



TOURISM IN A WARMING WORLD

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In 2024, tourism accounted for 10 percent of the global economy, contributing US\$10.9 trillion to global GDP. The sector supported 357 million jobs worldwide, approximately one in every ten jobs, highlighting its central role in the labor market. International visitor spending also surged, reaching US\$1.9 trillion (WBG, 2025). As one of the world's largest socio-economic sectors, global tourism operates through multiple interconnected components, coastal tourism, mountain and winter tourism, nature- and wildlife-based tourism, cultural and heritage tourism, and urban leisure travel, each of which relies on climatic stability, healthy ecosystems, reliable seasons, and predictable environmental conditions. This structural dependence makes tourism profoundly vulnerable to climate variability, positioning climate change as both a disruptor and a determinant of its future trajectory.

Across all major tourism components, climate change is already altering destination appeal and operational viability. Rising temperatures reduce thermal comfort in traditional summer hotspots; extreme weather events disrupt accessibility and destroy infrastructure; sea-level rise threatens beaches and coastal ecosystems; glacial melt destabilizes mountain tourism; and biodiversity loss undermines eco-tourism markets. These pressures are compounded by shifting traveler preferences, where risk perception, weather uncertainty, and ecological degradation influence

mobility decisions. As a result, climate change is no longer a future threat but an active force reshaping tourism flows, revenue patterns, seasonality, and long-term competitiveness.

Each major component of global tourism is experiencing distinct technical impacts driven by climate change. Coastal tourism, which hosts nearly 80% of global tourist activity, faces beach erosion, coral bleaching, saltwater intrusion, and rising storm surges; destinations like the Maldives, Seychelles, Miami, and Bangkok now spend billions on adaptation (IPCC, 2022). Mountain and winter tourism is destabilized by glacier retreat, reduced snow reliability, and increased risk of avalanches and glacial lake outburst floods (GLOFs), leading to shortened ski seasons in the Alps, Himalayas, and Rockies. Nature-based tourism, valued at USD 600 billion annually, is declining due to ecosystem collapse—coral bleaching in the Great Barrier Reef (Hughes et al., 2021), wildlife loss in East Africa (Gössling et al., 2021), and rapid Arctic ice melt that shortens safe travel windows (AMAP, 2021). Cultural and heritage tourism is threatened by climate-induced degradation of iconic sites like Venice, Mohenjo Daro, Machu Picchu, and the Pyramids of Giza, where flooding, erosion, and heat stress erode both cultural assets and local economies. Urban tourism, meanwhile, faces growing operational risks from heatwaves, air pollution, and extreme rainfall—forcing cities to reconsider infrastructure resilience and visitor safety.

The cumulative impact of these transformations is staggering: climate change is projected to reduce global tourism revenues by up to USD 4 trillion by 2050, with Mediterranean arrivals alone expected to decline by 10–30%, and small island economies facing GDP contractions exceeding 15% during major climate shocks (Scott & Gössling, 2022; OECD, 2023). Tourism-dependent communities, especially in developing regions, remain at the frontline of cascading socio-economic vulnerabilities, job losses, income instability, damaged heritage sites, and disrupted local markets.

These global transformations take on even sharper edges in South Asia, one of the world's most climate-vulnerable yet tourism-rich regions. The subcontinent's tourism economy, stretching from the Himalayan icefields of Nepal and Pakistan to the coral atolls of the Maldives and Sri Lanka's monsoon-sculpted coasts, thrives on landscapes that are now being reshaped at unprecedented speed. In many ways, South Asia mirrors global climate-tourism disruptions, but with amplified exposure: denser populations, weaker infrastructure, limited adaptive capacity, and ecosystems already stressed by overuse. As climate shocks intensify, they intersect with complex social and economic systems, creating deeper fault lines for tourism that depend heavily on natural beauty, cultural continuity, and environmental predictability.

Rising sea levels and stronger cyclones pose a threat to important tourism resources in coastal South Asia. Coral bleaching, shoreline erosion, and saline intrusion lower beach quality and jeopardize resort infrastructure, posing existential threats to the Maldives, a nation where tourism generates nearly 30% of GDP. Extreme rainfall and coastal flooding are just two examples of the frequent climate disruptions that have crippled tourism operations and increased insurance premiums in Sri Lanka, whose post-conflict economic recovery was largely dependent on coastal tourism. Similar beach loss and storm-related damage are plaguing India's vast tourism belt along Goa, Kerala, Odisha, and the Bay of Bengal, necessitating costlier protective measures. These pressures are a reflection of both the ecological fragility and the economic interdependence of coastal communities and tourism.

The Himalayas, which are shared by India, Nepal, Bhutan, and Pakistan, have seen the most significant changes brought about by climate change. Here, livelihoods and landscapes are being altered by

melting glaciers. The Himalayan glaciers are retreating at one of the fastest rates in the world, which has shortened winter travel seasons, caused slope instability, and increased the frequency of floods caused by glacial lake outbursts. At altitudes where cold once predominated, Nepal's trekking routes face increased landslides, erratic weather windows, and heat stress. Bhutan's "high value, low impact" controlled tourism model is currently struggling to protect mountain trails and historic monasteries from erosion and unpredictable rainfall. Unprecedented heatwaves, water scarcity, and landslides are plaguing India's hill stations, from Shimla to Ladakh, discouraging tourists and taxing aging infrastructure.

It is within this broader regional crisis that Pakistan's tourism landscape finds itself undergoing profound change. Pakistan's northern areas: Gilgit-Baltistan, Chitral, Hunza, Swat, and the Kaghan and Naran valleys, have long been celebrated for their alpine coolness, glacier-carved valleys, and culturally rich mountain communities. But these same features make them acutely vulnerable to climate volatility. Home to more than 7,000 glaciers (the world's largest concentration outside the Arctic and Antarctic), Pakistan's mountains are warming faster than the global average. Rapid glacier melt has led to the formation of over 3,000 glacial lakes, at least 36 of which are classified as dangerous due to the risk of sudden outburst floods. These events threaten roads, bridges, hotels, markets, and entire villages, shattering the backbone of local tourism economies.

In 2025, flash floods near Babusar Pass stranded hundreds of travelers as roads were washed out, disrupting peak-season tourism overnight. Landslides triggered by heat-induced glacier melt have repeatedly blocked the Karakoram Highway, Pakistan's crown jewel of tourism connectivity, leaving tourists stuck for days and causing significant financial losses for local businesses. In Gilgit-Baltistan, tourism authorities reported steep declines in arrivals during consecutive years of extreme weather, eroding incomes for tour operators, porters, drivers, and hospitality workers who rely heavily on the summer season.

Climate impacts in Pakistan extend beyond the mountains. Along the Makran and Karachi coasts, rising sea levels and cyclonic storms increasingly threaten beaches and recreational infrastructure. Urban tourism, particularly in Lahore, Karachi, and Islamabad, is disrupted by severe heatwaves, smog

episodes, and urban flooding that turn peak travel periods into hazardous intervals. Cultural and archaeological sites, from Mohenjo Daro to Taxila, face moisture damage, erosion, and heat-related degradation, complicating conservation efforts and reducing visitor appeal.

What makes Pakistan's climate-tourism nexus particularly complex is the interplay between environmental degradation, infrastructure gaps, and governance limitations. Many tourist hotspots lack resilient construction standards, climate-informed land-use planning, or disaster response systems capable of protecting visitors. Roads are often built without geotechnical climate assessments; riverbank hotels sit at the edge of flood-prone areas; early warning systems are patchy; and local governments struggle to regulate unsafe construction or illegal encroachments. These vulnerabilities magnify the economic impact of each climate event and extend recovery times, undermining investor confidence in the tourism sector.

However, the difficulties also offer a chance to reevaluate Pakistan's tourism strategy. Pakistan can chart a more resilient course by aligning with South Asian adaptation strategies and global best practices. This entails expanding cultural tourism, encouraging community-based ecotourism, investing in wellness and spiritual tourism, and creating year-round attractions that lessen the strain on climate-exposed seasons in order to diversify tourism offerings beyond climate-sensitive activities. By implementing climate-informed zoning, enforcing building codes, investing in early warning systems, and managing waste sustainably, stronger governance can safeguard tourists and communities while increasing trust in Pakistan as a secure and dependable travel destination.

Additionally, South Asian regional cooperation can promote shared resilience. Pakistan can adopt tested models more quickly if it engages in cross-border knowledge exchange on Himalayan risk management, coastal adaptation, and sustainable tourism, especially with Nepal, Bhutan, India, Sri Lanka, and the Maldives. The transition to a more adaptable and regenerative tourism industry can be further supported by collaborating with development partners on climate finance, training, and research.

The geography, seasonality, and viability of tourism are all being redefined by climate change worldwide, but nowhere more so than in South Asia and Pakistan. The next phase of tourism will depend on

reimagining change rather than fighting it as melting glaciers and disappearing coasts alter the landscape. Pakistan's challenge and its opportunity lies in leveraging this moment to build a sector that is not only economically vibrant but environmentally and socially resilient, guided by long-term vision rather than short-term gains. In this new climate reality, the future of tourism will belong to those destinations that protect their ecosystems, empower their communities, and adapt with foresight and courage.

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