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Cruise Tourism in the area of the conflict between sustainability and its trend using the example of Venice

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LIST OF ABBREVIATION

CLIA	Cruise Lines International Association
ECA	Emission Control Areas
GDP	Gross domestic product
GT	Gross tonnage
IMO	International Maritime Organization
LNG	Liquefied Natural Gas
Ltd.	Limited
MSC	Mediterranean Shipping Company
NABU	Naturschutzbund Deutschland
plc	Public limited cooperation
SCR	Selective Catalytic Reduction
SWOT	Strengths, Weaknesses, Opportunities and Threats
TUI	Touristic Union International
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNO	United Nations Organization
UNWTO	United Nations World Tourism Organization
USP	Unique Selling Point

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ABSTRACT

The focus of this work is to examine and critically analyze the tension between the constantly growing trend of cruises in the element of shore leave and sustainability. The research question focuses on the extent to which the city of Venice is affected by the effects of cruise tourism and whether sustainability can take place in the destination area or whether it takes place at all. By means of an analysis of the current situation of Venice as well as the determination of positive and negative effects of cruise tourism, the answer to the research question is worked out. The view is critically examined regarding the three pillars of sustainability - the ecological, economic and social view. To this end, cruise tourism in these areas will be investigated and indicators for sustainable shore leave in the destination area will be developed. Furthermore, cruise tourism in Venice will be examined and evaluated by means of a SWOT analysis and the indicators developed will be applied accordingly. In addition, existing measures for the increased integration of sustainability in the cruise industry will be examined and further approaches to solutions will be sought that can be reconciled with the triangle of sustainability.

The work clearly shows that there is a discernible area of tension in the trend of cruise travel, which is strongly pronounced in favor of economic returns. The question of social and ecological sustainability has moved into the background. Venice could develop into a pioneer of sustainable cruise tourism if it implements the concepts it has developed for the future. For this, however, it is necessary above all to rethink the current policy so that those responsible officially start changes in order to preserve the lagoon city.

1 INTRODUCTION

1.1 Justification

I have chosen this topic because I believe there must be a change in this industry. On the one hand for our environment, because the time is getting scarce, in which one can still achieve changes and prevent our current problems of the environment. On the other hand, the industry is an imposition on the people living in the respective destination. Cruise tourism in Venice is the focus of this paper. With this, I want to create an approach to improving the current situation.

1.2 Problem

The cruise industry has been growing steadily for years and thus represents one of the fastest growing segments in tourism. Due to the high prices, cruises have long been considered a niche market, but they have long since developed from a luxury cruise to a mass phenomenon. The trend toward cruise tourism poses an enormous threat to the environment. The even larger cruise ships sail ecologically sensitive regions, generate a lot of waste and sewage and have high emission values. Particularly, the still untouched and ecologically sensitive areas with healthy flora and fauna, good air and water quality seem to be more threatened than ever before. In the case of the latest ships, the so-called mega ships, up to 6,000 passengers disembark at the same time at the destinations (Sloan, 2018). The sensitive natural areas are not prepared for this and must, therefore, be protected with sustainable measures. Solving these problems and averting the negative ecological, economic and social effects poses a major challenge for shipping companies and nature conservationists. Especially in a port city, the negative consequences of cruise ships are particularly noticeable. In recent years, the lagoon city of Venice has become one of the most popular and important ports in the Mediterranean region (MedCruise, 2018). The city on the Adriatic, which is very popular with tourists, has almost reached its capacity limit with over 20 million guests a year. Venice now has to cope with the influx of cruise tourists, who together with day tourists make up almost 75 percent of the guests (Matchaschek, 2014). While this development generates important revenues for the city and boosts the local economy, it also threatens the sensitive ecosystem in and around the lagoon. The flood problem is also getting worse from year to year. Researchers expect that Venice will have to cope with flooding every third day in 50 years' time (Fehr, 2018).

1.3 Objective

The aim of this work is to analyze the effects of cruise tourism on Venice, as well as to investigate the already mentioned area of tension and then to critically evaluate those effects. Not only for the city of Venice, but also for the cruise industry in general, it is important how cruise tourism will position itself in sustainable terms in the future. The effects of cruise tourism on the city and the environment has less impact on the tourists than on the inhabitants. Furthermore, the possibilities for action available to a destination in order to counter the trend of cruise tourism or to take advantage of it should be pointed out. In view of the limited scope of this scientific work, the focus of this work is on ocean cruises. The use of "cruise" throughout this work will be in reference to ocean cruises; river cruises will not be considered.

1.4 Method

The work is divided into six parts. First, some concepts are clarified, such as tourism, cruise tourism, and sustainability. In this respect, the different ship sizes are mentioned, and the current situation of cruise tourism is discussed. Furthermore, the change in the growth of the cruise industry and the development of the demand trend are analyzed. In addition, the second chapter explains the concept of sustainability and its three pillars and brings them into connection with tourism.

Chapter 3 takes a closer look at the Venice destination. In order to better understand the current tourist situation, the history of the city is first explained. Furthermore, the procedure for shore leave will be discussed. By means of a SWOT analysis of cruise tourism in Venice in Chapter 5, the areas of tension mentioned in Chapter 4 are summarized and analyzed again. This chapter deals with the conflict between sustainability and cruises from an ecological, economic and social point of view.

Chapter 6 defines and explains various approaches in more detail. Current measures already implemented are outlined, measures which Venice could still implement and possible solutions for the cruise industry, in general, are examined in order to avoid this sustainability conflict.

Finally, the paper looks at the perspectives of cruise tourism and clarifies the question of whether the cruise industry can integrate itself into and be subject to the sustainability triangle.

2 THEORETICAL BACKGROUND AND DEFINITIONS

2.1 Definition of tourism

The current definition of tourism is based on the 1993 UNWTO (United Nations World Tourism Organization) definition of "tourism", which refers to all activities of persons staying in places outside their usual environment for no more than one year for leisure, business and other purposes, the main purpose of which is other than the pursuit of an activity remunerated from the place visited (Freyer, 2011a:2).

Travel is the central element of tourism. Tourist travel differs from other forms of travel in terms of destination, duration, and motivation. These aspects are also called "constitutive elements of tourism" (Freyer, 2011a:2). The change of location takes place by means of various means of transport and the temporary stay usually takes place in a single accommodation (e.g. in a hotel), with the intention of ending after hours, days or weeks. The motivation to travel deals with the question of why one travels.

Tourism therefore always includes leisure travel, whereas business trips are not always classified as tourism, but as peripheral tourism, since the implementation, occasion and destination of the trips differ considerably (Freyer, 2011a:2-5).

2.2 Cruise tourism

As mentioned in the introduction, the cruise industry has been growing steadily for years. More and more people are choosing to spend their holidays on cruise ships. In 2010, around 19.1 million people took a cruise voyage, 23.06 million in 2015 and 28.2 million in 2018 (CLIA, 2018:18). The directors of the international cruise association CLIA (Cruise Lines International Association) from Germany

commented on the development as follows: „Cruises have lost their image of being elitist and expensive and have become a real alternative to package holidays. The hotel is always there, and you don't have to pay extra for the entertainment on board.“ (Ruchay, 2014; own translation). For 2019, 30 million cruise vacationers are said to be worldwide (CLIA 2018:18).

For a better understanding, the term "cruise" should first be considered and defined in more detail. The term refers to a voyage of several days by ship for private individuals which is carried out by shipping companies in the ship-occasion traffic and calls at several ports during the voyage (Wind Rose Network, 2019). Accordingly, a cruise can be regarded as a form of package travel with a maximum number of participants, which includes accommodation, meals, entertainment and use of almost all ship facilities. A pre-determined route will be used with at least one additional port between the port of embarkation and the port of disembarkation. From the passengers' perspective, the cruise ship is an independent holiday destination as it serves as a means of transport, hotel, restaurant, and theatre (Schäfer, 1998:7).

2.2.1 Cruise ship sizes

A cruise includes all four areas of the tourism industry: transport, accommodation including meals, the tour operator and attractions (Schulz & Auer, 2010). A distinction is made between three different types of ship in the cruise tourism segment. On the one hand, there are the classic cruise ships. They represent the traditional ship type and are particularly in demand in the middle and luxury class. Niche ships are another type of ship. They specialize in a certain type of customer and/or a certain destination. Prices for such voyages are higher because the costs for the shipping companies are disproportionately high. The third type of ship is mega ships. They are very trendy as they are particularly interesting for mass tourism at moderate prices. The trend towards ever-larger ships is based on rising demand and interest in low-cost cruises (Schulz & Auer, 2010:60).

These cruise ship types are again differentiated into five ship sizes (Schulz & Auer, 2010:60-61):

- Boutique ships: They are particularly suitable for coastal cruises. They have a capacity of 250 passengers. Due to their shallow draught, they can only call at ports and islands with little traffic.
- Medium-size cruise ships: They are no longer manufactured at disproportionately high fixed costs. This ship size can accommodate between 250 and 500 passengers.
- Large cruise ships: They are also hardly ordered anymore due to the high costs. In addition, mooring in many smaller ship sizes is more difficult, which is why small boats are often required to land passengers. Between 500 and 1,000 passengers can participate per cruise.
- Very large cruise ships: They are profitable to operate and therefore are in demand by shipping companies offer space for 1,000 to 2,000 passengers.
- Megaships: They reflect the trend in the cruise industry. Each cruise can carry between 2,000 and 6,000 passengers, which is why they are in demand from shipping companies because of their capacity utilization, the positive cost situation, and the resulting profit.

2.2.2 The current situation in the cruise industry

In addition to a few small niche cruise lines, the international cruise market has been dominated since 1990 by three large groups that share 85 percent of the total cruise market.

Group	Group company	Location	Ships	Beds
Carnival Cooperation & plc, Miami (USA), London (GB)	Carnival Cruise Lines	Miami (USA)	25	
	AIDA Cruises	Rostock (D)	10	
	Costa Cruises	Genua (I)	14	
	Cunard	Southampton (GB)	3	
	Holland America Line	Seattle (USA)	15	
	Ibero Cruceros	Madrid (E)	3	
	P&O Cruises	Southampton (GB)	7	
	P&O Cruises Australia	Sydney (AUS)	3	
	Princess Cruises	Santa Clarita (USA)	16	
	Seabourn	Miami (USA)	6	
				225.000
Royal Caribbean Cruises Ltd., Miami (USA)	Royal Caribbean Int'l	Miami (USA)	26	
	Azamara Club Cruises	Miami (USA)	4	
	CDF Croisieres de France	Paris (FR)	8	
	Pullmantur	Madrid (E)	4	
	Celebrity Cruises	Miami (USA)	11	
	TUI Cruises	Hamburg (D)	7	
				93.000
Genting Hong Kong Ltd. (SAR)	Star Cruises	Hong Kong (China)	6	
	Norwegian Cruise Line	Miami (USA)	13	
				39.000

Figure 1: Overview of the cruise companies (own representation according to Mundt, 2012)

With ten subsidiaries, 102 cruise ships and a capacity of almost 225,000 beds, the British-American Carnival Cooperation & plc is the world's largest cruise shipping company. At the same time, it is the most successful in the North American market. The shipping company covers the entire range of maritime tourism. Beginning with the mega-liner for mass tourism AIDA club ships, up to smaller luxury cruise ships, like the shipping company Seabourn or Cunard with the Ocean Liner Queen Mary 2 (Carnival Corporation & plc, 2019).

The American-Norwegian group Royal Caribbean Cruises Ltd. is in second place with six subsidiaries, 60 cruise ships and a passenger capacity of approx. 93,000 persons. The Group also owns 50 percent of the shares in the German shipping company TUI Cruises alongside the major shipping companies Royal Caribbean International and Celebrity Cruises (Royal Caribbean Cruises, 2019).

Genting Hong Kong is known as Star Cruises Limited on the cruise market. It is the third largest group with two subsidiaries. With a total of 19 cruise ships and a capacity of 39,000 beds, it dominates the Asia-Pacific market (Genting Hong Kong, 2011; Star Cruises, 2019).

The destinations of the cruise routes are also decisive alongside the shipping companies and their respective fleets. A variety of factors are considered when determining the suitability of a cruise route. In addition to the climate, these are the geographical characteristics, accessibility, and

attractiveness of the destination. These factors can be used to differentiate between 21 cruise regions worldwide (Schulz & Auer, 2010: 190):

1. Baltic Sea
2. Nordland (incl. Iceland and Spitsbergen)
3. Greenland and the Arctic
4. British Isles
5. European Atlantic Coast
6. Atlantic Islands and North African Atlantic Coast
7. Western Mediterranean
8. Eastern Mediterranean and Black Sea
9. Caribbean (incl. South and Central American Caribbean coast)
10. East Coast of the USA and Canada
11. West Coast of the USA and Mexico
12. Alaska and West Coast Canada
13. South America (incl. Amazon and Galapagos Islands)
14. Antarctica
15. West Africa
16. South Africa
17. Indian Ocean (south of the equator)
18. South Asian coasts (incl. Red Sea)
19. Southeast Asia (incl. Far East)
20. Hawaii and South Seas
21. Australia and New Zealand

2.2.3 Growth of the sector and expected development of demand

Michael Thamm, Chairman of the Shipping Committee of the German Travel Association, explained: „ The cruise market is one of the strongest growing tourism segments. “(Haslauer, 2010; own translation).

In recent years, cruise ships have changed not only in terms of size but also in terms of their target group. Passengers no longer select their cruises based solely on destinations but select shipping companies for the purpose of their cruise ships and the offers on board. During their voyage, they spend a lot of time on the ship, which is why they choose the ship based on their needs and wishes. For example, AIDA Cruises offers its guests an extensive entertainment and sports program, which is why they are particularly suitable for club holidaymakers. In contrast to AIDA Cruises, Hapag-Lloyd's expedition ships attract inquisitive passengers. Due to their shallow draught, they can navigate Arctic and Antarctic waters far away from mass tourism (Schickling, 2013).

Nevertheless, the shipyards have a lot of work ahead of them soon, as the order books for new ships are full of regard to orders from shipping companies. Among others, AIDA, Royal Caribbean, Princess Cruises, MSC and TUI Cruises have ordered fashionable new buildings. Up to 2020, 25 new buildings are to set sail (Neumeier, 2018) and growth will continue unhindered - a total of up to 90 ships with a bed capacity of 270,000 are planned between 2018 and 2027 (Kreuzfahrt Erleben, 2018). Due to the high number of new ships with larger passenger capacity, the cruise industry has been growing at an annual rate of 10 percent since 2010. In 2018, more than 5.9 million Europeans booked a cruise and 12.8 million passengers in North America. In total, more than 25 million

people worldwide took a cruise in 2016 (CLIA 2018:18). In the cruise market, the trend towards shorter trips is more pronounced than in other tourism sectors. The average duration of a cruise on the high seas is only 9.2 days. Overall, more and more holidaymakers are dividing their annual holidays into several smaller and shorter trips, which is more convenient for cruise suppliers. They benefit from the second or even third trips of a year (Mundt, 2012).

The rapid development of the cruise market can be attributed to the number of different offers. They are adapted to different target groups, age groups, and income levels. There is an ever-increasing variety of itineraries as well as numerous theme trips such as fitness cruises and music cruises. Increased demand development due to increasing fleet sizes and bed capacities is predicted. The number of ships entering the market within ten years has tripled. While between 1980 and 1990 there were only about 40 new buildings, between 2011 and 2018 there were almost 120 ships (Schulz & Auer, 2010). The development of new markets can also lead to an increase in demand in the cruise industry. In contrast to the almost exhausted North American market, the European and Asian markets have greater growth potential (Hamburger Abendblatt, 2013). Already ten years ago, Asia was an up-and-coming destination in the cruise industry and will continue to record steady growth in the future. So far, the low density of the port network and the inadequate infrastructure of smaller destinations in Asia have hampered the expansion of the industry. However, new techniques and procedures rarely make this a problem (Schulz & Auer, 2010:38).

The development of new concept ideas also contributes to a promising development of demand. Innovative opportunities for market expansion include the conversion of cruise ships into hotels and luxury apartment ships such as "Utopia" and "The World". A further perspective is the continued development of mega ships. In the future, passengers will be brought ashore by means of small yachts, motorboats or seaplanes housed inside the ships. The aim is to avoid direct mooring at the port and thus overcrowding with ocean-going ships (Schulz & Auer, 2010:38). Based on the constantly growing demand and the increasing market potential, various publications believe that the cruise industry will generate similar growth rates in the next 20 years as in previous years.

2.3 Sustainability in tourism

Sustainability is becoming increasingly important these days. The idea of sustainability originated in 19th-century forestry. The idea states that only the quantity of trees per time unit that can grow again qualitatively and quantitatively may be felled and that nature thus regenerates itself (Müller, 2007:26). Based on this concept, the concept of sustainability was transferred to various sectors. This concept of sustainable development was first publicly presented in 1987 by the United Nations Organization (UNO) in the Brundtland Report (Baumgartner & Röhrer, 1998:16). According to this report, sustainable development is understood to mean meeting the needs of present generations without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development, 1987:26). At the United Nations Conference in Rio de Janeiro in 1992, 182 countries committed themselves to the Agenda 21 program of measures. Agenda 21 embodies aspects of ecological, social and economic development (Müller, 2007:201). In a subsequent

conference, further points were added to Agenda 21 that deal with the topic of sustainability and tourism (United Nations, 2012:25).

On this basis, the World Tourism Organization (UNWTO) defined sustainable tourism as follows: „Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment, and host communities. “(UNWTO/UNEP, 2005:12). In recent years, three tourism policy objectives have developed - ecological, economic and socio-cultural with a common main objective of sustainable tourism development (Freyer, 2011b:391-395).

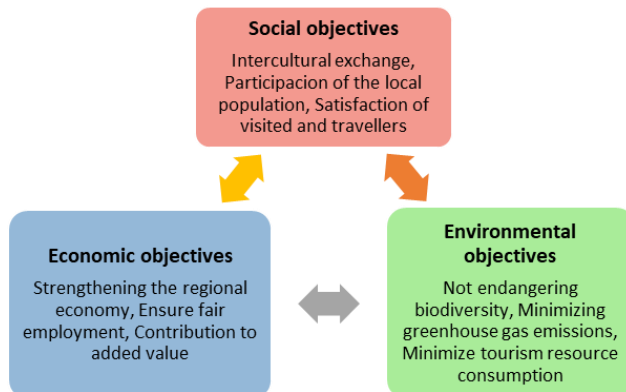


Figure 2: Concept of sustainability – sustainable development (own representation according to Stecker, Prof. Dr. B., 2007)

In order to speak of sustainable development, each dimension must be adequately considered, and the objectives achieved at the same time as far as possible. However, the degree to which these dimensional objectives are achieved can create a field of tension between them, as conflicts of objectives can often arise. For example, environmental and social aspects may be neglected in order to ensure economic viability.

Some authors, such as Müller or Schmied, Götz and, Kreilkamp, therefore criticize the concept of sustainable tourism. They are of the opinion that a sustainable form of tourism is merely a utopian wish. According to them, a mass tourism holiday, such as a cruise, will never meet all sustainability criteria (Müller, 2007:27-29; Schmied et al. 2009:29-33).

3 CRUISE TOURISM IN THE DESTINATION VENICE

The four factors that determine a route for cruise ships in Chapter 2.2.2 are optimal in Venice, which is why the port is a sought-after destination for cruise ships. The city of Venice embodies living history - from historical buildings to magnificent art treasures and its very own romantic charm. But for these reasons, the lagoon city must struggle with several problems. The history and development of the city, as well as the current tourist situation in Venice, will be discussed in more detail in the following chapters.

3.1 History and development of the city

Venice, also known as "La Serenissima" (Italian for "the Most Serene"), is located on the Adriatic coast in north-eastern Italy. This work deals with the historical city center (Italian: "Centro Storico"), which includes the district of Venice-Murano-

Burano. It is subdivided into six districts and divided into a total of 118 islands, which are situated in a unique lagoon landscape closed off from the sea. The city and its lagoon, which extends over 550 square kilometers, have been UNESCO World Heritage Sites since 1987 and are largely built on millions of wooden piles from neighboring Istria (Hübner, 2018).

The emergence of Venice does not correspond to the growth of other cities. It was created by the survival of the Venetian people, who lived north of the Po estuary on the upper Adriatic Sea by the sea. When the flow of migration broke in the northeast of Italy, the Venetians managed to find an escape route that their enemies could not follow and as result-built huts on the islands of the lagoon (Schümer, 2003:18). Since Venice had no fixed connection to the coast until 1846, it was impregnable and offered the inhabitants protection from their adversaries. Today, the old town is connected to the Italian coast by a kilometer-long bridge and a railway tunnel. The first refuge of the Venetians was the island of Malamocco, then they settled in Torcello, which was very powerful and prosperous before the creation of Venice, and finally, they settled on the 118 islands that form today's Venice. Already at this time, the essential characteristics of today's city structure developed (Machatschek, 2014:21-25). In the course of time, these were connected with about 400 bridges and fortified with 177 canals (Albrecht-Bott, 1986:12-14). Parallel to the construction of the city, including St. Mark's Church, Venice's maritime trade activity expanded. Venice's independence began with the "Pactum Lothari" in 840. In 1198, the lagoon city succeeded in becoming a great power and a powerful maritime state by participating in the fourth crusade and destroying the Byzantine Empire. The Venetians received parts of Constantinople and some Mediterranean islands. 400 years later, their influence faded with the rise of the Ottomans and the discovery of America. In 1719 an explosion destroyed the last Venetian Mediterranean fortress on Corfu. Venice changed in the 18th century from a merchant city to a city of culture and amusement and more and more foreigners from outside streamed into the city (Machatschek, 2014:21-25). Since 1866 Venice has officially belonged to Italy and soon benefited from the economic upswing by connecting to the Italian railway network and opening the Suez Canal. In the meantime, tourism was the city's biggest source of income. In 1918, the residential and industrial cities of Mestre and Porto Marghera were built along the coast. After the Second World War, Porto Marghera became the third largest industrial city in Italy. The effects of industry, which still influence Venice today, will be examined in more detail in the following chapter (Machatschek, 2014:21-25).

3.2 Description of the status quo

3.2.1 General tourist situation

Nowadays, tourists are an important part of the city and, although they cause most of the damage in Venice, they have become indispensable. Every year in the high season, 100,000 tourists arrive in Venice every day (Mänz, 2018). Of these tourist arrivals, the largest share consists of day tourists, who therefore leave less expenditure in the city. Therefore, they are of little use for the economy of Venice, but at the same time, they destroy the infrastructure and damage the environment. The average length of stay for tourists in Venice is now one to two days. Cruise arrivals make a significant contribution to these figures. As a result

of the decreasing length of stay and increasing tourist arrivals, Venice is occupied by tourists all year round and in the high season, its capacity is significantly exceeded (Grotheer, 2003:6).

The inhabitants of Venice suffer from these mass arrivals. Since the high number of tourist arrivals causes many problems, this has a negative effect on the attitude of the Venetians towards tourists. The high volume of tourism has a negative impact not only on the environment but also on the inhabitants and social life, as explained in more detail in Chapter 4.2.

It should be noted that the Veneto region attracts the most tourists to Italy. Venice is even visited by more tourists per year than Rome. Up to 30 million tourists enter the city every year and, according to forecasts by the University of Venice, up to 40 million tourists are expected to enter the city every year by 2020 (Machatschek, 2014:19). Among other things, this makes shore leave more difficult for cruise ships, which will be discussed in the following chapter.

3.2.2 Cruise tourism and the "shore leave" element

As mentioned above, cruise tourism and therefore the shore leave of passengers is of great importance for Venice. The 21st of September in 2013 is the most important day in the city's history: the city almost collapsed on that day because of the masses of tourists. A total of 12 cruise ships with a total of 20,000 passengers moored in the port. In addition, there were the 60,000 tourists already present who did not arrive by ship (Machatschek, 2014:19). The increase in the number of cruise passengers is enormous. Unlike the ports of Civitavecchia near Rome or Livorno near Florence, in Venice ships dock directly in the city. Figure 1 in the appendix shows the various options for mooring the ships. The cruise ships reach the port via the Giudecca Canal and return to the Mediterranean Sea. To get back into the sea from the port "Stazione Marittima", the ships have to sail directly past the historic old town and St. Mark's Square.



Figure 3: Current route of the passenger ships in Venice (Legorano,2013)

Since in 2004 the German ship "Mona Lisa" ran in bad weather conditions in the Markus Basin in front of the Doge's Palace due to bad weather conditions, the exit is now often with the help of tugs (Reski, 2013). Due to the accident of the cruise ship "Costa Concordia" in 2012, the government issued a prohibition to carry out coastal passages of less than two nautical miles, which is valid throughout Italy - the only exception is Venice (Machatschek, 2014:198). Therefore, they cause more and more unexpected damages, which will be discussed in the following chapters. Although the city generates large amounts of income by means of shore leave, catering establishments and accommodation

through these passengers hardly earn any money. This is because their supply is already guaranteed by the ship's all-inclusive offers and packed lunches (Kreiner, 2013).

Also connected with the shore excursions is the resulting hectic pace of the passengers, as the time ships spend in port is limited. The planned excursions of the shipping companies therefore often focus on the historical center of the city. This allows them to provide passengers with a compact overview of the city in a very short time. In the following chapters, the effects of the route and the cruise ships on the city are explained in detail.

4 THE TENSION FIELD BETWEEN THE TREND OF CRUISE TOURISM AND SUSTAINABILITY IN VENICE

4.1 The economic area of tension

The port of Venice is an important port of departure and destination for numerous Mediterranean cruises. Here several shipping companies start their routes at a total of three cruise terminals. The Stazione Maritima is the main berth with a total of five berths for mega ships. The smaller ships moor at the San Basilio pier. The third quay is in Riva Sette Martiri, east of Piazza San Marco, on the other side of the city, near the Giardini Pubblici. To get from the port to the city of Venice, there are numerous roads by land and by sea, so that passengers can enjoy the breathtaking view of the metropolis as quickly as possible. Another construction of a terminal is reportedly planned.

The cruise industry employs almost 4,300 people in 200 companies in and around Venice. The expenses resulting from cruise tourism have a direct, indirect and induced impact on the economy of Venice. The direct effect reflects all sales by suppliers and dealers who sell their goods directly to shipping companies, cruise passengers or crews. These can include, for example, port fees, fuel costs, souvenirs, shore excursions, taxi costs or restaurant visits. The indirect effect refers to the income generated by the purchase of direct suppliers, such as the purchase of food from other companies. Induced effects result from the expenditure of direct and indirect suppliers who have reached a higher level of prosperity through increased income in the destination (Brida & Zapata, 2010:214). Cruise ships docking in Venice generate a total of 436.6 million euros per year at provincial the level through direct payments from passengers, companies, and crews. Of these, 283.6 million euros are spent in and around Venice and 153 million euros in other regions of Italy (Kreuzfahrt Praxis, 2017). The indirect and induced revenues from the cruise industry amount to another 170 million euros, which corresponds to a GDP of almost 3.3 percent (CLIA, 2017a). The guided tours of the city are usually more expensive, which is due to the high margins of the shipping companies and the inclusion of other travel agents. These national excursions are an important source of income for the shipping companies, but the Venetians benefit little from these revenues. Only 25 percent to 50 percent of the revenue remains in the region. The remaining revenue generated goes to international cruise companies (Brida & Zapata, 2010:217).

However, before any revenue can be generated at the ports, the port infrastructure must be in place to handle the masses of passengers. Large sums must first be invested to build a cruise terminal or pier. In addition to ongoing maintenance, costs must be raised for marketing a destination, security at the

port and in the city through increased police presence and an expanded medical care system for emergencies (Klein, 2005:96).

Due to the environmental and social consequences, which will be explained in more detail in the following chapters, cruise companies have voluntarily limited access to the city to ships of 96,000 tons. As a result, Venice lost many tourists - 1.8 million in 2013 and 1.4 million in 2017. The decline in the number of cruise passengers also had a negative impact on the entire Adriatic. According to "Risposte Turismo", a total of 6.5 percent of passengers were lost in 2016. If the Venetian government were to refuse access to ships over 40,000 tons, the number of passengers would fall by 90 percent compared to 2012. This would lead to a serious drop in expenditure on local goods and services. In addition, employment in Venice would fall by about 80 percent. This would cause a downward spiral in Venice's economy (Cruise Practice, 2017). In order to prevent this, alternative routes are planned that allow the passage of larger cruise ships, which are discussed in more detail in Chapter 6.2.

4.2 The socio-cultural field of tension

In addition to the numerous economic differences, there are also some areas of conflict in socio-cultural terms. On the one hand, cruises cause acoustic and visual impairments, as the mega ships block the view of the residents to the sea. On the other hand, the cruise ships create strong vibrations that can be felt on the land surface. According to reports from residents, they must attach their hung pictures to the walls of their houses; otherwise, they would fall due to the vibrations generated by the cruise ships (Pichler, 2012). However, in addition to these obvious effects, there are also indirect effects, such as particle pollution. While this had already reached 500 tons in 2010, it has continued to rise in recent years. As early as 2012, NABU's "Mir stinkt's - für eine saubere Kreuzschiffahrt" campaign (Stinks - for clean cruise shipping) claimed that the world's 15 largest cruise ships emit more harmful Sulphur oxides into the atmosphere every year than 760 million cars (Asendorpf, 2017). This is a serious burden on the health of the inhabitants. As a result, the number of people with lung tumors has risen in Venice. It is the city with the highest lung cancer rate in Italy. Furthermore, the fine dust produced pollutes health by promoting respiratory and cardiovascular diseases. The mortality rate has also been increased. In addition, cruise ships generate electro smog through radar systems. These are also dangerous to health, as many studies show, as they cause cancers and learning disabilities (Reski, 2013).

In addition, the tourism bearing capacity of Venice is of great importance. The UNWTO defined it as follows: "The maximum number of people that may visit a tourist destination at the same time, without causing destruction of the physical, economic and sociocultural environment and an unacceptable decrease in the quality of visitor satisfaction." (UNWTO, 1981). The high volume of tourism pushes the inhabitants out of the city. Overcrowded alleys and the garbage produced by the tourists impair the quality of life of the Venetians. Many small family-run businesses, such as butchers, bakeries or confectioners, were forced to close due to low demand and were replaced by tourist minded souvenir shops. As a result, there are few shops for the daily needs of Venetians, which in turn leads to an increase in prices (Kronen Zeitung, 2009; Machatschek, 2014:17-19).

The general housing situation in Venice was expensive, to begin with, as many apartments are sublet to tourists. Unfortunately, the masses of tourists who daily explore the city due to the cruise ships has only increased these costs. Due to the high cost of living, such as food and lodging, the population on the lagoon island has declined sharply. In 1950 the population of the famous island of the old town ("Centro Storico") was still 175.000 inhabitants. In the following years, this decreased drastically. By 1980 there were only 100.000 inhabitants, by 2016 the number had almost halved again. Currently, 58,000 inhabitants live in the old city of Venice (Machatschek, 2014:17-19). The problem is the inflation rate in Venice is rising, but that the average per capita age median has already risen to 47 years (DerStandard, 2016). If nothing is done against mass tourism, the city will soon no longer have any inhabitants and will be transformed into a "ghost town" (Pichler, 2012).

4.3 The ecological field of tension

The ecosystem is a dynamic complexity that unites all living beings such as plants, animals, and organisms and reflects their interaction with their environment (MaximumYield, 2019). The lagoon city has an ecosystem of about 550 square kilometers and is, therefore, the largest wetland biotope in Italy. As it carries both salt and fresh water, it is an ideal habitat for plants and various animal species. Cruise tourism, in particular, is responsible for the serious changes in this ecosystem. The canals have been excavated to provide access for these ships to the port. This has led to the emergence of increasingly strong currents, which have increased the risk of flooding the lanes during floods (WISO, 2017).

Although cruise ships account for only a small proportion of total shipping, they are often criticized. This is because they are leisure activities and therefore not a necessity. According to NABU calculations, ocean-going vessels cause significantly higher pollutant emissions than other means of transport. They produce five million times more emissions on the same route than a passenger car (RP Online, 2012). In addition, the number of cabins and passengers on board is hardly a decisive factor in emissions. According to statistics, the difference in weight between the minimum and maximum load is about two to four percent (atmosfair, 2019).

The media often refers to cruises and their ecological impact when talking about the causes of climate change. The main criticisms are the emission of greenhouse gases and the heavy fuel oil with which most cruise ships use for operating cost reasons. In order to be able to provide enough energy for the internal power grid during berthing at the port, the engines are not only operated with heavy fuel oil during the voyage. The residual products resulting from the combustion of heavy oil contain a high proportion of heavy metals, sulfur, and other substances toxic to the environment (NABU, 2014:3). In addition, there is always the danger that one of the cruise ships will leak in of the shallow lagoon and the oil from the tanks will end up in the sea. The heavy oil forms a film on the sea surface. Not only sea dwellers but also birds that encounter the heavy oil, die or are severely damaged. The contained poisons contaminate living beings and plants, which can later lead to mutations.

In addition, the lagoon water is contaminated by the toxic substance benzopyrene, which dissolves from the ship's hulls antifouling paint. In addition to these deposits, a cruise ship produces many other pollutants and emissions

that are also harmful to the environment and the ecosystem (Reski, 2013). The emissions produced by one cruise ship per day are comparable to those of 350,000 cars (Kamp, 2010). The main reason for the increased emissions is the heavy fuel oil operation of the ships. For cost reasons, a fuel with a 2,5 percent sulfur content is used. Since heavy fuel oil is viscous at normal temperatures, it must be preheated continuously to 40 to 50 degrees Celsius for pumping. According to Franz Neumeier, it is impossible to switch immediately to environmentally friendly diesel fuels, as these are not available in sufficient quantities for all ships (Neumeier, 2016; Sueddeutsche, 2017). As already mentioned, costs are a problem in addition to the scarcity of resources. At around 700 dollars per ton, the environmentally harmful heavy fuel oil is one third cheaper than, for example, than the more environmentally friendly marine diesel oil. Prices for marine fuels are also continuing to rise due to declining oil reserves (Birger, 2012).

The risk posed by nitrogen oxides is also increased by the combustion of fossil fuels for the operation of cruise ships. If the nitrogen oxide encounters the water in the atmosphere, nitric acid is formed as a result of chemical reactions. If this, in turn, reaches the sea surface in the form of precipitation, acidification occurs. The amount of nitrogen oxides produced depends on the design of the ship's engines. The longer the fuel remains in the cylinder and the higher the combustion temperature, the more nitrogen oxides are produced (atmosfair, 2019).

Other impacts a cruise can have on marine ecology include sewage sludge, wastewater, oily bilge water, and solid waste. Sewage is waste water as well as greywater. Greywater is water that is so heavily polluted during use during a production process that it is considered unusable (Sustainable Earth Technologies, 2018). 32 liters of waste water and 350 liters of greywater are produced per person per day. A single passenger also produces 2.5 to 3 kilogram of solid waste per day. Each cruise ship also discharges around 28,000 liters of oily bilge water into the sea every day. All these points have negative effects on the environment. The cruise ships cause a large amount of pollutants, most of which are discharged into the air or tempered into the sea. The disposal of waste into the sea damages marine ecosystems and therefore the health of the seas. Corals and marine life are affected by the nutrient content of waste water. As onshore waste management is more advanced than at sea, solid waste can be better recycled and incinerated in a more environmentally friendly way (Kamp, 2010).

Enormous quantities of waste and waste water, which also contain toxic substances, continue to accumulate on board. For a long time, all residual waste and waste water were discharged into the sea. The production of waste by tourists during their shore leave also represents an ecological burden. Due to the long process of plastic decay, this waste has been a major threat to the marine ecosystem for centuries (NABU, 2012:2).

5 SWOT ANALYSIS OF CRUISE TOURISM IN VENICE

The explanations given so far are underlined in the following by means of a SWOT analysis. The purpose of such a study is to analyze the strengths and weaknesses of cruise tourism in Venice and then to identify the resulting opportunities and risks (Onu Mujeres, 2012). The analysis takes up the positive

and negative effects of this again and summarizes them compactly. Then follows a conclusion in which it is examined whether economic profit plays a more important role than sustainability in the city.

Strengths	Weaknesses
<ul style="list-style-type: none"> • Strengthening the local economy through revenues in the cruise industry • Strengthening the USP and the Venice brand • Uniqueness of Venice's location • Tax receipts • Good location and accessibility of the harbor • Job creation • Increasing the city's awareness worldwide 	<ul style="list-style-type: none"> • Many day tourists → lower income • Predominant corruption and tax evasion • Damage to fragile infrastructure due to overcrowding • disturbance of the locals and endangerment of their health • Venice's dependence on tourism • Close location of the port to the residential area → Increased risk of accidents • Increased waste problems • Increased risk of flooding • Blurring of the image
Opportunities	Threats
<ul style="list-style-type: none"> • Developing into a model for sustainable cruise tourism • Breakthrough to the most visited port in the Mediterranean region • Using cruise tourism revenues to solve problems • Financial support from outside to fix the problem 	<ul style="list-style-type: none"> • Change of social structure → residents are disappearing completely • loss of income and jobs if cruise tourism is averted • absence of tourists due to flooding, overcrowding • Tipping the ecological balance • ship accidents • Withdrawal of the UNESCO World Heritage Title

Figure 4: SWOT analysis of cruise tourism in Venice (own representation)

The SWOT analysis clearly shows cruise tourism has its strengths and could therefore also result in some opportunities for the city. The negative consequences of tourism are often concealed, and the public media only

communicate the promotion of the local economy, increased revenues generated and a stronger image of the city of Venice as a result of cruise tourism. Although Venice can become the most visited Mediterranean region with the direct location of the port (next to Barcelona), the question arises as to whether this ascent will have a long-term positive impact on the development of the city and the tourism problem, with job opportunities and generation of increased income.

However, the weaknesses and associated risks resulting from cruise tourism are currently preeminent. If the port of Venice were to become the most visited, some of the problems that are already prevalent would be considerably exacerbated. The garbage problem and the overcrowding of the streets would increase and at the same time, the fluctuation of the inhabitants would worsen and thus lose its social structure. Obviously, there is no dimension of sustainability in tourism policy, which is why there is a clear tension between economic returns and sustainability in social, ecological and, despite everything, economic terms. Cruise tourism in Venice could be designed in such a way that both the city and the cruise industry benefit from the changes. From a socio-cultural point of view, Venice could also develop promisingly, provided that the city not only devotes itself to tourism but at the same time devotes itself to its inhabitants. The prerequisite for this, however, is that the weaknesses and risks must be eliminated or minimized. In the following chapters, possibilities are listed for how cruise tourism could develop in Venice and which problems would remain in the long term if no changes are made.

6 POSSIBLE SOLUTIONS

6.1 General solutions for the cruise industry

The concept of cruise travel will probably never be fully compatible with that of sustainability, but at least precautions and measures can be taken to help reduce the harmfulness in socio-cultural, economic and environmental terms. It is not only the shipping companies, which are often criticized, that are responsible for making the cruise industry more sustainable. Cruise associations, international institutions as well as the policies of the individual countries can introduce stricter regulations. In addition, each passenger selects the individual shipping companies with which he wishes to undertake a voyage and can obtain information about these through preliminary research and decide according to his own moral concepts which of the shipping companies agrees with them. In the following, the different approaches are described.

6.1.1 Political orders

In recent years, numerous environmentally friendly technologies have been developed that have promoted the progress of the cruise industry towards greater sustainability. However, policy regulations are rather underdeveloped. This can be seen, for example, in the regulation of the sulfur content of cruise ship fuels. The political process to reduce these greenhouse gas emissions is more protracted than in road transport. Globally uniform regulations have neither been implemented nor defined more precisely to date. The International Maritime Organization (IMO) has only set limit values in a few Emission Control Areas (ECA). Since 2010, the only fuel that does not burn more than 0.1 percent sulfur is to be used in EU ports. A more consistent implementation should be demanded and promoted by politicians. The IMO could create financial incentives for

shipping companies by rewarding early conversion to low-sulfur fuels. In return, however, the IMO will also introduce penalties for shipping companies that change over late or even refuse to switch to more environmentally friendly fuels (Neumeier, 2019).

6.1.2 Infrastructural and technical measures

The cruise ships also require energy during berthing periods in order to guarantee a permanent power supply on board. However, this means that the engines emit tons of harmful emissions during this time as well. The installation of shore power connections at the ports so that the ships can switch off their engines while they are moored could help here. This would allow cruise ships to use zero-emission renewable energy. In most ports, however, these installations are missing (CLIA, 2017b). To date, only a few ports in Europe use this technology, as it is associated with high investments and consumption is relatively low in comparison. The pioneers of this technology are mainly the USA and Canada. Most American ports have already installed these utilities (World Wide Wave, 2018).

Another possibility to reduce emissions for the duration of the port lay time is the concept of Liquefied Natural Gas (LNG) barges. They serve as floating gas-fired power plants and provide the ships with the required energy by docking. The use of LNG reduces nitrogen oxide emissions by around 80 percent as it does not produce any sulfur oxides. In addition, the proportion of soot particles and fine dust pollution can thus be reduced (Oliver, 2019). Probably the easiest and at the same time most effective technical method would be to switch to low-sulfur fuels and thus to dispense with heavy fuel oil in order to reduce the ecological risk. Thus, the emission of toxic gases and heavy metals could be reduced many times over. However, no shipping company has yet decided to abandon the use of heavy fuel oil, which can be explained by the fact that alternative fuels are comparatively very expensive (NABU, 2014:7).

There are also techniques such as soot particle filters, SCR catalytic converters and "Seawater Scrubbers" to emit the ship's exhaust gases into the atmosphere more harmlessly. However, the use of soot particle filters and SCR catalysts is a rarity. Only a few AIDA new constructions are equipped with these filters (AIDAcars, 2018) and almost 300 cruise ships worldwide have such a catalyst, which removes almost the entire proportion of nitrogen oxides from the exhaust gases (NABU, 2014:7). With the help of the Seawater Scrubber, the ship's exhaust gases can be subsequently purified of hazardous emissions in a single treatment process. However, this produces a solid waste material which may only be disposed of on land in ports with special disposal facilities. For this reason, but also because it can also be used for heavy fuel oil and could, therefore, have a slowing effect on a possible ban on heavy fuel oil, Seawater Scrubbers are not necessarily one of the best solutions (NABU, 2014:8).

6.1.3 Compensation possibilities

Passengers also have various options, in addition to those that shipping companies and policymakers can implement, to offset the emissions generated during their cruise. This collected contribution is used to support climate protection projects. Organizations such as "atmosfair" and "myclimate" offer passengers this opportunity in the cruise sector. However, the statistics show that

only a few passengers consider this possibility of compensation payments. Atmosfair recorded about 6.5 million euros in voluntary donations and compensation money in 2017, which represents a significant increase of about 90 percent compared to the previous year. The amount seems quite high, but this is deceptive. All traffic areas are included in the amount. Most of the compensation payments are due to air traffic. From this, it can be concluded that the cruise industry has not yet received many compensation payments (atmosfair, 2018:41).

Another voluntary possibility of compensation is donations. Some shipping companies have set up foundations to support environmental projects to which passengers can contribute by making a financial contribution on board. Of course, this serves as an attempt to compensate for the negative effects on the environment, but it does not prevent or solve the actual problem of cruises. The impact that a cruise can have on the environment is thus suppressed and only the conscience of those involved is soothed.

Finally, the individual ports can also try to compensate the burdens with fees. The so-called ecological harbor dues can be calculated based on the emission values generated by the individual cruise ships. According to NABU, for reasons of competition, this port fee should be roughly the same for all comparable competing ports (NABU, 2014:9).

6.2 Measures already implemented in Venice

The city of Venice has already begun to implement various measures to escape the tense situation resulting from cruise tourism. In the following, the proposed solutions to defuse the situation of Venice are presented.

6.2.1 Construction of a new terminal

A solution for the regulation of cruise traffic in Venice is the construction of a new terminal at the entrance to the Libido of Venice. The idea of this outsourcing originates from the "Duferco Engineering Group" and should serve to relieve the city somewhat and to prevent the trip past St. Mark's Square. The construction of the new terminal will take about two years and will cost the city around 128 million euros. It is planned that five cruise ships will be able to moor at the terminal at the same time. In future, the passengers would be brought into the city by boats designed for a capacity of 900 people. This would prevent the arrival of large cruise ships. Furthermore, these boats have hybrid drives, which would still be an advantage of this project. A further advantage of the outsourcing is that the old fairways could be filled up and thus there would be a possibility to combat the flood problem. However, the Ministry of Transport in Rome still must approve of this project before it can be implemented (SpiegelOnline, 2014).

A passenger tax could be introduced in Venice to compensate for the high construction costs. This tax would have to be paid by the shipping companies in addition to the normal port fees. It would be important that these taxes are earmarked for the construction and maintenance of the planned terminal.

6.2.2 Ban on passage for large cruise ships

For years this issue has been discussed and in 2013 the mayor and the port authority decided that from 2014 the arrival of cruise ships with more than 40,000 GT will be reduced. It was also decided that a maximum of five cruise ships may

call at the same time. However, this decision, which served to reduce emissions, was repealed by the Administrative Court of Venice. The port operator had opposed this decision because an earlier regulation stated that this prohibition could only enter into force if an alternative route existed.

Suggestions to prevent cruise ships from calling are often wishful thinking and cause other emerging problems. In the long run, the realization of a ban on cruise ships is questionable for the economy. Since Venice is one of the most popular destinations in the Mediterranean Sea, the city would have to pay millions if a ban were to be enforced (Neumeier, 2015). In terms of sustainability and, in comparison to other solutions that are difficult to implement, the construction of a new terminal seems to be the most sensible from the city's point of view. The direct pollution of the city by emissions would be reduced and the damages in and at the old town would be averted.

6.2.3 Creation of alternative routes

In addition to the possibilities mentioned above, in 2019 the government planned to eliminate the ability for large cruise ships to dock directly at St Mark's Square going forward but would instead dock on the mainland at the cargo port in Marghera. Passengers would then travel to Venice's old town by bus or a smaller boat. However, this alternative route would require that the fairway be deepened. This would ultimately lead to a worsening flood problem, as more water could enter the lagoon from the sea. A secondary problem of this solution approach is that the necessary conversion measures would have immense costs. According to estimates, they would amount to around 70 million euros (Müller-Meiningen, 2017).

7 CONCLUSION AND OUTLOOK

Looking back on the history of Venice, the city has always been confronted by external influences and therefore had to fight for its existence. This situation has not changed to this day. The old problems have worsened and threatened Venice's existence. The overcrowding of the streets and the floods have been harmful to the city in the past, but the number of floods and tourist arrivals has increased due to cruise tourism. Many important decisions in recent years concerning tourism have raised the question of who actually benefits from them - the welfare of the inhabitants and the city, or political influence.

If one takes all the aspects identified and analyzed in the previous chapters, it is clear there is an immense tension between economic success and sustainability in Venice. It can clearly be seen that the question of sustainability in relation to cruise tourism has been relegated to the background. The problems facing Venice seem to exceed the scope of the decision-making power of the city's influential politicians. Venice's situation depends on the general developments that will follow soon regarding cruise tourism. It is developing in a direction that will have an impact that Venice will no longer be able to withstand unless changes are made in this respect, as the capacity limit has already been reached. Sustainable tourism is a form that requires all market participants to behave socially and ecologically as well as economically on an equal footing. This means that not only cruise operators and city administrations take action, but also passengers are required to behave accordingly. Venice could develop as a pioneer for sustainable cruise tourism if the necessary concepts are addressed

and implemented. The solutions developed, such as the construction of a new terminal and the regulation of arrivals, provide a good basis on which to build.

It is to be hoped that Venice will come up with a solution that will help the city in the long term to combine the effects of cruise tourism with the satisfaction of its inhabitants and the concept of sustainability, without losing its uniqueness to mass tourism. In the overall view, sustainable awareness should be increased, otherwise, the two main foundations of this form of tourism, nature, and man, will be negatively affected. Only when all actors have committed themselves together to a more sustainable awareness and action can a future cruise success be built on.

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