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Impact of Natural Disaster on the Tourism Possibilities Case Study of Himachal Pradesh

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Abstract:- In both India and globally, all three sectors play pivotal roles in GDP production. The service sector, among them, has exhibited notable growth in recent years. An integral segment within the service and industrial domains is the tourism industry, which has flourished over an extended period, presenting ample opportunities for related sectors. India's economic advancement has significantly benefited from its thriving tourism industry, which attracts a substantial influx of domestic and international travelers for both business and leisure purposes. Beyond contributing to the revenue of towns and nations, tourism fosters local employment opportunities and showcases India's rich heritage sites, festivals, and natural landscapes, all of which are highly esteemed by visitors.

For numerous years, natural and human-induced disasters have adversely impacted the nation's tourism sector. People bear the brunt of these calamities, experiencing severe disruptions in their social and economic lives. The states of Uttarakhand and Himachal Pradesh, known for their vibrant tourism industry, fall within India's disaster-prone zones. A robust economy is vital for the tourism sector, which is relatively susceptible to fluctuations, to flourish. The response of the tourism industry to such disasters underscores its vulnerability to abrupt changes in the local economy.

This thesis underscores prior research indicating that both natural and human-induced disasters can detrimentally affect employment within the tourism sector. Focusing predominantly on economic ramifications, the paper delves into disasters occurring over the past two decades, with particular emphasis on the significant impact of the 2023 floods in Himachal Pradesh, which reverberated across northern India. Seniors' exposure, sensitivity, and capacities when combined with potentially dangerous situations might severely impair their ability to function normally. It affects people in a socioeconomic, psychological, and physical way. The Depending on their age group, the disaster's impact could be different in degree.

Keywords:- *Natural Disaster, Disaster Management, Himachal Pradesh, Infrastructure.*

I. INTRODUCTION

Climate and disasters are inherently linked, as climatic factors strongly influence the occurrence of disasters such as floods, cloudbursts, droughts, cyclones, and storms. The Indian subcontinent experiences unique climatic and weather conditions, with 80 percent of the total annual rainfall occurring in just three months during the highly variable monsoon season, often accompanied by extreme rainfall events. This erratic rainfall pattern results in floods in some regions and droughts in others simultaneously, making flood occurrences a regular feature of the Indian landscape.

Approximately 12 percent of the country's land area is susceptible to floods, with an average of 8 million hectares affected annually, contributing to One out of every five worldwide death toll As a result of flooding. Floods have wreaked havoc in recent years, with notable incidents including the Himachal Floods (2023), Uttarakhand flood (2013), Leh flood (2010), floods along the Ganga in Uttar Pradesh (2010), and Mumbai floods (2005). Particularly in hilly regions, torrential rains not only trigger flash floods but also induce landslides and erosion. Flash floods in states like Himachal Pradesh are sudden and often Caused by very severe events Examples include heavy rainfall, sudden bursts of rain, glacial lake overflow, and dam breaches.

Understanding the behavior of such phenomena is crucial for developing effective management strategies, beginning with a review of historical data to comprehend past occurrences and envision future scenarios. Examining past disasters helps identify their spatial and temporal patterns, impacts on development, underlying causes, and cause-and-effect relationships. Historical information forms the basis for hazard modeling, aiding in the prediction and estimation of threats posed by hazards to people and places. This study delves into the past behavior of floods and their impacts in the Himalayan state of Himachal Pradesh,

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examining events through a spatial and temporal lens. The tourism industry, known for generating employment, contributing to GDP, and serving as a significant source of national income, plays a pivotal role in Uttarakhand's economy. However, the aforementioned threats have led to economic challenges for the state. These issues adversely impact the tourism and hospitality sectors, disrupt communities, dampen spirits, destroy livelihoods, tarnish the area's attractiveness, and diminish revenue streams.

- *Study Area*

Himachal Pradesh, located in the Western Himalayan region, spans from 30º22' to 33º15' N latitude and 75º4' to 79º E longitude, with elevations ranging from 350 to 7000 meters above mean sea level. The state is divided into three distinct physiographic zones: the Siwaliks, the Lesser/Middle Himalayas, and the Greater Himalayas, with relief increasing from southwest to northeast. This variation in relief results in diverse climates, ranging from tropical in the lower hills to temperate in the middle Himalayan region and cold desert-like conditions in the Greater Himalayan region.

Himachal Pradesh is part of the dynamic and complex Himalayan region characterized by highly variable climates. The monsoon rainfall, concentrated over two to three months in the western Himalayas, largely influences the climate. The mean annual rainfall ranges from 350 to 3800 mm, with 70 percent occurring during the monsoon season (July-September). The winter rainy season (December to mid-March) contributes 20 percent of the total annual rainfall. On average, Himachal Pradesh receives 1111 mm of rainfall annually, with variations ranging from about 450 mm in Lahaul & Spiti to over 3,400 mm in Dharamsala of Kangra district. Rainfall generally increases from the plains to the hills, but beyond the Pir Panjal range, it decreases towards Lahaul & Spiti and Kinnaur districts.

Flooding, once solely a natural hazard, has evolved into a hybrid of natural and man-made dangers due to increased human intervention in river systems. Activities such as deforestation, alterations in river courses, construction of bridges and dams, and the development of hydroelectric projects have contributed to this shift. A poignant example of this transformation is the 2013 Flash Flood that struck Uttarakhand, Himachal Pradesh, and adjacent areas.

II. REVIEW AND LITERATURE

In The earliest documented instance of flash floods traces back to 1803 when a seismic event of high intensity triggered numerous landslides, resulting in river blockages and subsequent floods that inflicted severe damage in the Bilaspur, Nahan, and Jubbal areas. *"According to historical accounts, an earthquake-induced landslide in Bhaji temporarily dammed the Sutlej River, forming a lake several hundred feet deep. This led to the sweeping away of several villages and the complete destruction of Bilaspur. Similarly, folklore from the history of Nahan and Jubbal mentions the damming of the Giri River, resulting in the obliteration of the old town of Sirmaur".* Another notable incident occurred in 1836 when a glacial lake outburst from the Shigri glacier in Lahaul and Spiti district caused significant damage to the Chandra River valley. Although historical records lack precise details of the damage caused, there are accounts of guards being stationed at the Kunzum pass to prevent water overflow into Spiti due to the damming of the Chandra River.

However, discrepancies exist in historical accounts, particularly regarding the formation and consequences of the Shigri glacier outburst. While some accounts describe the formation of a large lake that eventually burst, causing devastation downstream, the feasibility of such an occurrence, given the high altitude and geographical constraints, is questioned. Descriptions by Harcourt in 1871 refer to a catastrophic event in the Chandra River valley caused by the spreading of the Shigri glacier across the river approximately eighty years earlier. Nevertheless, uncertainty arises as discrepancies in the dates of flood occurrences cast doubt on whether both descriptions pertain to the same event.

Floods have long been a recurring and highly destructive phenomenon in the Kullu Valley, with one of the earliest recorded instances of devastating flooding along the Beas River occurring in 1894. This event was triggered by the damming of a rivulet due to avalanches, resulting in a catastrophic flash flood that wreaked havoc downstream. Historical records from the Punjab District Gazetteers highlight the destructive impact of floods in the narrow and steep valleys and glens of the region. The 1894 flood in the Phojal nullah stands out as one of the most damaging, with rocks and ice brought down by avalanches blocking the narrow gorge, leading to extensive damage. Reports indicate that around 200 people and numerous livestock were swept away in the disaster. Investigations conducted at the time revealed no evidence of deforestation, but significant slope failure and stream course blockage were identified as contributing factors to the flood. The historical documentation of flood havoc extends to the Yamuna and its tributaries, with records of a particularly severe flood in 1924, during which the Yamuna rose to record heights, causing damage to several villages and sweeping away arable lands in the Paonta tahsil. Additional instances of devastating flash floods include those occurring in the Kullu Valley in 1902 and 1945, as well as along the Swan River in Una district in 1947, as reported by The Tribune. These events underscore the recurring nature and widespread impact of flooding in the region over the years.

During the 1970s, floods became a recurrent and severe occurrence in Himachal Pradesh, with incidents recorded in 1971, 1973, 1975, 1977, and 1978. Among these, the 1971 floods in Swan Khad, Una district, stood out as particularly devastating, surpassing even the 1947 flood in severity. The floods caused extensive destruction, especially along the Ravi, Beas, and Satluj rivers during August 1971. Reports indicated that 21 people lost their lives, with numerous cattle and crops destroyed.

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Additionally, two entire villages were swept away in the Pong dam area, with over twelve people reported missing.

The monsoons of 1977 wreaked havoc in Una and Kullu districts, resulting in a loss of 12.95 crore rupees to the state exchequer. The Swan River claimed the lives of fifteen individuals and damaged 1500 houses in Una district, while the Sarwari River paralyzed normal life in Kullu town and its surrounding areas. In 1978, floods claimed 281 lives and inundated large parts of Solan, Kinnaur, Chamba, Kullu, Una, and Bilaspur districts. Over 300 people and 400 cattle lost their lives during this period, with significant damage to both public and private property. Although the state experienced a relative respite from heavy rains during the 1980s, flash floods still occurred in the Beas, Satluj, and Ravi Rivers, claiming 64 lives in various incidents. The years 1985 and 1988 saw an increase in flood incidents, with severe damage reported in lower districts such as Mandi, Kangra, Hamirpur, and Una.

The 1990s marked a period of intensified flooding, especially between 1992 and 1996, affecting districts such as Kinnaur, Lahaul & Spiti, Mandi, and Chamba. The state witnessed widespread floods in July 1993, with breaches in the Swan River submerging 900 houses and 25000 acres of land, leading to casualties and significant damage. The turn of the millennium brought about even more severe floods, particularly in 2000, 2001, 2005, and 2007. In 2000, devastating flash floods in the Sutlej River claimed over 150 lives, destroyed property worth over 1000 crore rupees, and caused extensive damage to infrastructure, including power projects and bridges. The years 2001, 2005, and 2007 also witnessed significant flooding events, resulting in loss of life, damage to property, and disruption of livelihoods across various districts in the state.

The damage caused by floods in 2007, in particular, was among the deadliest in the state's recent history, with large-scale destruction of roads, agricultural crops, and residential areas. In 2008, flash floods affected districts like Chamba, Kangra, Una, Solan, and Sirmaur, claiming numerous lives, destroying crops and fruit plantations, and causing extensive damage to infrastructure. Despite a reduction in rainfall in 2009, sporadic incidents of floods still occurred in various districts, indicating the persistent threat posed by floods in Himachal Pradesh.

- *Spatio-Temporal Concentration of Floods: 1971-2009*

The historical trends in flood frequency reveal a degree of unpredictability, with periods of both high and low flood frequency observed in the past. However, there has been an overall increase in flood incidents from 1971 to 2009, as depicted in Figure 1. Over the last four decades, the state has experienced a total of 362 flood events, with a significant concentration occurring in the last two decades, particularly during the mid-1990s. Subsequently, there was a decline in flood events during the following decade.

Among the affected districts, Kangra, Kinnaur, Kullu, and Chamba have consistently faced the brunt of flooding over the last four decades. Kullu emerged as the most severely affected district, followed by Kangra, Mandi, and Chamba. Together, these four districts account for approximately 54 percent of the total flood events recorded during the last four decades.

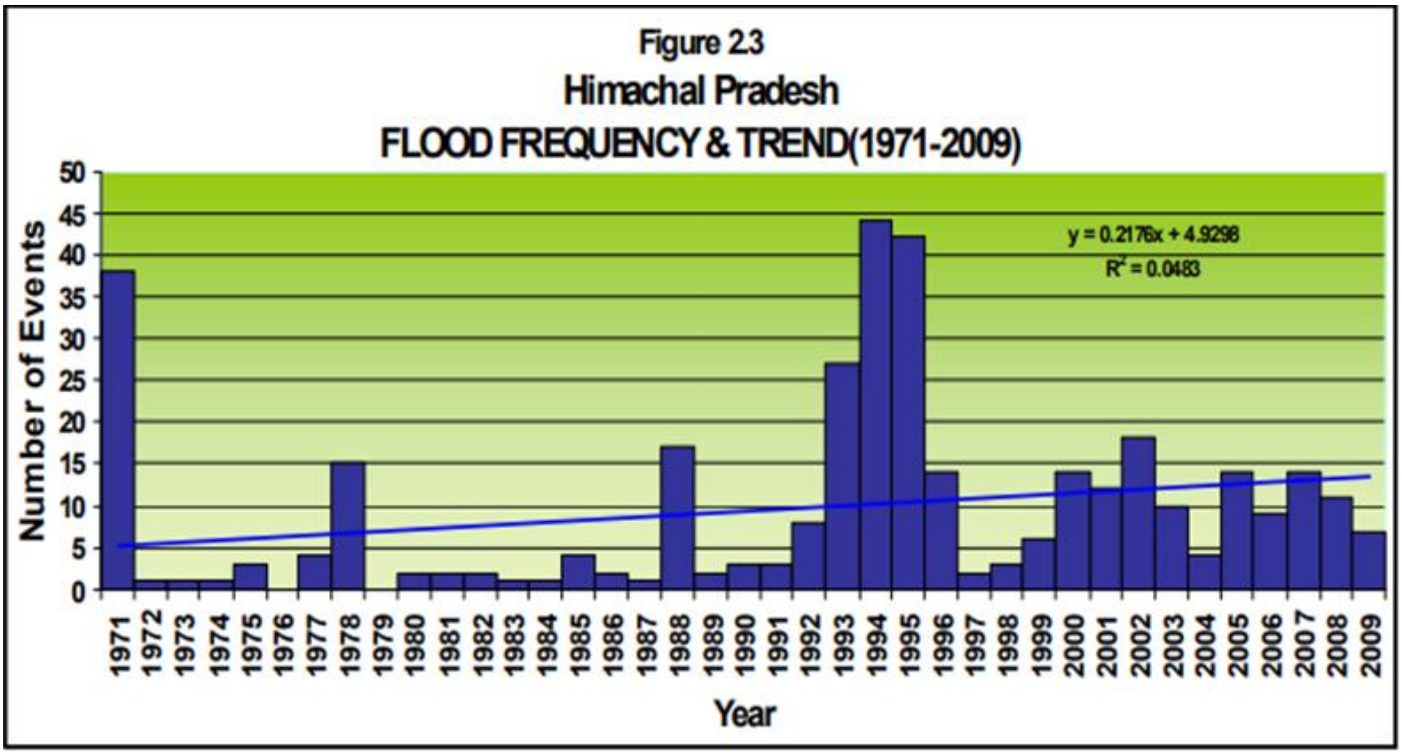

Fig 1 Annual Flood Frequency (1971-2009)

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Table1 District Wise Decadal Occurrence of Floods (1971-2009)

District	1971-1979 Event (Per cent)	1980-1989 Event (Per cent)	1990-1999 Event (Per cent)	2000-2009 Event (Per cent)	Total Events	Per cent
Kullu	10 (15.87)	3 (8.22)	28 (18.42)	16 (14.16)	57	15.75
Kangra	6 (9.52)	9(26.47)	21(13.82	18(15.93)	54	14.92
Mandi	5(7.94)	3(8.82)	28(18.42)	9(7.96)	45	12.43
Chamba	5(7.94)	3(8.82)	16(10.53)	14(12.39)	38	10.50
Kinnaur	1(1.59)	3(8.82)	14(9.21)	16(14.16)	34	9.39
Shimla	9(14.29)	2(5.88)	12(7.89)	11(9.73)	34	9.39
Una	5(7.94)	5(14.71)	11(7.24)	4(3.54)	25	6.91
Sirmaur	8(12.70)	0	2(1.32)	9(7.9610	19	5.25
Hamirpur	1(1.59)	4(11.76)	7(4.61)	6(5.31)	18	4.97
Solan	8((12.70)	1(2.94)	1(0.66)	7(6.19)	17	4.70
Bilaspur	5(7.94)	0	9(5.92)	2(1.77)	16	4.42
Lahaul & Spiti	0	1(2.94)	3(1.97)	1(0.88)	5	1.38
State Total	**63 (100)**	**34(100)**	**152(100)**	**113 (100)**	**362**	**100.00**

Source: Compiled from Daily Newspaper the Tribune (1971-2009)

➢ *Impact of Floods on Human Population*

Over the past four decades, Himachal Pradesh has endured numerous devastating floods, resulting in the loss of 868 lives. However, these fatalities were concentrated in specific years and regions.

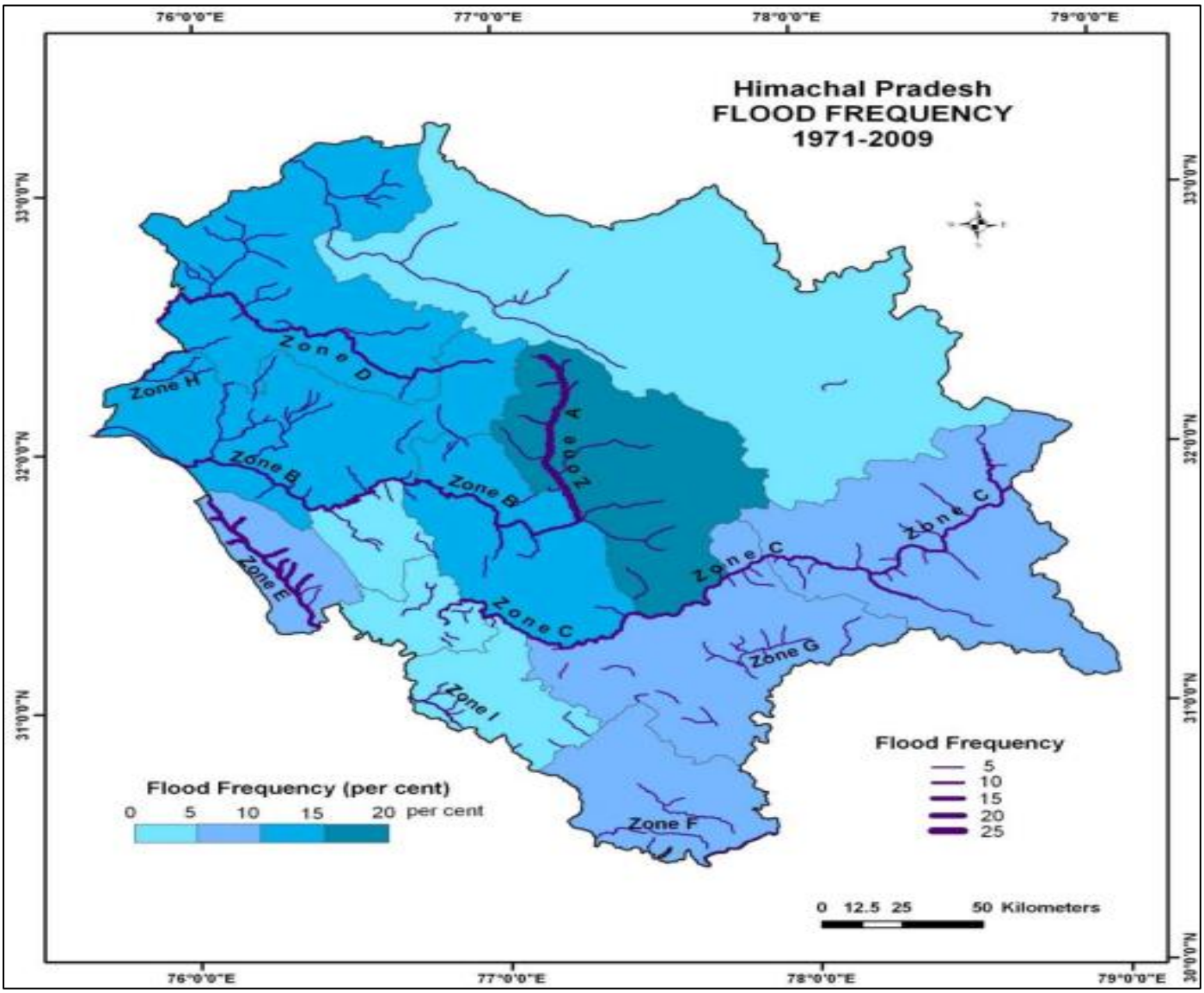

Fig 2 Himachal Pradesh Flood Frequency (1971-2009)

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A staggering 753 individuals, accounting for 86.75% of the total deaths, succumbed to floods during just seven years: 1971, 1973, 1978, 1988, 1995, 1997, and 2000, as depicted in Figure 3. While the temporal trend indicates no significant change in the pattern of flood-related fatalities, the 1990s emerged as the deadliest decade, witnessing 403 deaths, whereas the 1980s experienced the fewest fatalities, with 88 deaths attributed to floods. Fatalities occurred across all districts, albeit with varying magnitudes. Shimla district bore the brunt of flood-related deaths, with 372 individuals perishing over the four decades. Other highly vulnerable districts include Solan, Una, and Kangra. Significant inter-district disparities were observed in decadal casualties.

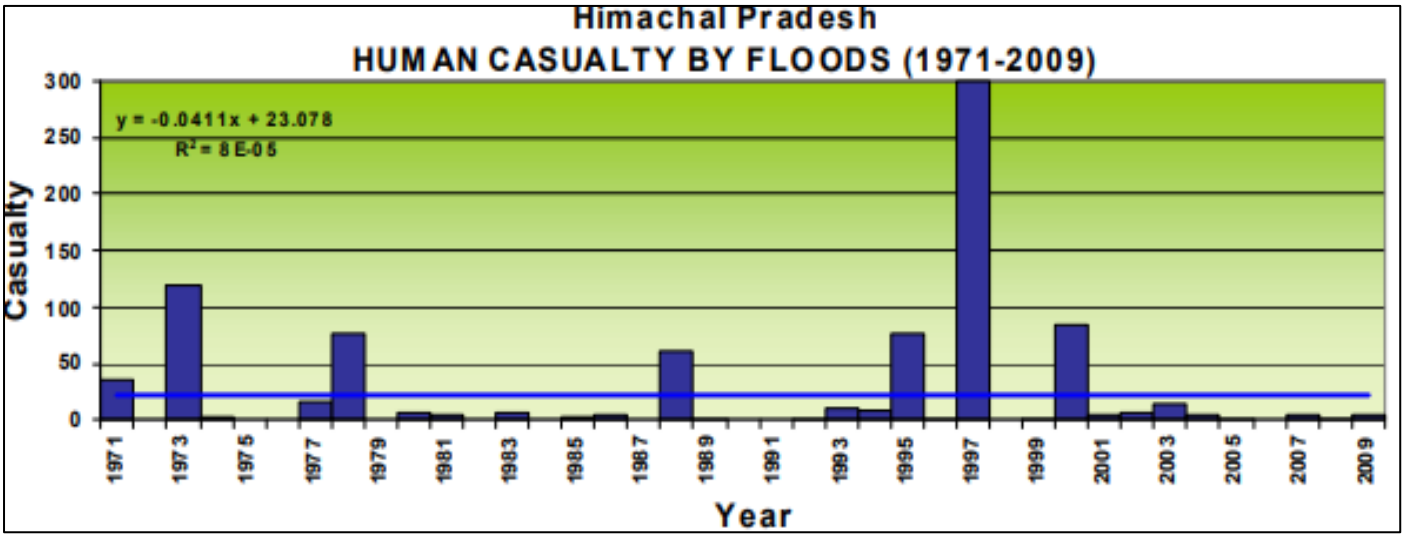

Fig 3 Human Casualties by Flood (1971-2009)

During the 1970s, Solan and Una districts witnessed substantial loss of life, while Kinnaur and Una bore the brunt during the 1980s. In the 1990s, floods in Shimla district accounted for approximately 80% of the total human lives lost in the state. Similarly, during 2000-2009, Kinnaur and Shimla districts experienced a disproportionately high proportion of flood-related fatalities.

Table 2 Decadal Distribution of Human Casualties (1971-2009)

District	1971-1979 Killed (per cent)	1980-1989 Killed (per cent)	1990-1999 Killed (per cent)	2000-2009 Killed (per cent)	Total Killed	Per cent
Shimla	11 (4.37)	2(2.27)	321(79.65)	38(30.40)	372	42.86
Solan	121(48.01)	0	5(1.24)	13(10.40)	139	16.01
Una	46(18.25)	31(35.22)	5(1.24)	0	82	9.45
Kinnaur	0	37(42.05)	1(0.25)	42(33.60)	80	9.22
Chamba	8(3.17)	1(1.14)	37(9.18)	4(3.20)	50	5.76
Kangra	12(4.76)	13(14.77)	13(3.22)	11(8.80)	49	5.65
Kullu	24(9.52)	2(2.27)	6(1.49)	8(6.40)	40	4.61
Sirmaur	15(5.95)	0	6(1.49)	3(2.40)	24	2.76
Bilaspur	15(5.95)	0	2(0.50)	2(1.60)	19	2.19
Mandi	0	2(2.27)	5(1.24)	1(0.80)	8	0.92
Bilaspur	0	0	2(0.25)	3(2.40)	4	0.46
Lahaul & Spiti	0	0	1(0.25)	0	1	0.11
State Total	**252**	**88**	**403**	**125**	**868**	

Source: Compiled from Daily Newspaper the Tribune (1971-2009)

It is evident that each flood event did not result in a loss of lives; it is only a few select flood events that have been responsible for the maximum loss of life and property.

III. CONCLUSIONS

Floods in Himachal Pradesh pose significant threats to human life and property, characterized by their episodic occurrence. However, post-1990, there has been an observable uptick in flood activities, expanding from isolated events in the 1970s and 1980s to a more sustained presence throughout the 2000s. These occurrences have profound impacts on the state's population, environment, and economy, particularly in the Kullu, Kangra, Mandi, and Chamba districts. These areas are most vulnerable along the Satluj, Beas, Ravi, and Swan rivers. Primarily triggered by heavy rainfall, floods are most prevalent during the monsoon season, though recent years have witnessed an increase in pre-monsoon flood activity. This trend is especially pronounced in the middle and lesser Himalayan

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regions, characterized by temperate climates and erratic rainfall patterns, leading to a rise in rainfall-induced disasters such as floods and cloudbursts. While floods and flash floods are natural phenomena rooted in physical factors, their destructive impacts are exacerbated by human activities. Rapid infrastructure development, urban expansion, hydro-power projects, and horticultural activities have encroached upon natural landscapes, heightening the vulnerability of communities and infrastructure in flood-prone areas. This increasing vulnerability, compounded by higher population densities and intensified anthropogenic activities, underscores the potential for catastrophic outcomes in the event of a disaster.

REFERENCES

[1]. Chalise, S. R. and N. R. Khanal. 2001a. Rainfall and Related Natural Disasters in Nepal. In Landslide Hazard Mitigation in the Hindu Kush-Himalaya (eds) Li Tianchi, Chalise, S. R., Upreti, B. N., 63-70, ICIMOD, Kathmandu.

[2]. Chalise, S. R. and N. R. Khanal. 2001b. An Introduction to Climate, Hydrology and Landslide Hazards in the Hindu Kush-Himalayan Region. In Landslide Hazard Mitigation in the Hindu Kush-Himalayas, (eds) Tianchi, L., Chalise, S. R., Upreti, B.N., 51-62, ICIMOD, Kathmandu.

[3]. Chandel, V. B. S. and K. K. Brar. 2010. Climatic Extremes and Changing Climate in Western.

[4]. Kaur, M., & Gautam, A. K. Sustainable tourism practices in Sikkim: A comprehensive study.

[5]. Kumar, A., Chhabra, D., & Sharma, V. (2023). The Impact of Tourism on the Preservation of UNESCO Cultural Heritage Sites in India 2023. International Journal for Multidimensional Research Perspectives, 1(4), 41-49.

[6]. Kaur, M. G., & Kumar, A. (2023). Emerging Trends and Economic Impact of Medical Tourism in Punjab: Analysing Growth, Challenges, and Opportunities in Global Healthcare Context. International Journal for Multidimensional Research Perspectives, 1(4), 50-52.