

Swat River Flash Flood Event – 27th June 2025

The Swat River originates from the lofty peaks of the Hindu Kush Mountain range, primarily fed by glaciers and snowfields in the Usho, Utror, and Gabral valleys near Kalam in Upper Swat District, Khyber Pakhtunkhwa. These headwaters merge to form a fast-flowing river that travels southward through scenic mountain towns like Bahrain, Madyan, Khwazakhela, and Mingora, before joining the Panjkora River and ultimately the Kabul River. The Swat River's hydrology is significantly influenced by seasonal snowmelt, monsoonal rains, and increasingly, the impact of glacial lake outburst floods (GLOFs). As global temperatures rise, the glaciers feeding the river are retreating, leading to the formation of unstable glacial lakes high in the valleys of Gabral, Matiltan, and Utror. These lakes pose a serious risk of sudden rupture, particularly during intense rainfall or rapid melting in the pre-monsoon and early monsoon periods. A GLOF can unleash a destructive surge of water, ice, and debris, dramatically increasing the Swat River's flow within hours and overwhelming downstream settlements. While the flash flood of 27 June 2025 was primarily caused by extreme localized rainfall, it is plausible that elevated glacial meltwater contributions and pressure from partially breached moraine-dammed lakes intensified the severity of the flood. It is pertinent to mention that the major flash flooding event on the Swat River occurred earlier on 26 August 2022, when unprecedented monsoon rains followed by GLOF event triggered severe flash floods that wreaked havoc across the Swat Valley



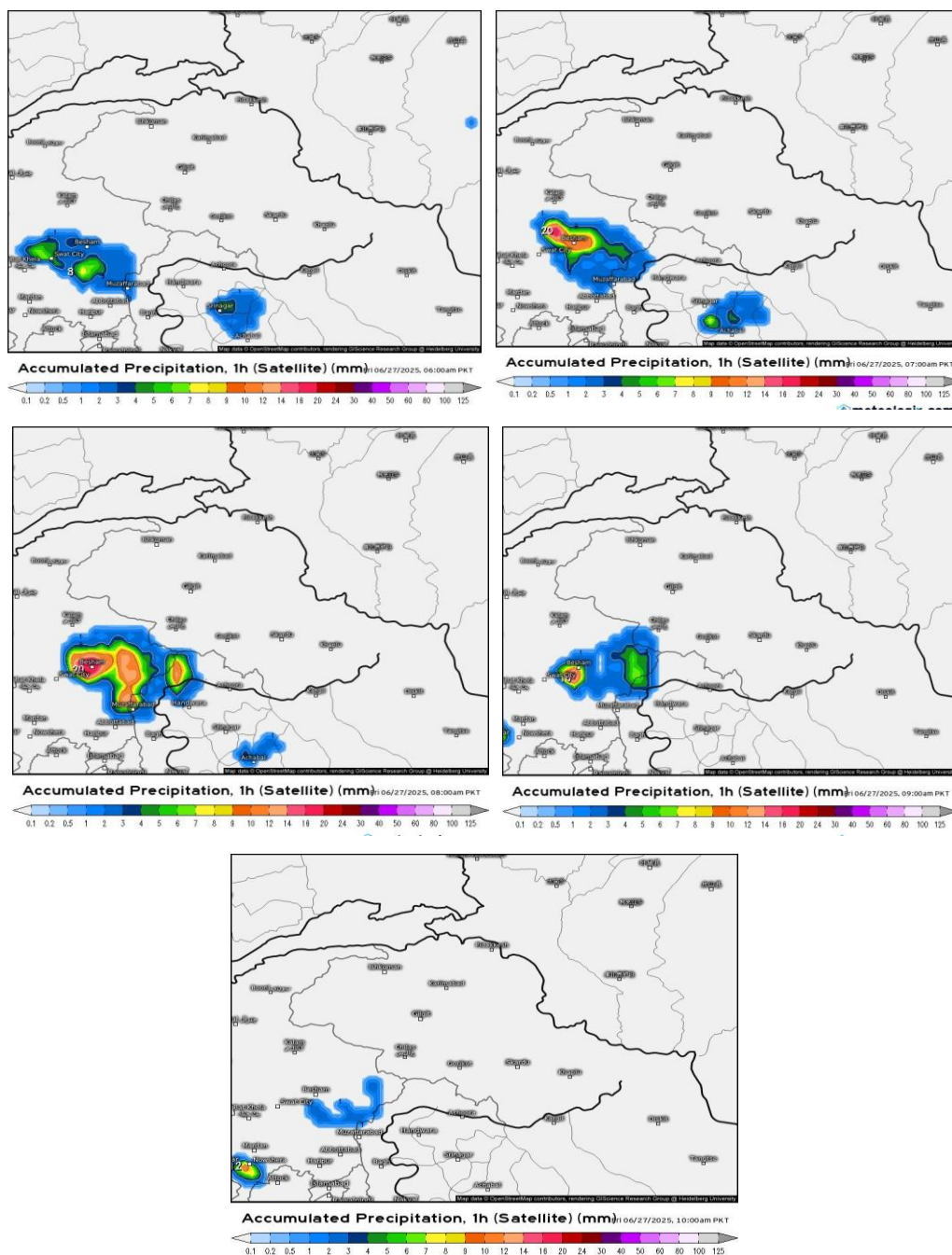
Figure 1 Geographical location of Swat River. The yellow mark are the PMD observational Stations

1. Overview

On the morning of Friday, 27 June 2025, a devastating flash flood struck the upper and central parts of the Swat Valley, catching residents, tourists, and local authorities by surprise. The disaster occurred at the height of the summer holiday season, when large crowds had gathered along the riversides across the scenic valley—from Kalam and Bahrain to Khwazakhela and Saidu Sharif. Triggered by intense

early morning rainfall over the northern upper catchments, the Swat River swelled rapidly and overflowed its banks within a short span of time. As a result, dozens of people were swept away by the sudden torrent, while many others sustained injuries or were forced to evacuate.

The Pakistan Meteorological Department (PMD) had issued an early warning on 25 June 2025, alerting all relevant stakeholders to the potential for severe rainfall and Glacial Lake Outburst Flood (GLOF). These warnings were disseminated through the Provincial Disaster Management Authority (PDMA) of Khyber Pakhtunkhwa to all Deputy Commissioners in the vulnerable districts (Annex-I). However, challenges remain in last-mile communication, particularly to tourists and temporary riverbank dwellers, who may not have received or understood the urgency of the alerts.



2. Meteorological Conditions

Meteorologically, the event was driven by a strong monsoon surge. Satellite-based precipitation data from 06:00 am to 09:00 am on 27 June shows concentrated convective rainfall over Besham, Chilas,

Swat and adjacent mountain slopes that form the headwaters of the Swat River. Rainfall intensity over this core zone exceeded 60 to 90 mm in just one hour, with isolated peaks crossing 100 mm. Three-hour rainfall measurements recorded at PMD observatories indicated significant but variable intensities: Saidu Sharif recorded 46 mm, Malam Jabba 33 mm, and Kalam 3 mm. This short-duration, high-intensity rainfall triggered rapid runoff from steep mountainous terrain into the Swat River, amplifying the downstream flood wave. The river's natural gorge-like topography in areas such as Bahrain, Madyan, and Khwazakhela further accelerated the surge, compressing the water into a narrow channel and increasing destructive force.

3. Geographic Amplification

The geography of the valley also played a critical role in amplifying the disaster. As evident in the attached maps, the Swat River originates near Kalam and flows southward through Utror, Bahrain, and Madyan, before reaching more densely populated towns like Khwazakhela, Saidu Sharif, and eventually merging near Pattan and Besham. This natural corridor, while breathtakingly beautiful, is also highly vulnerable to flash flooding due to steep slopes, narrow valleys, and the absence of floodplain zoning. The event highlights how an extreme rainfall episode confined to the upper catchments can rapidly propagate downstream, triggering widespread damage within hours. The river's steep gradient and confined channels create a hydraulic bottleneck effect, accelerating flow velocity and increasing destructive potential along its path.

4. Human and Infrastructure Impact

The human toll from this disaster was tragic. At least 13 lives were lost in Swat District, including women and children. The majority of victims were families from Punjab who had travelled to the valley following the Eid holidays. Over 20 individuals sustained injuries, many of them critical, while more than 60 people were rescued alive, including some who had become stranded on temporary islands formed by the surging river. Search-and-rescue teams from Rescue 1122, PDMA, the district administration, and the Pakistan Army responded with boats and helicopters. However, despite their efforts, one child remains missing as of 30 June. Infrastructure damages were also severe: 56 homes were damaged, with 6 completely washed away, and sections of the Bahrain–Kalam Road as well as bridges near Khwazakhela suffered structural stress or collapse.

6. Recommendations and Way Forward

Looking ahead, several recommendations emerge. Immediate actions must include the removal of encroachments along river corridors, improved real-time dissemination of flood alerts, and enforcement of seasonal bans on riverside gatherings during forecasted heavy rains. PMD advisories should be translated and circulated through SMS, hotel check-in briefs, local mosques, and community radios, particularly in high-risk tourist areas. Medium-term priorities include the development of flood hazard zonation maps, installation of automated rainfall and river level sensors in Kalam, Bahrain, and Khwazakhela, and pre-positioning of emergency assets during monsoon peaks. Over the long term, Swat Valley requires a climate-resilient land-use framework that limits construction in flood-prone zones and integrates hydrometeorological intelligence into district planning.



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No. PDMA/PEOC/G-Advi-02-06/2025

Dated Peshawar the 25th June, 2025

To

- The Deputy Commissioners,
 1. Chitral Upper
 2. Chitral Lower
 3. Dir Upper
 4. Swat
 5. Kohistan Upper

Subject: GLOF ALERT

Dear Sir,

I am directed to refer to the subject cited above and to state that Pakistan Meteorological Department (PMD), Islamabad has intimated that a significant wet spell is likely to affect Khyber Pakhtunkhwa from the evening of 26th June to 1st July, 2025. During this period, scattered to widespread rain and thunderstorms, with isolated heavy falls, are expected in Khyber Pakhtunkhwa. The prevailing weather conditions, increase the risk of Glacial Lake Outburst Floods (GLOFs), and flash floods events in vulnerable glaciated regions of Khyber Pakhtunkhwa.

In view of the above weather conditions, you are requested to kindly take all necessary precautionary measures to avoid any loss of life/ livestock and damages to infrastructure/ crops. Furthermore, all concerned authorities are requested to take the following safety measures:

- a) Ensure that local community of at-risk/ vulnerable areas is forewarned.
- b) Ensure the availability of Emergency/ Rescue Services personnel and C&W/ equivalent departments during the period.
- c) Pre-place necessary emergency equipment for rapid response in case of any eventuality.
- d) Tourists/ Travelers in at-risk/ vulnerable areas be forewarned of risk and advised to avoid any unnecessary travel.
- e) Coordinate with Concerned Departments (NHA, FWO and C&W) for the timely restoration of roads in case of any blockage, obstruction/ closures and damage.
- f) In-case of any eventuality, routine updates will be shared with PEOC, PDMA i.e., active round the clock via helpline 1700.

(Fahad Tahir)
 Incharge PEOC, PDMA