Post GLOF/Flood Assessment Report of

Jechu Drake Lake

Submitted by
National Centre for Hydrology and Meteorology
Royal Government of Bhutan
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Executive Summary

On 9 August 2026, a flood/GLOF (Glacial Lake Outburst Flood) event was reported in the Pachhu sub-basin, Paro. Residents observed the onset of the flood at the source at approximately 11:06 AM, and an associated rise in water level and discharge was recorded at the Bondey principal gauging station (approximately 61 km downstream) at around 11:00 PM the same day, indicating a flood travel time of approximately 12 hours.

Findings indicate that the event did not originate from a breach of Jechu Drake Lake (the main proglacial lake) itself. Rather, it originated from the partial breach of a small, unnamed glacial lake (upper lake) located approximately 2 km upstream of Jechu Drake Lake, beyond the glacier's left lateral moraine. Water released from the upper lake traveled roughly 200 m as visible surface flow before entering the glacier's englacial drainage system, re-emerging approximately 500 m above the main lake, and then flowing into Jechu Drake Lake. This additional inflow raised the main lake's water level by an estimated 25–30 cm and produced a sharp, temporary increase in the lake's outflow discharge, which propagated downstream as the reported flood. The main lake therefore functioned as a temporary storage and transmission basin for the outburst pulse rather than as its source.

The bathymetric survey estimated the volume of Jechu Drake Lake at 2.237×10^6 m^3, with a surface area of 0.16 km^2, a perimeter of 2.3 km, an average depth of 13.7 m, and a maximum depth of approximately 44 m. The post-event discharge measurements recorded 3.415 m^3/s downstream of the lake outlet and 5.919 m^3/s further downstream near the Jhomolhari base camp (19 August 2026). Field observations found no significant erosion, incision, or enlargement of the main lake's outlet during the event, indicating that the main lake's moraine dam remained structurally stable; however, multiple localized scour zones were observed at the foot of the damming moraine, consistent with elevated sediment entrainment and the turbid appearance of the river during the event.

The assessment team concludes that while the main lake's moraine dam is currently stable, the broader glacier–moraine–lake system remains dynamically unstable. An erodible upper lake, a thinning and retreating glacier, and a demonstrated internal (englacial) drainage pathway between the upper lake, supraglacial ponds, and the main lake together constitute a recurring mechanism by which sudden inflows and potentially larger cascading events could be generated in the future. The team recommends:(i) a geophysical (e.g., ERT) investigation of the main moraine dam's composition, ice content, and stability; (ii) a bathymetric survey of the upper lake once ice-free conditions permit; (iii) installation of an automatic water level station upstream of the existing Gunitsawa station to serve as an early warning trigger; (iv) a detailed downstream topographic survey and inundation/hazard mapping exercise; and (v) numerical outburst/dam-break flood modelling and continued periodic monitoring of the lake system. These measures are detailed in Section 7 (Recommendations)

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1. Background

Pursuant to the request received from the Department of Local Governance and Disaster Management (DLGDM), Ministry of Home Affairs (MOH), vide letter no *MoHCA/DLGDM/DPRD(Ministry)/97* dated 10th August 2026, the National Center for Hydrology and Meteorology (NCHM) constituted a joint technical team from NCHM and Paro Dzongkhag to assess the potential cause of the GLOF/flood incident reported on 9th August 2026. The technical team was deputed to Jechu Drake Lake, the headwater of Pachhu, from 12 to 23 August 2026 for the field assessment and surveys.

1.1. Assessment Team

The field assessment team:

a. Mr. Phuntsho Tshering, Principal Hydromet Officer, Cryosphere Service Division, NCHM
b. Mr. Tandin Wangchuk, Dy. Chief Hydromet Officer, Hydrology and Water Resource Service Division, NCHM
c. Ms. Chencho Dema, Hydromet Officer, Hydrology and Water Resource Service Division, NCHM
d. Ms. Wangchuk Dem, Dzongkhag Disaster Management Officer, Paro Dzongkhag
e. Mr. Sonam Dorji, Hydro-met Technician, Hydrology and Water Resources Services Division (HWRSD), NCHM

1.2 Objective

The main objective of the field assessment was to ascertain the potential cause(s) of the GLOF/flood event on 9th August 2026, evaluate the current condition of the Jechu Drake Lake, and assess potential future risks. Specifically, the team undertook the following:

a. Ascertain the probable causes of the GLOF/flood by visiting the sites and collecting evidence.
b. Conduct a drone survey of Jechu Drake Lake and the upstream glaciers and moraine to develop aerial images and digital terrain models.
c. Carry out a bathymetric survey of Jechu Drake Lake to determine the lake volume and maximum depth.
d. Measure the lake outflow discharge.
e. Undertake maintenance of automatic monitoring stations located in the region and designate temporary staff upstream for timely water-level monitoring and reporting.

2. Study Area

The Pachhu sub-basin is drained by the river originating at the base of Jechu Drake, which is the principal tributary of Pachhu. The catchment covers an area of approximately 820 km², with elevation ranging from 2,230 masl in the Paro valley to over 7,000 masl at the peaks of Jechu Drake and Jhomolhari. Most of the settlement areas are located downstream in the alluvial fan and along the rivers, with Paro town being one of the major settlements in the catchment. The catchment is home to several lakes, both glacial and freshwater lakes, and the outflow from these lakes makes a significant contribution to the flow regime of Pachhu.

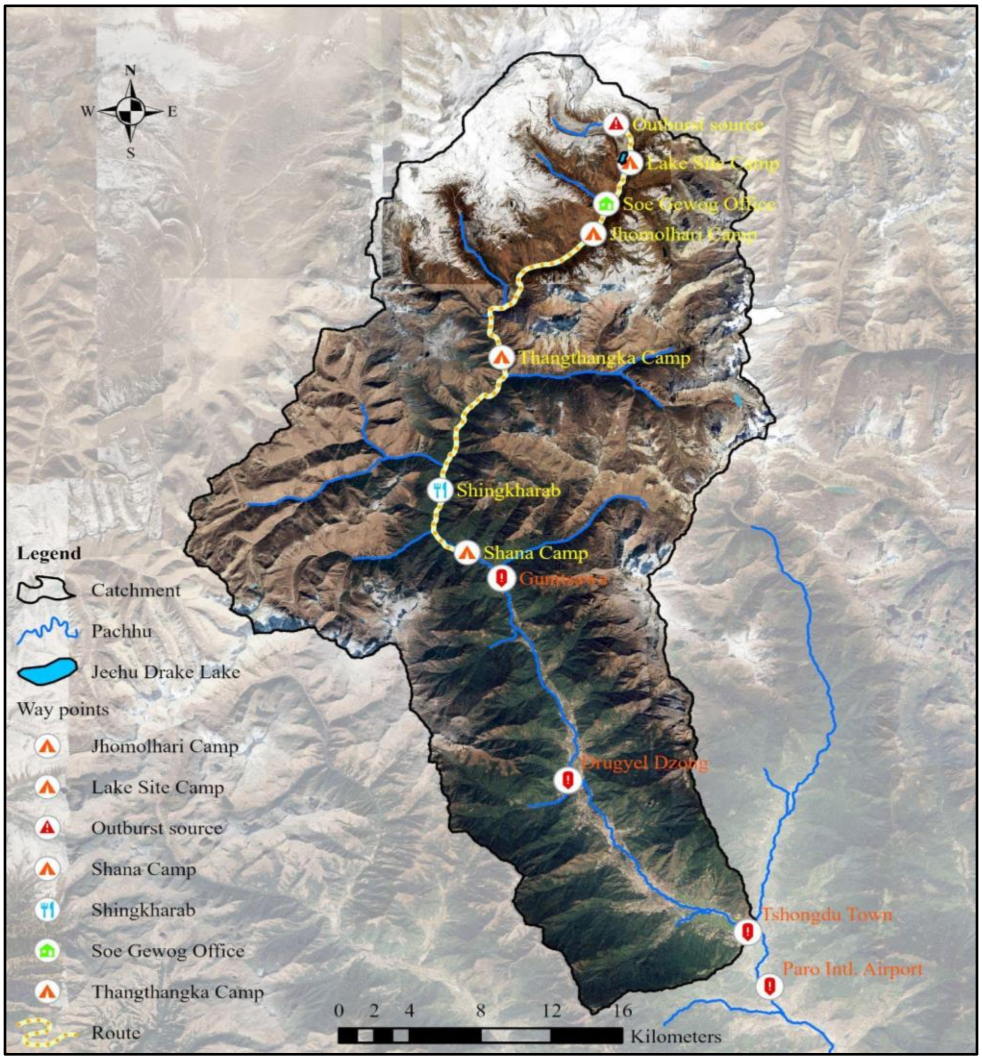

Figure 1. Map showing the study area: location of lakes, rivers, and tributaries, and important places in the catchment.

There is one Automatic Water Level Station (AWLS) at Gunitsawa and a Principal Hydrological Station at Bondey, after the confluence with Doteychhu. There is also one Automatic Weather Station (AWS) at the lake, located beyond the left moraine of the lake.

3. Data and Methodology

3.1. Aerial Survey

An aerial (bird's-eye) perspective is essential for understanding the overall condition of the lake, the surrounding moraines, and the lake's geology. A UAV survey was conducted to collect high-resolution imagery and topographic maps of the lake and surrounding areas using a DJI Matrice 300 RTK. A mosaic of high-resolution aerial images and a digital terrain model (DTM) are shown in the figure below. The high-resolution products from aerial imagery, such as ortho-mosaic photos and digital terrain models (DTM), are critical in deriving accurate physical parameters for lake breach modeling and assessing the current condition of the lake.

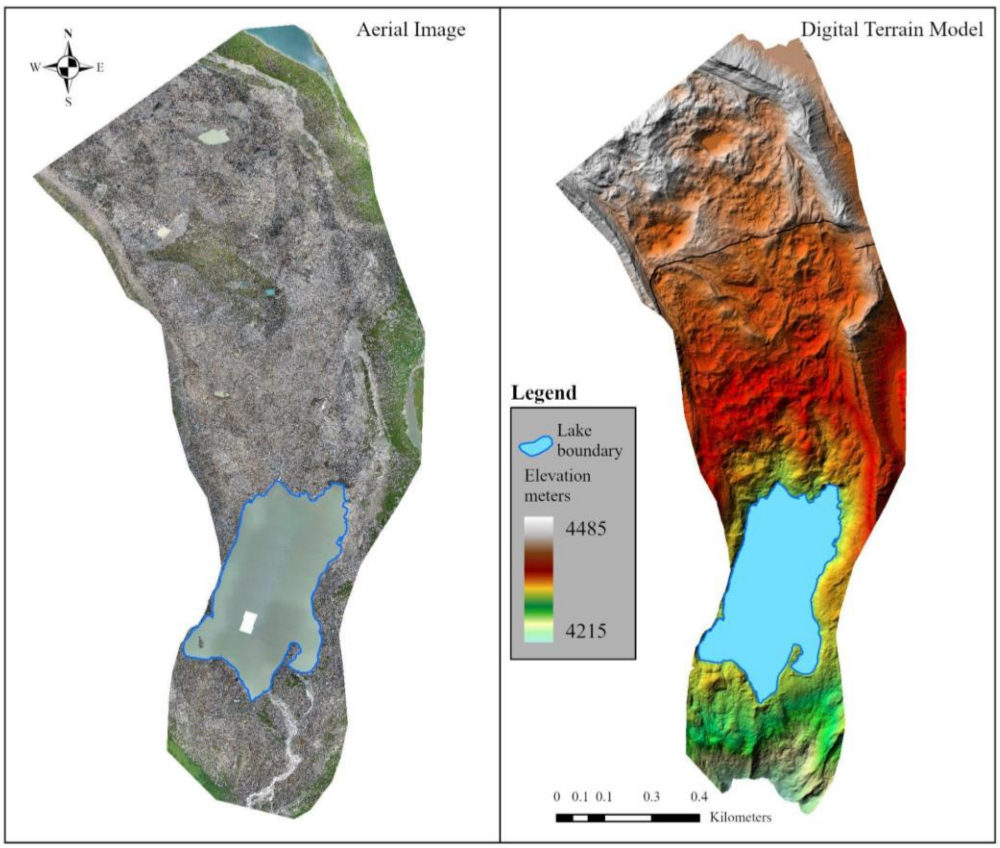

Figure 2. Ortho-mosaic and digital terrain model (DTM) of Jechu Drake Lake and surrounding glacier/moraine, derived from the UAV survey.

3.2. Bathymetry Survey

Lake volume is a key parameter in quantifying and assessing hazard from the lake and its potential impact on downstream settlements and infrastructure. A lake bathymetry survey was conducted using a rubber inflatable boat mounted with SONAR GPS-integrated sensors (FISH ELITE) to measure an estimated volume of the lake.

Figure 3. Bathymetric survey of Jechu Drake Lake using a SONAR/GPS-integrated sensor mounted on an inflatable survey boat.

3.3. Discharge Measurement

The discharge data indicate the rate of flow of rivers in the channel. Continuous time-series data can be used to investigate and detect rises and falls in flow in a river, which can be correlated with the occurrence of extreme weather events and GLOF events in a catchment or a basin. The discharge measurements were conducted using a current meter by the wading method at a suitable location.

Figure 4. Discharge measurement by the current-meter wading method at (a) the lake outlet and (b) Jhomolhari base camp.

4. Results and Finding

4.1. Glaciology and potential cause of flood/GLOF

4.1.1. Glacial and Geomorphological Setting

The Jechu Drake Glacier is a debris-covered glacier characterized by a complex glacier–moraine–lake system. The main proglacial lake is located at the glacier tongue and represents the principal water-storage body within the glacier forefield. Approximately 2 km upstream, a smaller upper lake lies beyond the glacier's left lateral moraine. It also consists of a few supraglacial ponds on the glacier surface, as shown in the figure.

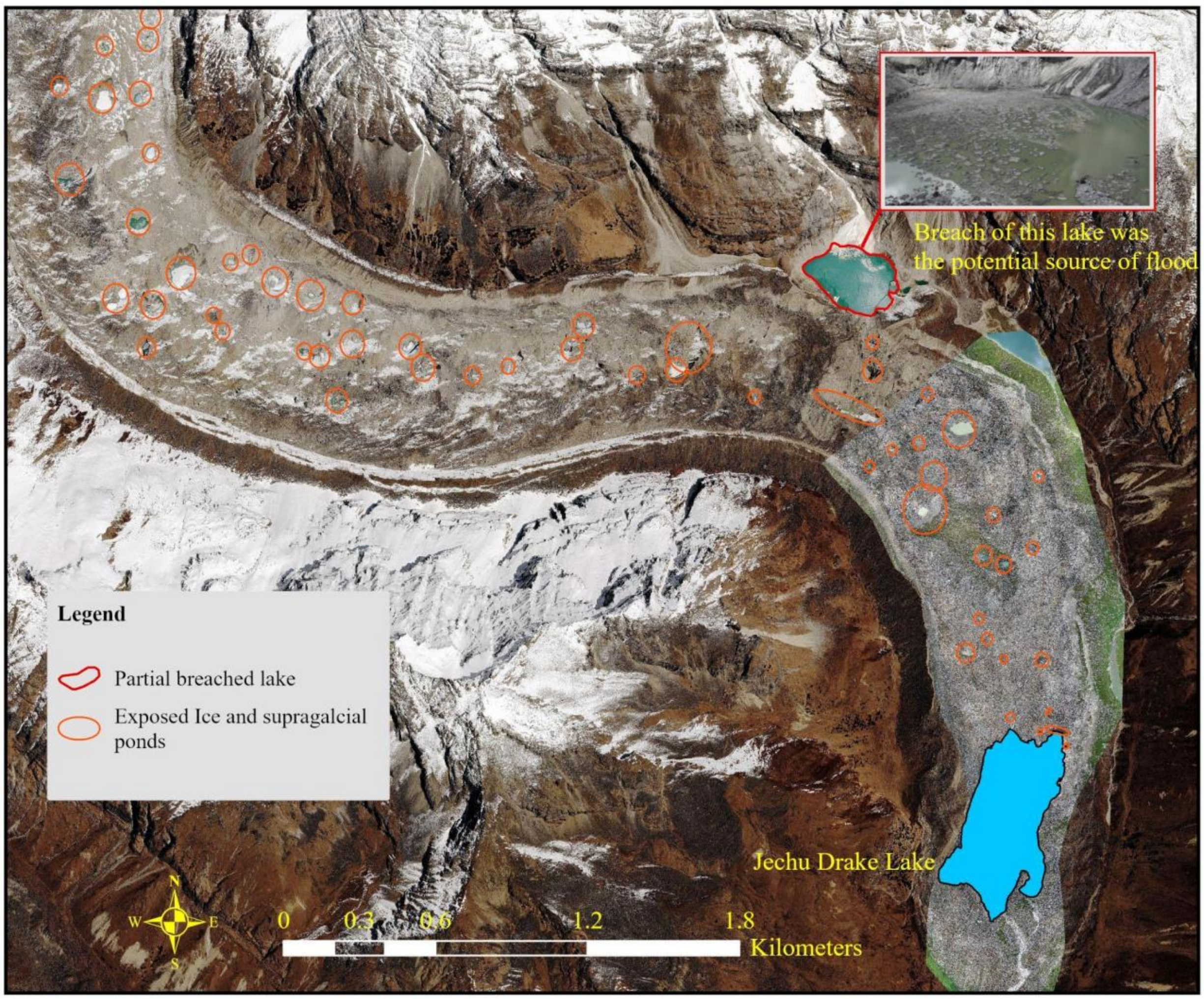

Figure 5. Glacier–moraine–lake system of Jechu Drake, showing the upper lake, supraglacial ponds, and the main proglacial lake.

Under normal conditions, the upper lake and main lake remain hydraulically separated by the intervening moraine and glacier terrain. The upper lake is bounded on its left side by a lateral moraine, which functions as the principal barrier retaining the lake water. Primarily, the discharge from the upper lake flows through the outer left lateral moraine and joins the main Paa Chhu river below the foot of the end moraine.

4.1.2. Sequence of the Flood Event

Based on field observations and the observed surface-flow pattern, the event can be reconstructed as a sequence of four principal stages.

Stage 1: Breach of the upper lake's moraine barrier: The event began with the breaching of the left lateral moraine of the main glacier separating the upper lake. Water escaped from the upper lake through the breached section after sudden collapsing/degrading and initially travelled toward the main glacier (Figure 6).

The breach resulted in a rapid release of stored water from the upper lake. Unlike a large moraine-dammed lake outburst, the volume of water involved in this event was relatively small. Nevertheless, the sudden release was sufficient to produce a distinct hydraulic pulse that propagated toward the glacier.

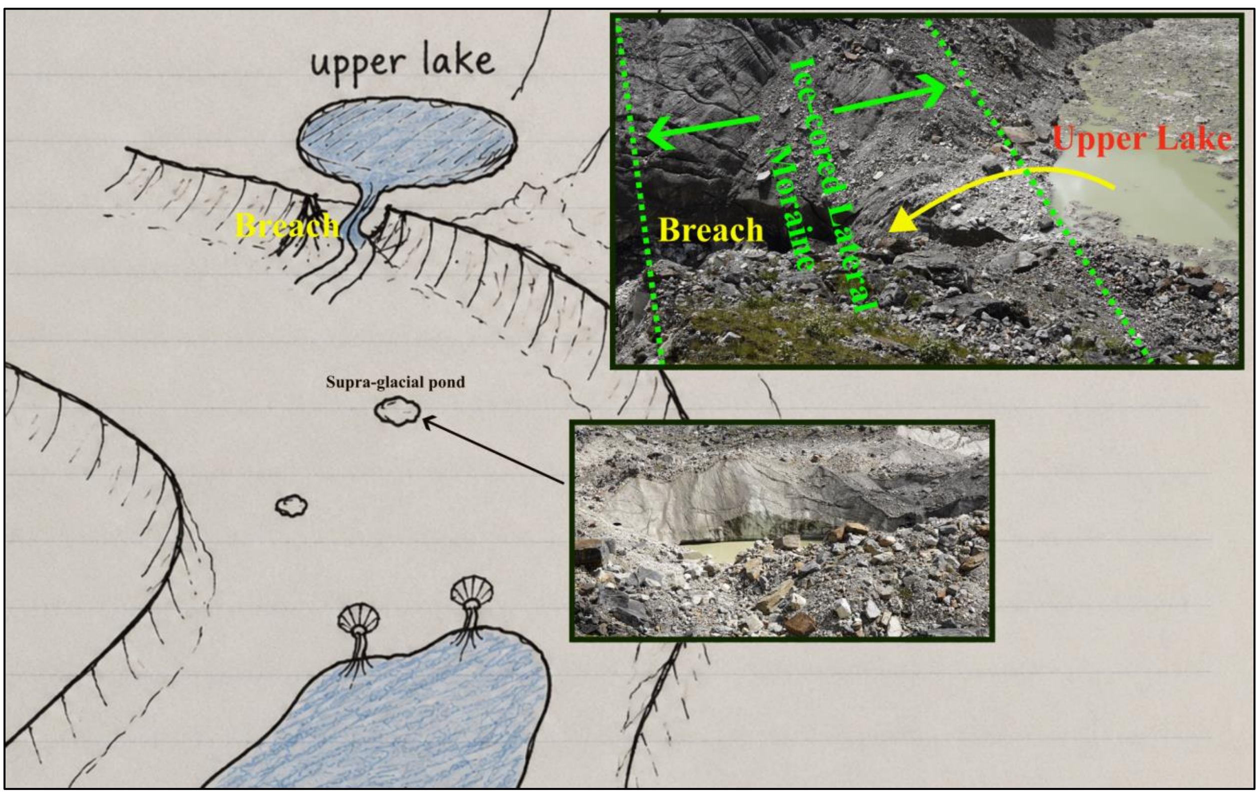

Figure 6. Breach of the upper lake's left lateral moraine, with water discharging toward the main glacier (Stage 1)

Stage 2: Surface flow disappeared after approximately 200 m: Following the initial release, water travelled approximately 200 m as surface flow to a glacier ice basin before disappearing from the glacier surface. No continuous surface-flow signature was observed along the subsequent section between this point and the eventual re-emergence zone. The disappearance of surface flow strongly suggests that the floodwater was transferred into an englacial drainage system, although the exact pathway could not be directly observed. The approximately 200 m surface-flow section is interpreted as the initial surface drainage phase, followed by an englacial transfer phase.

Stage 3: Re-emergence of water approximately 500 m above the main lake: The floodwater subsequently reappeared at the glacier surface approximately 500 m upstream of the Jechu Drake main lake. At this location, the water emerged from the glacier and formed a visible surface flow. Such a system also provides important evidence for a transient internal drainage connection between the supra-glacial ponds, the upper lake, and the main lake. This mechanism is consistent with the known ability of glacierized systems to transmit water through internal conduits (J. Komori et al., 2012)

Stage 4: Sudden Increase in Main Lake (Jechu Drake Lake) Volume and Outflow: Following the re-emergence of the water approximately 500 m upstream, the floodwater flowed directly into the main lake. The additional inflow produced a sudden increase in the water volume of the main lake. The main lake consequently experienced a rapid increase in its outflow discharge. Importantly, the observed increase in downstream discharge was therefore not primarily caused by failure or incision of the main lake outlet. Instead, it was caused by the sudden addition of water transferred from the upper lake through the glacier system.

The observed downstream flood was not due to the conventional moraine-dam breach of the main lake, but rather, the main lake acted as a temporary storage and transmission basin, receiving the outburst pulse from the upper lake and subsequently transmitting the increased discharge downstream. The illustration of the phenomenon is given in Figure 7.

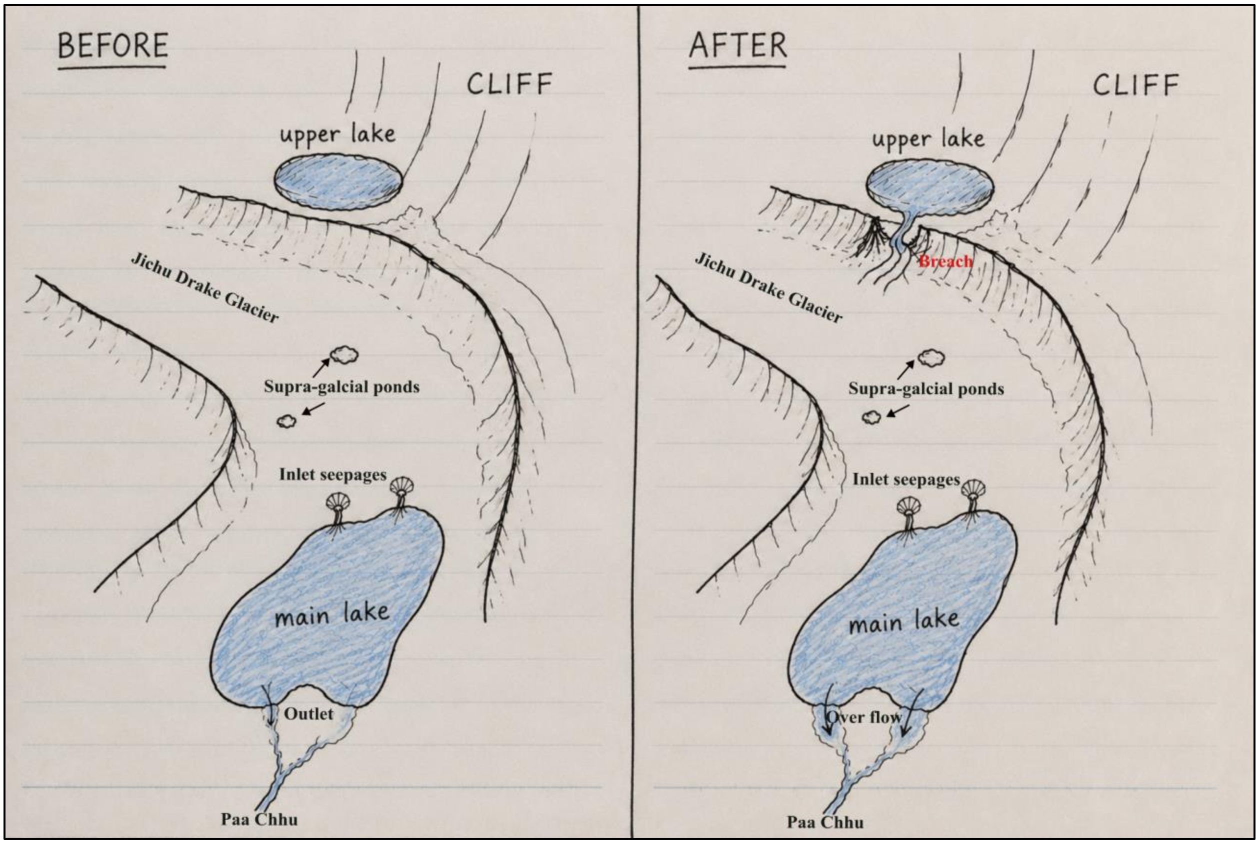

Figure 7. Schematic illustration of the breach mechanism: breaching of the upper lake, englacial transfer, re-emergence, and outflow via the main lake.

4.1.3. Condition of the Jechu Drake Lake moraine dam

Field observations indicate that no significant erosion, incision, or enlargement of the lake outlet occurred during the event, indicating the main lake outlet remained comparatively stable. This also indicates that the recent event causing increased downstream discharge was therefore primarily a consequence of the additional inflow generated by the upper lake drainage. This event can be characterized as a secondary flood generated by the rapid transfer of water into the main Jechu Drake Lake, rather than a direct breach of the main lake.

Although the main lake outlet did not undergo significant erosion, multiple localized scour zones were observed at the foot of the damming moraine (Figure 8). These scour features indicate that the sudden increase in discharge generated sufficient hydraulic energy to erode and entrain unconsolidated moraine and/or valley-floor sediments. The resulting sediment entrainment caused a pronounced increase in suspended sediment concentration in the downstream flow. Consequently, the river changed from relatively clear water to a muddy or turbid appearance during the event.

Figure 8. Localised scour zones observed at the foot of the main lake's damming moraine.

4.2. Lake Volume

A detailed bathymetry survey was conducted on Jechu Drake Lake, and the bathymetry data were processed using Dr. Depth software. The bathymetric map of the lake is shown in Figure 9. An estimated volume of water in Jechu-Drake Lake is 2.237 x 10^6 m³, with a surface area of 0.16 sq. km and a lake perimeter of 2.3 km. The average depth of the lake is 13.7 m, and at the deepest point, the lake depth is about 44 m.

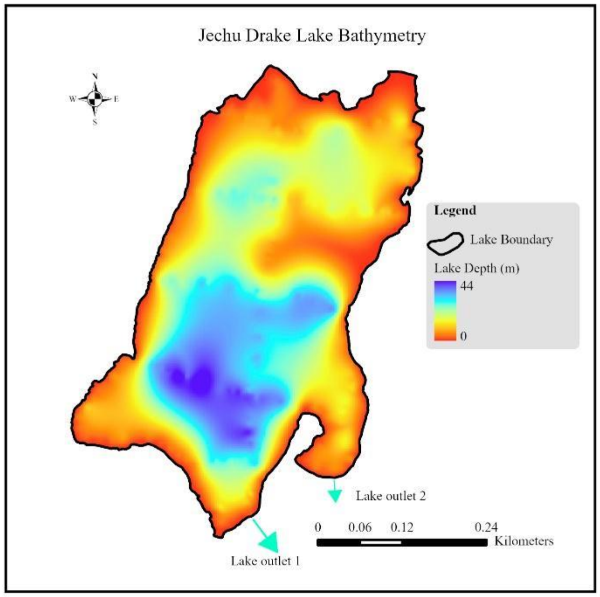

Figure 9. Nathymetry of the Jechu Drake Lake

4.3. Outflow Discharge

Two discharge measurements were carried out. The lake outflow discharge was measured at around 1 km downstream of the lake, as there was no suitable location for measurement at the actual outlet. Another measurement was carried out near the Jhomolhari base camp, incorporating two major tributaries that flow from lakes on the left side of the main river. The measured discharges are tabulated below with the location of the measurements.

Sl. No	Locations	Discharge (m^3/s)	Date of measurement
1	Lake Outlet (Measurement Point I)	3.415	19 August 2026
2	Jhomolhari Base (Measurement Point II)	5.919	19 August 2026

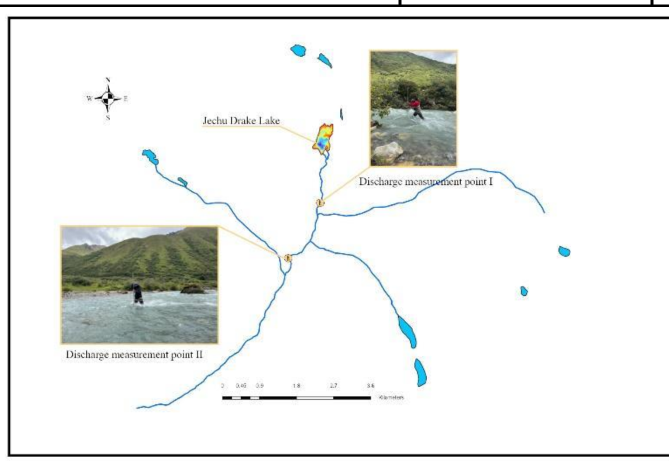

Figure 10. Discharge measurement locations

4.4. Catchment Hydrology

The elevation of the catchment ranges from 2230 masl in the valley of Paro to over 7000 masl in the mountains. This high variation in elevation is generally observed in the mountainous terrain with steep slopes and deep, narrow valleys. The elevation and slope maps are shown in Figure 10.

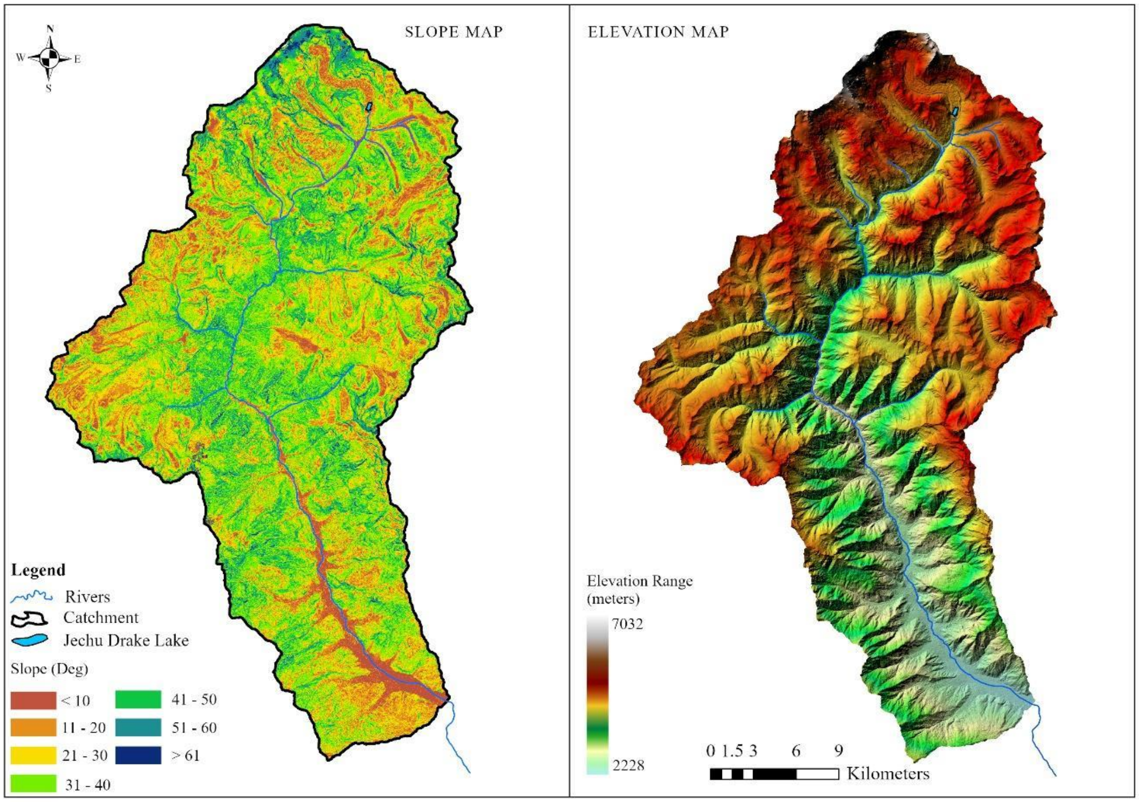

Figure 11. Elevation and slope map of the Pachhu catchment.

The average channel slope is 0.036 (rise/run), with higher slopes in the middle of the reach, and it becomes gentler as the river flows through the Paro valleys. While the outflow from the Jechu Drake Lake is the main source of Pachhu, several significant tributaries contribute to the flow. Most of the tributaries originate from the outlet of the lake, glacier/snow melt, and some of the inflow in the tributaries is rain-fed and substantial during the monsoon. The glacier ice meltwater is the most dominant contributor to the river flow at higher elevations; the flow at lower elevations is mostly from rain and moraine outflow.

4.5. Flood Travel Time

The flood travel time, or lead time, is typically measured from peak-to-peak, from a reference stage/discharge point or a flood source to the corresponding point at the downstream station, and is an essential parameter in early warning systems and flood management. It is generally dependent on the peak flow/volume and topography of the catchment.

Residents reported the onset of the Jechu Drake flood at approximately 11:06 AM on 9 August 2026. The principal gauging station at Bondey, approximately 61 km downstream of the lake, recorded a corresponding rise in water level and discharge at approximately 11:00 PM the same day.

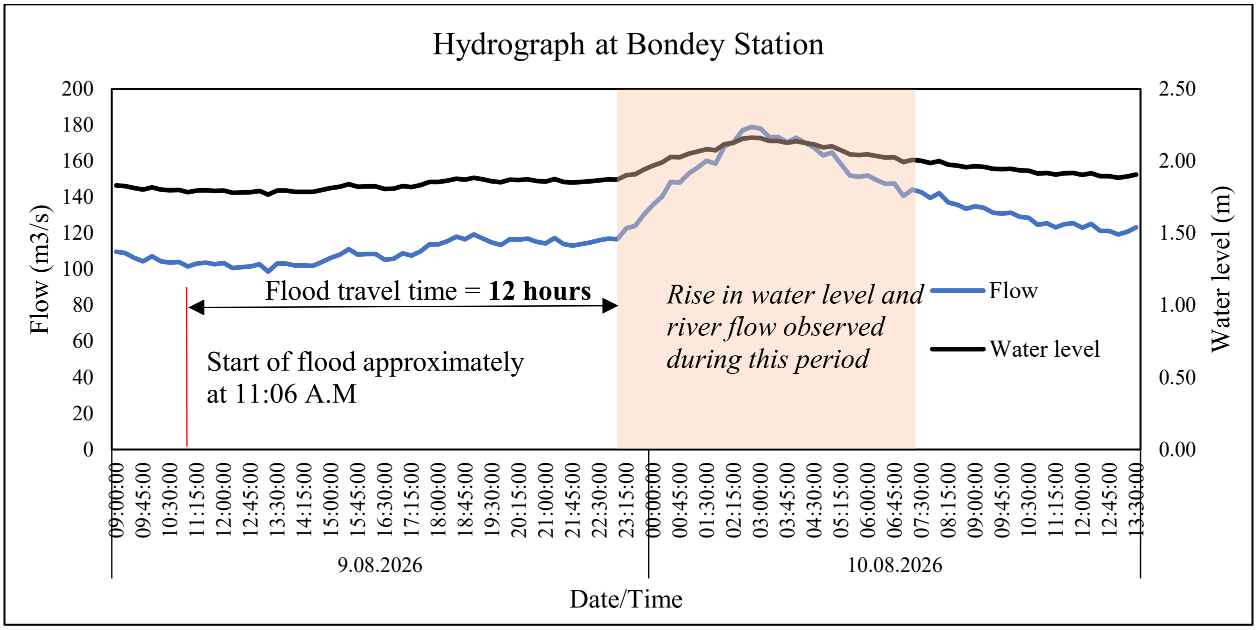

Figure 12. Water level/discharge response recorded at the Bondey gauging station following the 9 August 2026 flood event.

This gives an approximate flood travel time of 12 hours between the source and Bondey. The corresponding rise in water level and flow at Bondey is attributed directly to the flooding originating from Jechu Drake Lake. Flood travel time is primarily influenced by basin size, slope, channel characteristics, rainfall intensity, and land use. Larger flood volumes typically generate higher flood waves, which may travel more rapidly in confined mountain valleys. Therefore, flood travel time varies depending on multiple interacting factors

5. Discussion

5.1. Stability of the Lake and Surrounding Area

The breach of the upper lake's left lateral moraine indicates that the lake margin had developed a zone susceptible to overtopping, seepage, piping, or localized erosion and was therefore not fully stable. Although the volume of water released was relatively small, the rapid release demonstrates that even a small marginal lake can become a sudden source of inflow to the main proglacial lake. Because of extensive floating ice, a bathymetric survey of the upper lake could not be completed during this visit; however, the lateral moraine separating it from the main glacier was observed to consist substantially of ice, with a dam breadth of approximately 5 m, a feature that could breach again in the future. Significant surface lowering of the main glacier, evidenced by freshly exposed ice, further indicates an actively degrading system.

The main lake and its surrounding moraine dam remained relatively stable during the event, with no significant erosion or enlargement of the lake outlet observed. This may be attributed to the presence of huge boulders towards the outlet. However, the occurrence of multiple scour zones at the foot of the moraine indicates localized weakening and erosion of unconsolidated materials under increased discharge. Continued erosion at these locations could progressively modify the moraine and potentially influence its long-term stability. The surrounding glacier and moraine terrain, therefore, is dynamically unstable. The presence of an upper lake, an erodible lateral moraine, and a possible internal drainage connection creates a pathway for sudden transfer of water into the main lake. Further, if the drainage from the upper lake flows downstream on the surface of the glacier, it might erode and carry debris, which ultimately might get deposited in the main lake, pushing the water from the main lake, possibly triggering GLOF. Changes in lake level, moraine erosion, glacier melt, supraglacial drainage, and development of englacial or subglacial channels could alter this connectivity.

5.2. Size and Volume of the Lake and Downstream Risk

Unlike freshwater mountain lakes, glacial lakes form from the melting of their feeding glaciers and are inherently dynamic in size and volume. At 2.237×106 m³ and 0.16 km², Jechu Drake Lake is relatively small compared with other glacial lakes in Bhutan, several of which have volumes and surface areas many times greater. Continued moraine erosion, glacial ice melt, and the presence of buried terminal ice beneath the lake margin could, however, drive further increases in lake volume and area over time.

Even at its present, comparatively modest size, the potential downstream impact of a moraine dam failure at Jechu Drake Lake would need to be considered against the vulnerability of settlements and infrastructure in the Pachhu valley, including Paro town. A rapid breach of even a small lake can produce a disproportionately severe flood impact depending on how the stored water is released and the resulting shape of the flood hydrograph, underscoring the value of the hazard mapping and early warning measures recommended in Section 7.

5.3. 5.3 Discharge Observation and Hydrological Response

The two discharge readings (3.415 m³/s at the lake outlet and 5.919 m³/s near Jhomolhari base, both on 19 August, ten days post-event) reflect post-event baseflow, not the flood peak, and the near-doubling of flow between the two sites confirms that tributary inflows further dilute and mask any lake-sourced signal by the time it is gauged downstream. No peak discharge was captured at either site, so the actual magnitude of the 9 August pulse remains unquantified.

This is compounded by the catchment's physical character: with relief from 2,230 to over 7,000 masl across roughly 820 km² and an average channel slope of 0.036, the terrain conveys water and sediment from the glacier to the Paro valley efficiently and with little natural attenuation. Because an August event coincides with the monsoon, a lake-sourced pulse is superimposed on already-elevated, rain-fed tributary flow, a combined glacial-plus-monsoon scenario that should be reflected in the hazard mapping under Recommendation 4, rather than modelling a lake breach in isolation. The only observational anchor available for timing this event was the approximately 13-hour interval between onset at source (11:06 AM) and its arrival at Bondey (11:00 PM), 61 km downstream, a gap detected solely through anecdotal resident reports, since no monitoring station exists between the lake and Gunitsawa. Together, these findings make the case for Recommendations 3, 4, and 5: an upstream AWLS and numerical flood modelling would allow a future event to be measured and quantified at or near its source, while a community-based warning protocol (Recommendation 6) would convert the existing 13-hour travel time into genuine operational lead time rather than a retrospective observation.

5.4. 5.4 UAV/Aerial Survey Data

The orthomosaic and digital terrain model (DTM) generated from the UAV survey (Section 3.1, Fig. 2) served two functions in this assessment: they enabled the upper lake, supraglacial ponds, and breach pathway to be located and interpreted spatially (Section 4.1), and they provide the physical basis, lake extent, moraine geometry, and surrounding terrain required for any future breach or dam-break modelling (Recommendation 5). Beyond their immediate use in this assessment, these UAV outputs establish a dated geospatial baseline for Jechu Drake Lake and its upper lake. Repeating the same UAV survey in future assessments (Recommendation 7) would allow direct, quantitative change detection, lake area growth, moraine geometry change, or new supraglacial pond formation, rather than relying on qualitative comparison alone.

6. Conclusion

Based on the physical verification of the lake, moraine, and surrounding area and the analysis results of the data collected, the following conclusions can be drawn:

a. The flood incident of 9 August 2026 resulted from a small outburst at a lake located approximately 2 km upstream of the main Jechu Drake Lake. Water from this upper lake drained into the main lake through an englacial channel, raising the main lake's water level by an estimated 25–30 cm; this additional volume discharged rapidly through the lake's existing outlets, producing the substantial rise in downstream river flow that was observed and reported.

b. The moraine dam of the main Jechu Drake Lake was found to be stable at the time of assessment. However, a future cascading event originating from the upstream lake(s) could weaken this moraine dam and trigger a GLOF in the catchment; continued melting of exposed glacial ice, formation of new supraglacial ponds, and drainage of these ponds could each independently trigger similar events.

c. The volume of water currently stored in the main lake could produce significant downstream flooding in the event of a full moraine-dam failure. The presence of large, stable boulders at the outlet, with no visible erosion, is a positive indication that a breach of the main lake is unlikely under present conditions, but this should not be treated as a permanent assurance, given the dynamic nature of the wider glacier system.

d. The upper lake, its erodible lateral moraine (including an ice-cored section approximately 5 m wide), and the demonstrated englacial connection to the main lake together constitute a recurring pathway for sudden inflow events. As the glacier continues to thin and retreat, as evident from freshly exposed ice, this pathway is likely to persist or intensify rather than resolve on its own.

e. The scour zones identified at the foot of the main lake's moraine, while currently limited in extent, indicate that the moraine is being incrementally weakened under high-discharge conditions. This is a developing rather than a static condition and warrants continued monitoring rather than treatment as a one-time finding.

f. The actual magnitude of the 9 August discharge pulse remains unquantified: both post-event discharge measurements were taken ten days after the event and reflect baseflow, not the flood peak, and no monitoring station exists close enough to the source to have captured it. Because the catchment conveys flow from the glacier to the Paro valley efficiently and with little natural attenuation, a lake-sourced pulse occurring during the monsoon, as this one did, can be superimposed on already-elevated, rain-fed tributary flow. Downstream risk should therefore be assessed for combined glacial-plus-monsoon scenarios, not for a lake breach in isolation.

g. The approximately 12-hour flood travel time between the source and the Bondey gauging station represents a substantial potential lead time for downstream warning. At present, however, this lead time is not operationally usable, since the only signal available for this event was anecdotal reporting from residents near the source, in the absence of any monitoring station between the lake and Gunitsawa.

7. Recommendation

Based on the findings from the site assessment, the following are the recommendations:

1. **Geotechnical/geophysical investigation of the main moraine dam.** Although the moraine dam of Jechu Drake Lake was found to be stable at present, a detailed study of its composition, ice content, and structural stability using Electrical Resistivity Tomography (ERT) or other suitable geophysical methods is required. This investigation should be extended to the area upstream of the lake to determine the extent and depth of buried glacial ice, which will influence the lake's future expansion and the corresponding risk to downstream settlements.

2. **Bathymetric survey of the upper lake.** The upper lake, the source of the 9 August outburst, could not be surveyed during this field visit due to extensive floating ice cover. Its volume and depth are important for understanding future risk and the potential for cascading effects leading to a breach of the main lake. This survey should be scheduled during a period of minimal ice cover, most likely in early autumn.

3. **Upstream automatic water level station (AWLS).** The most upstream water level monitoring station in the catchment is currently at Gunitsawa. Installing an additional AWLS closer to the lake system would allow earlier detection of water level or flow changes resulting from any future breach or outburst upstream, materially improving lead time for early warning to downstream communities.

4. **Downstream topographic survey and hazard/inundation mapping.** A flood hazard map of the Paro Chu basin was developed by JICA experts in 2023. Considering that the river and settlement areas along the Paro valley lie at nearly the same elevation, the valley is particularly vulnerable to flooding risks. Therefore, a detailed topographic survey of the area downstream of the lake, extending to the vulnerable settlement areas of the Pachhu valley (including Paro town), is required to update an inundation/hazard map. This should identify the population, infrastructure, and agricultural land at risk under a range of potential outburst scenarios.

5. **Numerical outburst/dam-break flood modelling.** The bathymetric, DTM, and discharge data collected during this assessment should be used to run numerical breach and flood-routing models for both the upper and main lakes to estimate potential flood magnitude, downstream flood extent, and arrival time under plausible failure scenarios. This would directly inform the hazard mapping in Recommendation 4 and the design of early warning thresholds.

6. **Community-based early warning and awareness.** Given the approximately 12-hour flood travel time to Bondey, there is a meaningful window for downstream warning if upstream monitoring is strengthened as per Recommendation 3. NCHM and Paro Dzongkhag should coordinate on community-level GLOF awareness and a locally understood warning/response protocol for settlements along the Pachhu valley.

7. **Periodic reassessment and monitoring.** Given the dynamic and currently unresolved state of the glacier–moraine–lake system, including continued glacier thinning and active scouring at the main lake moraine, a follow-up field assessment (e.g., annually or after each monsoon season) is recommended, alongside routine maintenance of the automatic monitoring network referenced in Section 2.2.

8. Requirement of temporary personnel/staff at Soe and Gunitsawa. Ensure the daily water-level status is reported to the Flood Control Room, Thimphu, and that any flood incidents are communicated immediately to the Flood Control Room and downstream settlements for timely response and preparedness.