



Floods, Landslide and Cloudbursts Disasters 2023 in Himachal Pradesh

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Abstract. Himachal Pradesh is one of the most multi-hazard prone State of India. The State faces various types of natural hazards like the geological hazards, earthquake and landslide; hydrological hazards of revering floods, flash floods and glacial lake outburst floods; meteorological hazards of droughts, hailstorms and cloudbursts; and climatologically hazards of cold wave, frosts and avalanche. The frequency and intensity of most of these hydro-meteorological hazards are compounded by climate change and its impacts on agriculture, horticulture, human settlements and human and animal health. Further, the State routinely faces various manmade hazards such as fires, transport related accidents, stampedes in religious fairs etc. that take a toll of consume considerable human lives. In the present study highlights the Floods, Landslide and Cloudbursts situations 2023 in Himachal Pradesh.

Index Terms- lost, Injured, Missing, Deaths, Extensive Damaged and devastation.

I. Introduction

In 2023, Himachal Pradesh experienced one of its most devastating monsoon seasons in recent history, marked by widespread floods, landslides, and cloudbursts. Triggered by unusually intense and prolonged rainfall, these natural disasters caused extensive loss of life, damage to infrastructure, and severe disruption to daily life across the state. Between June and August, multiple districts, including Shimla, Mandi, Kullu, Solan, and Chamba, witnessed repeated episodes of flash floods and landslides, often worsened by cloudbursts in the hilly terrain. The cumulative impact not only strained the state's emergency response systems but also highlighted the growing vulnerability of Himalayan regions to climate-induced extreme weather events.

II. Rainfall Status and Current Disaster Situation 2023 in Himachal Pradesh

Monsoon Period

Extreme Weather Events of Floods, Landslide and Cloudbursts

Monsoon season in India spans over four months from June to September. However, its arrival and withdrawal occurs on different dates in different parts of the country. Normal date of arrival of monsoons in Himachal Pradesh is during the last week of June. This year, monsoon was on time and arrived in Himachal Pradesh on 24 June, 2023. However, the state received very high spells of rainfall during the second week of July especially on 9th and 10th July. The average cumulative rainfall from 24th June to 14th July is excess to the extent of 147% as per details given below:-



Table 1.1

24th June to 14th July			
District	Actual (mm)	Normal (mm)	Departure (%)
BILASPUR	452.6	155	192
CHAMBA	336.9	155.5	117
HAMIRPUR	378.2	176.2	115
KANGRA	460	308.1	49
KINNAUR	152.2	35	335
KULLU	347.6	95.8	263
LAHAUL & SPITI	132.8	63.3	110
MANDI	472.5	216.3	118
SHIMLA	430.8	121.6	254
SIRMAUR	814.9	246.6	230
SOLAN	687.8	183.3	275
UNA	350.7	174.7	101
SUB DIVISION RAIN FALL	337.1	136.3	147

Unprecedented Rainfall in Himachal Pradesh for the period 07.07.2023-11.07.2023:

Rainfall in Himachal Pradesh for the period 07.07.2023 - 11.07.2023:

Active to vigorous monsoon conditions prevailed in Himachal Pradesh during 7th to 10th July 2023 with widespread rainfall of very heavy to extremely heavy rainfall in most parts of State during this period. State received 734.4 mm of rainfall as long period average during monsoon season (June-September) period 1971- 2020 .Out of total average rainfall of 734.4 mm state received 223 mm of rainfall against its normal rainfall of 41.6 monthly in 4 days viz 7th to 11th July 2023 with deviation of 436 % which is unprecedented as per records. All district of state have received excess rainfall with highest rainfall in district Kinnaur, Kullu, Solan. District Kinnaur and Lahaul Spiti have received 43 % and 33 % of total average rainfall during these four days which is all time high. District wise cumulative rainfall during 7th to 11th July are given in table below.

Unprecedented rainfall occurred during these days resulted in widespread damage to public and private properties resulting in overflowing of major rivers, blockage of roads, landslides, flashfloods, damage to bridges, complete disruptions of electrical and communication system, including loss of human lives.

Table 1.2 Cumulative district wise rainfall during 7th to 11th July 2023

DISTRICT	ACTUAL (in mm)	NORMAL (in mm)	DEPARTURE (in%)
BILASPUR	335.9	44.5	655
CHAMBA	207.9	49.6	319
HAMIRPUR	258.7	49.2	426
KANGRA	225.3	93.7	140
KINNAUR	107.6	11.2	861



KULLU	280.1	30.7	812
LAHAUL & SPITI	124.8	21	494
MANDI	245.5	68.2	260
SHIMLA	268.9	35.4	660
SIRMAUR	514	67.9	657
SOLAN	472.6	52	809
UNA	265.3	49	441
HIMACHAL PRADESH	223	41.6	436

District Received Records Rainfall

Stations in eight districts have received all time record rainfall in the month of July and August 2023 as given in the table below:-

Table 1.3

Rainfall Records till 11th July for Himachal Pradesh					
Stations	District	New All Time Record		Previous record	
		Rainfall (in mm)	Date	Rainfall (in mm)	Date
Manali	Kullu	131.3	9 July, 2023	105.1	09 July,1971
Solan	Solan	107	9 July, 2023	105	17 July,2015
Rohru	Shimla	185	9 July, 2023	170	25 July,1966
Una AWS	Una	228.5	9 July, 2023	NA	
Ghamroor	Kangra	166	9 July, 2023	164.8	19 July,2021
Pachhad	Sirmaur	220	10 July, 2023	189.2	26 July,1973
Nadaun	Hamirpur	160.5	9 July, 2023	146	30 July,1996
Keylong AWS	Lahaul& Spiti	83*	9 July, 2023	78	28 July,1951

Table 1.4 Extremely heavy rainfall over Himachal Pradesh on the 09th July, 2023

24 hours New Rainfall Records for August 2023 for Himachal Pradesh		
Stations	New Record-Amount (Date)	Previous Record (Date)
Bijahi	102.0 (14 th Aug 2023)	99.2 (18th August, 2019)
Kataula	172.3 (14 Aug 2023) 210.2 (23th Aug 2023)	165.0 (20th August, 2022)
Pandoh	166.0 (14 Aug 2023) 178.0(23thAug 2023)	137.0 (13th Aug 2011)

Weather Summary

State received isolated to widespread precipitation during August Month with Normal activity on most days and two days of vigorous activity on 14th and 23rd August 2023 when State received Extremely Heavy Rainfall at isolated places. Five Western disturbances approached the state during this month

Himachal Pradesh has received 49th highest rainfall this year for the period (1901- 2023) with highest rainfall received in the year 1927(542.4mm) in the month of August.



Monthly Precipitation and Departure

The State received normal precipitation (-4%) in Himachal Pradesh with 247.6mm actual rainfall against normal of 256.8mm in August month i.e. from 01.08.2023 to 31.08.2023. District Kangra has received highest rainfall amount viz 720.4mm while district Bilaspur has highest rainfall departure (89%) against normal rainfall. District Bilaspur, Hamirpur, Mandi, Shimla & Solan has received excess rainfall. District Kangra and Una has received normal rainfall whereas Chamba, Kullu, Kinnaur, Lahul Spiti and Sirmaur has received deficient rainfall.

Seasonal Precipitation and Departure (01st June To 31st August)-

The State received excess precipitation (33%) in Himachal Pradesh with 816.4mm actual rainfall against normal of 613.8mm in the current monsoon season till 31st August. District Kangra received highest rainfall amount 1582.5mm while District Solan received highest rainfall departure (99%) against normal rainfall. District Kullu, Kinnaur, Mandi, Hamirpur, Shimla, Solan, Sirmaur, Bilaspur and Hamirpur has received excess rainfall. District Chamba, Kangra and Una have received normal rainfall whereas distt Lahaul Spiti has received deficit rainfall.

Table 1.5. Monthly rainfall Status:

	July 2023			August 2023		
DISTRICT	Actual (in mm)	Actual (in mm)	Normal (in mm)	Departure (in %)	Normal (in mm)	Departure (in%)
DISTRICT	Actual (in mm)	Actual (in mm)	Normal (in mm)	Departure (in %)	Normal (in mm)	Departure (in%)
BILASPUR	458.9	597.2	316.8	89	272.2	69
CHAMBA	498.6	177.8	291.7	-39	305.7	63
HAMIRPUR	470.1	646.5	400.6	61	328.5	43
KANGRA	654.9	720.4	631.5	14	589.3	11
KINNAUR	188.8	32.6	77.6	-58	65.9	186
KULLU	518.3	122.1	180.2	-32	184	182
LAHAUL & SPITI	188.7	4.2	117.6	-96	131.5	43
MANDI	540.4	681.5	395.3	72	386.5	40
SHIMLA	572	253.3	196.4	29	210.2	172
SIRMAUR	1095.3	244.6	402.1	-39	437	151
SOLAN	730.5	466.1	287.9	62	303.3	141
UNA	404	355.6	372.2	-4	329	23
HP	448.1	247.6	256.8	-4	255.9	75

Major Landslides which took place during this Period

A large number of landslides were recorded because of heavy rainfall, cloudburst and flash floods during this season. District wise detail is as under:-

Table 1.6

Landslide Incidents		
Sr. No	Name of District	Total
1.	Bilaspur	03



2.	Chamba	241
3.	Hamirpur	02
4.	Kangra	02
5.	Kinnaur	257
6.	Kullu	2600
7.	Lahul & Spiti	28
8.	Mandi	203
9.	Shimla	1960
10.	Solan	184
11.	Sirmaur	17
12.	Una	05
Total	5502	

Table 1.7

Number of Cloud Burst incidents		
Sr No	District Name	Total (Nos.)
1.	Shimla	08
2.	Chamba	02
3.	Kullu	12
4.	Kinnaur	03
5.	Solan	01
6.	Lahaul Spiti	01
Total	27	

Flash Floods recorded during this period

During this monsoon season a number of flash floods were recorded. A total of 83 numbers of flash flood incidents were recorded which are as under:-

Table 1.8

Number of Flashflood incidents		
Sr No	District Name	Total (Nos.)
1.	Bilaspur	01
2.	Chamba	04
3.	Hamirpur	01
4.	Lahaul Spiti	25
5.	Kangra	01
6.	Kullu	20
7.	Kinnaur	12
8.	Mandi	10
9.	Una	01
10.	Shimla	05
11.	Sirmour	03
Total	83	

All major rivers were in spate during most of the period of monsoon. The Beas river caused extreme damage in Kullu and Manali area of the District.



III. Major Disaster Events that occurred 2023 in State of Himachal Pradesh

Damage on Kullu District

Due to incessant rainfall which started in the district on 8th July and relentlessly continued with same intensity for more than 60 hours, major river valleys of the district i.e. Beas, Parbati, Sainj, Tirthan and Banjar valleys experienced devastating floods on 9th, 10th and 11th July. Although there were minor isolated incidents of cloudbursts/flash floods but the major damage was caused due to complete severe flooding of the entire valleys due to this incessant rainfall. Around 2600 landslides (as per preliminary reports) have been reported from across the district, out of which 300 are major landslides.

There has been massive loss of public infrastructure as well as private properties in the district due to these devastating floods, assessment of which is still going on and may be revised later. As per the data reported by various departments of the State Government, there has been loss of 15pprox.. Rs 332 crores (which doesn't include the damages of NHAI) by way of damage to Roads, Water Supply and Irrigation schemes, electricity lines, horticulture/agriculture and other public institutions/buildings (a complete break- up of the same is enclosed with this document). Around 23 bodies have been recovered so far in Kullu and downstream districts, which were either due to people having been washed away in the flood or getting buried under landslides. In addition, some persons are still reported to be missing and exact numbers can be ascertained only after the connectivity is completely restored in the entire district.

Further, as per initial assessment, around 422 houses have been damaged fully while 462 have been damaged partially. In addition, around 150 shops/dhabas/commercial establishments have also been damaged.

Following are some of the major incidents/damages which need to be highlighted:

- There has been unprecedented damage to certain areas of Sainj valley. Almost 60 houses/commercial buildings/shops of main Sainj market got completely washed away due to flooding on 10th and 11th July. The connectivity has been severely affected as many bridges/foot bridges across the Sainj river have been damaged/washed away which has completely cut off around 6 Gram Panchayats of the valley. Some photographs of the damage are enclosed with this report.
- Approximate 60 houses/shops/commercial establishments in Parla Bhunter area in Beas valley got completely washed away due to flooding of Beas river. The main bridges of the Beas river i.e. Akhara Bazar bailey bridge, Bhunter bailey bridge, Patlikuhl bridge got badly damaged while a footbridge at Seobagh has been washed away. The flood waters were flowing above these bridges during the peak flooding of the river.
- The Beas valley from Manali to Kullu has also seen unprecedented damage to the both left bank road as well as right bank NH-03. The area between Patlikuhl to Aaloo ground has several such stretches where more than 100 metres of road has been cut off and washed away by the river. The Green Tax barrier at Aaloo ground, APMC Mandi at Aaloo ground and several commercial establishments



have washed away and river has changed its course into the road alignment and the road is nowhere to be seen.

- The Bhunter-Manikaran road as well as Kasol and Manikaran areas have also been severely hit. Around 300 mtrs road section at Dunkhra has been washed away and restoration work has still not been completed. Further, silt has damaged many houses, commercial establishments, public institution buildings as well as orchards of the people in the area. In addition, around 100 mtrs section of road beyond Manikaran towards Barshaini has also been completely washed away by Parbati.

IV. Damages in Parla Bhunter area of Beas valley, District kullu

Approximately 60 houses/shop/commercial establishments in parla bhunter area in Beas valley got completely washed away due to flood in the Beas River. The main bridges on Beas River i.e akhara Bazaar Bridge, bhunter Balley Bridge, Patlikuhl Bridge got badly damaged whereas footbridge at seobagh has benn washed away.

Flood in the Sainj Valley, District kullu

There has been unprecedented damage to certain areas of sainj valley. Alomost 60/houses/commercial buildings /shops of main sainj market got completely washed away due to flooding on 10th and 11 July. The connectivity has been severely affected as many bridges across the Sainj River have been damaged /washed away which has cut off around six panchayats of the valley.

Collapse of Building in Anni

On 25th August 2023 eight multi-storey buildings were completely destroyed while two others suffered partial damage due to a massive landslide near the new bus stand in Anni town of Kullu district. However, there was no loss of life as the district administration had already got the buildings vacated that had developed cracks. Due to incessant rain, the strata had loosened in the region, resulting in the collapse of these buildings. Around 35 to 40 more buildings have become vulnerable and the district administration has issued orders to vacate these as well.

Disaster Incidents, District Mandi

In July 9th and 10th, 2023 the district of Mandi experienced heavy rainfall, causing severe flooding in various areas. As a result, NH at Pandoh, Aut, Dwada, and 7 Mile got blocked, disrupting transportation routes for the local community and tourists. In response to the rising water levels, the Larji and Pandoh dams had to release water to prevent further damage. Unfortunately, this led to the submergence of parts of Pandoh Bazar and houses located near the river. Consequently, approximately 150 families were evacuated from their houses to safer places. 7 people had been evacuated to safer place by SDRF team in Pandoh area. 6 person trapped in flood water near Nagwain were rescued in a late night operation. Their search and rescue had completed by SDRF/NDRF/ABVIMAS teams successfully. 12 people were rescued from the houses near centre school Khaliyar. All of them were stuck in their houses due to overflow of flood water. Aut and Balichowki areas have been cut off from the main land Mandi Sadar and there is no network communication with these



areas. Roads are also blocked and repair & restoration work is in process. Simultaneously, in the district Mandi, flood-like situation happened and the places near the river (Bhuili, Khaliyar and Nichli Grahani) got affected, in response to that administration evacuated the displaced individuals to relief shelters, and relief shelters were promptly set up at Gurudwara, Town Hall Mandi, Beas Sadan, Balichowki and Dharampur. These shelters are able to provide a safe space for approximately 400 people affected due to flood and heavy Rainfall. Furthermore, efforts were made to ensure that the evacuated residents were provided with basic necessities, including food, water, and other essential supplies. Administration along with youth volunteers, worked together to coordinate relief efforts and support the affected population during this challenging time. Authorities are actively monitoring the situation and working towards restoring normalcy in the affected areas.

Thunag Market

Huge flashflood washed away many houses and damaged a dozen shops in the Thunag main market. Water along with boulders, wood logs gushed down through the middle of Thunag market creating havoc and huge loss. A cumulative loss of all assets amounting to approximately Rs. 05 crores has been estimated at this point.
Flood in river Beas

The flood in the Beas River caused havoc and massive destruction all along its banks in Kullu (Manali) & Mandi Districts. The river swelled to unprecedented levels due to which many houses, shops & bridges were damaged severely or washed away. Huge damages were also caused to Hydel Projects and infrastructure all along the bank of the river. About 50 vehicles (trucks, cars, buses) also got swept away at different places. Large stretches of roads were destroyed disrupting the connectivity. People were stranded at many places who were later evacuated successfully.

Flash Floods in Mandi

Due to flash floods and water logging in various parts of Mandi District, huge losses to both life and property have been reported. A flash flood was reported at Baggi Khad of Gram Panchayat Shegli (Sub-Tehsil Kataula) and in the incident a primary school, a house & 2 Cowshed have been damaged and 3 cattle also died in this incident. Some tourists were stranded behind the Baggi khad who were rescued safely. Flash floods have also caused severe damage to buildings and roads at various places in Mandi.

Damage in Kinnaur

Due to very heavy rain on 08th and 09th July, 2023 in Tehsil Moorang, an incident of Flash Flood was reported at Village Ribba, Tehsil Morang, in which 03 no of private vehicles and 01 No of JCB were washed away. Further, another event of Flash flood was reported on 12-07-2023 which was caused due to blocking of Tong Tong Che Nallah due to heavy boulders and the direction of Nallah was diverted towards the Main Sangla Bazar. In the said event 01 Shamshan Ghat, around 100 Houses (Kacha and Pakka), 13 Shops and 20 Cowsheds were damaged. Other than this various roads, WSS, electricity transformers, Forest, Agriculture & Horticulture crops, Community assets were also damaged. Apart from this District Administration Kinnaur had arranged Rescue of 118 Tourist from Sangla with the help of Air force,



Army, ITBP, Police and Local Administration on 13-07-2023. After this the transportation of all the rescued tourists along with refreshments were transported through HRTC buses till Shimla and Chandigarh. In addition, another Event of Flash Flood was reported in village Sapni on dated 08-07- 2023 in which two private vehicles and 01 Pulsar Bike was washed away. Apart from this there was huge loss to agriculture and horticulture crops/land. 04 No of houses were also washed away in addition to 01 Bailey bridge.

Flood in District Una

On 09th & 10th July 2023 due to heavy to very heavy rainfall in district Una, The approach on one side of Ghaluwal Bridge over the Swan River NH-503A Una, Hoshiarpur (Punjab) Road has been damaged badly. This has created risk of collapse posing threat to the human lives. In this context, keeping in view of public safety and to avoid any untoward incident the movement on the bridge has been completely closed from 09-07-2023. Water logging/ pounding issues in residential colonies of urban and rural areas of the district and damages to the houses due to very heavy rainfall on 09-07-23 and 10- 07-2023. Due to water logging a rescue of an old and physical disabled person from Vill. Rampur Tehsil Una from their house by rescue team of Fire and Home Guards. Rescue of 01 person stucked in Swan River at Vill. Santokh garh Tehsil Una by rescue team of Fire and Home Guards. 515 migrant persons living in jhuggis-jhopdis nearby Swan River shifted to Town Hall Una and a private building and to provide food and water for two days. Due to heavy rainfall on 09-07-2023, rescue of 12 persons stranded in Swan River near Vill. Rampur, Una-Haroli Bridge by rescue team of Fire and Home Guards.

Sinking of land mass at Shamti in District Solan

Whole land mass subsided at Shamti area MC Solan due to continuous and heavy downpour in the area. About 50 multistory houses were damaged due to sinking of hill mass. Firstly a major crack of about 500 mts length appeared on the hill behind the habitation area and it continuously started sliding down which displaced the foundations of the buildings constructed downside. About 50 buildings were vacated & 100 families were immediately shifted to safe locations. This sudden dislocation of the hill has caused a loss of private property to the tune of about 40 crores.

Landslide Incident: on 14th August, 2013 A devastating landslide incident has occurred in Village Jadon, P.O. Dhawla, Sub-Tehsil Mamligh, Sub- Division Kandaghat. As a result of this calamity, two houses and one cowshed have been washed away by the force of nature. The local administration in Kandaghat has reported a total of 8 casualties due to this tragic event, and fortunately, two individuals have been successfully rescued

Flash Flood Incidents in District Shimla

On 09th & 10th July 2023 due to heavy to very heavy rainfall in district Shimla, 06 major incidents occurred in District Shimla (Shimla Rural, Theog, Kumarsain, Jubbal and Rohru) dated 9th July, 2023 and 10th July, 2023, due to heavy rainfall in which 06 houses was buried under debris, due to landslide and 12 lives lost. Village Thaitvadi, GP Tangnu, Tehsil Chirgaon, Sub Division Rohru, about one



dozen houses in the said village affected and 11 houses vacated due to threat of landslide. Houses are on the verge of collapse due to continuous rainfall occurred between 07th July to 13th July at Sub Division Jubbal and Kotkhai. The incident of landslide took place at Rajhana in Tehsil Shimla Rural around 02:00 pm, two persons were rescued but one died in hospital, one is injured and one body has recovered yesterday at 10:15 pm.

On 14th August, 2023, a tragic incident unfolded near the Shiv Temple in Summer Hill, Shimla, as a result of the relentless monsoon rains. A devastating landslide occurred, leading to the burial of several individuals and the tragic loss of lives. The victims were devotees who had congregated at the temple to observe prayers during the auspicious occasion of Sawan. According to official reports, nearly 50 people were present when this calamity struck. Regrettably, the loss of 20 individuals took place. The response to this crisis has been swift and coordinated, with the National Disaster Response Force (NDRF) deploying two teams comprising 45 personnel, the State Disaster Response Force (SDRF), local police, fire department, Home Guard, and the local administration collaborating tirelessly in the ongoing rescue operation.

On 14th August, 2023, a landslide incident occurred in Phagli, resulting in a tragic toll of 5 fatalities and leaving 3 individuals injured. The injured have been promptly shifted to IGMCH Shimla for medical attention. This unfortunate event underscores the need for continued vigilance and support in the affected area.

On 14th August, 2023, an incident of a landslide occurred in Krishna Nagar, resulting in the collapse of approximately 5-7 houses and the New Slaughter House. According to initial reports, there were 20 workers on-site at the slaughterhouse during the incident. Thankfully, 18 workers were able to evacuate themselves safely. However, two individuals remain trapped under the debris, necessitating immediate and concerted efforts for their rescue.

Flash Flood Incidents in District Chamba

Due to incessant rainfall which started in the district on 8th July and continued for more than 50 hours, various sub-divisions of district Chamba i.e., Chamba, Bharmour, Churah, Salooni, Dalhousie, Bhattiyat and Pangi experienced heavy damages on 9th, 10th and 11th July. On 9th July the rainfall was 12.50 times more than the normal rainfall. About 184 roads, 664 DTRs and 361 JSV water supply schemes were damaged in district Chamba. More than 900 (21 approx.) landslide incidents were reported from across the district. The NH 154A which is the lifeline of district Chamba got damaged at various locations. The communication lines also got disrupted for around 24 hours which made it more difficult to deal with this disaster situation. Still there are incidents of intermittent, yet heavy rainfall in the district Chamba making it difficult to restore normalcy.

There were also two incidents of cloudburst reported in Tehsil Holi in Sub Division Bharmour on 25-7-2023 and 27-7-2023 at Kandlu, Muhal Dharasara Valley, PC-Chanhota, Tehsil-Holi Distt. Chamba in which 11 people were trapped, one person died and 10 people were rescued safely in the incident.



There has been massive damage to public infrastructure as well as private properties in the district due to heavy rainfall, the assessment of which is still going on and may be revised later. As per the data reported by various departments of the State Government, there has been loss of 21pprox. Rs 320.66 crores in the form of damages to Roads, Water Supply, Irrigation Schemes, Electricity lines, Horticulture/Agriculture and other public institutions/buildings (a complete break-up of the same is enclosed with this document). Several major arterial roads of the district Chamba and the Pathankot National Highway (NH-154A) have suffered heavy damages with several sections of the roads completely sinking and getting blocked. Four people were reported dead (2-landslides, 1-flood and 1-cloudburst) during the period due to heavy rainfall.

Further, as per initial assessment, around 8 houses have been fully damaged while 175houses have been damaged partially in district Chamba. In addition, around 2 shops have also been damaged while 82 cattle-sheds have been damaged. Accordingly, more than 238 families in Chamba have been directly affected by the rainfall while thousands of others have been indirectly affected due to these heavy rains.

Following are some of the major incidents/damages which need to be highlighted:

There has been heavy damage to certain areas of Sub division Tissa. About 90 houses, commercial buildings/shops of Tissa and 44 cattle- sheds got damaged due to heavy rainfall on 9th and 10th July, 2023. About 96 cattle were reported dead. The Chamba-Tissa road was damaged at various locations like Pangola Nallah, Ind Nallah which has been restored temporarily for traffic.

Two people were reported dead due to landslide incidents on 8 and 9th July 2023. About 22 houses, shops/commercial establishments and 6 cattle-sheds in Sub – division Chamba got damaged due to heavy rain. Two foot-bridges at Bakani and Kunda- Jatkari Bridge collapsed in Muhal Bhariyan. Various link roads have been severely damaged due to heavy rains.

About 23 houses and 16 cattle-sheds were damaged in Sub-division Salooni. The BSL-JK Road near Langer was severely damaged. The BS- J&K boundary road from Salooni to Chakoli is temporarily open for Light Vehicular Traffic.

27 houses and 5 cattle-sheds were damaged in Sub Division Bharmour. The Chamba-Bharmour NH was badly affected at Bagga, Lothal, Durgethi, Dunali and Kamnalla due to heavy landslides and has been restored temporarily for LMVs only. Incidents of cloudburst were also reported in Patwar Circle Chanhota, Tehsil Holi, inwhich one person was reported dead and 10 were rescued in this incident and 1 foot bridge at Jun Nallah and 1 Gharat was also washed away. One Dumper, a Loader Machine, a JCB, an Ambulance and two Containers of JSW Pvt. Ltd. Company (Angelique) were washed away in flash floods.

Sixteen Houses were damaged in Sub-Division Pangti were damaged. About 200 sheep/goats were washed away in Sub-division Pangti. Various link roads were damaged. At present, Chamba-Pangti road is open for LMVs only.



Damage and Loss in other Districts

The extent of rain was wide spread. It affected all the districts of the state all the five rivers-dams and their tributaries spread across entire state caused extensive damage. There were large scale landslide and flash floods across the state. Extensive damage to private houses agricultural land and crops, public infrastructure such as roads, bridges, water supply schemes telephone and communication network.

There was large scale loss of human life. A lot of cattle perished in the disaster thousands of tourists and local were stranded due to disruption of road network. A list of effected were needed to evacuate stranded persons and save life, army, Indian Air Force, NDRF, SDRF, Home Guard, Police and local responder were present into service.

Large scale Destruction of villages due to landslide and land subsidence incidents

The last spell of rainfall from 22-26 August 2023 resulted in large scale land subsidence incidents across the State affecting around 200 villages and affecting around 12000 people. Details are as under:-

Table 1.10

Landslide Subsidence Report				
Name of the District	Number of Villages	Number of Houses Affected	Number of Families Affected	Number of Individuals Affected
Chamba	43	335	479	893
Hamirpur	3	11	10	41
Kangra	14	88	98	405
Kinnaur	11	38	490	663
Kullu	16	108	115	592
Lahaul & Spiti	1	1	2	2
Mandi	46	513	582	2303
Shimla	2	17	12	33
Sirmaur	14	183	167	830
Solan	51	478	521	6133
Total	201	1772	2476	11895

Relief Measures

Houses of many people were washed away in the flashfloods or land slides across the state and many people were stranded at various locations due to disruption of road connectivity. Relief camps were set up in Manali, Kasol, Chadertal, Sisu, Una, Solan and at many other locations across the State. Food and shelter was provided to about 50,000 people during the emergent situation arising out of heavy rains. Special Langars were organized for the tourists and people who were stranded at various locations. Medicines, portable water bottles, food packets were arranged for all stranded people. Machinery was immediately deployed for repair and restoration of the roads and immediate relief was also disbursed to the affected people as per norms. Approximately 50 crores were spent on the immediate relief measures on account of relief camps, search and rescue operations across the state.



Major Evacuations of Stranded People

3,000 people were evacuated from Kasol and its suburbs and 6,552 vehicles were moved out of the effected areas. Two choppers were requisitioned from Indian air force for search and rescue operations .About 75000 tourists were evacuated safely who were stranded at various locations across the state. Hon'ble Chief Minister conducted an aerial survey of Sissu, Chandertal and Losar areas in Lahaul and Spiti district and Manali in Kullu district to take stock of the destruction caused by heavy rainfall. He landed at Sissu and Manali to interact with rescued people. Detail of major evacuation is as under:

Table 1.11

Major Evacuations				
Sr. No.	Place	Persons	District	Agency
1	Dhancho (Mani Mahesh YatraTrek Chamba	81	Chamba	NDRF, ITBP, Home Guard & Police
2	Chhurudu, Kullu	9	Kullu	NDRF, ITBP, Home Guard & Police
3	Aloo Ground, Kullu	29		Home Guard
4	Kasol	3000		Home I
5	Lankabekar, Hanumanibag, Slum Sarvari Khadd,Chandigarh Bihal	300		Police , Fire Department
6	Manali	6552 vehicle		District Administration/Police
7	Parvati Bagh	43		Police
8	(Base Camp – ShrikhandMahadev Trek)			ABVIMAS
9	Pagal Nala	200 Trucks &	Kinnaur	BRO
10	India Hikes Trekker	50 Small vehicle		
		24		NDRF & Police
11	Kara Pass – Kinnaur	28		NDRF & Local Police etc.



12	Sangla	125		IAF (in 6 Sorties)
13	Baatal- L&S	50	L&S	District Administration/Police
14	Sisu – L&S	52 Students		District Administration/Police
15	Chandertal Lake Spiti	255 & 57 Vechile		IAF
16	Mehruwala khala near Bhangani Sirmour	28 Gujjar & 35- 40 Animals	Sirmaur	Agencies Revenue , Police /Home Guards / local panchayat and Fire Brigade
17	Giri River- Nahan	5		IAF
18	Pandoh	6	Mandi	SDRF
19	Indora, Fatehpur and Kangra	3000	Kangra	NDRF & IAF

Relief Camps

If there were flash floods or any other natural disasters in Himachal Pradesh during the current monsoon period in 2023, it is plausible that relief camps may have been established to provide assistance and relief to affected tourists, shepherds, and local residents.

During such emergencies, the government, along with various local organizations and authorities, typically work together to set up relief camps in safe locations to provide temporary shelter, food, medical aid, and other necessary supplies to those affected by the disaster.

There are the people whose houses have been affected by floods. Every possible help is being given to these people from our side and from the side of the administration, government assistance can also be announced. we want the central government to help us because the whole country is trying to extend a helping hand towards Himachal at this time. Only with the help of NDRF will not work, financial assistance should also be given to the government, we wanted the government to this as of now provide some help.

V. Conclusion

There is a need to improve communication links forecasting, control rooms by modernizing the existing facilities in Himachal Pradesh at the state to district levels. Forecasting and warning works for river within the state should be assessed on an individual basis. Provision for temporary shelters for human dwellings and animals in the event of a disaster has to be made in terms of appropriate design, material and cost effective construction technology. Storage facilities at a suitable scale need to be undertaken for food, fodder and other essential relief materials. Flood fighting through building temporary dykes along the river, dowel bunds on the banks need to be considered at all local and regional levels. Retrofitting of building, building



foundation and structures as a component of disaster management should be adopted as a policy of the government of India as well as the state government.

Search and rescue teams, disaster medical assistance teams, disaster mortuary assistance team. Specialized emergency operations teams to be instituted at the state and district level. Minimum standard of relief not only addresses the food requirements of the victimized but also provides for the health and immediate first aid facilities, looks at the water and sanitation needs, shelter requirements and providing food. When addressing the relief requirements of the disaster victims, focus should be placed on the special needs of the vulnerable population that is children, women, aged and the disabled. The state and district authorities of vulnerable states should prepare socio-cultural needs in relief supplies. Disaster management plans at all levels should have medical assistance teams, mobile hospitals, epidemic prevention measures, trauma counseling etc. Nursing and paramedics should be specially incorporated in the medical plans. Disaster specific medical plan would incorporate the special needs.

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