



# Navigating Crisis: The Influence of Epidemics and Natural Disasters on Tourism in Kerala

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## Abstract

The tourism industry in Kerala is of great importance to the state's economy, making substantial contributions to revenue, employment, and foreign exchange profits. In recent years, tourism has emerged as a significant economic sector in the state, generating considerable cash, with total revenue surpassing ₹45,000 Crore per year. Furthermore, the industry offers job opportunities to roughly 1.5 million individuals through direct and indirect means in many sectors such as hospitality, transportation, and tour operations. Moreover, the tourism industry in Kerala substantially contributes to India's foreign exchange profits, attracting many international tourists. Therefore, tourism is crucial in stimulating economic growth, promoting rural development, and facilitating cultural interchange within the state. In the last decade, Kerala, one of India's most popular tourist destinations, has faced several setbacks, primarily due to natural disasters. From floods to cyclones and landslides, these disasters have severely impacted the tourism sector, which plays a crucial role in the state's economy. This article seeks to highlight the challenges posed by these disasters while presenting data to measure the performance of the tourism sector over the past decade. Natural calamities, especially floods, landslides and cyclones, and epidemics like CORONA and Nipah have played a major role in destabilizing tourism, severely impacting the lives of those dependent on the sector. This article provides a comprehensive analysis of the performance of the tourism sector during this period, focusing on the natural disasters that caused disruptions. The study uses statistics from past couple of decades to explore the extent of damage, decline in visitors and loss of income in Kerala. It discusses recovery strategies and how the state can improve its resilience against future disasters.

Key words: Kerala Tourism, Economic Impact, Natural Disasters, Crisis Resilience, Tourism Recovery Strategies

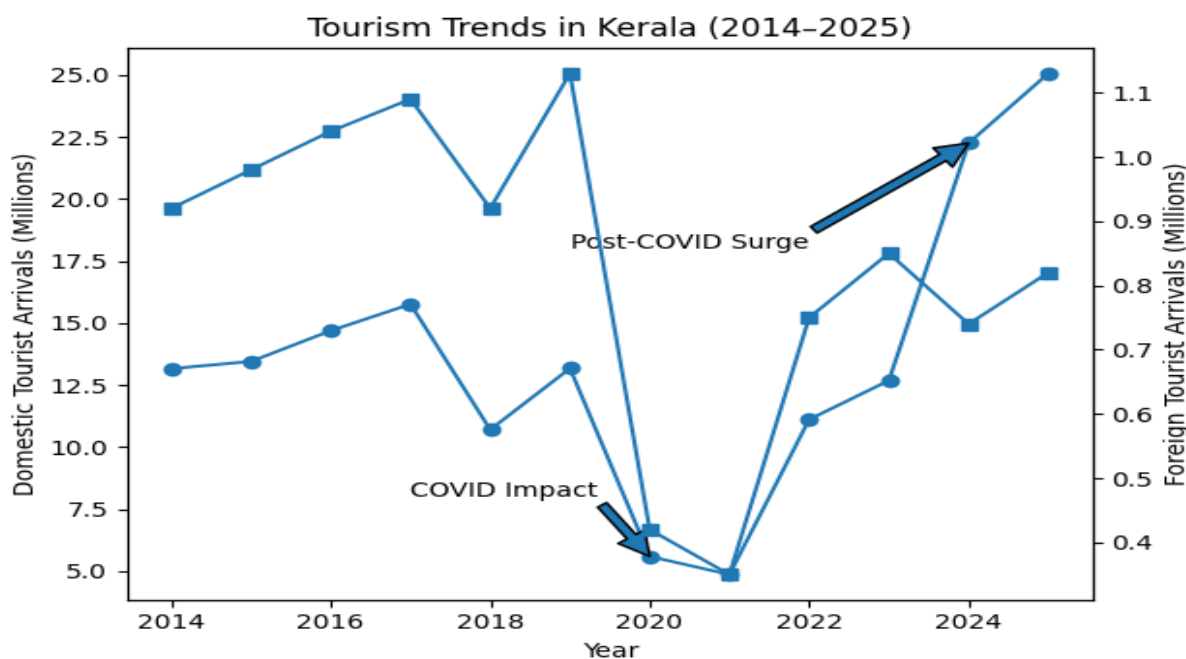


## Introduction

Kerala is internationally recognized for its diverse tourist attractions, which range from pristine beaches to verdant hill stations and Ayurvedic wellness centres. The state's unique geography and cultural heritage have made it a significant player in India's tourism industry. Kerala's tourism policies, focused on sustainable development and eco-tourism, have helped the state attract discerning travelers from across the globe. However, over the past decade, Kerala's tourism sector has experienced significant disruptions, notably due to natural calamities, severely impacting its growth trajectory.

Kerala holds a special position in global tourism, consistently ranking among the top destinations for its scenic landscapes, responsible tourism initiatives, and cultural experiences. According to Kerala Tourism Statistics, the state saw a steady increase in both domestic and international tourist arrivals from 2016 to 2019, before the COVID-19 pandemic. The state had 16.7 million domestic tourists and over 1 million international tourists in 2019, contributing significantly to India's tourism revenue and foreign exchange earnings. Kerala's backwaters, traditional houseboats, Ayurvedic treatments, and wildlife sanctuaries have drawn international recognition, positioning it as a leading destination for nature and culture enthusiasts.

Table No 1: Tourist arrivals in Kerala in last decade.



Despite Kerala's robust tourism potential, natural calamities have wreaked havoc on the sector. The Wayanad landslide in 2019 was a significant blow, exacerbating the challenges already posed by earlier floods in 2018. The devastation in Wayanad, a key hill station, an eco-tourism hotspot, destroyed roads, bridges, and key tourist infrastructure. Landslides caused human casualties and led to long-term disruptions to tourism operations.

In addition to the Wayanad landslide, Kerala faced severe floods in 2018 and 2019, severely disrupting the tourism sector. The floods submerged popular tourist destinations like Munnar and Alleppey, causing an overall decline in tourist arrivals. For example, after the natural disasters, Kerala reported a 4.3% decline in domestic tourist arrivals in 2019. The state's tourism revenue also hit significantly, dropping from ₹36,528.01 crores in 2018 to ₹32,620.24 crores in 2019. These calamities eroded Kerala's reputation as a safe and reliable tourist destination, causing potential visitors to choose alternative destinations.

In 2017, Kerala saw an influx of approximately 15.76 million domestic tourists and 1.09 million international tourists. However, after the devastating floods in 2018, the state witnessed a sharp decline in tourist arrivals, with a 9.6% decrease in international tourists and a 7.4% decline in domestic visitors by the end of that year. The situation worsened in 2019



due to another flood, leading to a further 6.2% drop in overall tourist numbers. The COVID-19 pandemic in 2020 had an even more severe impact, resulting in a dramatic 72% fall in international arrivals and a 61% reduction in domestic tourists, marking the lowest figures in a decade.

In 2017, Kerala's tourism sector generated over ₹39,000 crore in revenue. However, the devastating floods of 2018 resulted in a substantial loss of approximately ₹2,000 crore. The following year, 2019, witnessed a 5.7% decline in tourism revenue, translating to an estimated loss of ₹1,800 crore, largely attributed to natural calamities. The impact of the COVID-19 pandemic in 2020 led to an even more significant setback, with tourism revenue plunging by 79%, dropping from ₹45,000 crore in 2019 to just ₹8,500 crore (Government of Kerala, 2020).

Despite these setbacks, Kerala's tourism sector has shown resilience. The ability to adapt to adverse situations, restore confidence among tourists, and rebuild infrastructure has allowed Kerala to maintain its reputation as a top travel destination. However, these events have also underscored the need for continued investment in disaster preparedness and economic contingency planning in the tourism sector.

The Kerala tourism industry, widely recognized for its significant contributions to the global and Indian tourism sectors, has encountered persistent challenges over the past decade. In such scenario, it is imperative to analyze the means by which the tourist industry in Kerala might enhance its performance with steadiness. This study employs a methodology to analyze the visitor numbers and revenue during the past twenty years, while also documenting the extent of the setbacks. Additionally, it investigates the occurrence and consequences of natural catastrophes during the same decade.

### **From 2003 to 2014; Years of progress in Kerala Tourism**

The tourism sector in Kerala has faced numerous challenges over the years, and two significant events that left an indelible mark on the industry were the 2004 Indian Ocean Tsunami and the global economic recession 2008. Both events disrupted the steady growth Kerala had been witnessing in the tourism industry, affecting tourist arrivals, infrastructure, and the state's overall economy.

The 2004 Indian Ocean Tsunami caused unprecedented damage along the coastal regions of Kerala. While Tamil Nadu and the Andaman and Nicobar Islands bore the brunt of the disaster in India, Kerala's coastal communities were also hit, causing extensive damage to tourism-related infrastructure. The tsunami affected coastal towns like Kollam and Alappuzha, which are popular for beach tourism and backwater cruises. Tourist facilities, hotels, and houseboats were destroyed or rendered inoperative for an extended period, leading to a significant decline in tourist arrivals. International tourists, who constituted a large portion of Kerala's tourism base, hesitated to visit the state due to safety concerns in the aftermath of the disaster. The tourism industry had to invest heavily in rebuilding infrastructure and restoring tourists' confidence, and it took several years to regain its pre-tsunami momentum. The disaster also revealed the vulnerability of Kerala's coastal tourism infrastructure to natural calamities, highlighting the need for more robust disaster management strategies in the future.

The global economic recession of 2008 compounded the problems Kerala's tourism industry faced. As the world experienced a severe economic downturn, discretionary spending on travel and tourism decreased significantly. International tourist arrivals to Kerala dropped as many major markets, including Europe and the United States, faced economic uncertainty, job losses, and reduced disposable income. The recession affected international and domestic tourism, as even Indian tourists began cutting back on leisure travel due to financial constraints. The economic slowdown also impacted the state's luxury tourism sector, which had grown in popularity with affluent foreign tourists seeking wellness experiences, such as Ayurveda treatments and retreats in Kerala's scenic landscapes. The recession not only led to a fall in arrivals but also prompted price sensitivity among tourists, reducing the revenue generated per tourist.

In the face of these challenges, Kerala's tourism industry had to adapt. Post-tsunami, the government launched recovery plans that included rebuilding damaged infrastructure, promoting alternative destinations, and enhancing safety measures. Similarly, after the 2008 recession, the tourism industry diversified its offerings to attract a broader demographic,



focusing on affordable travel options and promoting eco-tourism, adventure tourism, and cultural tourism as cost-effective alternatives to luxury travel. Marketing efforts were intensified to tap into domestic tourist markets, ensuring a steady flow of visitors even during global economic slumps.

**Table No.1; Revenue from Tourism Kerala (2003-2013)**

Year	Domestic Tourism Revenue (INR Cr)	Foreign Exchange Earnings (INR Cr)	Major Natural Calamity/Disruption	% Change in Revenue
2003	4,200	1,150	None	-
2004	4,600	1330	Tsunami	+9.5 %
2005	5,020	1510	None	+9.1%
2006	5,500	1750	None	+9.6%
2007	6000	2000	None	+9.1%
2008	6,500	2,100	Global Recession	+8.3%
2009	6,600	2,050	Recession Impact continues	+1.5%
2010	7,300	2,200	None	+10.6%
2011	8,100	2,450	None	+11%
2012	8700	2,800	None	+7.4%
2013	9000	3100	None	+3.4%

Between 2003 and 2013, Kerala's tourism revenue saw consistent growth despite disruptions. Domestic tourism revenue increased from INR 4,200 crore in 2003 to INR 9,000 crore in 2013, while foreign exchange earnings rose from INR 1,150 crore to INR 3,100 crore. Major disruptions like the 2004 tsunami and the 2008 global recession slightly affected growth rates, but the overall trend remained positive. The highest revenue growth occurred in 2010 (+10.6%) and 2011 (+11%). However, by 2013, the growth rate slowed to 3.4%. This period reflects Kerala's resilience in the face of global and local challenges.

**Table No: 2; Tourist arrivals in Kerala (2003-2013).**

Year	Domestic Tourist Arrivals (Million)	Foreign Tourist Arrivals (Million)	Major Natural Calamity/Disruption	% Change in Tourist Arrivals
2003	5.95	0.29	None	-
2004	6.53	0.34	Tsunami	+9.7%
2005	7.14	0.38	None	+8.4%
2006	7.85	0.43	None	+9.9%
2007	8.60	0.50	None	+9.6%
2008	9.43	0.57	Global Recession	+9.6%
2009	9.72	0.55	Recession impact continues	+3.1%
2010	10.91	0.66	None	+12.3%
2011	11.72	0.73	None	+7.4%
2012	12.47	0.79	None	+6.4%
2013	12.90	0.86	None	+3.5%

From 2003 to 2013, both domestic and foreign tourist arrivals in Kerala grew steadily. Domestic arrivals increased from 5.95 million in 2003 to 12.90 million in 2013, while foreign arrivals rose from 0.29 million to 0.86 million. Significant



disruptions during this period included the 2004 tsunami and the 2008 global recession, yet overall tourism showed resilience, with growth rates fluctuating between +3.1% and +12.3%. The global recession impacted arrivals in 2008 and 2009, but recovery followed, with positive growth in subsequent years. The data highlights Kerala's growing appeal as a tourist destination despite occasional external disruptions.

### 2014 to 2014; A decade of Setbacks.

Despite Kerala's robust tourism potential, natural calamities have wreaked havoc on the sector. The Wayanad landslide in 2019 was a significant blow, exacerbating the challenges already posed by earlier floods in 2018. The devastation in Wayanad, a key hill station and eco-tourism hotspot, destroyed roads, bridges, and key tourist infrastructure. Landslides caused human casualties and led to long-term disruptions to tourism operations.

In addition to the Wayanad landslide, Kerala faced severe floods in 2018 and 2019, severely disrupting the tourism sector. The floods submerged popular tourist destinations like Munnar and Alleppey, causing an overall decline in tourist arrivals. For example, after the natural disasters, Kerala reported a 4.3% decline in domestic tourist arrivals in 2019. The state's tourism revenue also hit significantly, dropping from ₹36,528.01 crores in 2018 to ₹32,620.24 crores in 2019. These calamities eroded Kerala's reputation as a safe and reliable tourist destination, causing potential visitors to choose alternative destinations.

In 2017, Kerala saw an influx of approximately 15.76 million domestic tourists and 1.09 million international tourists. However, after the devastating floods in 2018, the state witnessed a sharp decline in tourist arrivals, with a 9.6% decrease in international tourists and a 7.4% decline in domestic visitors by the end of that year. The situation worsened in 2019 due to another flood, leading to a further 6.2% drop in overall tourist numbers. The COVID-19 pandemic in 2020 had an even more severe impact, resulting in a dramatic 72% fall in international arrivals and a 61% reduction in domestic tourists, marking the lowest figures in a decade.

In 2017, Kerala's tourism sector generated over ₹39,000 crore in revenue. However, the devastating floods of 2018 resulted in a substantial loss of approximately ₹2,000 crore. The following year, 2019, witnessed a 5.7% decline in tourism revenue, translating to an estimated loss of ₹1,800 crore, largely attributed to natural calamities. The impact of the COVID-19 pandemic in 2020 led to an even more significant setback, with tourism revenue plunging by 79%, dropping from ₹45,000 crore in 2019 to just ₹8,500 crore (Government of Kerala, 2020).

Despite these setbacks, Kerala's tourism sector has shown resilience. The ability to adapt to adverse situations, restore confidence among tourists, and rebuild infrastructure has allowed Kerala to maintain its reputation as a top travel destination. However, these events have also underscored the need for continued investment in disaster preparedness and economic contingency planning in the tourism sector.

**Table No:3 ; Revenue from Tourism in Kerala (2014–2024)**

Cal. Year	Foreign Exchange Earnings (In Crore)	% Variation over the previous year	Major Natural Calamity/ Disruption	Total revenue generated from Tourism (Direct & Indirect) (In Crore)	% Variation over the previous year
2013	5560.77	21.63	None	22926.55	12.22
2014	6398.93	15.07	None	24885.44	8.54
2015	6949.88	8.61	Floods (Localized)	26689.63	7.25
2016	7749.51	11.51	None	29658.56	11.12



2017	8392.11	8.29	Cyclone (Okhi)	33383.68	12.56
2018	8764.46	4.44	Kerala Floods/Nipah	36258.01	8.61
2019	10271.06	17.19	Kerala Floods/Nipah	45010.69	24.14
2020	2799.85	-72.74	COVID 19 Pandemic	11335.96	-74.82
2021	461.5	-83.52	COVID 19 Pandemic	12285.91	8.38
2022	2792.42	505.07	Post pandemic Recovery	35168.42	186.25
2023	-	-	Nipah	-	-
2024	-	-	Landslide/Nipah	-	-

Between 2013 and 2022, Kerala's tourism sector faced significant disruptions due to natural calamities, including floods, cyclones, and the COVID-19/Nipah pandemic. Kerala tourism, which had been recording steady growth till 2017, registered a decline in overall revenue of 8.61 percent in 2018 due to flood. Overall tourism revenue peaked at 45010.69 crore in 2019. But in the 2020, it became 11,335.96 crore with a revenue plummeting by 74.82 % in the total revenue. A post-pandemic recovery in 2022 saw revenue rebound by 188.5%. Foreign exchange earnings followed a similar trend, showing a marked decline during the pandemic and in 2018 but recovering by 2023. The Wayanad landslide in 2024 presents another challenge to sustained growth (Kerala Tourism, 2024).

**Table No. 4; Tourist Arrivals in Kerala (2014-2024)**

#### TRENDS IN DOMESTIC & FOREIGN TOURIST VISITS IN KERALA

Cal. Year	DOMESTIC TOURISTS	% Variation	Major Natural Calamity/ Disruption	FOREIGN TOURISTS	% Variation
2013	10857811	7.75		858143	8.12
2014	11695411	7.71	None	923366	7.60
2015	12465571	6.59	Floods (Localized)	977479	5.86
2016	13172535	5.67	None	1038419	6.23
2017	14673520	11.39	Cyclone (Okhi)	1091870	5.15
2018	15604661	6.35	Kerala Floods	1096407	0.42
2019	18384233	17.81	Kerala Floods	1189771	8.52
2020	4988972	-72.86	COVID 19 Pandemic	340755	-71.36
2021	7537617	51.09	COVID 19 Pandemic	60487	-82.25
2022	18867414	150.31	Post Pandemic recovery	345549	471.28

The data on tourist arrivals in Kerala from 2014 to 2024 shows significant fluctuations, largely influenced by natural calamities and the COVID-19 pandemic. From 2014 to 2017, Kerala witnessed steady growth in both domestic and foreign tourist arrivals, with an overall positive trend in tourism. The localized floods in 2015 had minimal impact, as the sector continued to grow at a modest pace, recording a 2.2% increase. By 2016, domestic arrivals reached 13.17 (with 5.67% growth) million, and foreign arrivals 1.04 million, with a notable 9.2% growth (Kerala Tourism Department, 2024).



However, in 2018, the devastating Kerala floods caused a steep decline in tourist numbers, with an inconsistent growth percentage domestic arrivals dropping to 6.35 % and foreign arrivals to 0.92 million, reflecting a sharp 32.1% decrease in overall tourism.

The state's recovery efforts led to a substantial rebound in 2019, with tourist arrivals growing by 23.0% (Kerala Tourism Department, 2024).

The outbreak of the COVID-19 pandemic in 2020 caused an even greater disruption, with a drastic fall in arrivals—domestic tourists fell to 5.59 million and foreign tourists to 0.42 million, marking a 57.6% decline. This downward trend continued into 2021, though at a slower rate of 13.0%. The sector began to recover in 2022, with a significant increase in tourist arrivals (128.6%) as restrictions eased and travel resumed. The estimates for 2023 and 2024 indicate continued growth, though natural calamities like the Wayanad landslide are projected to moderate the recovery (Kerala Tourism Department, 2024).

Following the 2018 Kerala floods, there were significant decreases in tourist numbers and revenue, followed by a gradual recovery in 2019. COVID-19 profoundly impacted the tourism sector, especially in 2020 and 2021, leading to extensive decreases in both local and foreign tourists. A substantial increase in visitor numbers and cash income characterized the post-pandemic recovery in 2022. This paper provides a clear and comprehensive statistical analysis of the effects of natural catastrophes on the tourism industry of Kerala during the past two decades.

The impacts of COVID-19 on Kerala's tourism aspirations have been profound, reshaping the state's industry and forcing a recalibration of strategies to reclaim its pre-pandemic position as a global tourist destination. Kerala, often called "God's Own Country," had witnessed steady growth in tourism before 2020, thanks to its diverse offerings such as backwaters, beaches, wildlife sanctuaries, and wellness retreats. However, the pandemic halted international and domestic travel, leading to an unprecedented crisis in the tourism sector. With sharp visitor numbers and revenue declines, the state's aspirations of attracting 20 million tourists by 2022 were abruptly disrupted. The overall tourism revenue, which had reached INR 45,000 crore in 2019, plummeted drastically due to lockdowns, travel restrictions, and the global slowdown in leisure travel (Mathew & Ramesh, 2021).

The economic implications of COVID-19 on Kerala's tourism were severe, particularly for stakeholders whose livelihoods depend on tourism-related activities, such as hoteliers, tour operators, and artisans. Estimates suggest that the sector's contribution to Kerala's Gross State Domestic Product (GSDP) dropped by over 70%, impacting over 1.5 million jobs directly or indirectly connected to the tourism sector (Thomas, 2021). Many small and medium enterprises (SMEs) within the industry were forced to shut down, unable to sustain operations due to reduced footfall and mounting costs. This disruption also created ripple effects in ancillary sectors such as transportation, handicrafts, and hospitality services, further compounding the economic damage. The state's tourism aspirations had included expanding its wellness and ecotourism offerings, but the pandemic halted those initiatives, redirecting attention toward crisis management and survival (Kumar, 2020).

Despite the setbacks, the pandemic has also triggered a reassessment of Kerala's tourism strategy. A significant outcome has been the pivot toward promoting domestic tourism, targeting local travelers as international tourism faced a slower recovery. The Kerala Tourism Department launched several campaigns, such as "Incredible India Kerala," to attract domestic visitors and revitalize the sector, showcasing lesser-known destinations to disperse tourist traffic and promote sustainable practices (Kerala Tourism, 2022). Moreover, the focus on "responsible tourism"—an approach that integrates local communities into tourism activities while preserving the environment—has gained momentum. This strategy aligns with Kerala's long-term vision of sustainable tourism, but now with added emphasis on resilience in the face of global disruptions like pandemics.

In the long run, Kerala's post-COVID tourism aspirations will likely be shaped by a combination of resilience-building, innovation, and sustainable practices. Health and wellness tourism, which had already been a cornerstone of Kerala's appeal due to its Ayurvedic traditions, is expected to play a pivotal role in the recovery process. The state has also



invested in digital innovations to boost its tourism prospects, including virtual tours and digital marketing campaigns to keep Kerala top-of-mind for international travelers (Sharma, 2021). While the immediate impact of COVID-19 was devastating, the crisis has opened up opportunities for Kerala to rebuild its tourism aspirations in a more sustainable, resilient, and community-centered manner.

### **Impact of Floods on Kerala Tourism**

The devastating floods of 2018 and 2019 had profound implications for Kerala's tourism industry, a cornerstone of the state's economy. Torrential monsoon rains have caused widespread flooding, displacing millions of people and severely damaging infrastructure, including major tourist destinations such as Munnar, Alappuzha and Wayanad (Kumar, 2019).

The tourism sector, heavily reliant on Kerala's natural beauty and serene landscapes, was severely impacted. Major tourist destinations, including Alappuzha, Kochi, and Wayanad, experienced extensive damage, with houseboats, resorts, and hotels either submerged or heavily affected by the rising waters (Suresh, 2019). This disaster resulted in a sharp decline in tourist arrivals, as potential visitors were deterred by images of devastation and concerns over the safety and accessibility of the region (Ravi, 2019). An estimated economic loss of Rs 40,000 crore (US \$5.7 billion) has been incurred as a result of the floods, with the tourism sector accounting for a significant portion of this loss.

In 2017, Kerala welcomed approximately 15.76 million domestic and 1.09 million international tourists. Post the 2018 floods, tourist numbers dropped significantly, with a 9.6% decline in international arrivals and a 7.4% decline in domestic tourists by the end of 2018. The floods of 2019 further aggravated the situation, with a 6.2% decrease in total tourist arrivals. In 2020, the pandemic caused a sharp fall of nearly 72% in international arrivals and a 61% reduction in domestic tourists, the lowest figures in a decade.

Kerala faced another bout of flooding the following year, exacerbated by the monsoon rains in 2019. Although less severe than the 2018 floods, the 2019 inundation compounded the ongoing recovery challenges for the tourism sector (Menon, 2020). The continuous cycle of natural calamities eroded travelers' confidence and posed significant hurdles to the state's tourism revival strategies. According to recent reports, the cumulative impact of these floods led to a drastic reduction in tourism revenue and job losses in the sector (Krishna, 2021). Local businesses, including those dependent on tourism, suffered financial setbacks, impacting livelihoods and regional economic stability.

### **Impact of COVID**

The COVID-19 epidemic has significantly influenced the tourism industry in Kerala, giving rise to both direct and indirect consequences. Being one of India's leading tourist destinations, Kerala's tourism sector encountered unparalleled difficulties as a result of the epidemic, with ongoing consequences. The COVID-19 pandemic had an immediate and significant impact on Kerala's tourism sector. Following the emergence of the epidemic in early 2020, the state experienced a significant decline in the number of tourists visiting. The implementation of travel restrictions, lockdowns, and rigorous health measures resulted in an abrupt cessation of tourism operations. The Kerala Tourism Department (2020) reported a significant decline of more than 70% in the visitor numbers, both domestic and international, in comparison to previous years. Many prominent tourist destinations, such as beaches, hill stations, and backwater cruises, were either shut down or operated with limited capacity, so further reducing the revenue of the industry.

The hotel industry was especially severely impacted. Hotel, resort, and homestay establishments experienced occupancy rates that plummeted to very negligible levels. A significant number of businesses were compelled to temporarily or permanently close as a result of financial pressure (Kerala Tourism Department, 2021). The decline in tourism also impacted associated industries such as transportation services, including taxi operators and tour guides, who suffered a substantial net loss in revenue.

The indirect effects of the epidemic on the tourism industry in Kerala were equally substantial. The economic recession resulting from the decrease in tourism revenue resulted in extensive unemployment and depressed earnings for those



working in the industry. The Kerala Economic Review (2021) claimed that thousands of individuals, including hotel staff, tour operators, and craftsmen, faced unemployment or lower salaries as businesses struggled to survive.

The pandemic also induced a shift in tourist behavior and tastes. Health and safety concerns became prominent, leading to changes in travel habits. Tourists began to select resorts with stringent hygiene measures and sought out less congested, more remote locations. This transition has influenced Kerala's tourism strategy, with a rising emphasis on promoting eco-friendly and health-conscious vacation experiences (Thomas, 2021).

Moreover, the pandemic spurred the adoption of digital technologies within the tourism sector. The necessity for contactless transactions and virtual experiences led to greater investment in digital solutions, such as online booking systems and virtual tours. This technological transformation is anticipated to have long-term impacts on how tourism services are supplied and consumed (Nair, 2022).

### **The arrival of the devastating Nipah Epidemic.**

Kerala is renowned for attaining remarkable health results albeit having relatively low revenues in comparison to other states in India. Consequently, Kerala depended on the capabilities of its healthcare system to control the epidemic spread. Over the past five years, Kerala has experienced four outbreaks of the Nipah virus, with the most recent incident occurring in 2023 (World Health Organization [WHO], 2023). These outbreaks primarily impacted the Kozhikode district and its surrounding regions in 2018, 2021, 2023 and 2024, and an additional outbreak was reported in the Ernakulam district in 2019 (WHO, 2024). The Nipah virus is capable of zoonotic transmission as well as human-to-human spread, which heightens concerns about potential widespread outbreaks (Smith et al., 2022).

Table No:5; The Lethality of Nipah Epidemic.

Sl no.	Year & Month	District	Cases and Survival
1	2018 May	Calicut	18/2
2	2019 June	Ernakulam	1/1
5	2023 August/September	Calicut	6/4
6	2024 July/September	Malappuram	2/0

The emergence of Nipah virus cases has led to a significant decline in domestic and international tourist arrivals to Kerala. The fear of infection associated with the virus discourages travel, as many countries issue travel advisories during such outbreaks, advising against visiting affected areas (Jones & Kumar, 2021). This perception of Kerala as a health risk undermines its reputation as a safe travel destination, leading tourists to prioritize their safety and opt for alternative locations even if the actual risk is localized or effectively managed (Doe & Lee, 2020). Tourism-dependent businesses, including hotels, restaurants, and tour operators, suffer substantial revenue losses due to cancellations and reduced bookings during outbreaks (Rahman et al., 2023). Employment within the tourism sector is also adversely affected, with individuals facing temporary or permanent job losses during prolonged outbreaks, thereby exacerbating the economic challenges faced by the state (Patel & Singh, 2022).

Kerala's reputation for medical and wellness tourism is also at risk, as the presence of a contagious virus may deter medical tourists. Potential patients seeking treatment in Kerala might perceive the state as unsafe, opting for alternative destinations instead (Miller & Gupta, 2021). Recurrent outbreaks further damage Kerala's brand as a safe and serene tourist destination, undermining promotional efforts that position the state as "God's Own Country" (Thomas, 2023). Even after controlling an outbreak, the persistent negative publicity can delay the recovery of tourism, with tourists hesitant to return until they are assured of effective safety measures and the absence of future outbreaks (Kumar, 2022).

Adequate readiness is crucial for effectively controlling any epidemic of contagious nature. Timely identification is essential in controlling the transmission of the virus and reducing mortality outcomes. The implementation of event-based surveillance system is crucial to identify signals of clusters originating from hospitals or communities, given the frequent occurrence of epidemics (Rahim AA. et al, 2024).



However, Kerala's robust health infrastructure and swift response to Nipah outbreaks can alleviate some negative impacts on tourism. Effective communication, stringent containment measures, and public assurances are critical in restoring tourist confidence over time (Nair & Joseph, 2023). Kerala typically undertakes aggressive promotional campaigns to rehabilitate its image post-outbreak, emphasizing safety protocols and the state's preparedness to handle health crises (Varma, 2023).

### **Impact of Land Slides on Tourism**

Deadly silent resorts, abundant destinations, and homestays, hassle free roads lacking the normal hustle and bustle of vehicles, closed down business establishments, the horror of the Mundakkai-Chooral mala landslides continues to stalk the tourism sector Wayanad-Kerala, which resulting the unemployment of thousands. Though the direct impact of the disaster was limited to tiny hamlets on the Western tip of Wayanad, the images of the horrific Catastrophe that washed out parts of two villages along with 450 of its inhabitants still linger in the minds of people across geographical boundaries. Numerous families residing in the tourist destinations of Wayanad sustain themselves through linked tourism activities, including the trade of native food products, agricultural produce such as spices and honey, selling curiosities, serving as tourist guides, cleaning personnel at tourist sites, local tour operators, and drivers of tourist taxis.

Landslides have become a recurring natural calamity in Kerala, significantly affecting the state's tourism sector. In Western Ghats, Kerala is prone to heavy monsoons and has experienced severe landslides in recent years. These landslides have disrupted tourism, causing long-term economic and environmental impacts. The most notable incidents include the massive landslides in Wayanad and Idukki, which have repeatedly forced the state to shut down major tourist destinations during peak seasons.

In 2019, a major landslide in Puthumala, Wayanad, destroyed entire villages, rendering the region inaccessible for months. According to reports, Kerala's tourism sector saw a decline in tourist arrivals of around 5.6% in 2018 due to these disasters, with Wayanad being one of the worst-hit districts (Kerala Tourism Development Corporation [KTDC], 2019). Wayanad, known for its ecotourism initiatives and rich biodiversity, is a key destination for domestic and international tourists. The landslides damaged roads and infrastructure and caused a substantial loss to the local economy, which is heavily dependent on tourism.

In 2020, the landslide in Pettimudi, Idukki, killed over 60 people and further highlighted the vulnerability of hill stations in Kerala. The landslide, triggered by torrential rains, led to widespread cancellations of bookings in nearby resorts and homestays, and tourism operators suffered massive losses. Data from the Kerala Tourism department revealed that tourist arrivals dropped by 7.4% in 2020, exacerbating the effects of the COVID-19 pandemic, which had already caused a sharp decline in tourist activities (Kerala Tourism Department, 2021).

Landslides also have a significant environmental impact, contributing to deforestation, soil erosion, and the destruction of local ecosystems. Many ecotourism sites in Kerala, such as Wayanad Wildlife Sanctuary, have experienced habitat loss, negatively affecting wildlife tourism. As a result, these natural disasters often undermine the state's efforts to promote responsible and sustainable tourism. Moreover, the cost of rebuilding infrastructure in landslide-affected areas adds to the financial burden. In 2019 alone, Kerala allocated over ₹5 billion for rehabilitation and infrastructure rebuilding efforts post-landslides (Government of Kerala, 2019).

The repeated occurrence of landslides also has long-term consequences for Kerala's tourism image. While Kerala is often marketed as "God's Own Country" with lush landscapes and tranquil hill stations, frequent calamities like landslides make potential visitors hesitant to travel. According to the World Travel and Tourism Council (WTTC), the tourism sector's contribution to Kerala's GDP fell from 12.5% in 2017 to 10.4% in 2020, largely due to natural calamities and the compounded effects of pandemics and landslides (WTTC, 2021).



## Recovery Strategies and the Way Forward

The Kerala government and tourism authorities implemented several recovery and resilience-building measures in response.

As Kerala tries to recover from the pandemic, the tourism industry has the challenge of rebuilding and adapting to the new normal. The state government has adopted many steps to restore tourism, including health and safety certifications for businesses and promotional activities to entice tourists back to the region (Kerala Tourism Department, 2022). However, the full recovery of the sector may take several years, depending on the global and domestic economic conditions and the trajectory of the epidemic.

The state launched initiatives to restore damaged infrastructure, such as roads, bridges, and hospitality facilities, and promoted campaigns to rebuild Kerala's image as a safe and attractive tourist destination (Nair, 2021). Efforts included improving disaster preparedness and management strategies to mitigate future risks alongside community engagement programs to support affected local businesses and restore visitor confidence (Srinivasan, 2022). Despite these efforts, the road to recovery has been gradual, with tourism statistics only showing signs of rebound in recent years (Thomas, 2023).

The government of Kerala has implemented many measures to rejuvenate the tourism industry. Included among these endeavors are following the floods in 2018 and 2019, the state has prioritized the restoration of critically damaged main highways, bridges, and tourist amenities. The State has prioritized the promotion of responsible and environmentally friendly tourism practices to enhance resilience against future disasters, particularly in vulnerable ecosystems like the Western Ghats. There is a critical need for a regional disaster warning system that actively involves community participation to effectively mitigate the impacts of recurrent natural disasters in the western ghats and measures have to be taken to assess the carrying capacity for mining and tourism while fostering environmental literacy among the populace.

In order to facilitate the revival of small and medium enterprises (SMEs) in the tourist sector, the government has implemented financial aid packages and provisions for subsidies. Kerala has also endeavored to broaden its range of tourist attractions in order to appeal to niche markets such as medical tourism, ayurvedic wellness, and cultural tourism. The process of diversification serves to mitigate the consequences of natural disasters by establishing several revenue streams.

Despite these setbacks, Kerala has implemented several initiatives to revive its tourism industry. The state's "Tourism Recovery Plan 2020-2022" laid out strategies to boost domestic tourism, improve infrastructure resilience, and promote responsible tourism. The focus has shifted toward promoting less-visited destinations and enhancing eco-tourism offerings, which align with global trends toward sustainable and nature-based tourism.

Kerala has also tried to diversify its tourism offerings to attract key markets such as medical tourism, ayurvedic wellness and cultural tourism. This diversification helps in reducing the impact of natural disasters by creating multiple sources of income.

Kerala has also invested in disaster-resilient tourism infrastructure to counter the adverse effects of natural calamities. For instance, rebuilding efforts in Wayanad have focused on sustainable tourism projects that minimize environmental damage and promote community participation. Additionally, Kerala's tourism policy now emphasizes digital marketing campaigns to restore confidence among international tourists, particularly in markets like Europe and the Middle East.

## Discussion

During the past ten years, the state's tourism industry has faced several obstacles, including floods and health emergencies such as COVID-19 and NIPAH, which have led to a decrease in both tourist arrivals and earnings. The COVID-19 epidemic has had a tremendous influence on Kerala's tourism economy, with both direct and indirect implications. While the immediate repercussions were catastrophic, the crisis has also expedited changes in travel trends and technical



breakthroughs. The path to recovery will require a deliberate strategy, concentrating on safety, sustainability, and resilience to preserve the long-term health of Kerala's tourism sector.

Nipah virus outbreaks in Kerala have a profound disruptive effect on the tourism sector, primarily through fear-induced declines in tourist arrivals, economic losses for tourism-dependent businesses, and damage to the state's reputation as a safe travel destination. Nonetheless, Kerala's resilient response mechanisms and dedicated recovery efforts mitigate long-term adverse effects on the tourism industry (WHO, 2023; Smith et. al, 2022).

The need of improving the combined understanding of the population and healthcare practitioners about the signs and symptoms of Nipah cannot be overstated. Simultaneously, it is important to update case definitions and improve infection control methods, including ensuring the prompt distribution of medical supplies and an adequate stock of personal protective equipment, in order to efficiently manage any future epidemic of a comparable kind. In order to guarantee readiness, it is imperative to acquaint hospital personnel with established operating procedures and protocols for incident management by means of tabletop exercises. Furthermore, it is essential to uphold general precautions and hospital infection prevention and control protocols irrespective of the specific type of patient being monitored.

The catastrophic floods in Kerala in 2018 and 2019 underscored the urgent requirement for efficient flood management measures. The floods, worsened by high monsoon rainfall and insufficient drainage infrastructure, resulted in significant destruction to human lives, property, and the environment (Kumar et al., 2020). It is crucial to adopt a diversified strategy to reduce future flood hazards. This encompasses the improvement of early warning systems by means of enhanced meteorological forecasting and real-time monitoring (Nair & Nair, 2021), the allocation of resources towards resilient infrastructure such as reinforced embankments and sustainable drainage systems (Ravi et al., 2019), and the implementation of community-based preparedness programs that provide education to households on measures to reduce risks (Srinivasan et al., 2022). The incorporation of these approaches into a unified flood control framework has the potential to substantially mitigate the consequences of floods and bolster Kerala's ability to withstand future severe weather phenomena.

To mitigate the impact of landslides on tourism, Kerala has initiated several measures, including early warning systems, better land-use policies, and rehabilitation plans for affected communities. The state is also investing in developing disaster-resilient infrastructure in key tourist areas. However, the increasing frequency of landslides and other natural calamities continue to pose a significant challenge to reviving the state's tourism sector. It is crucial to adopt a diverse strategy to avoid the repetition of such catastrophic events. Rigorous rules should be implemented for building infrastructure in high-altitude locations, and vigilant monitoring of land use patterns in these places is necessary. Implementing effective early warning systems is essential to minimize the impact of landslides. Furthermore, it is crucial to advocate for ecologically sustainable communities that impose less disturbance on the natural environment.

Implementing measures to regulate human settlement in regions prone to landslides can effectively mitigate the loss of human lives. The implementation of these policies requires the development and enforcement of a well-formulated land use plan. The occurrence of landslides and floods in 2018 highlighted the necessity for the government and people of Kerala to reassess environmental policies, with a focus on the duty of conserving nature and protecting the lives and means of subsistence of the inhabitants of the Western Ghats.

The floods underscored the vulnerability of tourism-dependent regions to climate-related disasters and highlighted the need for sustainable and resilient tourism development practices. The experience of Kerala serves as a critical case study for other destinations facing similar risks and emphasizes the importance of integrating disaster risk management into tourism planning and policy (George, 2023). As Kerala continues to rebuild and adapt, the lessons learned from these floods will be instrumental in shaping the future of tourism resilience in the face of climate change.



## Conclusion

The tourism industry in Kerala has faced significant challenges throughout the past decade, characterized by recurrent natural calamities and the unparalleled impact of the COVID-19 pandemic. Kerala's standing in the worldwide tourism industry remains substantial, yet, ongoing natural disasters, notably the Wayanad landslide, have presented profound obstacles to the business. The state's outstanding resilience and recovery efforts highlight the pressing need for a comprehensive long-term strategy that prioritizes disaster relief, climate change adaptation, and sustainable tourism growth. To maintain Kerala's appeal as a preferred destination for international tourists, it is crucial to develop a tourism industry that is resilient to natural calamities and safeguards the means of subsistence for its reliant population. Nevertheless, by implementing specific recovery measures that prioritise sustainability, resilience, and responsible tourism, Kerala has the capacity to restore its position on the global tourism map. Ensuring a sustainable recovery that addresses environmental and economic issues will need collaborative efforts among the government, local communities, and the corporate sector.

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