

Leh Cloudburst - Is it Nature's Fury?

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Leh:

Ladakh, a part of Jammu & Kashmir State in north of India consisting of two districts Leh and Kargil. Leh with an area of 45110 Sq Km makes it largest district in the country in terms of area. It lies between 32 to 36 degree North latitude and 75 degree to 80 degree East longitude. The district is bounded by Pakistan occupied Kashmir in the West and China in the north and eastern part and Lahul Spiti of Himachal Pradesh in South East.

It is at a distance of 434 Kms from Srinagar and 474 Kms from Manali. Leh district comprises of Leh town and 112 inhabited villages and one un-inhabited village. The total population of Leh district is 1,17,232.

History of Leh:

In the ancient times the present Leh district was a part of Greater Ladakh spread over from Kailash Mansarovar to Swat (Dardistan). The Greater Ladakh was neither under the Domain of Tibet or its influence. Not much information is available about the ancient History of Ladakh. However, reference about the place and its neighbourhood in Arab, Chinese and Mongolian histories gives an idea that in the 7th Century A.D fierce wars were fought by Tibet and China in Baltistan area of the Greater Ladakh in which deserts and barren mountains of Ladakh was turned into battle fields for the warring armies.

In the 8th century A.D Arabs also jumped into these wars and changed their sides between China and Tibet. Around this period, the ruler of Kashmir, Lalitaditya conquered Ladakh. In the 8th Century A.D itself, The Arabs conquered Kashghar and established their control over Central Asia which embraced Islam in the 9th century A.D and thus a buffer state came into being between Tibet and China, terminating the hostilities between the two warring countries. The Greater Ladakh also fell into pieces.

The ancient inhabitants of Ladakh were Dards, and Indo-Aryan race from down the Indus. But immigration from Tibet more than a thousand years ago largely overwhelmed the culture of the Dards and mopped up their racial characters. In eastern and central Ladakh, today's population seems to be mostly of Tibet origin. Buddhism reached Tibet from India via Ladakh. The area was the stronghold of Buddhism before Islam reached Ladakh.

A thousand years ago before the control of Tibet's rule, Raja Skitde Nemagon, ruled over Ladakh which was known as Muryul (Red Country), as most of the mountains and the soil in Ladakh

wears a red tinge. In the 10th Century A.D Skitday Nemagon, along with a couple of hundred men, invaded Ladakh where there was no central authority. The Land was divided in small principalities, which were at war with each other. Nemagon defeated all of them and established a strong central authority. Those days Shey, was the capital of Ladakh became to be known as Nariskorsoom, a country of three provinces. The present Ladakh was divided into two provinces while the third comprised western Tibet. The area of western Tibet slipped away from the kingdom but was reunited in 16th Century A.D. by the famous Ladakhi ruler Sengge Namgyal. Ladakh was an independent country since the middle of 10th century.

In the post-partition scenario, Pakistan and China illegally occupied 78,114 sq. km and 37,555 sq.km of the state, respectively while the remaining part of the state acceded to India. Pakistan also illegally gifted 5180 sq.kms of this area to China. Ladakh, comprising the areas of present Leh and Kargil districts, became one of the seven districts of the State. In 1979 when the reorganisation of the districts was carried out, the Ladakh district was divided into two full fledged of Leh and Kargil.

Cloudburst on 6.08.2010

Flash floods and massive landslides, triggered by a series of cloudbursts, have killed 179 people and injured at least 607 in Leh town and its adjoining villages in the Ladakh division in Jammu and Kashmir on Thursday 5.08.2010 night.

What is Cloudburst?

A **cloudburst** is an extreme form of rainfall, sometimes mixed with hail and thunder, which normally lasts no longer than a few minutes but is capable of creating flood conditions. This leads to flash floods/ landslides, house collapse, dislocation of traffic and human casualties on large scale.

Cloudbursts descend from very high clouds, sometimes with tops above 15 kilometers. Meteorologists say the rain from a cloudburst is usually of the shower type with a fall rate equal to or greater than 100mm (3.94 inches) per hour.

During a cloudburst, more than 2cm of rain may fall in a few minutes. When there are instances of cloudbursts, the results can be disastrous. Rapid precipitation from cumulonimbus clouds is possible due to so called Langmuir precipitation process in which large droplets can grow rapidly by coagulating with smaller droplets which fall down slowly.

The Disaster

85 bodies have been recovered from the flooded areas as per the statement of J and K Director General of Police Kuldeep Khoda. Among the dead were three jawans of the Army Service

Corps. He said that at least 350 people are in the army hospital with injuries, and that many more people were trapped under houses and buildings that have collapsed.

He said a massive rescue operation was underway involving the state police, paramilitary forces and the army in Leh town.

According to sources, the cloudburst happened between 12.30 and 1.00 am on Friday the 6th of August 2010.

The BSNL network was completely damaged, besides the runway of the Leh airport, cutting off the town from the rest of the country. The district hospital and two buildings which were housing offices of the Union Home Ministry were also affected.

Five villages have been hit in the sudden downpour and flashfloods. These included Choglumsar and Shapoo. Old Leh city was among the worst affected. The main bus stand was flattened.

Leh is located at a height of 11,500 feet above sea level, 424 kilometres from Srinagar. The worst hit was Choglumsar area, 13 kms from here, where 14 bodies were recovered.

A polytechnic college, headquarters of the Bharat Sanchar Nigam Ltd (BSNL), the Indo-Tibetan Border Police (ITBP) camp, and many government offices and houses have been damaged. The Leh airport has been inundated.

Prof. Shakeel Romshoo, a geologist at Srinagar University, said new rivulets had cut deep channels in the mountain gorges of the region and flood waters had inundated low-lying areas.

He said that it was a challenging topography with steep and unstable slopes. Water flow and velocity being very high, the flash floods have caused huge damage.

Makhdoomi said the rainfall started before midnight and that water later started coursing down the area's mountains in streams and rivulets. The flooding had damaged several homes and other buildings by Friday morning. There was utter confusion and people started to panic.

As many as 6,000 army men, and Central Reserve Police Force (CRPF) and police personnel have launched a massive relief and rescue operation.

Chief Minister Omar Abdullah, while expressing grief over the tragedy, has directed the civil and police administration to undertake relief and rescue work on a war footing. All flights from Delhi to Leh have been cancelled.

Lok Sabha Speaker Meira Kumar and Rajya Sabha Chairman Hamid Ansari condoled the loss of life and property due to floods triggered by a massive cloudburst in Ladakh region of Jammu and Kashmir. Ansari said he joined all citizens in sending condolences to the members of the

bereaved families and prayed to the Almighty to grant them the strength to withstand the immense loss.

The matter was raised in the Lok Sabha by Hassan Khan, an Independent member from Ladakh. He wanted the relief and restoration work to be taken up at the earliest as there was very little time before winter set in and hit transport links in the region. Raising the matter during Zero Hour, he demanded speedy disbursement of compensation to those affected by the flash floods caused by the cloudburst.

Meanwhile, UPA chairperson Sonia Gandhi expressed deep sorrow and grief over the loss of lives due to flash floods in Leh. Gandhi wished speedy recovery to the injured.

Over 100 people were killed and another 370 injured when flash floods triggered by torrential rains struck Leh town in Ladakh region.

8th August 2010

A day after a wall of mud and water flattened Leh and several villages, the gloom deepened in the tourist city, even as the death toll rose to 132. Meanwhile, fears grew that many of at least 500 missing residents could be buried under the debris.

The Army, which is spearheading relief and rescue operations, said soldiers had recovered 110 bodies. The J&K police put the number at 132. Director-general of J&K police, Kuldeep Khoda, said 53 of the bodies had been identified.

With Leh's cellphone hub destroyed, makeshift communication links were established to enable video conferencing. The runway was repaired enough to restore the air link with the rest of the country. IAF flew in transport aircraft carrying relief material, including blankets, dry food and medicines to meet the immediate requirements of victims, including more than 3,000 tourists stranded there, a defence spokesman said.

However, the road to Leh from Srinagar through the Zojila pass and the Rohtang pass remained unusable as bridges had been washed away by mudslides. Four kilometres of the Manali-Leh highway was washed away by floods beyond Sachru.

Scores of stranded tourists joined in the rescue efforts. There were six surgeons among the holidaymakers and they toiled for more than 24 hours, shoulder to shoulder with Army surgeons and doctors to treat more than 300 victims. They conducted 22 major life-saving operations and 45 minor ones. At least 94 people are still in the makeshift hospitals.

9th August 2010

Five army men were killed in the cloudburst at Leh and other areas of the region while 33 personnel, swept away in flash floods that struck a camp near Siachen glacier, are yet to be traced.

The Army has sought Pakistan's help to rescue the soldiers, including three junior commissioned officers, who were manning Tyakshi post in Turtuk sector, about 150 metres from the Line of Control.

The personnel still remain untraced despite the Army deploying men, helicopters and catch nets in nearby river Shyok. Official sources said the Director General Military Operation has informed the Pakistani counterpart about possibility of some army personnel being washed away in areas under their control.

The soldiers had faced the fury of a swollen Shyok river when Leh was hit by flash floods following a devastating cloudburst. The missing personnel belonged to Bihar Regiment and Raj Rif Regiment, GOC of 14 Corps Lieutenant General S K Singh said in Leh.

It is feared that some of the missing personnel could be buried under slush. Unlike in other places where the height of slush is about 4 to 5 feet, it is about 20—25 feet where the army camp had once stood.

The Army also reported the death of five of its personnel in the cloudburst at Leh, Choglamsar, Nimu, Tyakshi, Batalik and Karu in the region.

It said defence personnel, their aircraft and equipment continued to be deployed in the relief and rescue efforts.

The Army said it has deployed 41 columns comprising 4,100 men in the ongoing relief operations at Leh and adjoining areas hit by calamity.

In addition, Army troops are assisting Border Roads Organisation (BRO) in creating diversions at several damaged bridge sites on National Highway-1D. Two of the 11 bridges that were damaged in the cloudburst were made operational at Phyang and Choglamsar.

Communication requirements of the district administration were being maintained by two INMARSATs equipment provided by the Army.

Soldiers to the Rescue

Rescue and relief teams continued their relentless efforts to locate survivors in the Leh district of Jammu & Kashmir's Ladakh region.

Apart from providing succour to the victims, the relief teams were also engaged in round-the-clock operations to restore communication and power links which were snapped by the floods and mudslides. Authorities feared many more bodies could be found when the rescue teams moved into the affected villages in remote areas and cleared the rubble.

A spokesman for the Ministry of Defence said six Cheetah helicopters of the Indian Air force made more than 60 sorties since sunrise on 8th August to evacuate 90 people from Skyu in the Zanskar valley. About 130 trekkers, mainly foreigners from 12 different countries and some Indian porters, were reported to have been stranded at Skyu.

The location could be reached only by Cheetah helicopters owing to flight through a narrow constricted valley which was not negotiable by the large rotor Mi-17 helicopters. The remaining trekkers managed to negotiate their way to safer places on their own.

With touchdowns not feasible at Skyu at the location that had virtually transformed into a vast dissolving island where none existed earlier, the daring rescue efforts were all carried out by the pilots at low hover, a challenging flight manoeuvre of keeping the aircraft stationary, perilously close to the ground even as passengers boarded the flight. Each Cheetah helicopter can only take in a maximum of three passengers at sea level on board at a time.

The breakdown of the 81 foreigners rescued included United Kingdom-17, France-17, Netherland-9, Czechoslovakia-8, Germany-7, Israel-4, Switzerland-4, Romania-4, Austrian-3, Australia-3, Italy-3 and Spain-2. Six local guides and three porters were also among those evacuated.

The spokesman said three IL-76 sorties airlifted two excavators and one 22-tonne bulldozer, apart from six tonnes of communication equipment and another ten tonnes of army communication equipment, including cables, from Chandigarh.

Six AN-32 also flew air maintenance sorties from Chandigarh, replenishing stocks and relief materials for the Army in the region. IAF aircraft earlier had already airlifted medical equipment, medicines and para-medical personnel to Leh from New Delhi and Chandigarh.

As many as 41 columns of the Indian army are engaged in the rescue and relief operations. Army troops are also assisting the Border Roads Organisation in creating diversions at the sites of various damaged bridges on National Highway (NH) 1D. Two bridges have also been launched at Phyang and Choglamsar.

The Army is also making provisions to meet the requirements of large tents for establishment of Field Hospital, tents for displaced persons, firewood for cremation of dead bodies and provisioning of generator sets as projected by the District Administration.

There were chaotic scenes at the Leh airport where hundreds of foreign tourists and others as well as workers waited for flights out of the area.

The Ministry of Civil Aviation has requested the airlines to operate additional flights at concessional rates to evacuate the stranded persons.

National carrier Air India and private operators such as Jet Airways and Kingfisher Airlines have operated 27 flights since August 7 and evacuated 3241 persons from Leh. The additional flights are expected to continue until the evacuation process is completed.

An official press release said the Directorate General of Civil Aviation (DGCA) was closely monitoring the fares being charged by the airlines, which have already been cautioned against exploiting the situation and jacking up the fares.

The average of actual fare charged by Air India was Rs. 9000 and whereas it was between Rs. 8157 and 8700 for Jet Airways and Rs. 6200 for Kingfisher in the last three days since the cloud burst.

It said the Ministry and the DGCA had not received any complaint regarding over-charging by the airlines. In fact, the release claims that the airlines have reduced their fares.

The road approaches to Leh from Srinagar through Zozilla and from Rohtang Pass had been cut off because bridges had been washed away by the mudslides.

The Leh District Administration has set up a 24 hours control room to coordinate relief and rescue operations. Giving an overview of the extend of damage to the military establishment, an officer of the army said small culverts and bridges used for going to many forward locations have been destroyed and it will take quite some time before these can be re-built.

Talking about the missing army personnel in Tyakshi border post in Turtuk sector, about 150 metres from the Line of Control, Singh said too much of water got into one of the streams due to the cloudburst.

Meanwhile, the army said it was hopeful of reopening the two National Highways by the end of this week. Singh said as per the estimate, seven bridges are needed on the Zijia access and four on the Rohtang access. Two bridges near Leh were opened on 9th August 2010.

10th August 2010

The toll in the tragedy has risen to 179 and injured 607 with 400 people still missing.

Three French citizens - Augavelis Henri, Hellot Jacques and Daniel Hauri, an Italian identified as Riccardo Titton and Maromas Maria Lousdes from Spain have been declared dead.

Sixteen of the others killed are from Nepal, and two were Tibetans.

73 people, who were injured at different places due to cloudburst, were brought here in a IL-76 from Leh this morning as per group captain of IAF PM Vithalkar.

From the air field here, the injured were sent to different hospitals for specialised treatment in waiting ambulances, officials said, adding while 49 security personnel have been sent to Command Hospital at Udhampur, 24 civilians were rushed to Government Medical College hospital in Jammu.

What really happened to Leh?

Ladakh is an unusual place for a cloudburst because it is a cold desert region where average rain fall is low.

The source of this cloudburst was an intense convective cloud cluster that developed over east of Leh by about 9.30pm on 6.08.2010. Scientists say it began disgorging its moisture between 1.30am and 2am but no one knows how much rain it delivered.

This does not happen Himalayan desert altitudes. What causes this? The maximum ever recorded rainfall in Leh was 96.2 mm in a 24 hour period measured in 1933. This cloudburst yielded 250mm rainfall within an hour.

An air force observatory near Leh, some distance away from the cloudburst zone, only recorded 12.8 mm which, scientists point out, is not cloudburst-level rainfall. That is very interesting. That says it was an artificial cloudburst and so many presumptive theories are flouting and the correct reason for the sudden cloud burst is yet to be known.
