



# Measuring Environmental Performance in the Cruise Sector Using GRI Standards

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**Abstract:** *Globally, the cruise sector has had quick growth and high revenues in the last twenty years. However, this issue affected tourist destinations and natural resources, causing a steady deterioration. Particularly, there is a growing opinion that the sustainability of this mass tourism is a problem that needs to be addressed and resolved through accountability tools. For this reason, the implementation of sustainable tourism practices has stimulated cruise lines to develop sustainability reports, according to some international tools and in most cases, these companies adopt the GRI Standards.*

*This study aimed to highlight the evolution and awareness of the impacts in the cruise sector by analyzing the sustainability reports drawn up according to the consolidated GRI standards. In particular, in this chapter, some values of the GRI standards, belonging to the 300 series, named "Top-specific Standard - in environment", have been analyzed and compared. The purpose is firstly to analyze the environmental impacts of the cruise industry, starting from the identification and evaluation phases. Secondly, it highlighted how much a tool, such as the GRI can allow for comparative analysis.*

*Furthermore, this chapter presents a comparison between three cruise companies, on the basis of some values associated with the GRI environmental indicators. Finally, for a specific company, the sustainability reports were compared over the years, to evaluate the company's approach to the environmental, economic and social performance through the GRI standards. Particularly, the authors identified two hypotheses to be verified: hypothesis 1. The GRI implementation allows an improvement of the environmental performance; hypothesis 2. The cruise ship is equivalent to a city with identified requirements in terms of environmental impacts.*

## 1. INTRODUCTION

Since the last decades of the last century, the tourism sector has shown rapid growth on a global scale and no sign of slowing down. This is particularly true for the cruise industry, whose global embarked passengers traffic has grown by 700% from 1990 to 2018.

However, considering the global cruise traffic in the last ten years, except for the 2020 and 2021 stopped by the pandemic, 2009 registered 17.8 million passengers (Fig.1), which almost doubled in 2019 (CLIA, 2020). Particularly, considering the first global area involved in mass cruise, the Mediterranean area has also seen a strong increase, particularly in the last twenty years, from

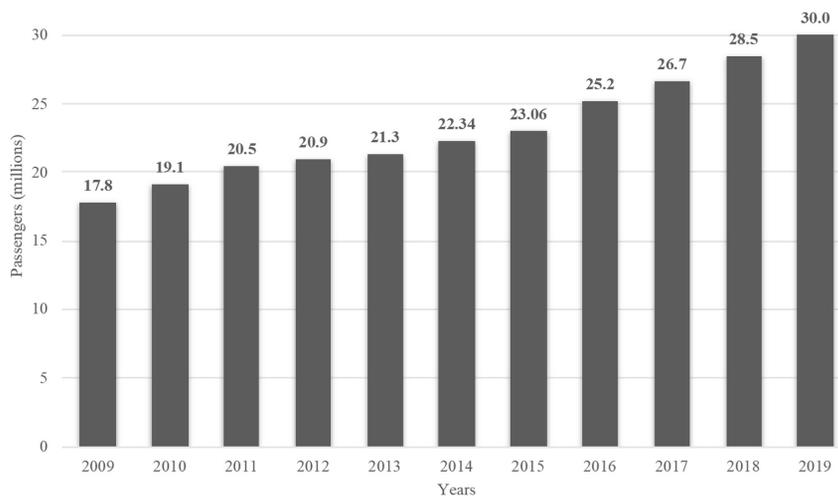
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8.6 million to around 28 million passengers carried; Italy, which accounts for around 40% of Mediterranean cruise traffic, had over 11 million passengers in 2018 (Paiano et al., 2020). However, while this trend has allowed important revenue margins; on the other side, it has also put excessive pressure on tourist destinations and resources, causing their gradual deterioration.



**Figure 1.** Passengers' capacity snapshot (2009-2019)

**Source:** Authors' elaboration on data Clia (2020)

There is a growing opinion that the sustainability of tourism activities, especially mass tourism, is a problem that needs to be addressed with methodologies that go well beyond the local and regional spheres, considering that supply and demand have an increasingly international dimension mainly in the cruise sector, which today represents an important share of the tourism market. Only recently Di Vaio et al. (2022) examined the role of accounting disciplines in evaluating and promoting corporate social performance (CSP). In fact, they analyzed how non-financial reporting positively affects promoting practices and results within the cruise sector.

Furthermore, a lack of scientific research interest in the cruise sector was observed, especially from the point of view of studies on environmental impacts.

Therefore, the application of sustainable tourism practices implies, in the medium-long term, the implementation of planning activities, well-marking practices aimed at improving competitiveness, adequacy in the management of a tourist destination and strategic regional, national, and supranational governmental plans.

Analytical information and evaluation indicators of tourist destinations, including local indicators, indeed, are needed to capture the different subjective perspectives of the stakeholders (Kamble et al., 2018; Beier et al., 2020). It is important to point out that the sector of cruise tourism has peculiarities that differentiate it from other tourism offers. It is a multi-destination tourism, as it includes calls at numerous intermediate ports, chosen in relation to their tourist attractiveness to satisfy the needs expressed by a more specific demand.

This chapter presents some of the impacts generated by cruise ships (Carić, 2010), identified through the data reported in the scientific literature of the sector and, above all, in the sustainability reports drawn up by some cruise lines. Sustainability reports are the tools used by companies today to communicate the impacts associated with their activities.

It was used non-financial communication tools, published by the cruise lines on their commercial web pages and elaborated according to some indicators, the Global Reporting Initiative - GRI Standards (Fig.2) (Gallego-Alvarez and Vicente-Villardón, 2012; Global Reporting Initiative, 2016), which show the “impact” that an organization has on the economy, the environment and/or society, and therefore, in terms of contribution (positive or negative) to sustainable development (Gallelo-Álvares et al., 2018).

UNIVERSAL STANDARDS (GRI 100)	ECONOMIC STANDARDS (GRI 200)	ENVIRONMENTAL STANDARDS (GRI 300)	SOCIAL STANDARDS (GRI 400)
<ul style="list-style-type: none"> <li>- GRI 101: Foundation</li> <li>- GRI 102: General Disclosures               <ol style="list-style-type: none"> <li>1. Organizational profile</li> <li>2. Strategy</li> <li>3. Ethics and integrity</li> <li>4. Governance</li> <li>5. Stakeholder engagement</li> <li>6. Reporting practice</li> </ol> </li> <li>- GRI 103: Management Approach</li> </ul>	<ul style="list-style-type: none"> <li>- GRI 201: Economic performance</li> <li>- GRI 202: Market presence</li> <li>- GRI 203: Indirect economic impacts</li> <li>- GRI 204: Procurements practises</li> <li>- GRI 205: Anti-corruption</li> <li>- GRI 206: Anti-competitive-behaviour</li> </ul>	<ul style="list-style-type: none"> <li>- GRI 301: Materials</li> <li>- GRI 302: Energy</li> <li>- GRI 303: Water and effluents</li> <li>- GRI 304: Biodiversity</li> <li>- GRI 305: Emissions</li> <li>- GRI 306: Effluents and waste</li> <li>- GRI 307: Environmental compliance</li> <li>- GRI 308: Supplier environmental assessment</li> </ul>	<ul style="list-style-type: none"> <li>- GRI 401: Employment</li> <li>- GRI 402: Labour management relations</li> <li>- GRI 403: Occupational health and safety</li> <li>- GRI 404: Training and education</li> <li>- GRI 405: Diversity and equal opportunity</li> <li>- GRI 406: Non discrimination</li> <li>- GRI 407: Freedom of association and collective bargaining</li> <li>- GRI 408: Child labour</li> <li>- GRI 409: Forced or compulsory labour</li> <li>- GRI 410: Security practises</li> <li>- GRI 411: Rights of indigenous peoples</li> <li>- GRI 412: Human rights assessment</li> <li>- GRI 413: Local communities</li> <li>- GRI 414: Supplier social assessment</li> <li>- GRI 415: Public policy</li> <li>- GRI 416: Customer health and safety</li> <li>- GRI 417: Marketing and labelling</li> <li>- GRI 418: Customer privacy</li> <li>- GRI 419: Socioeconomic compliance</li> </ul>

**Figure 2.** Modular set of Global Standards for Sustainability Reporting

**Source:** Authors' elaboration on data Global Reporting Initiative (2016).

Particularly, GRI standards:

- 1) offer a complete and replicable implementation manual for companies,
- 2) indicate the standardization procedures for defining priorities of problems, risks and opportunities,
- 3) use stakeholder inputs and company information to determine material problems and report content (Font et al., 2016).

Therefore, through a structured analysis of the sustainability reports of three companies in the sector, it was possible to make a comparison among them, concerning specific impacts and some natural resources (Adams and Kuasirikum, 2000), such as water. Some Global Reporting Initiative (GRI) belonging to *I 300* series were analyzed and compared.

The goal is twofold: to highlight the magnitude of impacts related to cruise ships that, because of their concentration in time and space, need to be identified and quantified; the second level of analysis, on the other hand, aims to verify how to which extent a tool such as the (GRI) is suitable for comparative analyses and can be useful to companies in planning their activities.

In the chapter, firstly a comparison between three companies in the cruise sector was made, regarding 4 GRI of the 300 series and, secondly within the same company, Costa Crociere S.p.A (henceforth Costa Crociere for the sake of brevity), a comparison between the two reference years, 2015 and 2018.

So, it was possible to highlight the importance that the company has attributed to environmental performance (Al-Tuwaijri et al., 2004; Liu and Anbumozhi, 2009) compared to those expressed in other GRI standards (economic and social) (Gray et al., 1995; 2001; Richardson and Welker, 2001; Reverte, 2009) during the period considered.

Particularly, the authors identified two hypotheses to be verified:

**Hypothesis 1.** The GRI implementation allows an improvement of the environmental performance;

**Hypothesis 2.** The cruise ship is equivalent to a city with identified requirements in terms of environmental impacts.

Among the main reasons behind this chapter, especially nowadays, there is a concern about big cruise line brands that still don't report and others that are reporting bad as highlighted by Font et al. (2016), although sustainability reporting is a common practice among the largest companies in every industry.

Furthermore, this chapter presents a methodology application that can be replicated despite the presence of different tools. As a matter of fact, 15% of those who prepare the sustainability reports did not cite a particular current reference framework for their sustainability reports (for example the GRI) even though they regularly publish this report.

## 2. LITERATURE REVIEW

There is an important body of literature related to cruise environmental impacts ecosystem, potential sustainable practices, or studies on quality services (Butt et al., 2007; Strazza et al. 2015; Shi et al., 2016; Simonsen et al., 2018; Yoon et al., 2020; Di Vaio et al., 2020) but few articles concerning the magnitude of environmental impacts of the cruise sector. It is possible to cite Bonilla-Priego, et al. (2014), who analyzed sustainability reports in the cruise sector examining the difference between the level of the information reported both on websites and in the disclosures, highlighting the main difference in presenting environmental performance and socio-economic performance. The research considered 84 environmental indicators and 110 socio-economic indicators. The study concludes that there is a lack of standardization in the sustainable report, driving companies to report scarce information on environmental indicators, as water consumption, emission reductions, waste minimization, or assessing social performances. This issue displays that the cruise industry is in the early stages to implement sustainability reporting.

Another evidence of the shortage of transparent and clear information on the disclosure in the cruise sector is described by De Grosbois, 2015 who analyzed 50 cruises' websites and their sustainability reports. From the analysis emerges that there is missing information on the environmental and social performance highlighting the difficulty in making data comparable among companies.

Jones et al. (2017), reviewed the disclosure of two major ocean cruising companies, namely, Carnival Corporation and Royal Caribbean Cruises. The study revealed that the elaboration of environmental reporting is mainly attributable to the pressure of media, investors, stakeholders, and both companies based their sustainability reporting on the GRI G4 guidelines framework, helping them in planning sustainable development agendas. Also, the study of Aureli et al., 2017 analyzed and compared the sustainability report of two cruise companies - Carnival and PLC, with the goal to understand how the negative events such as the Costa Concordia shipwreck, influenced the sustainability communication of both companies. The analysis of the

brand reputation dropping of Costa cruise is attributable to the lack of information in environmental information after the negative event and this suggests the importance of the sustainability disclosure in showing not only the environmental and social commitment to stakeholder but also the capacity to face negative events.

Font et al. (2016), studied the importance of a materiality analysis based on the development of the G4 sustainability reporting guidelines in the cruise sector for indexing environmental issues and developing a new managerial process. The authors analyzed 63 material indicators divided into social (25), economic (12) and environmental indicators (12), whereas were added other indicators such as labor and management relations diversity, and equal opportunities and materials. This emphasizes how the sustainability reporting can become a tool of marketing illustrating the actions taken to preserve and safeguard the biodiversity and at the same time avoiding greenwashing procedures. The results of the research study put in evidence the usefulness of environmental disclosures in maintaining a transparent and correct brand reputation as well as the importance of materiality reporting to facilitate the elaboration of the sustainability reporting. Konnola et al, 2020, differently analyzed which kind of environmental indicators can be considered and adapted by comparing different green certifications such as Green Globe, Green Key BREEM and GRI framework, showing that the GRI is the most suitable for exploring sustainability because it can give more detailed information.

### **3. MATERIALS AND METHODS**

#### **3.1. Materials**

Firstly, as above stated, the data for each company was analyzed and then the various values needed for our calculations were estimated, such as the average number of passengers (guests and crew) equal to 4500, 4000 and 3500 per ship, respectively for Costa Cruises, Princess Cruise Lines and Aida Cruises.

This chapter assessed the sustainability reports, drawn up according to GRI criteria (Global Reporting Initiative, 2016), of three companies above-cited operating in the sector, which differ in terms of nationality (Italian, German and the US respectively) but all belong to the Carnival group. These three companies were chosen, from the same company, because they mainly deal with family and/or mass cruises, with a similar average capacity. Hence, they present comparable data.

The Guidelines used are those of GRI-G41 issued by the Global Reporting Initiative, with an “in accordance-core” level of compliance, intending to launch a process that combines corporate responsibility (Reynolds and Yuthas, 2008; Vanhamme and Grobben, 2009; Dragomir and Cristina, 2009; Shvarts et al., 2016), with a reading key more oriented towards the value shared with corporate stakeholders (Hughes et al., 2001) (Fig.3).

It should be noted that the issues described in the GRI - report are related to the Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda, which is a conceptual framework that guides the company’s responsible innovation choices.

The in-depth analysis of specific topics has also considered the issues covered by Legislative Decree no. 254/2016, which transposes the European Directive on non-financial reporting into Italian law.

The choice of indicators, to better represent the company’s performance, is consistent with environmental issues and the cruise tourism sector. In this chapter, therefore, some of the environmental GRI standards 300 series will be analyzed (Fig.3).

Universal Standards	Foundation	GRI 101	To inform about the principles and methods of reporting	
	General Disclosures	GRI 102	To indicate contextual information about an organization	
	Management Approach	GRI 103	To indicate the management approach for each topic	
Topic - Specific	Economic	GRI 200	To indicate specific information on each topic	GRI 201 - 206
	Environmental	GRI 300		GRI 301 - 308
	Social	GRI 400		GRI 401 - 419

**Figure 3.** Summary sheet of the GRI Standards

**Source:** authors’ elaboration by the authors on data GSSB, 2019.

### 3.1.1. GRI 300-environmental standards

The GRI 300 series includes topic-specific standards used to report information on an organization’s material impacts related to environmental topics. It consists of a set of eight subcategories listed below:

- I. The GRI-301 standard - called Materials, of which 301-1 concerns the total weight and/or volume of materials used to produce and package primary products/services; 301-2 deals with the use of recycled inputs and 301-3 focuses on recycled products and their packaging materials;
- II. The GRI-302 - Energy standard, of which 302-1 considers the energy consumption within the organization and it is included in our analysis, 302-2 the energy consumption outside of the organization and 302-3 the energy consumption intensity, that is included in our analysis too, 302-4 the reduction of energy consumption and 302-5 the reductions in energy requirements of products and services;
- III. The GRI-303 - Water and wastewater standard, is made up of five information about the management methods (303-1, the water withdrawal by source and 303-2, the water sources significantly affected by withdrawal of water) and specificities as 303-3, that refers to the water withdrawal, 303-4, the water drain and 303-5 the water consumption;
- IV. The GRI-304 standard, called Biodiversity, provides for four pieces of information to be reported and in particular, the 304-1 contemplates the operating sites owned, rented, managed or adjacent / external), the 304-2 presents the significant impacts of activities, products/services on the biodiversity; 304-3 on protected or restored Habitats; finally, 304-4 on conservation species with habitats in the areas affected by the operations;
- V. The GRI-305 Emissions standard, are direct (scope 1) GHG emissions, 305-2 the energy indirect (scope 2) GHG emissions, 305-3 other indirect (scope 3) GHG emissions, 305-4 GHG emissions intensity and 305-5 Reduction of GHG emissions, 305-6 emissions of substances that reduce the ozone layer, 305-7 nitrogen oxides (NOx), sulfur oxides (SOx) and other significant atmospheric emissions;
- VI. GRI 306 presents water discharges and waste in the form of water discharges by quality and destination (306-1), waste by type and disposal method (306-2), significant spills

- (306-3), transport of hazardous waste (306-4), water bodies affected by discharges and/or water runoffs 306-5;
- VII. The GRI-307 is based on Environmental Compliance, of which 307-1 regards the non-compliance with environmental laws and regulations;
- VIII. The GRI-308 suppliers' environmental assessments are divided concerning new suppliers selected using environmental criteria and 308-2 on negative environmental impacts in the supply chain.

### 3.2. Methods

Briefly, sustainability disclosures represent how companies report and make public their environmental, social and economic impacts and performances. According to the definition of the Global Reporting Initiative, indeed, “sustainability reporting is the practice of measuring, disclosing and being accountable to internal and external stakeholders for performance organizational objectives towards the goal of sustainable development” as highlighted by Di Vaio et al. (2022).

The methodology adopted consists of a materiality analysis already placed at the center of the sustainability reporting guidelines of the Global Reporting Initiative (GRI), like Font et al. (2016).

Particularly, the analysis of the information contained in the sustainability reports published by cruise companies on their official digital platforms has identified several GRIs of interest for the purpose of this chapter, in particular, the information to be reported on some of the standards listed above:

- GRI 303-1, Drinking water consumption;
- GRI 306-2, Waste generation;
- GRI 302-1, Energy consumption;
- GRI 305-1, Total greenhouse gas emissions.

The in-depth study of the specific issues that the companies deal with also takes into account the issues covered by the legislation: as above mentioned, in Italy, for example, the Legislative Decree 254/2016 transposes in Italy the European Directive on non-financial information created through tools such as the GRI.

Additionally, in compliance with the principle of clarity the structure and language of the financial statements are aligned with the corporate communication of the company to simplify its use and identification of the contents. Where appropriate, the document refers to contents and issues found in other company documents and sites or references external to the company.

In terms of balance and comparability, however, the data allow us to value the trends relating to different three-year periods. The indicators representing the results reflect the measurement of performance, regardless of the improvement or worsening compared to previous periods. The data without comparison measures are attributable to information not present in previous years, collection of which would have represented an excessive burden and use of calculation methods different than those of previous years.

Furthermore, some indicators are reported with only the qualitative value. For the principles of exactness, accuracy, and reliability, the non-financial statement is the product of a drafting process shared with the relevant functions and the top management of the Group and is also

approved by the legal representatives of Costa Crociere S.p.A. The document is subjected to external and independent verification by PricewaterhouseCoopers (PWC). In terms of timeliness: the non-financial statements are published in an electronic version, downloadable from the company's website and distributed to the relevant stakeholders (Costa Cruises, 2019).

For each of these, the daily values per capita were considered because they are more comparable than the absolute values almost always reported in sustainability reports, given the differences between the various companies in terms of fleet, routes, distances covered, and many passengers carried.

All the available information was analyzed, and the average number of passengers transported per year, the average number of passengers per ship and the average number of days the ships of the different companies were in operation were estimated to calculate the daily values per capita used in this chapter.

In addition, the following GRIs were also assessed for Costa Cruises and Princess Cruise Lines:

1. GRI 302-3, Fleet fuel consumption trends;
2. GRI 305-4, GHG emission intensity related to the fleet.

The values of which are expressed in ALB/km and CO<sub>2</sub>eq/km, thus also allowing adequate terms of comparison.

For a time-based assessment, the sustainability reports of the three companies mentioned above were examined, concerning the latest year available, 2018 for Costa Cruises and Aida Cruises and 2017 for Princess Cruise Lines, and the 2015 reports of all three companies, to highlight the various changes that have taken place over the last four years.

Finally, to detect the weight given to the environmental performance compared to those expressed by the other GRI standards, a synthetic evaluation model was created which assigns a score, from 0 to 4 by the number of citations, respectively:

- 0/n.a.,
- 1, 2, 3 and  $\geq 4$ , for each GRI mentioned within the sustainability report (Skouloudis et al., 2009; Mendes et al., 2019).

Following the identification of the indicators and scoring criteria, the benchmark model was applied to the sustainability reports published by one of the three companies (Costa Crociere) again for the two reference years, 2015 and 2018.

The Italian company Costa Cruises, which has been promoting a business model oriented towards sustainable development and value creation for several years, has been identified for our case study and its sustainability reports, arranged according to the GRI criteria, have been evaluated.

In particular, Costa Cruises' sustainability reports were drawn up according to the GRI-G41 Guidelines for Sustainability Reporting issued by the Global Reporting Initiative, with an "in accordance-core" compliance level. They aim to implement a path that combines corporate responsibility with an interpretation that is more oriented towards the representation of shared value with corporate stakeholders (Costa Cruises, 2016).

All the non-financial statements are drawn up annually by the Sustainability Department of Costa Crociere S.p.A., an internal corporate body responsible for central coordination of the reporting process and the involvement of the company functions concerned. The data and information displayed in the sustainability reports come from the information systems and databases used by the company, validated by their respective data owners. The topics covered in the non-financial reports concerning the activities carried out in the context of Costa Cruises in the years 2008-2018 (in our case study) and only in some areas (specified below) include references to the Group.

In relation to the economic-financial data included in this report, it should be noted that they refer to the statutory financial statements closed on November 30 of each calendar year of Costa Crociere S.p.A. as approved by the Shareholders' Meeting. Moreover, it has underlined that the data included in the reporting perimeter refer exclusively to the Costa Cruises Group. Summarizing the indicators involved in the Sustainability Report, information is provided on the environmental aspects (which we have focused on in this chapter), on board and ground personnel and the supply chain (Costa Cruises, 2016).

The results were then aggregated by GRI macro-series to facilitate benchmarking.

#### 4. RESULTS AND DISCUSSIONS

The results show an improvement in environmental performance for all three companies considered (Fig. 4), which is very significant especially for water consumption, in particular for Costa Cruises. Particularly, the daily waste production per passenger also showed a reduction. The daily waste production per passenger also showed a reduction, but it is lesser than the previous one. Energy consumption remains significant, especially for the US company Princess Cruise Lines, which shows values almost double those of Costa Cruises and almost triple those of the German Aida Cruises. Emissions of Greenhouse gases (GHG) are consequently in the trend of energy consumption (Comyns, 2016), therefore higher for Princess Cruise Lines. The same applies to the data per km, both of fuel and GHG emissions, albeit with reductions in the period considered for both companies.

The environmental data relating to the cruise sector however show consistent quantities, often comparable with the inhabitant/day data of a medium-sized city, for example, Ferrara, whose data relating to the production of waste is just under 2 kg (Municipality of Ferrara, 2017).

The data regarding the consumption per capita/day relating to water are also comparable, equal to 228 L. This consideration testifies to the impact of a cruise ship that is often referred to as a "floating city". Therefore, the second hypothesis was verified.

As regards the results relating to the relevance (in terms of citations) of the GRI 300 series relating to environmental performance in the context of sustainability reports, the application of the model made it possible to detect a weight of 23.8% for Costa Cruises in 2018, up compared to 2015, when it stood at 22.4%.

The other social and economic performances weigh, respectively, 12% (2018) and 9% (2015) and about 8% (2018) and just over 4% (2015). There is, therefore, a clear prevalence of data and environmental issues over other social (GRI 400 series) and economic (GRI 200 series) performances.

The research highlights some limitations also due to concerns that Sustainability Reports while representing a useful tool (Clarkson et al., 2008; Monteiro & Aibar-Guzman, 2010), do not always provide sufficient data and information (Meng et al., 2001).

Furthermore, a lack of scientific research interest in the cruise sector was observed, especially from the point of view of studies on environmental impacts (Bag et al., 2020; Paiano et al., 2020). Moreover, the results presented are biased because this study is the subject of a broader discussion already in the drafting phase. In the next research, we will enlarge the number of hypotheses to be verified to provide a wide range of environmental impacts of the sector investigated.

		Princess Cruise L.		Costa Crociere		Aida Cruises	
GRI		2015	2017	2015	2018	2015	2018
303-1	Drinking water consumption (L)	239	239	221	211	169	160
306-2	Waste production (kg)	2.9	2.6	4.36	3.77	3.9	4.16
302-1	Energy consumption (Gj)	2.08	2.15	1.42	1.2	0.79	0.76
305-1	Global GHG emissions (t CO <sub>2</sub> eq)	0.16	0.17	0.11	0.09	0.06	0.05

**Figure 4.** Comparison of environmental performance (passenger/day)

**Source:** Authors' elaboration on data Princess Cruise Lines, 2017; Costa Crociere, 2018 and 2015; Aida Cruises, 2019 and 2016.

\*ALB-km means “*Available Lower Berth*” kilometers: this is a common parameter in the cruise sector that measures the kilometers travelled by a factor that takes into account the low berths available at the fleet level and the days of operation of the ships: capacity standard of the ship is expressed as the number of guests who can occupy the first two beds in each cabin (Fig.5).

		Princess Cruise L.		Costa Crociere	
GRI		2015	2017	2015	2018
302-3	Fleet fuel consumption trend (g/ALB*-km)	90	83.8	78.3	75.4
305-4	Intensity of GHG emissions related to the fleet (CO <sub>2</sub> eqKg/ALB-km)	0.285	0.265	0.247	0.236

**Figure 5.** Comparison of environmental performance between different fleets

**Source:** personal elaboration by the authors on data Princess Cruise Lines, 2017; Costa Crociere, 2018 and 2015.

The increase in the demand for transparency derives from two different points of view: the first is associated with the requirements of responsibility that have expanded in corporate governance to include ethical elements relating to personnel; secondly, the sustainability report, initially focused mainly on the environment, was later enlarged to include ethical/social issues, relating to employees and communities, to the organizational structure in place to control all this and the financial aspects.

Currently, sustainability reporting includes ethical, environmental and social issues on “corporate social responsibility” or towards the so-called “triple bottom line” which concerns people, the planet and profit as Morioka et al. suggested in 2016.

Briefly, hypothesis 1 was verified, since the use of GRI made it possible to:

- 1) identify aspects and themes of the triple bottom line (inside and outside the company);
- 2) apply the principles of sustainability and stakeholder engagement such as Messier et al. in 2005;
- 3) given priority to the use of the principles of materiality and inclusiveness of the stakeholders represented by the Materiality Matrix such as Murningham, (2013);
- 4) ensure that the report provides balanced triple bottom line impacts, using the principles of stakeholder inclusiveness;
- 5) review the result using the principles of sustainability and stakeholder engagement by reviewing the relevant aspects in the previous reporting period (for example, such as the reporting presented in the sustainability reports which includes at least the values achieved in the previous three years) (Font et al., 2016).

## 5. CONCLUSION AND FUTURE IMPLICATIONS

The quick and steady growth of cruise tourism spurs prompt and accurate monitoring and transversal management and coordination, beyond territorial dimensions, from technical, political, economic and environmental perspectives.

The gathering of data and the publication of the sustainability reports address the need for a positive relationship between business and the environment. Moreover, they underline the demand for suitable institutional communication and corporate governance efficacy of the public utilities (Jenkins and Yakovleva, 2006; Zeng et al., 2010; Blasco and King, 2017). Particularly, they claimed they need to provide a complete and homogeneous set of information in order to communicate the responsibility implementation and the economic, environmental and social results achieved.

The GRI use encourages the standardization and comparison of data to be utilized in companies of different both sizes and sectors. In this chapter, the GRIs useful to measure the environmental impacts of cruise tourism have been considered, allowing comparison among several companies and time horizons. Furthermore, the analysis of the contents in GRI 302-1 Energy consumption, GRI 305-1 Total direct GHG emissions, GRI 302-3 Energy intensity and GRI 305-4 GHG Emissions Intensity, mainly contains quantitative information that highlights the achievement of the goals 6,7 and 8 of Agenda 2020. However, the complete analysis of the Sustainability Report allows a more accurate analysis of the quantitative information as it also presents, in its format, a summary comparison of the environmental performance of the last three years (Di Vaio et al., 2022).

This kind of study, analysis and communication model can contribute to greater transparency and adequate monitoring of activities characterized by a significant environmental impact, addressing the need to provide data and tools to all stakeholders involved in the sector.

This chapter contributes to the knowledge of the issue of sustainability reporting in the tourism sector. In particular, it highlighted the gap still currently present between corporate intentions and the wishes of stakeholders in sustainability reporting for the cruise sector.

Finally, the two hypotheses, identified in this research, were verified and they allowed to highlight the significance of GRI as a suitable tool to monitor, measure and compare the environmental performance of different businesses and/or institutions of various dimensions and levels.

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**Pontrandolfo:** Data curation, Validation, Collection, Robustness.

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