



Sphere India
National Coalition of Humanitarian Agencies in India



PRELIMINARY ASSESSMENT REPORT

FLASH FLOOD IN SIKKIM &
NORTH WEST BENGAL

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1. Pre-Incident Information

1.1 State Overview: Sikkim

Sikkim, often referred to as the Jewel of the Eastern Himalayas, is a unique and captivating Indian state known for its remarkable geographical and climatic diversity. It is the least populous and second smallest among the Indian states with Gangtok being its capital and largest city.



Geography and Topography: Nestled in the Eastern Himalayas, it boasts breathtaking landscapes and challenging topography. The state's highest point is Kangchenjunga, which also happens to be the highest peak in India and the third highest on Earth.

Agriculture: Despite the challenging terrain and high altitudes, Sikkim cultivates a variety of crops, including upland rice, vegetables, pulses, potatoes, and ginger. Terraced benches carved into steep slopes are a common sight, showcasing the ingenuity of Sikkimese farmers.

Landscapes and Natural Wonders: The geography of Sikkim is characterized by mountainous terrain, pristine river valleys, dense forests, and high-altitude lakes. The Teesta River, among others, flows through these valleys, adding to the state's natural beauty. Sikkim is also renowned for its numerous high-altitude lakes, invigorating hot springs, and mountain passes that connect it to neighboring regions such as Tibet, Bhutan, and Nepal.

Flora and Fauna: The state is home to over 5,000 species of flowering plants, including rare orchids that add vibrant colors to the landscape. The region supports a variety of animal species, including the elusive snow leopard, the adorable red panda, and a multitude of bird species. Conservation efforts are crucial to protect this unique wildlife.

Climate and Weather Patterns: Sikkim's climate varies widely based on altitude. It features a temperate climate in most inhabited areas, with summer temperatures rarely exceeding 28°C (82°F). Altitude ranges from 825 to 28,300 feet, influencing local weather. Notably, some regions receive regular snowfall, and the monsoon season brings heavy rains, posing landslide risks and challenging transportation.

Teesta River: It is a 414 km (257 mi) long river that rises in the Pauhunri Mountain of eastern Himalayas, flows through the Indian states of Sikkim and West Bengal and subsequently enters Bangladesh through Rangpur division

Features	Description
Area	7096 sq.km
Borders	North: China, South: West Bengal, East: China and Bhutan, West: Nepal
Major Rivers	Teesta River and Rangit River
Population	610,577 (Census 2011)
Districts	There are 6 districts in Sikkim; Gangtok (East), Mangan (North), Pakyong (South), Soreng (West), Namchi (South) and Gyalshing or Geyzing (West)
Sex Ratio	890 females per 1,000 males (Census 2011)
Population Density	86 persons per sq. km (Census 2011)

2. Situation Overview

Cloudbursts and flash floods pose severe and recurrent threats to both lives and the economy in the state, exacerbated by increasing flood frequency and intensity due to shifting rainfall patterns, climate change, and encroachments into river basins. Glacial Lake Outburst Floods (GLOFs), on the other hand, occur when glacier-blocked water is abruptly released, endangering nearby communities. These glacial lakes, formed by melting glaciers, are held back by unstable natural barriers of ice, sand, pebbles, and ice residues, with variable water volumes ranging from millions to hundreds of millions of cubic meters. Disruptions like avalanches, falling debris, earthquakes, or excessive water accumulation can breach these barriers, leading to sudden and potentially catastrophic floods.



MAP 1: TEESTA RIVER FLOW AND AFFECTED AREAS

On October 4, 2023, a GLOF-triggered flash flood struck the state of Sikkim, and the northern part of West Bengal resulting in extensive damage to various bridges, sections of NH-10, and the Chungthang Dam.

- The entire state of Sikkim, with a particular emphasis on Mangan, Gangtok, Namchi, and Pakyong Districts, has been profoundly affected by the flash flood.
- This catastrophe has had severe repercussions on ongoing infrastructure projects in the towns of Mangan, Gangtok, Pakyong, and Namchi.
- The flood event has caused significant destruction to infrastructure, including the loss of 13 bridges. Additionally, water pipelines, sewage lines, and 1203 residential houses have been obliterated across the affected districts.
- As a result of this disaster, North Sikkim has become completely isolated from the rest of the state, and Sikkim as a whole has been cut off from the rest of India due to the extensive damage inflicted upon NH-10.
- The flash flood also had a far-reaching impact, with devastating consequences extending to West Bengal's Kalimpong District. The Teesta area has suffered significant damage, including the complete loss of 48 households and the



FIGURE 1: CHUNGTHANG DAM BEFORE AND AFTER



FIGURE 2: HIGH WATER LEVELS IN THE TEESTA RIVER

destruction of 79 more, a alongside concern about potential disease outbreaks and increased risks to vulnerable populations. Urgent relief efforts are underway, focusing on providing essential items, healthcare, and safety provisions to those affected by this calamity.

2.1 Current Situation Scenario

- The flash floods in Sikkim have resulted in a tragic loss of life, with the death toll feared to rise, as more than 100 individuals, including army personnel are still missing. The latest data indicates that 26 people have already lost their lives in this disaster.
- Additionally, 26 people have sustained injuries, and the distressing fact remains that at least 142 individuals, including 15 army personnel, are still unaccounted for.
- The calamity has prompted the evacuation of 2,413 people who have been provided refuge in relief camps. It has affected over 25,065 people in total.
- The flood has inflicted substantial damage on infrastructure, with 13 bridges being destroyed. Notably, eight bridges were lost in the Mangan district, and two were demolished in Namchi, along with one in Gangtok.
- The disaster has also resulted in the destruction of water pipelines, sewage lines, and a total of 896 houses across the four affected districts.
- The state government has taken swift action by establishing 26 relief camps across the impacted districts to provide assistance to those affected.
- Approximately 7,000 tourists, including 3,000 from Bengal, were stranded in Sikkim following the flash flood in the Lachen Valley near the Teesta River earlier in the week. These tourists are now receiving assistance from the Indian Army and local administration, with evacuation efforts expected to commence once weather conditions permit.
- The administration aims to fly tourists from North Sikkim to Gangtok, from where they will be transported to the plains via road.
- The flood has caused a shortage of petrol and diesel in the state capital, Gangtok, and has completely disrupted the water supply in Chungthang.
- The Chungthang Sikkim Urja Dam has been washed away, and several areas, including Dzongu and Toong-Naga, have become entirely isolated due to bridge collapses.



FIGURE 3: PATASHPUR GRAM PANCHAYAT OF PURBA MEDINIPUR DISTRICT, WEST BENGAL UNDER WATER LOGGING

- Both the Singtam sewerage treatment plant (STP) and sewage pipelines, as well as the Rangpo sewerage treatment plant (STP), have been severely damaged.
- Multiple agencies are conducting surveys to assess the extent of the damage and plan for the restoration of road connectivity. Notably, the road link between Singtam and Burdang has been partially restored, allowing for single-lane vehicular traffic.
- The Department of Military Affairs is overseeing the coordination of rescue and relief operations conducted by military personnel in the flash flood-affected areas of Sikkim. Both military and civilian officials are actively working to restore road connectivity and communication infrastructure to facilitate the safe evacuation of stranded citizens from the affected regions.
- Road clearance activities are currently underway. For the latest road situation report from the police control room, please refer to this link: [Link to Road Situation Report](#).



FIGURE 4: ROAD TOWARDS TISTA BAZAR IS BURIED UNDER SILTS



3. Preliminary Assessment Findings

While there were sufficient food supplies at the relief camps for the week, there emerged a need for additional essential items such as torches, candles, blankets, sanitary napkins, and innerwear.

Relief initiatives primarily focused on providing clothing and ration. However, there is an urgent requirement for health and hygiene kits, baby food, and specific medications for ongoing health conditions such as diabetes and high blood pressure. Furthermore, for individuals whose homes have been entirely destroyed, necessitating relocation, basic necessities are urgently required to sustain their lives.

The evacuation of people to safer locations has raised concerns about the potential outbreak of various diseases, including dengue, COVID-19, and other respiratory illnesses. Additionally, given the large number of individuals present and the constant influx of visitors, there is an increased risk of child abuse, both sexual and physical, as well as the potential for child trafficking. Moreover, the shared use of common toilet and bathroom facilities has raised concerns about the spread of infectious diseases.

As per the data received from Anugyalaya DDSSS indicates that 30 houses are fully damaged in Teesta, 77 in Melli, 10 in the Reang locality, and 9 houses are partially damaged in the Geil Khola area. These findings provide critical insights into the extent of the damage and the ongoing needs of the affected communities.

- Six districts—Namchi, Soreng, Gangtok, Mangan, Pakyong, and Geyzing—have been adversely affected due to this major cloud burst incident.
- Search and Rescue operations have commenced at Golitar by NDRF, Forest and Environment department, where 5 people are trapped.
- Relief Camps are providing accommodation to affected individuals, with Chanatar Government Sr. Secondary School accommodating 1500 people, Majhi Government Secondary School accommodating 49 people, Rangpo TIC accommodating 49 people, Majhi Gaon accommodating 30 people, and Nepali Dharam Shala, Golitar, accommodating 400 people.
- All personnel of ITBP, Army, and NIMHAS stranded at Zanak post are reported to be safe.
- The water level in Goma Chhu and Teesta river remains very high.
- The road between Gangtok and Siliguri has been cut off.
- Army troops consisting of approximately 160 personnel are reportedly stranded at Menshitang area near Chungthang, with access blocked due to the washing away of a bridge.

3.1 District Wise Impact: Sikkim

The cloudburst has led to extensive damage and disruption across these districts, affecting infrastructure, communication, and the lives of residents and tourists. Search and rescue operations are critical, and relief efforts are underway to provide support to those affected by this calamity.

Mangan District:

Chungthang faces severe repercussions as Toong Bridge and Chungthang Bridge collapse, isolating the town. Phidang Bridge's failure led to the loss of four pucca houses, while two houses in Dikchu were washed away. Ongoing threats to riverside houses persist. Tragically, two GREF laborers from Sangkhalang are deceased, and four individuals remain missing. The old police barrack at Toong Check-Post sustains severe damage. Beyond Chungthang, Minshithang and Zema Bridges, as well as Ritchu Bridge, have been washed away. In a tunnel in Chungthang, 12 individuals await rescue by an NDRF team, hindered by adverse weather conditions.

- Chungthang town has been significantly affected, with 80% of the town facing severe damage.
- Water supply in Chungthang has been severely affected.
- Several critical infrastructure components, including the Chungthang Sikkim Urja Dam and 08 bridges, have been washed away.
- The GREF Crushed Plant and Old Police Barrack at Toong have also been destroyed.
- Dzongu town is entirely cut off due to the collapse of the Sangkhalang bridge.
- Toong-Naga GPU is inaccessible.
- Around 10,000 individuals have been impacted by the water surge, leading to 4 confirmed human casualties and 16 people missing.
- Approximately 3,000 tourists are stranded in Lachen and Lachung but are reported to be safe.
- 28 families from Toong and Naga have been safely evacuated and provided accommodation in relief camps.
- 05 camps with 1965 inmates are currently functioning
- The calamity has resulted in damage to 25 pucca houses and 3 kutcha houses.
- A slight landslide has affected the road connecting Toong and Naga.
- Efforts are being made to establish communication and provide support to stranded individuals.

Gangtok District:

A devastating situation has unfolded in Singtam, Sikkim, as Gammon Bridge (Indrani Bridge) and L. D Kazi Bridge were completely washed away over the Teesta River, cutting off access to Aadharsh Gaon/Namchi district. Widespread flooding has engulfed Singtam Lall Bazaar and

IBM Area/Rangpo Town. A concerted effort by SDRF, NDRF, and the Indian Army is underway for search and rescue operations on the ground. Eight relief camps have been established, and critical infrastructure, including Indreni Bridge, NH-10 Highway, sewerage treatment plants, pipelines, Sneha Kinetic Powerhouses, and the NHPC dam site, has been severely impacted or submerged.

- Bridge near Lanco site, Serwani and Balutar Bridge have been completely washed out.
- 07 people trapped at Sneha Kinetic Power Project, Dikchu who were successfully evacuated.
- Three casualties have been reported, with 22 people missing, and 1,025 individuals have been rescued by SDRF, with ongoing rescue efforts.
- The calamity has affected a total of 600 people, with four injured persons receiving medical attention in Singtam Hospital and Gangtok.
- Four Relief Camps have been established across the affected area, including Dikchu Government Senior Secondary School with 15 people; Serwani Government School for 800 people; Singtam Senior Secondary School with 400 people, and Bihari Bhawan with 500 people.

Namchi District:

Namchi district is currently facing a challenging situation as LD Kazi Bridge and Indreni Bridge have been completely washed away, leading to a concerning rise in the water level, particularly affecting the playground area in Melli. However, the whereabouts of five individuals remain unknown, prompting ongoing search and rescue efforts. Search and rescue operations initiated by IRB, QAT, SDRF, and Sikkim Police. This unfortunate event has impacted approximately 630 people, necessitating the establishment of nine relief camps across the district to provide shelter and assistance to the affected families.

- While there is no casualties have been reported, 05 people remain missing.
- Approximately 630 people have been affected.
- 02 laborers have been reported swept away from Mamring, confirmed by DPO Namchi.
- 08 relief camps have been set up in Namchi district accommodating 1088 inmates.
- Relief Camps have been established, with Namphing Parnami Mandir accommodating 475 people, and extending to private residences in Adarsh Gaon, all supervised by SDM Namchi.
- A Relief Camp has been established at Bhawana Educational Institute, Lower Mamring, accommodating 350 people and supervised by BDO Namthang.
- Another Relief Camp has been set up at the Handmade Paper Unit Office in Melli, supervised by SDM Jorethang, accommodating 120 people.

Pakyong District:

The recent catastrophic event has had devastating consequences in Pakyong district, Sikkim, resulting in a significant loss of life and widespread damage to infrastructure. Seven casualties have been reported, including 21 minor injuries and one death in West Bengal. Additionally, one individual who experienced partial drowning is in stable condition under observation at Rangpo PHC. Twenty-one minor injuries have been reported, and critical sewage treatment plants in Singtam and Rangpo, along with sewage pipelines, have been completely washed out.

- 07 casualties are reported, while 59 people are still missing, including 23 Army personnel.
- Approximately 3,000 people have been affected, with 56 individuals evacuated. 21 minor injuries have been reported.
- 17 people with minor injuries are receiving treatment in Singtam District Hospital, with 01 person referred to Gangtok. 03 people are missing from Majhitar, as per the report from DC Pakyong.
- Extensive damage includes the complete washing out of Singtam and Rangpo sewage treatment plants and sewage pipelines, along with reports of 150 pucca houses and 127 kutcha houses being damaged.
- Search & Rescue operations initiated at Golitar by NDRF, Forest and Environment department, with 5 people trapped.
- Relief Camp at Chantar Government Sr. Secondary School accommodating 1500 individuals. Majhitar Government Secondary School Relief Camp housing 49 people. Rangpo TIC Relief Camp accommodating 30 people. Majhi Gaon Relief Camp accommodates 128 people and Nepali Dharamshala accommodating 400.

3.2 Impact in West Bengal: Kalimpong District

While the major impact of the flash flood was felt in Sikkim, it is crucial not to overlook the devastating consequences in West Bengal's Kalimpong District. The aftermath of the flash flood in the Teesta area has taken a toll on local households, with a significant number of them facing complete destruction. Relief efforts are underway, but urgent needs for essentials, healthcare, and safety persist.

- 48 households completely washed away.
- 79 households in ruins due to total damage.
- 42 households incurred partial damage.
- 77 houses fully damaged in Melli.
- 10 houses fully damaged in the Reang locality.
- 9 houses partially damaged in the Geil Khola area.
- Urgent need for health and hygiene kits, baby food, and specific medications.
- Basic necessities are urgently required for individuals whose homes were destroyed.
- Additional essential items like torches, candles, blankets, sanitary napkins, and innerwear needed.

- Concerns about potential outbreak of diseases like dengue and COVID-19.
- Increased risk of child abuse, both sexual and physical, as well as child trafficking.
- Concerns about the spread of infectious diseases due to shared facilities.
- Students unable to access books and school uniforms; need for school dress and stationery items.

3.3 Emerging Needs

For Sikkim:

1. Ensure a steady supply of essential medical equipment, including stretchers, first-aid kits, and emergency medical supplies to treat the injured and provide medical care in relief camps.
2. Distribute food packages, clean drinking water, and ready-to-eat meals to those affected, especially in isolated areas where access is limited.
3. Provide temporary shelter materials such as tents, tarpaulins, and blankets to those who have lost their homes or have been displaced.
4. Deliver hygiene kits containing soap, sanitizers, towels, and sanitary napkins to maintain hygiene in relief camps and prevent the spread of diseases.
5. Supply satellite phones and communication devices to maintain connectivity in areas with disrupted communication infrastructure.
6. Distribute portable generators and solar-powered lighting to ensure a continuous power supply in relief camps and medical facilities.
7. Provide warm clothing, including winter wear, for those exposed to adverse weather conditions, especially in higher altitudes.
8. Deploy trained counselors and mental health professionals to provide emotional support to survivors and those experiencing trauma.

West Bengal (Kalimpong District):

1. Provide immediate relief in the form of clothing, ration, and blankets to those affected by the flash floods in the Teesta area.
2. Dispatch medical teams and supplies to the affected households to treat injuries and provide medical care.
3. Distribute sanitation kits, including toiletries and disinfectants, to maintain hygiene in relief camps and affected areas.
4. Conduct disease awareness campaigns and distribute mosquito nets to prevent vector-borne diseases.
5. Provide school dress and stationery items to students who have lost their belongings due to the disaster.
6. Ensure that relief camps have access to adequate and nutritious food for all individuals, with a focus on vulnerable groups.

4. Humanitarian Response

4.1 Government Response

- The Central Government, in recognition of the adverse impact of flash floods on Sikkim, has approved the release of Rs 44.8 crore to the state for relief efforts. Furthermore, to comprehensively assess the damages resulting from the Glacial Lake Outburst Flood (GLOF) and flash floods, the Ministry of Home Affairs has constituted an Inter-Ministerial Central Team (IMCT), which will soon visit the affected areas of the State.
- The Indian Army has announced plans to evacuate nearly 1,500 stranded tourists using helicopters as weather conditions in the region improve. It is noteworthy that approximately 3,000 tourists, including foreigners, remain stranded in various parts of Sikkim.
- Meanwhile, the Indian Army is actively engaged in searching for 22 missing soldiers, while the Trishakti Corps is providing aid to civilians and tourists in North Sikkim.
- The Chief Minister chaired a high-level meeting to assess the ongoing situation and strategize further preventive and supportive actions. These measures include the formation of a technical committee, rigorous monitoring of essential items, the establishment of grievance counters, subsidies for goods vehicles, temporary closure of tourist areas, provision of free medicines at relief camps, and the establishment of Relief Collection Centers.
- The Central Government is vigilantly monitoring the situation around the clock at the highest level, with the Ministry of Home Affairs (MHA) control rooms actively engaged in monitoring and providing necessary assistance to the affected states.
- Indian Air Force (IAF) assets, including helicopters and aircraft, are on standby for potential rescue and relief missions. Notably, Chinook helicopters are forward-based in Hasimara for swift response.
- Immediate mobilization of response teams, including the State Disaster Response Force (SDRF), State Special Armed Police Force (SSAPF), Home Guard, Civil Defense, Civil volunteers, and Police, is underway for rescue and relief operations in flood-affected areas.
- District collectors have received directives to take all necessary measures to address the situation in affected areas, ensuring a coordinated and effective response.
- As a precautionary measure, the education department has issued a circular announcing the closure of all schools in Mangan, Gangtok, Pakyong, and Namchi districts until October 15th.
- Government authorities have provided immediate relief in the form of rations and blankets at Teesta, with a commitment to constructing houses for the affected individuals in the future.
- Sikkim Urja Limited after discussion with CM announce relief package of 25 crores for Mangan district.

4.2 Stakeholders Response

- ACT (Affected Citizens of Teesta), LTDC (Lachen Tourism Devp Committee), Save the Hills, Hayden Hall, Glenn Family, Helping Hand, Human Rights, QRT Local Team Darjeeling, and Ram Singh Thakuri Institution are providing relief materials in the affected area.
- Caritas collaborated with Anugyalaya DDSSS (IDRRE team) and local NGOs to provide relief materials in affected areas of West Bengal. They also conducted a preliminary assessment to get an idea about the situation.
- Save the Children, Tanyak, Change Alliance, IGSSS, CASA, and IAG West Bengal are actively monitoring the situation and are planning for a rapid need assessment.
- Several organizations, including Kalimpong NGO network KaNGON, Red Cross Society Kalimpong and Darjeeling, Akash Co-operative Society Kalimpong, and Emotion Club Kalimpong, have supplied food, clothes, and other essential items to the affected villages.
- Sphere India has been diligently monitoring the situation and sharing regular Situation Report <http://tiny.cc/SitReps-SikkimFlashFloods>
- Sphere India facilitated an Inter-Agency Coordination (IAC) committee meeting on 05th October 2023 with representation from the IAG West Bengal, to facilitate the exchange of ground-level updates, and collaboratively formulate a unified response strategy. ([minutes](#))
- Following the IAC committee's decision, Sphere India has activated the Unified Response Strategy (URS) Matrix to streamline resource allocation and avoid duplication. http://tiny.cc/URS_FlashFlood_Sikkim-WB
- For emergency contact numbers and information regarding relief camps, please refer to the provided link: [Emergency Contact and Relief Camp Details](#)



5. Recommendations

Health Sector

- Establish mobile medical units or camps near affected areas, equipped with essential medical supplies, including medicines for common ailments, first-aid kits, and medical personnel.
- Launch a public health campaign to educate the affected population on disease prevention, especially focusing on waterborne diseases like cholera and vector-borne diseases like dengue.
- Provide counselling services for trauma and mental health support, given the emotional impact of the disaster.
- Set up paediatric clinics with necessary medicines and vaccines for children, ensuring they receive proper healthcare.
- Establish health check-up camps for chronic illnesses like diabetes and hypertension, ensuring those with pre-existing conditions receive their medications.
- Ensure that tourists receive necessary medical attention and support during their evacuation.

Water and Sanitation Sector

- Ensure a continuous supply of safe drinking water to relief camps and affected areas by repairing damaged pipelines and water supply systems.
- Provide temporary toilets and bathing facilities to prevent the spread of diseases in relief camps.
- Distribute hygiene kits containing soap, sanitary napkins, disinfectants, and basic toiletries to affected families.
- Implement proper waste disposal mechanisms to prevent environmental contamination and health hazards.

Education Sector

- Provide school uniforms, stationery, and textbooks to students who have lost their homes and belongings.
- Offer counselling services to students dealing with trauma and emotional distress.

Shelter Sector

- Ensure that affected individuals and families have access to safe and adequate shelter in relief camps or temporary shelters.
- Plan for the reconstruction of damaged houses and infrastructure in a resilient manner, taking into account disaster risk reduction measures.
- Implement measures to protect vulnerable populations, including women and children, from abuse, exploitation, and trafficking in crowded relief camps.

Food and Nutrition Sector

- Provide balanced and nutritious meals to individuals in relief camps, with a focus on children, pregnant women, and lactating mothers.

- Establish distribution points for food and essential items, ensuring equitable access for all affected communities.
- Assess and address the food security situation in affected areas, with measures like cash assistance or food vouchers for affected families.

Infrastructure and Connectivity

- Expedite the restoration of damaged roads and bridges to enable the safe movement of relief personnel, supplies, and affected populations.
- Restore communication infrastructure to facilitate coordination and information dissemination.
- Address the shortage of petrol and diesel by facilitating fuel supply to affected areas, including hospitals and relief operations.

6. References

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