

## क्रन्धनःरेणःयःन्रस्कृतेःर्वतःश्चेनःलययःर्नेणःश्चेःर्वता

## क्त्यःर्वेट्यःहुःद्धुनःद्रम्यवयःग्वैयःदेगःयदेःह्रेःच HYDROLOGY & WATER RESOURCES SERVICES DIVISION NATIONAL CENTER FOR HYDROLOGY & METEOROLOGY THIMPHU: BHUTAN



Status and River Level Trends: Glacier Lake Outbrust Flood (GLOF) Early Warning System

Saturday, October 26, 2019

Issued at: 10:00 AM

## 1. Punatshang Chhu Sub Basin

SI No.	River Basin Number	Basin Name	Name of River	Station Name	Highest Water Level Recorded	Alert Water Level	Alerm Water Level	Water Level (m) recorded at 9:00 AM Yesterday	Water Level (m) recorded at 9:00 AM Today	Water Level Rise (+)/Fall (-) in meters during last 24 Hrs ending at 9 AM Today	Downstream Settlement							
1				Luggay Tsho		7.80	10.00	6.34	6.33	0.01								
2				Tsho		7.50	5.00	5.60	5.59	0.01								
3			Pho Chhu	Tsho		7.40	5.00	6.05	6.04	0.01	Thanza, Tenchey, Lhedi and Lunana area and Downstream of Pho Chhu and Puna- Wangdue Valley							
4				Bay Tsho		7.40	5.00	6.20	6.20	0.00	,							
5	Basin II	Punatshang		Thanza		7.70	8.70	6.34	6.33	0.01								
6	Dasin II	Chhu			1 1							Tarina Wachey		8.50	10.50	6.53	6.53	0.00
7				Dangsa		5.50	7.00	3.87	3.85	0.02	Khuruthang) Puna-Wangdue Valley and Downstream							
8				Taksemakhang		7.50	8.50	5.38	5.36	0.02								
9			Mo Chhu	Tashithang		9.00	10.50	5.56	5.51	0.05	Gasa,Mo Chhu Valley,Puna-Wangdue Valley and Downstream							
10				Yebesa		5.00	7.00	1.57	1.54	0.03								

	Approximate Lo	ead Time for E	vacuation after	the detection of	flood at Four lake	Sensor	Approximate Lead Time for Evacuation after the detection of flood at Dangsa Sensor						
SI Nos	Name of Place	Approx.	Approx.	Approx.	Approx. Distance	Approx. Tme	SI Nos	Name of Place	Approx.	Approx. Time for	Approx. Tme available for Evacuation		
1	Thanza	1.5 km	2.8 km	3.3 km	6.7 km		1	Wolathang	5.8 km	30 minutes	30 minutes		
2	Tenchey	2.9 km	4.1 km	4.6 km	8.2 km	20-60	2	Samdingkha	12.0 km	55 minutes	55 minutes		
3	Tshojo	8.1 km	10.0 km	10.5 km	13.8 km	minutes	3	Punakha Dzong	20 km	90 minutes	1 hours 30 minutes		
4	Lhedi	16.7 km	17.6 km	18.5 km	21.8 km		4	Khuruthang	24 km	120 minutes	2 hours		
5	Puna-Wangdue	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 diastance were approximate only

Glacier Lake Outbrust Flood (GLOF) & Rainstorm Flood Early Warning System.
2. Chamkhar Chhu and Mangdue Chhu Sub Basin

	SI No.	River Basin Number	Basin Name	Name of River	Station Name	Highest Water Level Recorded (m)	Alert Water Level (m)	Alerm Water Level (m)	Water Level (m) recorded at 9:00 AM Yesterday	Water Level (m) recorded at 9:00 AM Today	Water Level Rise (+)/Fall (-) in meters during last 24 Hrs ending at 9 AM Today	Downstream Settlement
Π	1			Chamkhar Chhu	Tshampa		5.00	6.50	3.88	3.87	-0.01	
Ι	2				Khagthang		5.50	6.00	4.54	4.53	-0.01	Chokortoe Pry School, Kurjey Village, Wangdicholing, Chamkhar Town, Gangrithng Pry School, Gyelkhar Village and Downstream settlement under Zhemgang.
Π	3	Basin III	Manas	Cimu	Kurjey	5.72	3.30	5.00	1.86	1.83	-0.03	Sensol, Systems Vinage and Downsteam Settlement and Enemgang.
Г	4			Mangdue Chhu	Jongthang		5.90	7.00	4.18	4.15	-0.03	Bjizam Community,MHPA Dam, Power House and Downstream settlement of Trongs: and Zhemgang
	5	1		Wangdue Ciliu	Bjizam	5.52	4.20	5.50	1.99	1.96	-0.03	

							Approximate Lead Time for Evacuation of Mangdue Chhu Sub Basin Approximate Lead Time for Evacuation after the detection of Flood at the Jongthang AWLS						
SI Nos	los Name of Place Approx.Dista Approx. Elevation Approx. Lead						Name of Place	Approx.Distan	Approx.	Elevation	Approx. Lead Time		
1	Khagthang	20.3 km	20.3 km	3704 m	27 minutes	1	Bjizam	18.5 km	18.5 km	2223 m	34 minutes		
2	Chorkhor Toe	4.5 km	24.8 km	2904 m	34 minutes	2	Dam Site	7.8 km	26.3 km	1848 m	50 minutes		
3	Kurjey	12.4 km	37.2 km	2771 m	60 minutes	3	Power Plant	20.4 km	46.7 km	1024 m	88 minutes		
4	Wangdichollin	5.7 km	42.9 km	2600 m	79 minutes								
5	Bumthang	1 km	43.9 km	2562 m	83 minutes								
6	Gangrithang	0.3km	44.2 km	2552 m	84 minutes								
7	Gyelkhar	1.7 km	45.9 km	2538 m	91 minutes								

## 3. River Level Status of Gauging Station

SI No.	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 9:00 AM Today	Water Level Rise (+)/Fall (-) in meters during last 24 Hours ending at 9:00 AM Today	Weather Condition	Downstream Settlement
1	AWLS				Dodena		1.66	NR	#VALUE!		Thimphu Valley and Downstream
2	Principal			Thim Chhu	Lungtenphu	2.82	0.75	0.75	0.00		Inimphu Valley and Downstream
3	Principal				Damchu	6.00	2.35	2.33	-0.02		Chukha and Downstream
4	Secondary	Basin 1	Wang Chhu	Haa Chhu	Haa	2.60	0.69	0.69	0.00		Haa and Wang Chhu Downstream
5	Secondary			Pa Chhu	Bonday		1.02	1.01	-0.01		Downstream of Paro Valley and Wang Chhu Basin
6	Principal			Amo Chhu	Dorokha		2.70	2.70	0.00		Samtse, Phuntsholing and Downstream
7	Principal			Amo Cnnu	Doyagang	7.07	2.67	2.66	-0.01		Phunsholing and Downstream
8	Secondary			Pho Chhu	Samdingkha	6.10	3.05	3.04	-0.01		Puna-Wangdue Valley and Downstream
9	Principal			Mo Chhu	Yebesa	3.94	1.53	1.51	-0.02		Mo Chhu Valley and Downstream
10	Secondary			Punatshang	Wangdue Bridge		1.40	1.35	-0.05		PHPA LPHPA II and Downstream
11	Principal	Basin II	Punatshang Chhu		Wangdue Rapid	7.82	1.84	1.79	-0.05		THE A I,THE A II and Downsticani
12	Principal	Basiii ii		Chhu	Turitar Sunkosh	6.68	2.30	2.30	0.00		Downstream of Dagana and Lhamoizingkha
13	Secondary				Sunkosh Bridge		1.70	1.65	-0.05		Downstrain of Dagana and Litanioizingkia
14	Principal				Kerabari	11.90	4.34	4.32	-0.02		Lhamoizingkha and Downstream
15	Secondary			Mao Chhu	Sherzhong		3.75	3.70	-0.05		Gelelephu Valley and Downstream
16	Principal			Mangdue Chhu	Bjizam	5.35	1.99	1.97	-0.02		MHPA Dam, Power House and Downstream of Trongsa & Zhemgang
17	Secondary				Dakpai Chhu	2.26	1.39	1.39	0.00		Downstream of Zhmgang and Panbang
18	Principal				Tingtibi	7.45	3.16	3.15	-0.01		Downstream of Zinngang and Fanbang
19	Principal			Chamkhar	Kurjey	4.00	1.86	1.84	-0.02		Chamkhar Valley, Zhemgang and Downstream
20	Principal			Chhu	Shingkhar		1.67	1.65	-0.02		Zhemgang and Downstream
21	Principal				Sumpa	7.65	3.56	3.50	-0.06		Lhuntse Downstream, Kurizampa, KHPA and Downstream along the Kuri Chhu
22	Secondary			Kuri Chhu	Khoma	5.30	1.62	1.60	-0.02		Enunese Downstream, Kurizampa, Krit A and Downstream along the Kuri Ciniu
23	Secondary			Kuii Ciniu	Autsho	8.48	3.40	3.37	-0.03		Kurizampa,KHPA and Downstream along the Kuri Chhu
24	Principal	Basin III	Manas		Kurizampa	18.45	7.45	7.44	-0.01		KHPA and Downstream along the Kuri Chhu
25	Principal			Kholong Chhu	Muktirap	6.00	1.98	1.91	-0.07		Doksum, Kholong Chhu Hydro Power Project and Downstream of Gongri Chhu
26	Principal				Doksum		3.34	3.30	-0.04		Kholong Chhu Hydro Power Project and Downstream of Gongri Chhu
27	Secondary				Chazam		7.80	7.90	0.10		Downstream Settlement of Kuri-Gongri and Panbang
28	Principal			Drangme Chhu	Ozorong	6.75	1.65	1.60	-0.05		Downstream of Kuri-Gongri and Panbang
29	Secondary				Sheri Chhu	2.58	1.50	1.47	-0.03		Downstrain of Run-Gongri and Landang
30	Principal				Panbang	12.48	4.69	4.73	0.04		Manas and Downstream
31	Principal			Ngara Ama	Pangzam		5.70	5.70	0.00		Bangtar Settlement and Downstream
32	Principal			Chhu	Bangtar		2.04	2.00	-0.04		Downstream of Bangtar Settlement

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

NOTE

ISSUED BY: FMCR,HWRSD,NCHM