

## Research Article

# Cruises Italian Tourism: Scenarios and Trends After Global Pandemic — The MSC Case

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The global pandemic has had a significant impact on the tourism industry, and the cruise industry is no exception. This article explores future scenarios and trends in Italian cruise tourism in the aftermath of the global pandemic, focusing on the case of MSC Cruises. The cruise industry faced unprecedented challenges during the pandemic, with widespread travel restrictions, health concerns, and suspension of operations. As the world gradually recovers and travel restrictions are relaxed, the industry is poised for a resurgence. We investigate the role of cruise tourism and its economic effects in the Italian tourism economy. Cruise tourism is experiencing a period of great development and, above all, of great change at a time when sustainability of travel has become an increasingly required condition in travelers' choices. The destinations chosen and the ports that host these great giants of the sea become a flywheel for the development of the territories involved, which, only by offering services that live up to the expectations of travelers, manage to capture important flows of money, necessary for the development and implementation of local economies. The role of ports in Italy and the MSC case conclude the work focused on tourism sustainability, with particular regard to the pollution of different environmental matrices.

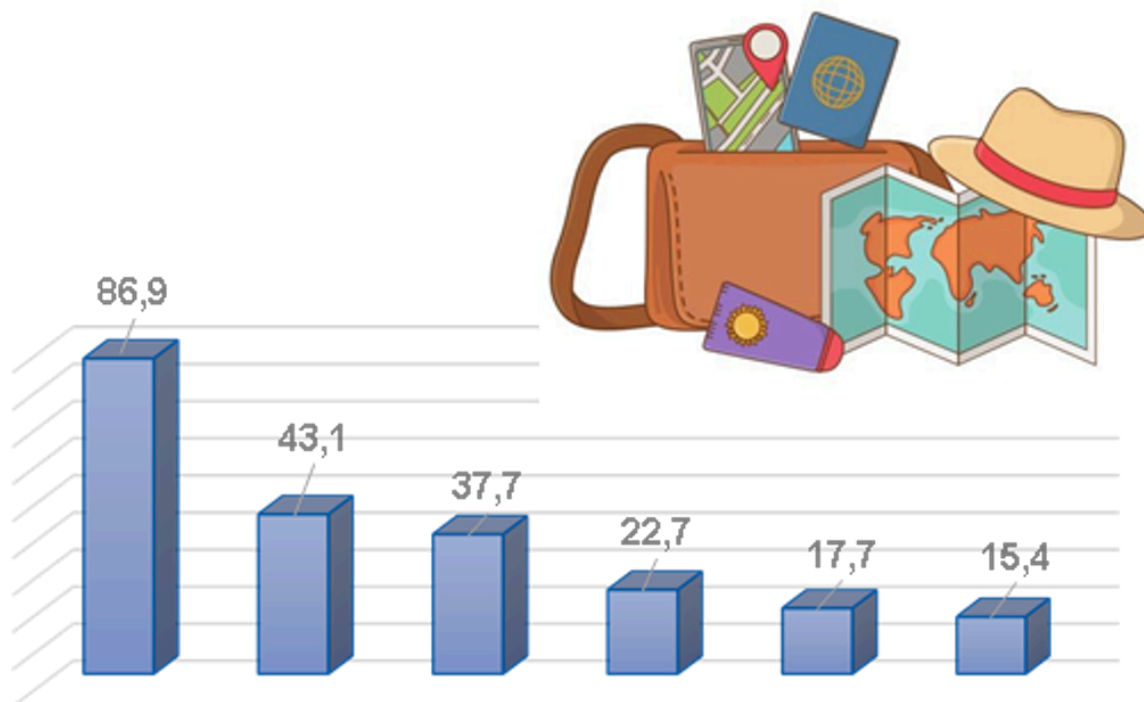
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## 1. Italian tourism: scenarios and trends

Cruise passenger volume is projected to reach 106 percent of 2019 in 2023, with 31.5 million cruise passengers <sup>[1]</sup>. This compares with World Tourism Organization UN Specialized Agency's (UNWTO) forecast that international tourist arrivals in 2023 will be 80% to 95% of 2019 levels <sup>[2]</sup>.

It has been calculated that each 1 % increase in first-time cruise travelers (international travelers who have never taken a cruise) equals 4 million new cruise travelers.

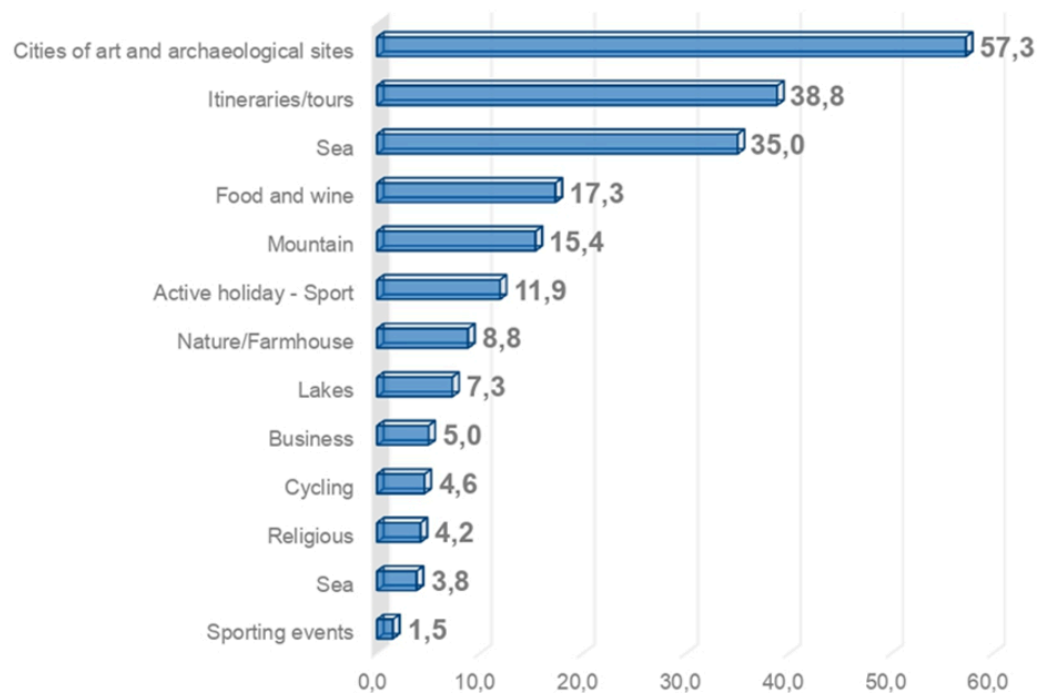
Italy is the most popular European destination for foreign tour operators' clientele that propose our country as declared by 86.9 percent of the tour operator's surveyed <sup>[3]</sup>.



**Fig.1.** Most popular European destination for foreign tour operators <sup>[3]</sup>.

Destination Italy's share of sales in 2021 is 32.8% of packages marketed by large international organized tourism operators, halved compared to pre-Covid years for 64.2% of tour operators. In particular, among the various countries of origin of intermediated tourism, the Italian market plays a leading role in France (where it accounts for 50 percent of 2021 sales), Spain (47.4 percent), the UK (46.9 percent) and the Netherlands (47.7 percent) for Europe, and Korea (52.2 percent) and the US (33.8 percent) for long-haul markets <sup>[3]</sup>.

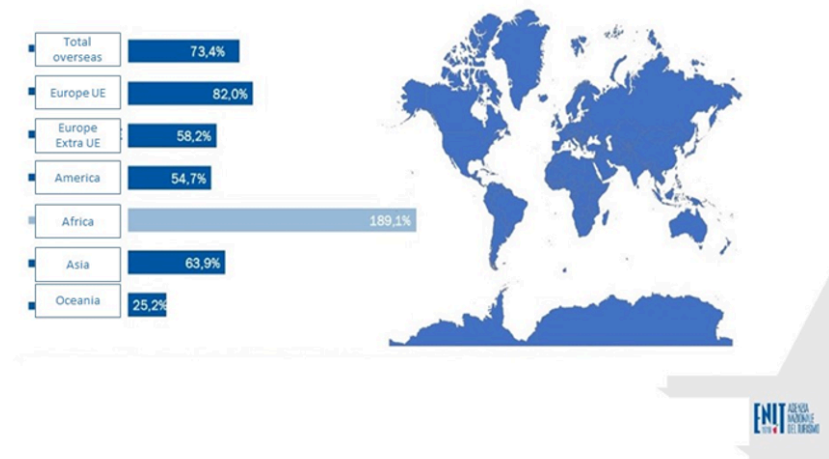
The best-selling product on the brokered market for Italy is tourism in cities of art and trips dedicated to the discovery of archaeological sites (57.3% of the T.O.'s surveyed), second are touring tours (38.8%), third are seaside stays (35%), and fourth are food and wine tourism (17.3%). This is followed by stays in the mountains (15.4 percent) and those dedicated to sports (11,9%) <sup>[3]</sup>.



**Fig.2.** Flagship products for destination Italy <sup>[3]</sup>.

Just as in the world economy—which benefited in 2021 from a significant rebound with +5.9 percent growth (offsetting the -3.1 percent in 2020 caused by the effects of the pandemic)—in Italy, too, there is a significant recovery in 2021 compared to the previous year with +22.7 percent of the international item and +21.6 percent of the domestic one. Of course, about 23 billion in foreign receipts and about 18 billion in spending by Italians are still missing, but the road taken appears to promise increasingly satisfactory results, which will lead for the current year, at least with regard to some destinations, to be considered a record year for tourist movements activated in Italy <sup>[4]</sup>. As supported by the projections and surveys related to the frontier tourist traffic survey data (Fig.3), accommodation searches recorded (Fig 4) and the strong and generalized increase in airline flights (Fig.5)

**Italy's recovery in international markets compared to 2019**  
International travelers to Italy: % recovery Jan-Set 2022 over Jan-Set 2019 volume



**Fig.3.** Italy's recovery in international markets compared to 2019 <sup>[5]</sup>.

**International tourists' interest in traveling to Italy**

Accommodation searches made on google during October- November 2021- 2022for a trip to Italy



**Fig.4.** International tourists' interest in traveling to Italy <sup>[5]</sup>.



**Fig.5.** Monitoring airline flight bookings from abroad to Italy Christmas-Epiphany <sup>[5]</sup>.

as demonstrated by recently conducted focuses <sup>[2][5]</sup>.

## 2. Tourism before and after the COVID-19

It is worth mentioning, by the way, that before Covid-19, tourism for Italy was one of the few sectors to record a positive trend in a national context characterized by widespread economic stagnation <sup>[6]</sup>. Personalization, demand for highly experiential content and a strong focus on sustainability are certainly trends already underway in the sector, but for which acceleration and a more pronounced transversally are expected <sup>[7]</sup>.

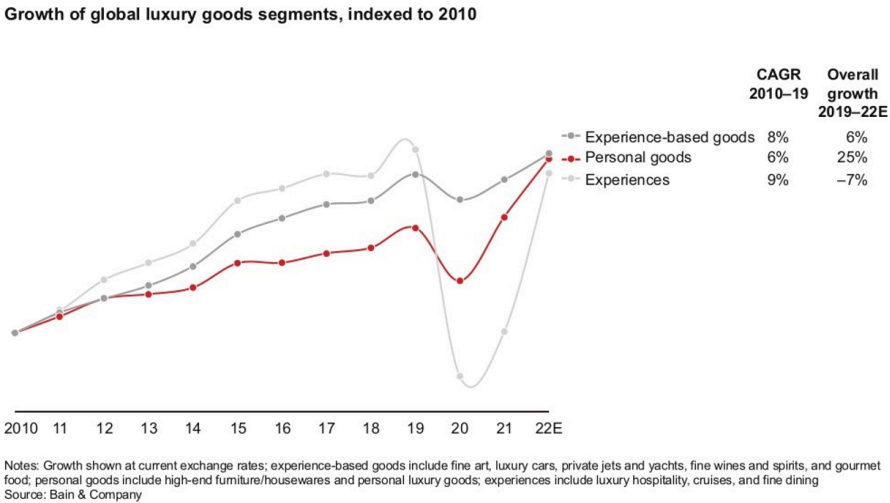
According to the latest recorded data, the balance of the first nine months of 2022 closes with approximately 174 million Italian and 164 million foreign customer presences <sup>[5]</sup>. Thus, these data indicate a strong recovery for the tourism sector in Italy, although customer presences in accommodation establishments were about 39 million less than in 2019 (-10.3 percent). In non-hotel establishments, on the other hand, presences have returned to pre-pandemic levels (136 million in the first 9 months of 2022 versus 139 million in the same period of 2019), certifying a substantial rebalancing of the two components of demand, with a 6.7 percent drop in Italian tourists and a 13.8 percent drop in foreigners, respectively, compared to 2019.

Forecasts for the tourism sector in 2023 could definitively enshrine the successful recovery even with the surpassing of the pre-pandemic numbers of 2019, a record year for the sector with 436.74 million nights

spent (+1.8% compared to 2018) and 131.38 million tourists (+2.6% compared to 2018). In summary, the recovery of tourist travel in the first nine months of 2022 was driven by short vacations, with stays of one to three nights, which registered a 46.7 percent increase compared to the same period last year [4][8].

The short vacation typology, combined with sustainable tourism and food and wine travel, thus continue to find positive confirmation. “Social responsibility” also remains top of mind among tourism clients, including luxury clients, and includes more than just environmental impact: in particular, eighty percent of luxury customers say they prefer socially "responsible" brands, particularly among millennials. Moreover, 60 percent of luxury customers think luxury brands should be more engaged than other industries.

The global luxury goods market jumped in 2022, despite uncertain market conditions. It is set to see further expansion for the coming years and the rest of the decade to 2030, even in economic turmoil. After a sharp contraction in 2020 due to the Covid-19 pandemic, the market rebounded to 1.15 trillion in 2021 and surprised everyone in 2022 with further growth of 19 percent to 21 percent in 2022, according to estimates [9].



**Fig.6.** The global luxury market has fully recovered from the Covid-19 crisis, having grown 8%–10% over 2019 [9].

Worldwide luxury market, 2022E (€ billions)

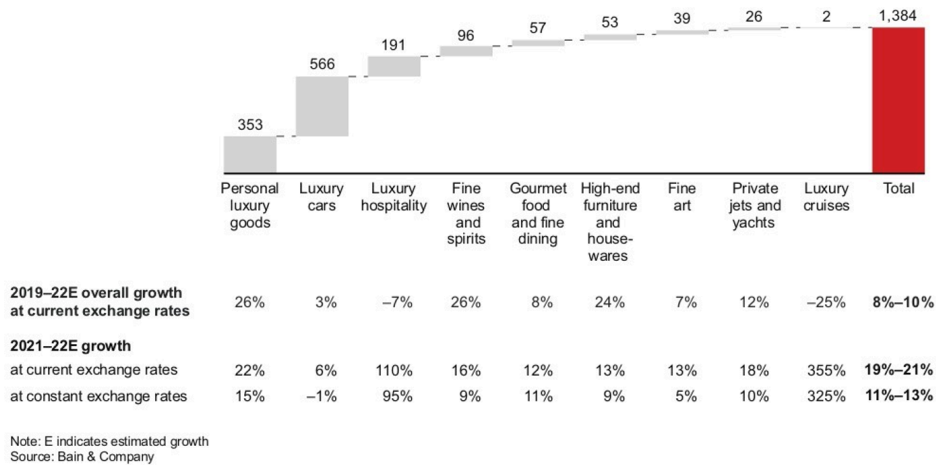


Fig.7. Worldwide luxury market 2022E (euro in billion) <sup>[9]</sup>.

The consumer base of the luxury market will grow from about 400 million people in 2022 to 500 million by 2030, worth between €540 billion and €580 billion by the end of the current decade, up from an estimated €353 billion in 2022. The share of top customers is growing and will account for about 40 percent of the market value in 2022, up from 35 percent last year. These consumers are hungry for unique products and experiences, setting in motion the VIC (very important client) strategies of brands, including the cruise industry itself <sup>[10][11]</sup>.

### 3. Tourism and sustainability

Among the tourisms that deserve in-depth study-artistic-cultural, sports, mountain, seaside, cruise and nautical, cultural, food and wine, religious, conference, to name but a few-"sustainable tourism" represents the new thing: a new way of traveling by those who pay close attention to respect for the environment, natural elements and local communities.

The very definition of "sustainability" brings the customer-consumer closer to the "conscious and efficient use of environmental resources as common goods, ability to enhance human resources and contribute to the development of the local community in which the business operates, and ability to maintain an economic development of the business over time" (see EU Communication No. 681 of 2011 <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0681:FIN:en:PDF>).

Sustainable tourism, as defined by the World Tourism Organization (WTO), is that form of travel that satisfies needs but simultaneously benefits the host country in order to enrich opportunities for its future

development. Those who practice it intend to limit their negative impact on the environment in terms of pollution and waste of resources, and to support local, authentic and artisanal realities. Many people have shown that they are very sensitive to environmental issues and the preservation of places, and because of this, investment in environmentally sustainable forms of tourism could grow significantly. This does not mean cheap travel or conversely more expensive travel. There are forms of sustainable travel within the reach of anyone, just as there are ways of traveling with comfort even at a high level. Therefore, here we distinguish various sub-types of sustainable tourism: agriturismo, community tourism, ecotourism, humanitarian, participatory, fair or responsible tourism, slow tourism, etc.

Responsible tourism, on the other hand, refers to a type of tourism carried out according to the criteria of social equality and with respect for human rights so that they can be guaranteed to all (so defined by the Italian Association of Responsible Tourism - AITR). It therefore assesses the ethical impact of tourism on the local population and its economic and social development.

In recent years, sustainable tourism has grown in our country, with an increasing range of innovative services using terminologies such as "green", "ecofriendly" and "decarbonation" <sup>[12]</sup>. Eco-friendly facilities with low environmental impact and tours that enhance the organic products of the territories (including the so-called "Zero Mileage" ones), are increasing more and more: "plastic free" beaches, "trekking" offers that promote the idea of slow, low-impact tourism, show that more and more travelers worldwide are also looking for sustainability in the tourism offer. Therefore, accommodations have had to cope with this new trend by implementing a series of actions aimed at sustainability such as using sustainable materials, products or energy sources, signing agreements and conventions with local producers to promote products and services, promoting sustainable mobility, etc. A common requirement of the different declinations of sustainable tourism is thus its ability to meet the needs of tourists and destinations, providing opportunities for future development on the environmental, social, economic and cultural levels, in a "more resilient, sustainable and inclusive" as shown in Fig.8 <sup>[13]</sup>.





Fig.8. The different declinations of sustainable tourism <sup>[13]</sup>.

The 2030 Agenda plays a crucial role in orienting policies for this sector towards sustainability. The United Nations has officially declared 2017 the "International Year of Sustainable Tourism for Development." Yet despite the interest and attention it has received, many studies show that tourism actually remains unsustainable on a global scale.

Nevertheless, even in the travel and tourism sector, Italian consumers are showing themselves to be environmentally conscious, even to the point of spending more on stays with less environmental impact. An important finding in a recent survey is that the majority of Italians today seem to be willing to pay a premium in order to be able to take advantage of services and operators that work in a sustainable manner. About half of respondents, in fact, say they can spend within 10 percent more, while about 20 percent would go as far as 15 to 20 percent more. However, the greater investment must be endorsed by accurate and reliable information about operators' activities and initiatives. <sup>[14]</sup>

#### 4. Sustainability in cruise tourism

Also, for the cruise sector, the "sustainability" factor is gaining increasing importance and key point for the strategies of companies operating in the market <sup>[15]</sup>.

The environmental impact that cruise ships have become a nuisance and the port cities in which these giants of the sea stop suffer from their impact. Among those most polluted, no less than 3 of the top 10 are Italian:

in third place, behind Barcelona and Palma de Mallorca, is Venice <sup>[16]</sup>; in fifth is Civitavecchia and in eighth Livorno. Then there are Naples (17), Genoa (18) and La Spezia (25). Overall, Italy ranks second in Europe for this particular type of pollution behind Spain <sup>[17]</sup>.

Many cruise lines offer a variety of shore excursion programs focused on sustainability through sustainable excursions based on the criteria provided by the Global Sustainable Tourism Council's "Industry Standard." The wide range of sustainable shore excursions take travelers to national parks, wildlife rehabilitation centers, biodynamic farms, and businesses that are sustainable, as well as supporting species and habitat protection. In addition, many hikes include carbon-neutral walks, biking, paddle boarding, or sailing, instead of a bus tour. Because shore excursions are locally sourced, they create jobs that benefit local communities.

As reported below in the business case reviewed, several cruise lines (MSC Crociere and Costa Crociere, primarily for the Italians) are working in a greener direction. MSC, for example, has equipped 13 of its 19 ships with the EGCS system to reduce ships' sulfur oxide emissions by 97 percent through an exhaust gas wash water collection system that can operate in a closed loop in 74 percent of berths. Costa Cruises published its "Manifesto for Sustainable Tourism" in 2021, 10 points to open up to the local communities of the destinations of their ships' itineraries through which the company wants to dialogue with institutions, associations, industry companies and stakeholders with a view to sustainable and inclusive tourism <sup>[18]</sup>.

Despite the pandemic, the cruise industry has continued a responsible recovery with proven protocols and emphasized its value to both local communities and national economies around the world. From the composition of fleets (innovative and sustainable) to the management of destinations, the focus on sustainability in cruise tourism is demonstrated by important numbers. It has been estimated that by 2027, the ocean cruise ship fleet will reflect significant progress in the cruise industry's quest for a cleaner and more efficient future. In detail: 174 cruise ships will be equipped with shore power facilities, 26 cruise ships will be powered by Liquefied Natural Gas, and 81 percent of global capacity will be equipped with advanced wastewater treatment systems, pursuing the goal of having zero-carbon cruises by 2050 <sup>[19]</sup>.

Tourists who choose to travel by cruise also increasingly demand "sustainability" in their travels, with cruise destinations serving local communities in order to benefit from responsible tourism activities. Continued collaboration with local communities in destinations visited by cruise ships remains a key aspect of the cruise industry, as does the value it generates.

In this sense, the European Commission, through the Pan-European Cruise Dialogue, is also working to bring cruise tourism to become as sustainable and resilient as possible. Indeed, Europe itself is the second largest cruise market after North America, both as passengers and as a cruise destination <sup>[20]</sup>.

## 5. Cruise tourism and its sustainability

Cruise tourism is one of the few phenomena that has shown significant growth worldwide in recent years, with an average annual rate of more than 5 percent (more precisely, 5.4 percent) over the past decade, reaching around 30 million passengers in 2019, up from 17.8 million passengers in 2009 (Fig.9-10).

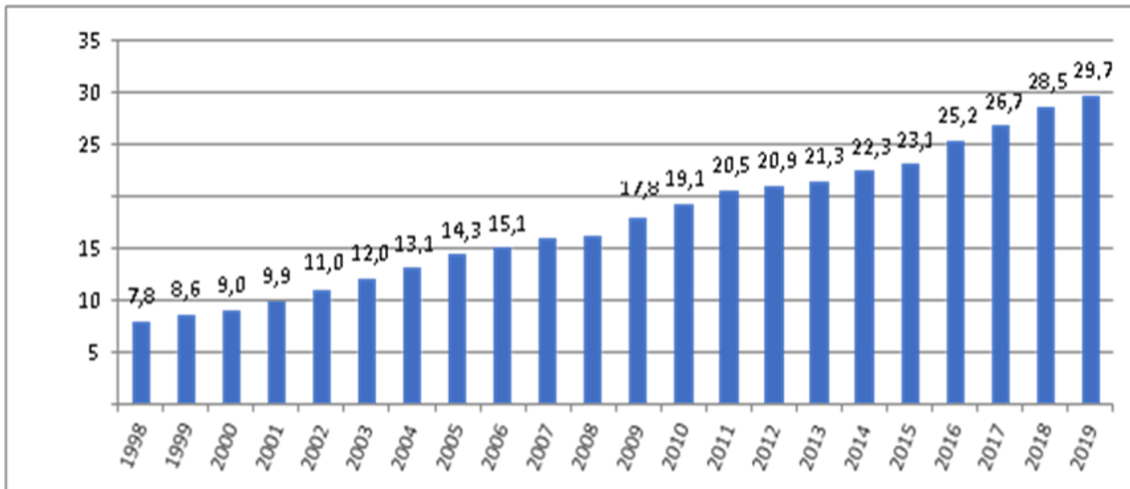


Fig.9. Evolution of world cruise demand as million of passengers (1998-2019) <sup>[19]</sup>.

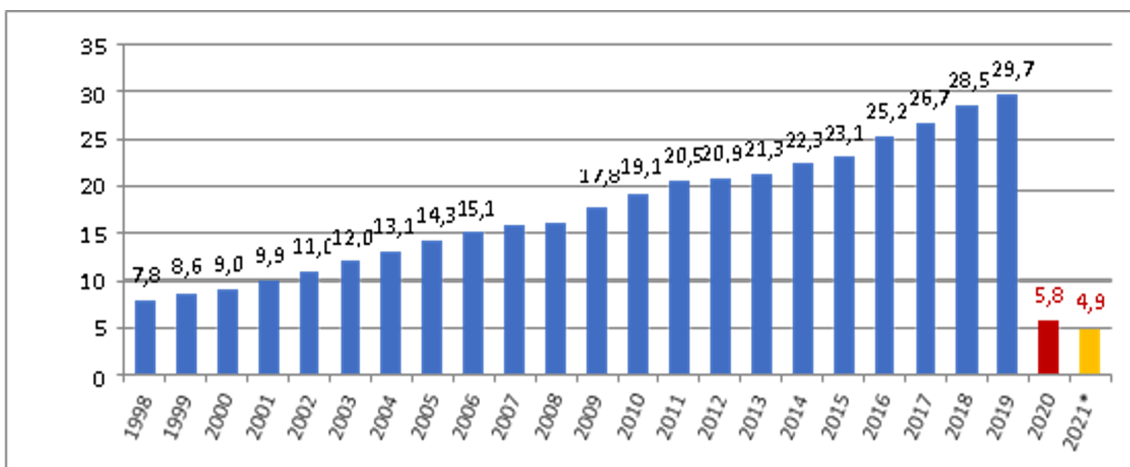


Fig.10. World cruise demand evolution (1998-2020 + forecast 2021\*) \*2021: average of 4.5 to 5.3 million boardings estimated <sup>[19]</sup>.

Despite representing only 2% of world tourism, the cruise industry occupies a strategic position in the international economic scenario, with positive direct, indirect and induced effects. In fact, in 2019 alone, the

total contribution of the cruise industry to the global economy (sum of direct, indirect and induced effects) was about \$154.46 trillion (+ 3 percent over 2018), compared to 29.7 million cruise passengers embarking and an estimated 95.8 million passengers transiting the various ports of call around the planet <sup>[21]</sup>.

Thanks to the increasingly important growth in size and numbers of cruise ships, cruise tourism is fueling and stimulating demand through the constant increase in its accommodation supply (the so-called "supply-driven" nature of the cruise business). The numbers speak for themselves: beds on ships have increased from 185,000 in 1998 to about 685,000 in 2021 <sup>[22]</sup>. But a further increase, with about 160,000 new berths, is expected between 2022 and 2027), numbers that can be reached through 76 new ship constructions commissioned, with a total value of around \$50 trillion <sup>[23]</sup>.

The European shipbuilding industry can count a leading position globally because of the many shipyards specializing in both construction and repair and maintenance. In fact, of the 141 ships that entered service between 2010 and 2021, as many as 130 were built in Europe (93 percent), while another 69 (91 percent of the global orderbook) will be delivered between 2022 and 2027 for an estimated value of about \$48 trillion <sup>[23]</sup>.

## **6. Cruise tourism destinations and the role of Italy**

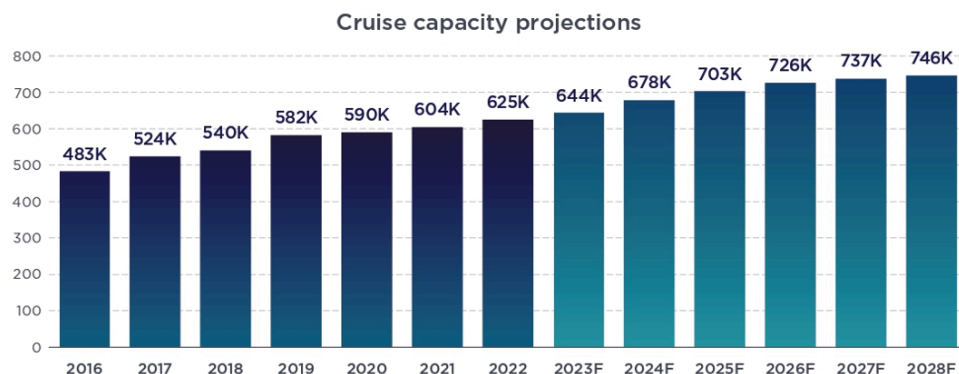
It is no coincidence that ships' arrival and departure times are established with the ports of destination cities up to three years in advance, and most passengers participate in shore excursions organized by cruise lines with local suppliers, providing destinations with information in advance about tourist flows so that all work can be planned accordingly. Indeed, it is well established that active collaboration with ports and destinations helps maximize the benefits of tourism for communities.

Collaborative and sustainable tourism initiatives led by the cruise industry, destinations, ports, organizations and stakeholders are helping to achieve mutual goals to preserve the integrity, heritage and beauty of the world's most treasured destinations, such as Italy, for future generations (Fig.12). It is precisely the younger generation that represents a strong potential for travellers who decide to undertake trips to their countries of origin, i.e. those travellers whose families have left their country to live elsewhere and who now decide to visit the places where their families originated; the phenomenon is known as 'root tourism', which is experiencing considerable development.



## CRUISE UPDATE & FORECAST

Global cruise capacity is forecast to grow 19% to more than 746K lower berths from 2022 to 2028



Source: CLIA Cruise Forecast / Tourism Economics Note: Capacity measured at the beginning of the year.

### 6 THE STATE OF THE CRUISE INDUSTRY 2023

**Fig.11.** State of the cruise industry <sup>[1]</sup>

Many countries are trying to implement cruise tourism as a driver for local development, especially through appropriate investment plans. It is in fact strongly linked to the development of the territory, of which it is both promoter and beneficiary.

Territorial development, in fact, appears to be strengthened by the promotion of tourist destinations, implemented both by shipping companies (through the offer of their products/services offered through catalogs, advertising, etc.), and the traditional "word of mouth" of cruise passengers especially through the powerful vehicle of social channels.

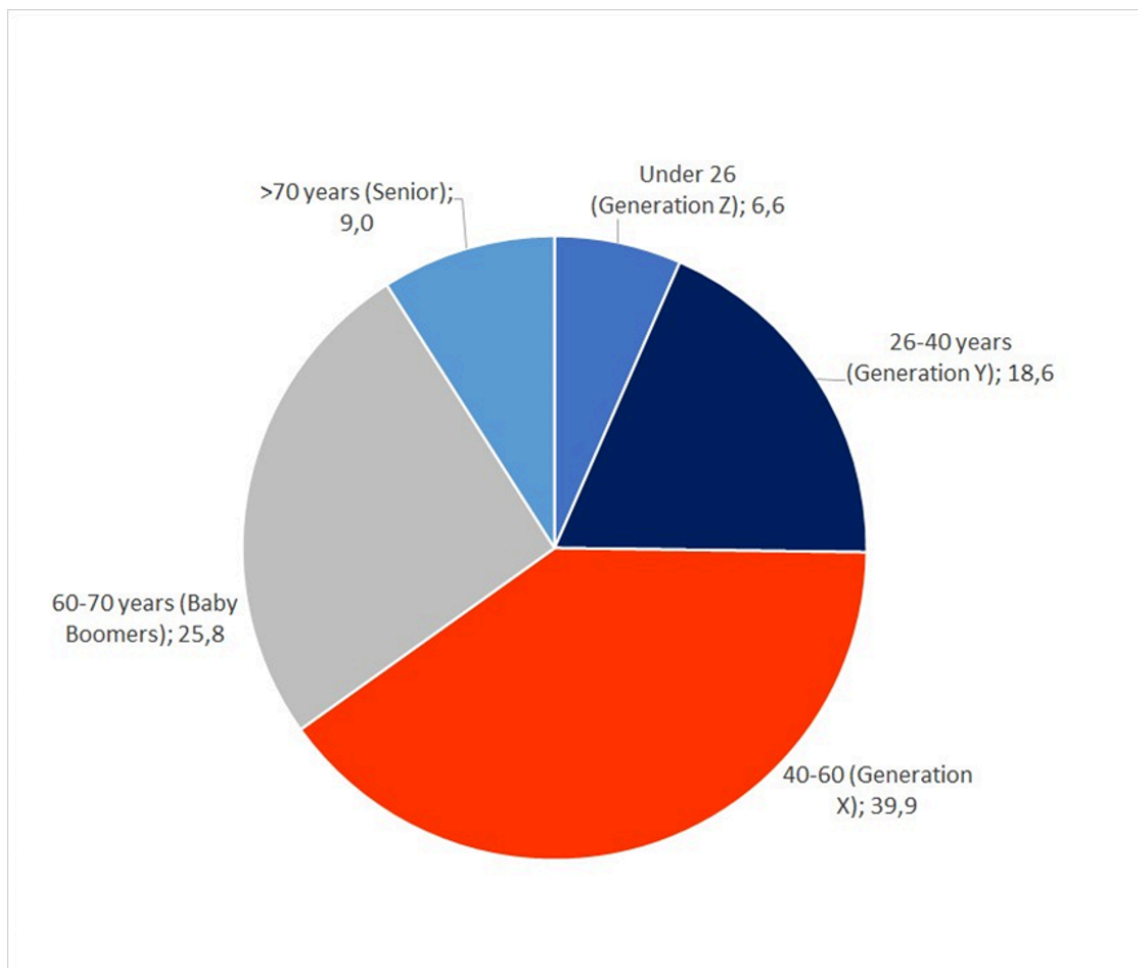
It is precisely the younger customers (Gen Y and Gen Z) who continue to drive tourism growth and together will represent the novelty (as well as the "bet" of tour operators) of the market.

It is precisely the "Millennials" and "Generation Z" (those born between 1980- and 2021, ed.) despite their young age, who are either an active part of cruise tourism or radically influence the purchasing choices of relatives and relatives-in-law <sup>[24]</sup>.

More specifically, the clientele of Tour Operators offering Italy is composed of tourists of the following generation: "X" (between 40 and 60 years old) for 39.9%, a target that weighs mainly on the British, Czech and Hungarian market, on the U.S., Japanese, Australian and Brazilian markets; "baby boomers" (60-70

years old) for 25.8% and affects mainly among the clients of T O. of France, Norway, Germany, Austria and Australia; "Y" (between 26-40 years old) for 18.6 percent, with higher shares in the Indian, Brazilian, Spanish and Polish markets; "seniors" over 70 for 9 percent, especially in Finland and Japan; very young "generation Z" (under 26) for 6.6 percent, with higher weight in the Canadian and Polish markets as shown in Fig.11 [3].

Regarding cruise tourism more specifically, younger generations are the future of cruising with 88 percent of Millennials and 86 percent of Gen-X travelers who have taken a cruise before, say they plan to return to cruising [1]. Millennials are the most interested, as are the other generations contemplated. To attract more first-time cruisers and meet the needs of regular cruise passengers, cruise lines are offering both shorter cruises and longer cruises. As a result, while the average cruise duration remains 7 days, the range of cruise duration options has expanded.



**Fig.12.** Identikit of the foreign tourist choosing an organised trip to Italy [2].

Just as it is surely always the Mediterranean basin (after the Caribbean) that represents the largest business for operators in the sector, with 17 percent of the total world capacity accommodated in its waters, or 61 percent of the total supply of beds located in Europe (33 million) <sup>[25]</sup>.

Looking closely at the ranking of Mediterranean ports that handle the most cruise-related tourist flows, Barcelona stands out in first place, albeit with little deviation from the performance of Civitavecchia, now in second place. The two ports also share similar changes from the previous year: +320-325 percent passengers handled and +190 percent ship touches. This is followed by Marseille (1.4 million passengers), Palma de Mallorca (1.3 million cruise passengers). Immediately following, in 5th place, is the port of Naples, which shows growth that appears to be steadily increasing (Tab.1)

2022 Traffic				% variation on 2021		
#	Harbor	Passengers	Moorings	Passengers	Moorings	
1	Barcelona	2.329.332	807	324%	191%	
2	Civitavecchia	2.172.438	783	319%	186%	
3	Marseilles	1.474.707	572	319%	255%	
4	Palma De Mallorca	1.377.413	504	300%	122%	
5	Naples	1.144.246	467	354%	203%	
6	Genova	1.081.178	328	160%	131%	
7	Pireo*	850.000	748	180%	97%	
8	Santorini	829.217	687	697%	260%	
9	Mykonos	685.918	608	240%	141%	
10	Valencia	623.169	289	376%	204%	
11	Palermo	554.279	238	432%	183%	
12	Corfu	527.000	392	125%	96%	
13	La Spezia	524.109	172	386%	192%	
14	Savona	490.389	149	179%	126%	
15	Valletta	489.571	283	233%	164%	
16	Livorno	437.959	238	677%	310%	
17	Trieste	424.531	183	2283%	184%	
18	Kotor	418.174	432	4476%	575%	
19	Bari	410,846	185	3332%	918%	
20	Ajaccio	390.000	223	1468%	298%	
	TOP 20 Harbors	17.233.630	8.287	296%	174%	

**Tab.1.** Traffic in the top 20 Mediterranean ports 2022 and variation % - 2021 <sup>[26]</sup>.

In 2022, Italy is estimated to have welcomed nearly 9.3 million passengers (+257.5 percent 2022/2021):



values still far from the trend recorded in the last decade, with the 2019 record of 12.3 million passengers (-24 percent). On the other hand, the traffic levels of 2009, when 8.9 million passengers were welcomed, are exceeded <sup>[26]</sup>.

The study of the environmental impact of cruise tourism on a planetary scale is mainly focused on the following environmental matrices: land, sea and atmosphere. As for the impact on land system, it is mainly focused on the proper disposal of ship waste and the waste generated by tourists during tourist visits ashore. On the other hand, the marine environment is greatly impacted by the discharge of sewage and waste from cruise ships, which can seriously affect the survival of the marine ecosystem <sup>[27][28][29]</sup>. Finally, cruise tourism also has a strong footprint on the atmospheric environment due to gas emissions from cruise ships, such as greenhouse gas emissions <sup>[30]</sup>, PM10 <sup>[31]</sup>, PM2.5, NO2, and SO2 <sup>[32][33][34]</sup>. To cope with the environmental impact of cruise ships and other vessels, international and port countries have promulgated a number of relevant regulations. For example, the International Regulations for the Prevention of Pollution from Ships (MARPOL) stipulates that, after 2020, fuel oil with a sulfur content of no more than 0.5 percent and no more than 0.1 percent in the emission control area (ECA).

## 7. TMSC case

The energy efficiency of the cruise fleets afferent to the different cruise lines represents an important step forward for environmental sustainability also with the aim of achieving an emission budget close to zero. This has begun in the last decade on a planetary scale and is making great strides, and in the last five years considerable results have been achieved in terms of atmospheric emissions. Suffice it to say that in 2021, for example, as a result of advanced studies of energy efficiency measures on MSC Grandiosa, emissions were reduced by 8 percent compared to design performance <sup>[35]</sup>. Obviously, these benefits would be maximized if they were applied to MSC entire cruise fleet and equally to those underway.

The aim of all effort by the cruise industry must be to establish a business model that is in line with Paris climate goal and the SGs. The decisive factor for this is the switch to climate-neutral drive technologies by 2040 at the latest. At the same time the innovative capacity of the protection measures can become the impulse and pacesetter of the entire ocean-going shipping <sup>[36]</sup>.

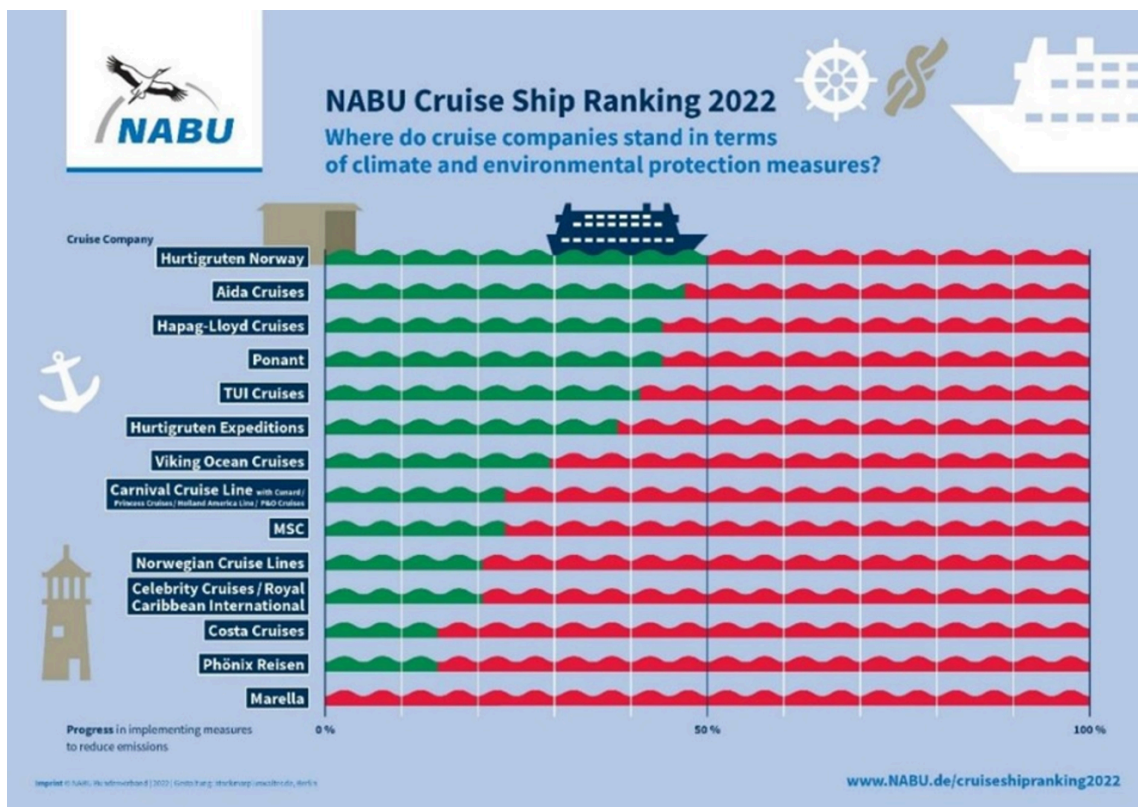


Fig.13. Where do cruise companies stand in terms of climate and environmental protection measures? <sup>[36]</sup>.

In this context we briefly review the case of the MSC, which has opted for a long-term program to limit SOx, NOx and particulate atmospheric emissions, particularly in ports.

By the end of 2021, 14 of the cruise ships were equipped with hybrid exhaust gas cleaning systems, which reduced SOx emissions by 98 percent. And even the three newest ships are equipped with selective catalytic converters, which convert NOx into harmless nitrogen and water <sup>[35]</sup>.

By the end of 2021, seven of our 19 ships, including all new ones, have been equipped with shore power. This allows onboard engines to be shut down, reducing emissions. We are committed to using these systems whenever shore power is available.

This point represents a bottleneck in that Italian ports that host cruise ships in the next few years will have to be equipped with power supply systems that can be provided to the ships during the hours they are in the ports will compose a benefit to the air quality of the cities immediately adjacent to the port areas.

At the same time, to reduce emissions as much as possible during this energy transition phase, it will be increasingly important to activate a strong synergy with technology providers to support and test new energy systems and new fuels with reduced or zero emissions.

And finally, working closely with governments to encourage effective policy measures to support an industry-wide transition is also a cornerstone for achieving results in reducing atmospheric emissions.

The case history of the MSC fleet shows that since the end of 2019, the flag carrier has managed to reduce carbon dioxide emission intensity by 28 percent compared to 2008.

Although the pandemic interrupted the ability to accurately track fleet carbon intensity improvements, it is currently estimated that the IMO (International Maritime Organization) of a 40 percent reduction by 2027 – three years earlier than the 2030 date set by IMO and adopted as a target by CLIA (Cruise Lines International Association).

IMO is now setting new, more specific requirements for fleets existing through the EEXI (Energy Efficiency Existing Ship Index) and Carbon Intensity Index (CII) standards. (CII). The energy efficiency index for ships (EEXI) is a one-time measure of the design performance of existing, while the CII is an annual measurement of operational efficiency, which becomes annual measure of operational efficiency, which becomes more and more

years. MSC Cruises is monitoring existing performance against future CII and required levels of compliance, of required compliance, allowing for the necessary planning before requirements go into effect in 2023.

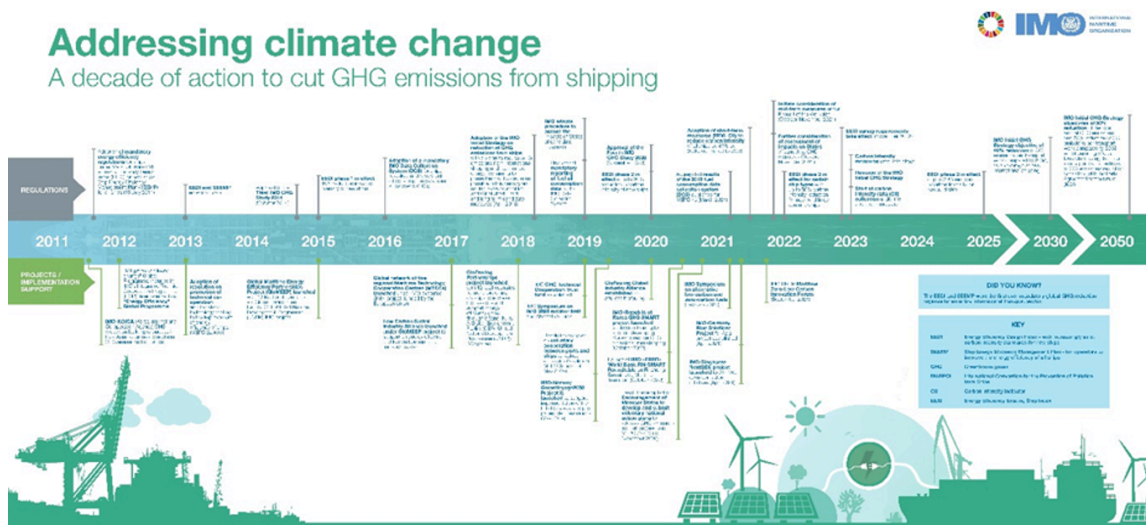


Fig.14. Addressing climate change (IMO, 2020) [37]

In terms of EEXI, the operational performance of our newest ships such as MSC Seashore and MSC Virtuosa such as MSC Seashore and MSC Virtuosa are expected to have an operating performance of our newer ships by about 15–25% less than the targets set by IMO [37].

All new ships are required to meet the IMO Energy Efficiency Design Index (EEDI), requiring a design that meets a minimum energy efficiency level which increases in stringency every five years, encouraging continued innovation and technical development. Launched in 2021, MSC Virtuosa – sister ship of MSC Grandiosa and part of the second generation of the Meraviglia class – falls under the Phase I level of stringency aligned with the start of its construction. Its design performance enabled an EEDI score of 7.35, approximately 40% more efficient than the IMO EEDI requirements under this Phase and 15% more efficient than the most stringent

## 8. Concluding Remarks and Future Research Opportunities

Cruise tourism is one of the few phenomena that has shown significant growth worldwide in recent years. Cruise passenger volume is projected to reach 106 percent of 2019 in 2023, with 31.5 million cruise passengers.

Among the various source countries of brokered tourism, the Italian market plays a leading role. When one considers that each 1 percent increase in first-time cruise travelers (international travelers who have never taken a cruise) is equivalent to 4 million new cruise travelers, one realizes the strategic importance of winning over this segment of customers.

Taking into account that prior to Covid-19, tourism for Italy was one of the few sectors to record a positive trend in a national context characterized by widespread economic stagnation, here is where the cruise tourism offer arises as an opportunity to develop local territories and the local economy, not only limited to the ports of reception of ships [\[38\]\[39\]](#).

Personalization of cruise offerings, demand for highly experiential content, and a strong focus on sustainability are certainly trends already underway in the industry, but for which acceleration and a more pronounced transversality are expected.

Just as other companies in the industry, which through new and modern ships have helped to reduce environmental impact, the proposed case of MSC also demonstrates a commitment to more sustainable and "green" tourism.

The study of the environmental impact of cruise tourism on a planetary scale is mainly focused on the following environmental matrices: land, sea and atmosphere. As for the impact on land system, it is mainly focused on the proper disposal of ship waste and the waste generated by tourists during tourist visits ashore. On the other hand, the marine environment is greatly impacted by the discharge of sewage and waste from cruise ships, which can seriously affect the survival of the marine ecosystem.

The energy efficiency of cruise fleets afferent to the various cruise lines represents an important step forward for environmental sustainability even with the goal of achieving a near-zero emissions budget. This path, which began in the last decade on a planetary scale, is making great strides, and in the last five years remarkable results have been achieved in terms of atmospheric emissions.

## Statements and Declarations

**Supplementary Materials:** N/A

**Author Contributions:** For research articles with several authors, a short paragraph specifying their individual contributions must be provided. The following statements should be used “Conceptualization, A.C. and R.S.; methodology, A.C. and R.S.; validation, A.C. and R.S.; resources, A.C. and R.S.; data curation, A.C. and R.S.; writing—original draft preparation, R.S. writing—review and editing, A.C. and R.S.; funding acquisition, A.C. All authors have read and agreed to the published version of the manuscript.” Please turn to the [CRediT taxonomy](#) for the term explanation. Authorship must be limited to those who have contributed substantially to the work reported.

**Funding:** N/A

**Acknowledgments:** In this section, you can acknowledge any support given which is not covered by the author contribution or funding sections. This may include administrative and technical support, or donations in kind (e.g., materials used for experiments).

**Conflicts of Interest:** “The authors declare no conflict of interest.”

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## Declarations

**Funding:** No specific funding was received for this work.



**Potential competing interests:** No potential competing interests to declare.