



རྒྱུ་ཕྱིན་རྒྱུ་ལ་དང་རྒྱུ་ཕྱིན་རྒྱུ་ལ་ལྷན་སྐྱོད་ལྷན་ཁུངས་ཉལ་ལྷན་ཚན་པ།  
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 HYDROLOGY & WATER RESOURCES SERVICES DIVISION  
 NATIONAL CENTER FOR HYDROLOGY & METEOROLOGY  
 THIMPHU: BHUTAN



Status and River Level Trends:

Wednesday, July 24, 2019

Issued at: 10:00 AM

**Glacier Lake Outburst Flood (GLOF) Early Warning System**

**Punatshang Chhu Sub Basin**

| SI Nos. | River Basin Number | Basin Name      | Name of River | Station Name    | Highest Water Level Recorded | Alert Water Level | Alarm Water Level | Water Level (m) recorded at 9 AM Yesterday | Water Level(m) recorded at 9 AM Today | Water Level Rise (+)/Fall (-) in meters during last 24 Hrs ending at 9 AM Today | Downstream Settlement  |
|---------|--------------------|-----------------|---------------|-----------------|------------------------------|-------------------|-------------------|--|---------------------------------------|---|--|
| 1       | Basin II           | Punatshang Chhu | Pho Chhu      | Luggay Tsho     |                              | 7.80              | 10.00             | 6.64                                       | 6.65                                  | -0.01   | Thanza, Tenchey, Lhedhi and Lunana area and Downstream of Pho Chhu and Puna-Wangdue Valley                               |
| 2       |                    |                 |               | Thorthormi Tsho |                              | 7.50              | 5.00              | 5.78                                       | 5.78                                  | 0   |  |
| 3       |                    |                 |               | Rapstreng Tsho  |                              | 7.40              | 5.00              | 6.28                                       | 6.31                                  | -0.03   |  |
| 4       |                    |                 |               | Bay Tsho        |                              | 7.40              | 5.00              | 6.30                                       | 6.45                                  | -0.15   |  |
| 5       |                    |                 |               | Thanza          |                              | 7.70              | 8.70              | NR   | NR                                    | #VALUE!   | Pho Chhu Valley (Tamidamchu, Wolathang, Samidingkha, Khawajara, Shengana, Khuruthang) Puna-Wangdue Valley and Downstream |
| 6       |                    |                 |               | Tarina Wachey   |                              | 8.50              | 10.50             | 6.89                                       | 6.93                                  | -0.04   |  |
| 7       |                    |                 |               | Dangsa          |                              | 5.50              | 7.00              | 4.83                                       | 4.82                                  | 0.01  |  |
| 8       |                    |                 |               | Taksemakhang    |                              | 7.50              | 8.50              | 5.89                                       | 5.87                                  | 0.02  |  |
| 9       |                    |                 |               | Tashithang      |                              | 9.00              | 10.50             | 7.77                                       | 7.22                                  | 0.55  |  |
| 10      |                    |                 |               | Yebsa           |                              | 5.00              | 7.00              | 2.56                                       | 2.38                                  | 0.18  |  |

**Approximate Lead Time for Evacuation after the detection of flood at Four lake Sensor**

**Approximate Lead Time for Evacuation after the detection of Flood at the Dangsa Sensor**

| SI Nos | Name of Place Downstream | Approx. Distance from Sensor (Bay Tsho) | Approx. Distance from Sensor (Rapstreng Tsho) | Approx. Distance from Sensor (Thorthormi Tsho) | Approx. Distance from Sensor (Luggey Tsho) | Approx. Time available for Evacuation | SI Nos | Name of Place Downstream | Approx. Distance from Sensor (Bay Tsho) | Approx. Time for Flood to reach at the Place | Approx. Time available for Evacuation |
|--------|--------------------------|---|---|--|--|---------------------------------------|--------|--------------------------|---|--|---------------------------------------|
| 1      | Thanza                   | 1.5 km                                  | 2.8 km  | 3.3 km   | 6.7 km                                     | 20-60 minutes                         | 1      | Wolathang                | 5.8 km                                  | 30 minutes                                   | 30 minutes                            |
| 2      | Tenchey                  | 2.9 km                                  | 4.1 km  | 4.6 km   | 8.2 km                                     |                                       | 2      | Samdingkha               | 12.0 km                                 | 55 minutes                                   | 55 minutes                            |
| 3      | Tshojo                   | 8.1 km                                  | 10.0 km                                       | 10.5 km  | 13.8 km                                    |                                       | 3      | Punakha Dzong            | 20 km                                   | 90 minutes                                   | 1 hour 30 minutes                     |
| 4      | Lhedhi                   | 16.7 km                                 | 17.6 km                                       | 18.5 km  | 21.8 km                                    |                                       | 4      | Khuruthang Town          | 24 km                                   | 120 minutes                                  | 2 hours                               |
| 5      | Puna-Wangdue Valley      | 100 km                                  | 100 km  | 100 km   | 100 km                                     | 5-7 hours                             | 5      | Bajo Town                | 30.5 km                                 | 145 minutes                                  | 2 hours 25 minutes                    |
|        |                          |   |   |  |  |                                       | 6      | Wangdue Bridge           | 33 km                                   | 150 minutes                                  | 2 hours 30 minutes                    |

NOTE: The above distance were Calculated from basic tools in the Google Earth Map, thus distance were approximate only.

**Glacier Lake Outburst Flood (GLOF) & Rainstorm Flood Early Warning System.**

**Chamkhar Chhu and Mangdue Chhu Sub Basin**

| SI Nos. | River Basin Number | Basin Name | Name of River | Station Name | Highest Water Level Recorded (m) | Alert Water Level (m) | Alarm Water Level (m) | Water Level (m) recorded at 9 AM Yesterday | Water Level(m) recorded at 9 AM Today | Water Level Rise (+)/Fall (-) in meters during last 24 Hrs ending at 9 AM Today | Downstream Settlement   |
|---------|--------------------|------------|---------------|--------------|----------------------------------|-----------------------|-----------------------|--|---------------------------------------|---|---|
| 1       | Basin III          | Manas      | Chamkhar Chhu | Tshampa      |                                  | 5.00                  | 6.50                  | 4.34                                       | 4.45                                  | -0.11   | Chokortoe Pry School, Kurje Village, Wangdicholing, Chamkhar Town, Gangrithang Pry School, Gyelkhar Village and Downstream settlement under Zhemgang. |
| 2       |                    |            |               | Khagthang    |                                  | 5.50                  | 6.00                  | 4.80                                       | 4.86                                  | -0.06   |   |
| 3       |                    |            |               | Kurje        |                                  | 5.72                  | 3.30                  | 5.00                                       | 2.45                                  | 2.52  |   |
| 4       |                    |            |               | Jongthang    |                                  | 5.90                  | 7.00                  | 5.20                                       | 5.26                                  | #REF!   | Bijam Community, MHPA Dam, Power House and Downstream settlement of Trongsa and Zhemgang  |
| 5       |                    |            |               | Bijam        |                                  | 5.52                  | 4.20                  | 5.50                                       | 2.97                                  | 2.96  |   |

**Approximate Lead Time for Evacuation of Chamkhar Chhu Sub Basin**

**Approximate Lead Time for Evacuation of Mangdue Chhu Sub Basin**

| Approximate Lead Time for Evacuation after the detection of Flood at the Tshampa AWLS |                          |  |   |           |                   | Approximate Lead Time for Evacuation after the detection of Flood at the Jongthang AWLS |                          |  |   |           |                   |
|---|--------------------------|--|---|-----------|-------------------|---|--------------------------|--|---|-----------|-------------------|
| SI Nos  | Name of Place Downstream | Approx. Distance from the Tshampa AWLS | Approx. Cumulative Distance from Tshampa AWLS | Elevation | Approx. Lead Time | SI Nos  | Name of Place Downstream | Approx. Distance from the Tshampa AWLS | Approx. Cumulative Distance from Tshampa AWLS | Elevation | Approx. Lead Time |
| 1   | Khagthang                | 20.3 km                                | 20.3 km                                       | 3704 m    | 27 minutes        | 1   | Bijam                    | 18.5 km                                | 18.5 km                                       | 2223 m    | 34 minutes        |
| 2   | Chorkhor Toe PS          | 4.5 km                                 | 24.8 km                                       | 2904 m    | 34 minutes        | 2   | Dam Site                 | 7.8 km                                 | 26.3 km                                       | 1848 m    | 50 minutes        |
| 3   | Kurje                    | 12.4 km                                | 37.2 km                                       | 2771 m    | 60 minutes        | 3   | Power Plant              | 20.4 km                                | 46.7 km                                       | 1024 m    | 88 minutes        |
| 4   | Wangdicholling           | 5.7 km                                 | 42.9 km                                       | 2600 m    | 79 minutes        |   |                          |  |   |           |                   |
| 5   | Bumthang                 | 1 km                                   | 43.9 km                                       | 2562 m    | 83 minutes        |   |                          |  |   |           |                   |
| 6   | Gangrithang PS           | 0.3 km                                 | 44.2 km                                       | 2552 m    | 84 minutes        |   |                          |  |   |           |                   |
| 7   | Gyelkhar                 | 1.7 km                                 | 45.9 km                                       | 2538 m    | 91 minutes        |   |                          |  |   |           |                   |

**River Level Status of Gauging Station**

| SI Nos. | Station Type | River Basin Number | Basin Name            | Name of River   | Station Name    | Highest Water Level Recorded (m) | Water Level (m) recorded at 9 AM Yesterday | Water Level(m) recorded at 9 AM Today | Water Level Rise (+)/Fall (-) in meters during last 24 Hrs ending at 9 AM Today | Weather Condition | Downstream Settlement   |   |
|---------|--------------|--------------------|-----------------------|-----------------|-----------------|----------------------------------|--|---------------------------------------|---|-------------------|---|---|
| 1       | AWLS         | Basin I            | Wang Chhu             | Thim Chhu       | Dodena          |                                  | NR   | NR                                    | #VALUE!   |                   | Thimphu Valley and Downstream   |   |
| 2       | Principal    |                    |                       |                 | Lungtenphu      | 2.82                             | 1.18                                       | 1.36                                  | -0.18   |                   |   | Chukha and Downstream                                     |
| 3       | Principal    |                    |                       |                 | Damchu          | 6.00                             | 2.79                                       | 3.13                                  | -0.34   |                   |   | Haa and Wang Chhu Downstream                              |
| 4       | Secondary    |                    |                       | Haa Chhu        | Haa             | 2.60                             | 0.94                                       | 1.61                                  | -0.67   |                   |   | Downstream of Paro Valley and Wang Chhu Basin             |
| 5       | Principal    |                    |                       | Pa Chhu         | Bonday          |                                  | 1.40                                       | 1.63                                  | -0.23   |                   |   | Samtse, Phunsholing and Downstream                        |
| 6       | Principal    |                    |                       | Amo Chhu        | Dorokha         |                                  | 3.55                                       | 3.45                                  | 0.10  |                   |   | Phunsholing and Downstream                                |
| 7       | Secondary    |                    |                       | Droyagang       |                 | 7.07                             | 5.31                                       | 5.2                                   | 0.11  |                   |   | Puna-Wangdue Valley and Downstream                        |
| 8       | Secondary    | Basin II           | Punatshang Chhu       | Pho Chhu        | Samdingkha      | 6.10                             | 4.30                                       | 4.23                                  | 0.07  |                   | Mo Chhu Valley and Downstream   |   |
| 9       | Principal    |                    |                       |                 | Mo Chhu         | Yebesa                           | 3.94                                       | 2.53                                  | 2.35  | 0.18              |   | PHPA I,PHPA II and Downstream                             |
| 10      | Secondary    |                    |                       | Punatshang Chhu | Wangdue Bridge  |                                  |  | 3.40                                  | 3.25  | 0.15              |   | Downstream of Dagana and Lhamoizingkha                    |
| 11      | Principal    |                    |                       |                 | Wangdue Rapid   |                                  | 7.82                                       | 3.89                                  | 3.75  | 0.14              |   | Lhamoizingkha and Downstream                              |
| 12      | Principal    |                    |                       |                 | Turitar Sunkosh |                                  | 6.68                                       | 3.90                                  | 3.95  | -0.05             |   | Gelelephu Valley and Downstream                           |
| 13      | Secondary    |                    |                       |                 | Sunkosh Bridge  |                                  |  | 2.85                                  | 3.00  | -0.15             |   |   |
| 14      | Principal    |                    |                       | Kerabari        |                 | 11.90                            | 6.38                                       | 6.45                                  | -0.07   |                   |   |   |
| 15      | Secondary    |                    |                       | Mao Chhu        | Sherzhong       |                                  | 5.00                                       | 5.40                                  | -0.40   |                   |   | MHPA Dam,Power House and Downstream of Trongsa & Zhemgang |
| 16      | Principal    |                    |                       | Bizam           |                 | 5.35                             | 2.97                                       | 2.98                                  | -0.01   |                   |   | Downstream of Zhmgang and Panbang                         |
| 17      | Secondary    |                    |                       | Mangdue Chhu    | Dakpal Chhu     |                                  | 2.26                                       | 1.53                                  | 1.50  | 0.03              |   |   |
| 18      | Principal    | Tingtibi           |                       |                 | 7.45            | 4.45                             | 4.36                                       | 0.09                                  |   |                   |   |   |
| 19      | Principal    | Chamkhar Chhu      | Kurjey                |                 | 4.00            | 2.45                             | 2.53                                       | -0.08                                 |   |                   | Chamkhar Valley, Zhemgang and Downstream                              |   |
| 20      | Principal    |                    | Shingkhar (Bemethana) |                 |                 |                                  | 2.36                                       | 2.36                                  | 0   |                   | Zhemgang and Downstream   |   |
| 21      | Principal    | Kuri Chhu          | Sumpa                 |                 | 7.65            | 5.25                             | 4.97                                       | 0.28                                  |   |                   | Lhuntse Downstream,Kurizampa,KHPA and Downstream along the Kuri Chhu  |   |
| 22      | Secondary    |                    | Khoma                 |                 | 5.30            | 2.42                             | 2.28                                       | 0.14                                  |   |                   | Kurizampa,KHPA and Downstream along the Kuri Chhu                     |   |
| 23      | Secondary    |                    | Autsho                |                 | 8.48            | 5.2                              | 5.05                                       | 0.15                                  |   |                   | KHPA and Downstream along the Kuri Chhu                               |   |
| 24      | Principal    |                    | Kurizampa             |                 | 18.45           | 9.41                             | 9.34                                       | 0.07                                  |   |                   | Doksum,Kholong Chhu Hydro Power Project and Downstream of Gongri Chhu |   |
| 25      | Principal    | Kholong Chhu       | Muktirop              |                 | 6.00            | 2.95                             | 2.73                                       | 0.22                                  |   |                   | Kholong Chhu Hydro Power Project and Downstream of Gongri Chhu        |   |
| 26      | Secondary    |                    | Doksum                |                 |                 | 4.58                             | 4.57                                       | 0.01                                  |   |                   | Downstream Settlement of Kuri-Gongri and Panbang                      |   |
| 27      | Secondary    | Drangme Chhu       | Chazam                |                 |                 | 9.55                             | 9.60                                       | -0.05                                 |   |                   | Downstream of Kuri-Gongri and Panbang                                 |   |
| 28      | Principal    |                    | Ozorong               |                 | 6.75            | 3.18                             | 3.15                                       | 0.03                                  |   |                   | Manas and Downstream  |   |
| 29      | Secondary    |                    | Sheri Chhu            |                 | 2.58            | 2.02                             | 1.92                                       | 0.10                                  |   |                   | Bangtar Settlement and Downstream                                     |   |
| 30      | Principal    |                    | Panbang               |                 | 12.48           | 8.56                             | 8.35                                       | 0.21                                  |   |                   | Downstream of Bangtar Settlement                                      |   |
| 31      | Principal    | Ngara Ama Chhu     | Pangzam               |                 |                 | 8.05                             | 7.95                                       | 0.1                                   |   |                   |   |   |
| 32      | Principal    |                    | Bangtar               |                 |                 | 4.80                             | 4.70                                       | 0.10                                  |   |                   |   |   |

NOTE The Water Level are relative Gauge Hight of the Observation site reference to the Site Specific and doesnot represent the actual water depth.

ALERT

ALARM

NR Represent that the Data has not been reported or Not Updated

ISSUED BY: FMCR,HWRSD,NCHM