

ESG Summer Series

Heat on holidays: tourism in a changing climate

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- ◆ Tourism, as we know it, is changing as it faces rising temperatures and extreme weather events
- ◆ Coastal tourism, in particular, is facing a stormy future, as climate impacts, including rising sea levels, test its resilience
- ◆ Adaptation measures will play an important role in keeping vulnerable coastal tourism afloat, in our view

This is the 5th report in our [ESG Summer Series](#) – looking at sustainability issues in less obvious places. These issues could grow to become bigger trends in the future.

Too hot to travel: Picture this: bags are packed for your much anticipated vacation, but extreme temperatures throw you a curveball, shutting down your favourite tourist spot and melting your sweet escape, ice cream, before it can be savoured. The scorching sun continues to blaze across southern Europe, including Greece, Spain, and Sicily; all are experiencing extreme heatwaves and temperatures rising above 45°C. This is taking a toll on the world's most sought-after tourist destinations; for instance, the Acropolis Hill was shut down and tourists on the Italian island of Sardinia were compelled to stay indoors during the heatwave.

Heat havoc: The travel and tourism industry, contributing nearly 6% of global GDP and employing nearly 290m people in 2021, as per the World Travel & Tourism Council, faces a myriad of challenges due to extreme temperatures (Fig 1). Relentless heatwaves pose serious health risks, including dehydration and heatstroke, deterring tourists from venturing outdoors, hampering the industry's usual vibrant activity. An article published in the journal, *Science of the Total Environment*, in 2022, highlights evidence that a 1°C rise in temperature can cause an increase of direct heat illness morbidity by 18%. Further, smaller and less affluent economies may struggle to cope with mounting cooling demand, as travellers seek respite from the scorching heat. The heightened demand for air-conditioned spaces is also likely to cause a sharp increase in energy consumption, putting strain on local energy grids and increasing emissions.

On the move: Sweltering weather is affecting travel plans. Last month, the European Travel Commission (ETC) reported a decline in travel intent in Europe compared to previous years. Additionally, the popularity of Mediterranean destinations was found to have declined by 10% compared to last year. On the other hand, destinations such as Bulgaria and Denmark are becoming increasingly popular due to their milder temperatures. Although there is uncertainty about how tourists will respond to the effects of a changing climate, various popular tourist spots are likely to lose their appeal, paving the way for some lesser-known destinations to shine. This shift in traveller sentiment is likely to have a considerable impact on economies that rely heavily on tourism income.

Rising emissions and climate change pose additional challenges beyond the immediate heat issues. In the remainder of this note we explore a range of other climate change impacts on the tourism sector, with a focus on coastal tourism.

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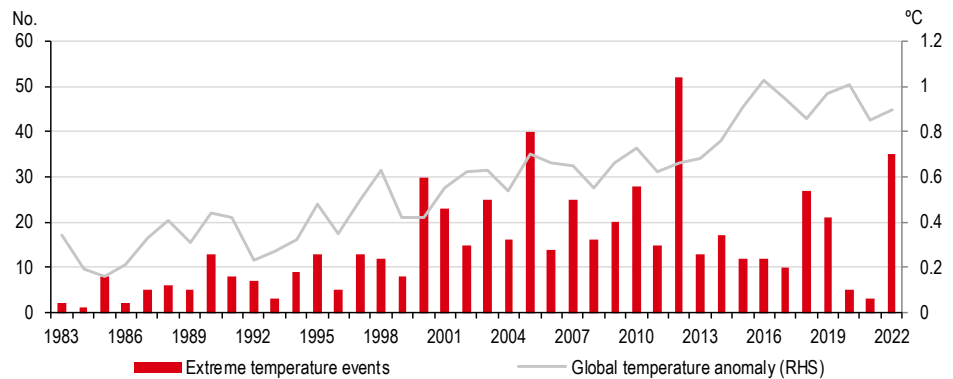
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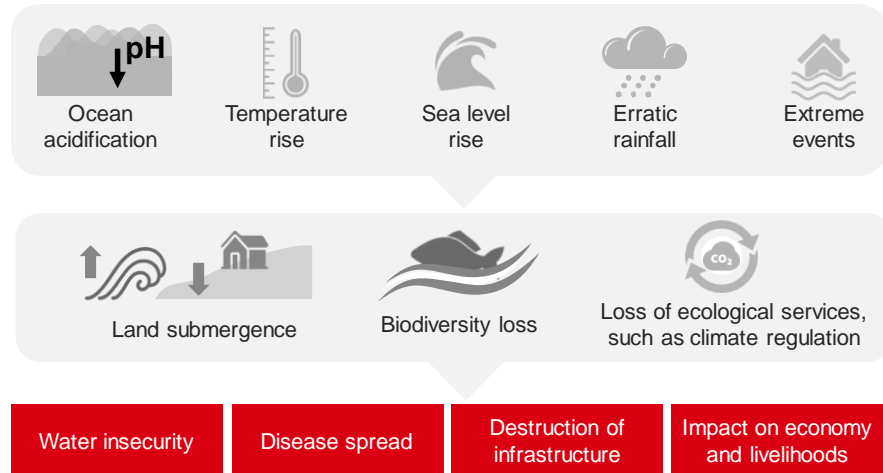
Fig 1: Global warming is likely to increase the number of extreme temperature events



Source: EMDAT, NOAA. Note: Temperature anomaly are with respect to the 20th century average (1901-2000)

Coastal conundrum: Beaches are popular tourist destinations, accounting for nearly 50% of global tourism. However, coastal tourism is facing an imminent threat due to climate change. The industry is the economic backbone for some of the world’s poorest economies, including the Small Island Developing States (SIDS), which are also among the most vulnerable to climate change. While extreme weather events, such as cyclones and floods, already pose immediate risks, it is rising sea levels and ocean acidification that are setting alarm bells ringing. Moreover, secondary impacts, such as water availability and the spread of diseases, are also a growing concern for coastal communities and travellers alike (Fig 2).

Fig 2: Key climate-factors responsible for growing risks for the coastal tourism sector



Source: HSBC

1bn people to be exposed by 2050 due to sea level rise

Sea level rise: From breathtaking beach resorts to picturesque seaside towns, many popular tourist spots, such as the Maldives (Box 1), are at risk of being submerged due to rising sea levels. The risk is becoming increasingly real – Indonesia in 2019 announced plans to relocate its capital from Jakarta as a response to the threat posed by rising sea levels. Global sea levels have already risen by 98.5mm since 1993, according to NASA. Further, the average rate is accelerating, tripling from 1.3mm/year between 1901 and 1971 to 3.7mm/year between 2006 and 2018¹. While the extent of sea level rise depends on emissions and uptake of heat by the oceans, 1bn people could be exposed by 2050². Further, by 2100, extreme sea level events that occurred once per century could strike at least once a year on many coasts³. Unfortunately,

1 Sea level (around Japan), Japan Meteorological Agency, 15 February 2023
2 Global Sea-Level Rise and Implications, World Meteorological Organization
3 Extreme sea levels at different global warming levels, Nature Climate Change, 30 August 2021

even under a low CO₂ emissions pathway, the world may lose 53% of its sandy beaches, on average. This would result in a loss of 30% of hotel rooms and a 38% decline in tourism revenue by 2100⁴. The imminent risks of shorelines being eroded, tourism infrastructure being inundated, and increased likelihood of extreme weather events could lessen the recreational value of popular coastal tourist spots, potentially affecting business operators, such as resorts and hotels (eg, Marriott⁵, Hyatt⁶), water sports and tour operators (snorkelling and diving), ports and airlines.

BOX 1: Sea levels sneaking up on the Maldives

The Maldives, a popular tourist destination, is facing significant threats from rising sea levels. Over 80% of the total land area in the Maldives is less than 1m above the mean sea level. As sea levels creep up, the nation's low-lying islands are vulnerable, and there is a risk of the country losing most of its land area by 2100, according to the World Bank⁷. The risk of submerged shores and displaced communities looms large: at 1.5°C warming, land home to more than 60% of the country's current population would be below the median projected multi-century high tide line, suggest studies⁸. The country's beaches are already experiencing the effects of erosion, with 45% of tourist resorts reporting varying degrees of beach erosion⁹. Further, the rising sea levels are expected to result in saline intrusion, which would increase stress on the country's already scarce freshwater resources, making the situation even more challenging for the country.

50% of the world's coral reef could be under threat by 2035



Marine heatwaves and ocean acidification are big challenges for coastal tourism.

Increased intensity and frequency of marine heatwaves is likely to cause coral reefs to undergo irreversible change and disrupt marine life, affecting the character of the coastal landscape. A recent marine heatwave, that started to emerge in June this year along the coast of Queensland Australia, is raising concerns for the already vulnerable Great Barrier Reef (Box 2). It is estimated by the World Economic Forum¹⁰ that 50% of the world's coral reefs would be under threat by 2035 in the absence of climate mitigation. This presents a daunting challenge for coastal tourism as marine exploration activities, such as scuba diving, rely heavily on these vibrant underwater ecosystems.

Box 2: Coral in hot water: The Great Barrier Grief

The Great Barrier Reef in Australia is renowned for its critical role as a habitat and its popularity as a tourist destination, attracting over 2m visitors annually. The vibrant ecosystem plays a pivotal economic role, employing 64,000 people and contributing over USD6.4bn each year to the Australian economy¹¹. However, climate change has had profound impacts on the fragile ecosystem, with three instances of mass coral bleaching in a span of just five years, from 2016 to 2020. The deterioration of the reef poses significant socioeconomic challenges and risks to the environment and ecology. The Bramble Cay melomys, endemic to the reef, was declared extinct in 2016, highlighting the dire nature of the situation. Amid the alarming developments, there has been a notable shift in tourists' motivation, with many expressing a desire to witness the reef before it is too late¹², emphasising the urgency of conservation efforts.

⁴ Sea level rise under climate change: Implications for beach tourism in the Caribbean, Ocean & Coastal Management, 15 June 2022

⁵ 2023 SERVE 360 REPORT, Marriott International

⁶ Hyatt Hotels - Climate Change 2022

⁷ The World Bank: Climate Change in the Maldives, 6 April 2010

⁸ Picturing Our Future, Climate Central, 12 October 2021

⁹ Maldives Climate Risk Country Profile, World Bank

¹⁰ Climate crisis puts half of coral reefs at risk by 2035, WEF, 18 October 2022

¹¹ Great Barrier Reef Marine Park Authority

¹² Last chance tourism and the Great Barrier Reef, Journal of Sustainable Tourism, Journal of Sustainable Tourism, 9 August 2016

Growing risk: Rising temperatures will significantly impact other tourism sub-sectors too:



Eco and agricultural tourism: A study¹³ projected increased functional diversity of land bird species in higher latitudes and reduced diversity in mid-latitudes, in 2050, based on a moderate-to-high greenhouse gas emission scenario. Climate-induced shifts in species distribution can affect **eco-tourism**, such as safari operators, whereby declining animal populations would make human interaction with certain species difficult. However, regions that were previously less popular for eco-tourism might become more attractive. The **wine industry** too faces several challenges from climate change: hailstorms and spring frosts damage harvests, while hotter temperatures cause premature ripening of grapes. Therefore, several wine-producing regions could become unsuitable, which would be likely to have serious implications for wine tourism¹⁴.



Snow-based tourism: Rising temperatures may result in erratic snowfall patterns and shrinking snowpacks, shortening **skiing and snowboarding** seasons. Several ski resorts across the Alps closed in December 2022 due to lack of snowfall¹⁵. Resorts at lower elevations are likely to be more severely affected, as they have less snowfall thus shorter tourism seasons.



Forest-related tourism: Heatwaves and droughts are associated with high risks of wildfires. Between 1979 and 2013, the global burnable area affected by long fire weather seasons experienced a twofold increase, while the average duration of the fire weather season rose by 19%¹⁶. The increased frequency and intensity of wildfires is likely to negatively affect tourism by limiting recreational opportunities and reducing access to **national parks**. In 2018, USD20m in tourism revenue was estimated to be lost in just one month due to wildfires in California, according to a study conducted by Visit California.

Rising to the challenge: The COVID-19 pandemic exposed the vulnerability of the tourism sector. Poor countries that are heavily reliant on tourism are poised to face significant challenges, including social unrest as the flow of tourists slows due to impacts from a warming climate. **Adaptation** measures, **better forecasting and early-warning tools**, and **disaster risk management** will play an important role in the tourism sector's response to the impending risks. **Infrastructure**, such as seawalls and breakwater structures, and **conservation of natural systems**, such as mangroves, are important coastal protection measures.

Accommodation strategies, such as elevating key infrastructure and houses, can help reduce the impact of flooding. For instance, elevated houses built 1.5m above the ground level are subsidised by the government in the Tuamotu Archipelago, which is extremely prone to flooding. Several regions have also been adopting **ecosystem-based measures** to respond to climate change. Artificial reefs have been increasingly used to support reef restoration in countries such as Antigua and Grenada. In Vanuatu, tourism businesses have been involved in establishing marine-protected areas to address climate-related risks. As the impact of climate change continues to escalate, adaptation measures will become increasingly crucial in safeguarding vulnerable regions. However, we think it is imperative to acknowledge that long-term resilience relies on a broad-based approach, combining adaptation strategies with global efforts to substantially reduce greenhouse gas emissions.

¹³ European Commission, shifts in distribution of bird species due to climate change may compromise ecosystem services, 12 October 2022

¹⁴ European Commission, Wine connoisseurs face testing times as climate change alters flavours, 17 February 2023

¹⁵ CNN, European ski resorts close because there's no snow, 4 January 2023

¹⁶ Climate-induced variations in global wildfire danger from 1979 to 2013, Nature communications, 14 July 2015

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