditure spent on different categories, day visitors land, cruise visitors and overnight visitors land compared.*

	<i>Overnight stay</i>	<i>Food and beverages</i>	<i>Shopping</i>	<i>Activities</i>	<i>Other</i>	<i>Prepaid cruise</i>	<i>Total group</i>
<i>Day visitors land</i>		31 %	24 %	19 %	26 %		100 %
<i>Cruise visitors</i>		17 %	17 %	20 %	2 %	43 %	100 %
<i>Overnight land</i>	46 %	20 %	16 %	12 %	6 %		100 %

Expenditure is divided into five groups, namely food and beverages (in restaurants and bars), shopping (including groceries), activities, overnight stay, and other expenditures (including transport). A separate category for prepaid package tours bought from cruise operators is added (Table 4). Both transport, food and activities can be included in such packages, and only cruise passengers can buy them. Only overnight visitors on land can spend money on overnight stays.

There are striking differences between the groups related to the proportion of total spending for different categories. Day visitors on land are spending a somewhat similar proportion of their expenditure on all relevant categories. Cruise tourists on the other hand use a large proportion of their expenditure on prepaid activities (43%), and overnight visitors use 46% of their local expenditure on overnight stays.

Table 5: EUR spent on different categories; day visitors land, cruise visitors and overnight visitors land compared.

	Overnight stay	Food and beverages	Shopping	Activities	Other	Prepaid cruise	Total group
Day visitors land		12	9	7	10		38
Cruise visitors		14	14	16	2	35	81
Overnight land	62	27	21	16	8		135

Comparing absolute numbers (Table 5), both cruise tourists and visitors staying overnight spend more than day tourists on all categories except the category “other”. Visitors staying overnight spend the same or more than cruise visitors on all categories, except activities and of course prepaid tours from a cruise operator. A one-way ANOVA shows that the differences between the groups are only significant for spending on food (p=0.00) and for the catch-all category “other” (p=0.02). Spending on overnight stay and prepaid tours for cruise tourists apply to the respective groups only.

EXPLANATORY VARIABLES COMPARED

In initial bivariate correlation analyses, all the variables (as listed in table 1) were tested for explanatory power related to total spending. Few of the variables turned out to be significantly correlated with expenditure for any of the groups compared, but interesting differences between the three groups materialized. Firstly, for **day visitors on land** the strongest bivariate correlation was found between time spent in the area and total spending (r=0.40, p=0.00). We also find a significant moderately negative correlation between traffic in and out of the area (north of Geiranger center) and total spending (r=- 0.30, p=0,01), and a medium strong correlation between total expenditure and diverse perception variables related to congestion and crowding - for instance perception of traffic congestion (r=- 0.30, p=0.01), noise (r=- 0.35, p=0.00) and parking (r=-0.26, p=0.00).

Table 6: Regression model. Total spending for day visitors on land. Predictors: 1: time spent in the area (2 hours intervals) 2. Traffic north of Geiranger center 3. Perception of noise. Note: All changes of F are also significant.

Model	Unstandardized beta Coefficient	R <sup>2</sup> model	F	t-value	p-value
(Constant)	189.962	0.35	12.5	2.2	
Time of stay (2 hours intervals)	27.961			4	0
Traffic North of Geiranger	0.096			2.7	0.01
Perception of noise	8.853			2.4	0.02

The variables with the strongest bivariate correlations to total spending for day tourists were then used in a regression model (table 6). The model shows that 35% ( $r^2 = 0.35$ ) of the variance in the dependent variable can be explained by the factors “time of stay”, “traffic north of Geiranger” and “perception of noise”.

Since there are large proportions of 0 in the sample, the analysis was validated both by removing units without spending from the regression analysis, and by using binary regression models with spenders/non-spenders as dependent variables. All analyses show significant correlations between these variables, with some varying strength.

For **cruise tourists** the pattern is somewhat different. Bivariate correlations show that household income, as the only variable, is significantly (but weakly) correlated with total spending ( $r=0.27$ ,  $p=0.01$ ). Regression analyses pertaining to cruise tourists show that only household income has independent explanatory power related to total expenditure for this group.

For **visitors staying overnight**, bivariate analyses show that whether the visitor stays in a hotel or not is the most important explanatory variable for total spending ( $r= 0.49$ ,  $p=0.00$ ). Furthermore, household income is moderately correlated with total spending ( $r=0.35$ ,  $p=0.00$ ). Regression analyses confirm that only staying at a hotel or not has independent explanatory power for total expenditure for visitors staying overnight ( $r^2=0.24$ ,  $p=0.00$ ). The variable household income loses explanatory power when accommodation is included in the equation.

## Discussion

The goal of this study is to increase understanding of the complex pattern of expenditure within tourist destinations. For this purpose, a comparison of total expenditure and expenditure patterns between cruise visitors, day visitors and overnight visitors on land is conducted in the destination Geirangerfjord. Furthermore, by investigating socioeconomic, travel related, destination related and psychological explanatory variables, the drivers of expenditure for each of the three groups are compared. The study reveals that different groups visiting Geirangerfjord diverge both with respect to spending patterns, and factors explaining these patterns. **Day visitors on land** display relatively low average spontaneous (and total) spending in Geiranger, with 29% of this visitor group not spending any money at all. Their expenditure is quite equally divided between the four expenditure categories “food and beverages”, “shopping”, “activities” and “other”. Day visitors’ expenditure is to a large part explained by a combination of duration of stay, the number of visitors in the area, as well as factors connected to crowding, noise and congestion. **Cruise visitors** have almost equal spontaneous spending as day visitors on land. The difference in total expenditure between the two groups lies in the amount spent on pre-paid tours purchased from cruise operators. These account for 43% of the expenditure in the sample of cruise tourists. For total expenditure of this group, household income is a weak but still the most important explanatory variable. Intuitively enough, **overnight visitors** on land are the biggest spenders per 24 hours in the area, due to the cost of accommodation, which accounts for an average of 46% of their total expenditure. However, in contrast to other studies (Larsen et al., 2013) we find that day spending (overnight stay included, while prepaid tours are included for cruise tourists) is about the same for overnight visitors on land and cruise visitors.

At first glance the findings seem to add to the blurry picture of expenditure in tourism destinations pointed out in several studies (Aguiló et al., 2017; Gómez-Déniz, Pérez-Rodríguez, & Boza-Chirino, 2020; Ying Wang & Davidson, 2010). However, interpreted against the backdrop of previous literature, they contribute to more in-depth knowledge about expenditure in the Geirangerfjord area

and potentially also elsewhere. This is based on the fact that the diverse patterns of expenditure in different groups within a single destination indicate that expenditure is guided more by situation specific opportunities than other factors. In this way, the discoveries lead to a path of a more nuanced understanding of expenditure in tourist destinations.

As mentioned earlier, previous literature has grouped explanatory variables into socioeconomic background factors, travel- and destination related variables and (some) psychological variables, but the studies have diverse and contradictory findings (See for instance the reviews by Mayer & Vogt, 2016; Mudarra-Fernández et al., 2019; Ying Wang & Davidson, 2010). The Geirangerfjord case suggests that this categorization fails to grasp the destination specific dynamics of visitor spending. Spending in a destination (and elsewhere) is made up of choices, preferences and needs over time. Combining the findings of the Geiranger study with findings from earlier literature (see Appendix 1 and the section “Summing up and research gaps to be filled”), we suggest to interpret spending in Geirangerfjord and possibly also other destinations, as a kind of opportunity framework (Figure 4), with four categories of suggested explanatory factors: 1. Travel related factors determined prior to travel (pre-destination), 2. Destination specific factors, 3. Tourist undertakings in the destination and 4. Socioeconomic factors. All-together, and in an interplay, they create a structure of opportunities for spending.

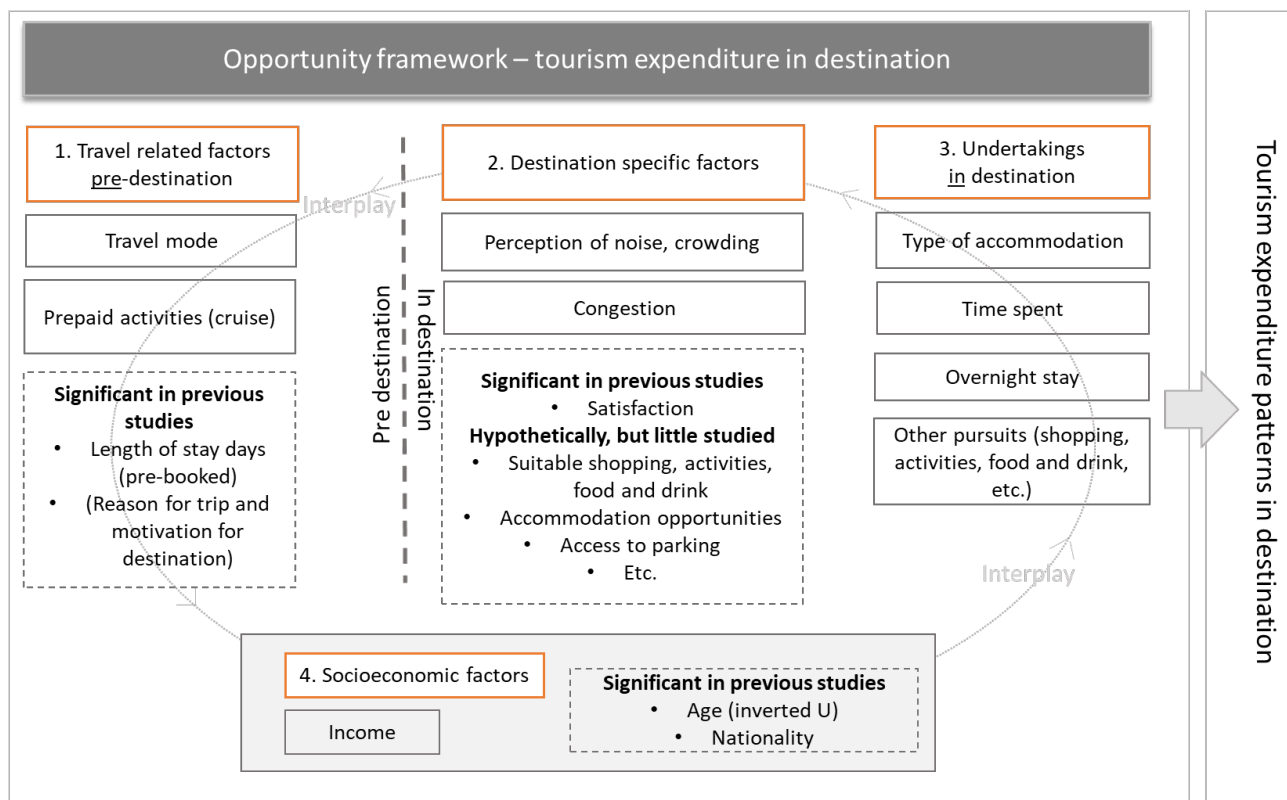


Figure 4: A framework to understand opportunities for individual expenditure in a destination.

In Figure 4 findings from this study are included in boxes with unbroken lines and findings from previous studies are included in boxes with dotted lines. **Pre-destination travel related variables (1)** are manifested in our study by travel mode and prepaid activities for cruise tourists. Both influence visitors' spending opportunities throughout the duration of stay, the decision of whether or not to eat, drink or sleep in the area, et cetera. The point is illustrated for instance by the fact that prepaid tours constitute 43% of spending in the area by cruise visitors. Individual travelers, on the other hand, are free to choose the duration of their stay at the destination, and spending is more influenced by how long they are staying, local traffic conditions, parking opportunities and crowding, among others. Moreover, when tourists on land stay overnight, their expenditures are higher. In previous studies length of stay in days is also found to influence expenditure (Aguiló et al., 2017; Fredman, 2008; Vetitnev, 2015) . The same applies to psychologically oriented variables strongly related to the destination and activities within it, like motivation to visit the destination (See for instance Aguiló et al., 2017) and reason for the trip (García-Sánchez et al., 2013; Gómez-Déniz & Pérez-Rodríguez, 2020). These factors are thus included in the framework.

**Destination specific factors (2)** are understudied in previous studies (Disegna & Osti, 2016). We find that the number of people and perception of noise and crowding seem to influence expenditure for individual travelers on land. This reflects the destination specific situation in Geirangerfjord and suggests that there is an interplay of destination- and travel related factors pre-destination, like choice of transport. Furthermore, the relatively high expenditure of cruise tourists in our sample compared to other Norwegian studies (Dybedal, 2019; Larsen & Wolff, 2016; Larsen et al., 2013) may be explained partially by the infrastructure in the destination. The shops, or rather the spending opportunities, are predominantly, but not exclusively streamlined for this market. This a pattern that has developed over a more than 100-year-long cruise tradition in this destination. In addition, travel by cruise sets the framework of spending by limiting the duration of stay, and partly following from this, also the range of possible activities that tourists can participate in at the destination. In this way, an interplay between travel related factors pre-destination, destination related factors and **actual tourist undertakings (3)** in the destination can explain differences between the groups with regard to expenditure on different categories. For instance, spending on accommodation, fuel and transport would be necessary items only for visitors travelling by car, as opposed to cruise tourists. Prepaid activities from the cruise liners are, on the other hand, an exclusive spending opportunity for cruise visitors.

Of **socioeconomic (4)** factors, income is the only significant explanatory variable in our study, and it is significant for total expenditure for cruise tourists and visitors on land staying overnight only, and just barely. In our interpretation, income provides an opportunity for spending, as a certain disposable income is necessary to be able to spend money, but it is not a sufficient factor.

Opportunities for spending are formed in an interplay between travel related factors pre-destination, undertakings in the destination and destination specific factors, when income is to transform into expenditure. Income is also a significant explanatory variable in many other studies (See for instance Aguiló et al., 2017; Juan Gabriel Brida et al., 2012; García-Sánchez et al., 2013; Mayer & Vogt, 2016; Mudarra-Fernández et al., 2019; Ying Wang & Davidson, 2010). It is therefore included in the

framework, as well as the age of visitors (García-Sánchez et al., 2013; van Loon & Rouwendal, 2017) and nationality (Juan Gabriel Brida et al., 2014; Juan Gabriel Brida et al., 2020; Marksel et al., 2017; Pino & Tovar, 2019), which are also found to be significant by earlier studies.

#### *IMPLICATIONS FOR GEIRANGERFJORD AND OTHER DESTINATIONS*

For the destination Geirangerfjord these findings suggest that strategies to increase visitor spending should **firstly** be different for different visitor groups. To increase expenditure **by individual travelers on land**, measures which increase time spent in the area seem crucial. These could be special attractions and activities. In addition, data also suggest that perceptions of crowding influence spending. Therefore measures that address crowding, like a limit on the number of people in the area, improvement of parking facilities, or other measures to alleviate discomfort for individual day visitors may increase spending for this group. As for the segment of **cruise tourists**, attracting ships carrying passengers with a higher household income could be a suitable strategy. Also, as prepaid activities constitute an important part of cruise visitors' total spending, measures to increase the local proportion of profit from such activities may be a way to go. To boost expenditure by people who stay **overnight**, increasing the supply of hotel rooms could be a strategy, but also additional activity offers for this group.

**Secondly**, for Geirangerfjord as well as more generally, this study suggests that **opportunity is a keyword** in the understanding of expenditure in a destination. Following from this, changes that improve opportunities of individual tourists to spend money will increase expenditure, while the opposite is true for changes that restrict such opportunities. For instance, lack of parking spaces, and a poor range of shops, restaurants, or activities will lower visitor expenditure, while relevant activities, a diversity of offers and an extension of time spent in the area will most probably increase such spending.

### Conclusion

Previous studies show that there is a blurry picture of tourist expenditure patterns in destinations. By comparing spending patterns of three diverse but important visitor groups, namely cruise visitors,



day visitors on land, and visitors on land staying overnight, this study provides more clarity for this issue for the destination Geirangerfjord. Furthermore, by proposing an “opportunity framework”, as illustrated in Figure 4, this study provides the fundamentals for a more nuanced understanding of visitor expenditure in destinations also on a more general basis. The framework may be used as a starting point to understand expenditure patterns also in other destinations. Further studies using this new framework as a starting point are necessary to add validity to the framework.

## Appendix 1: Overview of explanatory variables in literature

Table 7: Overview of explanatory variables in literature, categorized as socioeconomic background factors, psychologically oriented factors, travel - and destination related factors. ✓ = significant relationship between variables, NR = No relationship, ÷ = negative relationship.

		General										Literature reviews				Cruise												
		Aguiló & Vila 2017	Vettréy 2015	García-Sánchez et al. 2019	Dasegna & Osti 2016	Fredman 2008	Downward & Lumsdon 2004	Wilkins et al. 2018	Gómez-Déniz & Pérez-Rodríguez 2020	van Loon & Rouwendal 2017	Wang et al. 2006	Wang & Davidson 2010	Mayer & Vogt 2016	Mudarra-Fernández et al. 2019 (Nature tourism)	Mudarra-Fernández et al. 2019 (Cruise tourism)	Brida et al. 2012	Brida & Rasone et al. 2014 a)	Brida & Rasone et al. 2014 b)	Marksel et al. 2017	Casado-Díaz et al. 2021	Parola et al. 2015	Pino & Tovar 2019	Brida et al. 2020	Brida et al. 2018	Larsen et al. 2013			
Socio economic background factors	Income	✓		✓		✓			✓		✓	✓	✓	✓	✓				NR									
	GDP in country of origin			✓																								
	Nationality	✓			✓				✓		✓	✓	✓	✓		✓	✓	✓				✓	✓					
	Education			✓																		✓						
	Occupation					✓											✓	✓				NR		✓				
	Age	NR		inv. U				✓	inv. U	✓	✓	inv. U	✓	✓	✓	✓	NR	✓	NR	✓						NR		
	Gender	NR				✓				NR	NR					NR	✓	✓	NR			NR						
	Marital status	NR									NR																	
Socioeconomic variables general																												
Psychologically oriented factors	Choice of destination	✓												✓					✓									
	Reason for trip/trip purpose			✓				✓	✓			✓																
	Significance of activity					✓																						
	Seeking stability/excitement									✓																		
	Psychographic var. in general									NR																		
	Type of tourist													✓														
	Loyalty to the destination													✓	✓													
	Type of visitor	First time/repeat/times of repeat	✓		✓	✓			✓				✓					✓	NR									

		General										Literature reviews				Cruise											
		Aguiló & Vila 2017	Veitnev 2015	García-Sánchez et al. 2013	Disegna & Osti 2016	Fredman 2008	Downward & Lumsdon 2004	Wilkins et al. 2018	Gómez-Déniz & Pérez-Rodríguez 2020	van Loon & Rouwendal 2017	Wang et al. 2006	Wang & Davidson 2010	Mayer & Vogt 2016	Mudarra-Fernández et al. 2019 (Nature tourism)	Mudarra-Fernández et al. 2019 (Cruise tourism)	Brida et al. 2012	Brida et al. 2014	Brida & Fasone et al. 2014 b)	Marksel et al. 2017	Casado-Díaz et al. 2021	Parola et al. 2015	Pino & Tovar 2019	Brida et al. 2020	Brida et al. 2018	Larsen et al. 2013		
Time	Length of stay - days		✓	✓	✓	✓		✓	÷	✓	✓	✓		✓													
	Length of stay hours												✓	✓	✓					✓		✓				✓	
Activities	Activities (choise of,whether/or)			✓		✓	✓					✓		✓						✓			✓				
	Individual shore excursions																		✓	✓							
	Time spent at hinterland																	NR									
	Single vs many nodes																		✓								
	Number of cities visited				✓																						
	Enjoyment of food and drink																✓										
Overnight stay	Accommodation type	✓	✓	✓		✓		÷				✓		✓													
	Overnight stay											✓															
Group	Alone/together/type of company		✓	✓																							
	Organized/not organized trip	✓	✓			÷	✓							✓								✓					
	Number of adults in travel party									✓																	
	Group size	✓		✓		✓		÷			✓	✓	✓	✓					✓		NR						
	Group composition																					✓					

		General										Literature reviews			Cruise												
		Aguiló & Vila 2017	Vaittnev 2015	García-Sánchez et al. 2013	Disegna & Osti 2016	Fredman 2008	Downward & Lumsdon 2004	Wilkins et al. 2018	Gómez-Déniz & Pérez-Rodríguez 2020	van Loon & Rouwendal 2017	Wang et al. 2006	Wang & Davidson 2010	Mayer & Vogt 2016	Mudarra-Fernández et al. 2019 (Nature tourism)	Mudarra-Fernández et al. 2019 (Cruise tourism)	Brida et al. 2012	Brida et al. 2014	Brida & Fasone et al. 2014 b)	Marksel et al. 2017	Casado-Díaz et al. 2021	Parola et al. 2015	Pino & Tovar 2019	Brida et al. 2020	Brida et al. 2018	Larsen et al. 2013		
Travel related variables (continued)	Travel	Travel mode					✓ out. dest.	✓		✓			✓			✓											✓
		Price segment of cruise																		✓ highest only							
		Length of travel to destination					✓			✓		✓		✓													
		Mobility patterns																		✓							
	Season	Seasonality									✓	✓ un-clear				✓	✓					✓		✓			
	Weather	Temperature						✓																			
		Precipitation, snow depth and stormy weather						NR																			
	Planning	Booking in advance						✓																			
	Planning of the trip													✓													

		General										Literature reviews				Cruise												
		Agniló & Vila 2017	Vetthev 2015	García-Sánchez et al. 2013	Disegna & Otti 2016	Fredman 2008	Downward & Lumisdon 2004	Wilkins et al. 2018	Gómez-Déniz & Pérez-Rodríguez 2020	van Loon & Rouwendel 2017	Wang et al. 2006	Wang & Davidson 2010	Mayer & Voigt 2016	Mudarra-Fernández et al. 2019 (Nature tourism)	Mudarra-Fernández et al. 2019 (Cruise tourism)	Brida et al. 2012	Brida et al. 2014 a)	Brida & Falcone et al. 2014 b)	Marksel et al. 2017	Casado-Díaz et al. 2021	Parola et al. 2015	Pino & Tovar 2019	Brida et al. 2020	Brida et al. 2018	Larsen et al. 2013			
Destination related variables	Satisfaction	Satisfaction destination/holiday	✓									✓	✓		✓					✓	✓	✓						
		Satisfaction with landscape			✓																							
		Satisfaction with friendliness			-!																							
		Satisfaction with prices			-!																							
		Satisfaction with food and beverages			✓												✓											
		Satisfaction with products in stores			✓																							
		Experiences with transport services																		✓								
		Characteristics of port	Tranquility of port														✓	✓										
			Proportion of persons from the same region												✓													
			Regarded as expensive									✓																
		Famous destination									✓																	
		City/rural/coastal destinations									✓																	
Dependent on place. General.		Places visited									✓		✓	✓														
		Resort	✓					✓																				
		Port of call														✓	✓				✓	✓						
		Islands visited																			✓							
Other issues		Cruise tourist overestimate spending																							✓			
		Expenditure patterns													✓													

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