

### क्:रश्चर:द्रवा:च:र्-:क्वेद:ब्रॅब्र:क्वेर:ब्रव्य:ह्रेव:ब्रें:कवा म्रील लूटका की टीनिट टिनाविका गीनिका स्था निवास हो। या

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



Status and River Level Trends:

Tuesday, September 24, 2019

10:00 AM Issued at:

#### Glacier Lake Outbrust Flood (GLOF) Early Warning System

#### 1. Punatshang Chhu Sub Basin

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SI Nos.	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 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				Luggay Tsho		7.80	10.00	6.54	6.54	0.00		
2			Punatshang Chhu  Mo Chhu	Thorthormi Tsho		7.50	5.00	5.71	5.71	0.00		
3				Rapstreng Tsho		7.40	5.00	6.20	6.21	0.01	Thanza, Tenchey, Lhedi and Lunana area and Downstream of Pho Chhu and Puna-Wangdue Valley	
4				Bay Tsho		7.40	5.00	6.26	6.31	0.05	,	
5	Basin II	Punatshang		Thanza		7.70	8.70	NR	6.59	#VALUE!		
6	Duan n	Chhu			Tarina Wachey		8.50	10.50	6.75	6.75	0.00	Pho Chhu Valley (Tamidamchu, Wolathang, Samidingkha, Khawajara, Shengana,
7				Dangsa		5.50	7.00	4.68	4.69	0.01	Khuruthang) Puna-Wangdue Valley and Downstream	
8				Taksemakhang		7.50	8.50	NR	NR	#VALUE!		
9				Tashithang		9.00	10.50	7.06	7.05	-0.01	Gasa, Mo Chhu Valley, Puna-Wangdue Valley and Downstream	
10				Yebesa		5.00	7.00	2.36	2.33	-0.03		

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 Dangsa Sensor					
SI Nos		Approx. Distance from Sensor (Bay Tsho)	f C	Approx. Distance from Sensor (Thorthormi Tsho)	Approx. Distance from Sensor (Luggey Tsho)	Tme	SI Nos	Name of Place Downstream	Approx. Distance from Sensor (Bay Tsho)	Approx. Time for Flood to reach at the Place	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	1	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 diastance were approximate only.

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

Sl Nos.	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 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				Tshampa		5.00	6.50	NR	NR	#VALUE!	
2			Chamkhar Chhu	Khagthang		5.50	6.00	NR	NR	#VALUE!	Chokortoe Pry School, Kurjey Village, Wangdicholing, Chamkhar Town, Gangrithng Pry School, Gyelkhar Village and Downstream settlement under Zhemgang.
3	Basin III	Manas		Kurjey	5.72	3.30	5.00	NR	NR	#VALUE!	
4			Mangdue Chhu	Jongthang		5.90	7.00	NR	NR	#VALUE!	Bjizam Community, MHPA Dam, Power House and Downstream settlement of Trongsa
- 5		Mangaue Chiu	Riizam	5.52	4.20	5.50	NP	NP	#VALUE!	and Zhemgang	

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	Si Nos Name of Place Downstream Tshampa AWLS Approx. Lead Distance From Tshampa AWLS Tshampa AWLS				SI Nos	Name of Place Downstream	Approx.Distance from the Tshampa AWLS		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 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	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	Wangdicholling	5.7 km	42.9 km	2600 m	79 minutes									
5	Bumthang	1 km	43.9 km	2562 m	83 minutes									
6	Congrithong PS	0.3km	44.2 km	2552 m	\$4 minutes	1								

#### 3. River Level Status of Gauging Station

3. Kivei	Level Status o	n Gauging Su	ation								
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				Dodena		1.94	1.94	0.00	Cloudy	Thimphu Valley and Downstream
2	Principal			Thim Chhu	Lungtenphu	2.82	1.32	1.33	0.01	Cloudy	······································
3	Principal				Damchu	6.00	2.90	2.91	0.01	Cloudy	Chukha and Downstream
4	Secondary	Basin l	Wang Chhu	Haa Chhu	Haa	2.60	1.03	1.00	-0.03	Cloudy	Haa and Wang Chhu Downstream
5	Principal			Pa Chhu	Bonday		1.47	1.47	0.00	Cloudy	Downstream of Paro Valley and Wang Chhu Basin
6	Principal			Amo Chhu	Dorokha		3.30	3.35	0.05	Cloudy	Samtse, Phuntsholing and Downstream
7	Secondary			Anio Ciniu	Droyagang	7.07	3.46	3.55	0.09	Light Rain	Phunsholing and Downstream
8	Secondary			Pho Chhu	Samdingkha	6.10	3.95	3.93	-0.02	Partly Sunny	Puna-Wangdue Valley and Downstream
9	Principal			Mo Chhu	Yebesa	3.94	2.32	2.27	-0.05	Rainy	Mo Chhu Valley and Downstream
10	Secondary			i Punatshang Chhu	Wangdue Bridge		3.05	3.20	0.15	Cloudy	PHPA LPHPA II and Downstream
11	Principal	Basin II	Punatshang Chhu		Wangdue Rapid	7.82	3.47	3.52	0.05	Partly Cloudy	THEA LETT A II and Downsdeam
12	Principal	Dasin n	Funatshang Chhu		Turitar Sunkosh	6.68	3.40	3.50	0.10	Cloudy	Downstream of Dagana and Lhamoizingkha
13	Secondary				Sunkosh Bridge		2.65	2.85	0.20	Cloudy	Downsteam of Dagaia and Liamozingana
14	Principal				Kerabari	11.90	5.68	5.85	0.17	Cloudy	Lhamoizingkha and Downstream
15	Secondary			Mao Chhu	Sherzhong		4.00	4.00	0.00	Rainy	Gelelephu Valley and Downstream
16	Principal			Mangdue Chhu  Chamkhar Chhu  Kuri Chhu  Manas  Kholong Chhu	Bjizam	5.35	2.70	2.76	0.06	Partly Cloudy	MHPA Dam, Power House and Downstream of Trongsa & Zhemgang
17	Secondary				Dakpai Chhu	2.26	1.59	1.61	0.02	Cloudy	Downstream of Zhmgang and Panbang
18	Principal				Tingtibi	7.45	3.93	4.14	0.21	Cloudy	Downsteam of Zinigang and Landang
19	Principal				Kurjey	4.00	2.40	2.44	0.04	Cloudy	Chamkhar Valley, Zhemgang and Downstream
20	Principal				Shingkhar (Bemethang)		2.35	2.34	-0.01	Light Rain	Zhemgang and Downstream
21	Principal				Sumpa	7.65	5.05	4.90	-0.15	Cloudy	The Property of the Control of the C
22	Secondary				Khoma	5.30	2.38	2.35	-0.03	Cloudy	Lhuntse Downstream, Kurizampa, KHPA and Downstream along the Kuri Chhu
23	Secondary				Autsho	8.48	4.95	4.95	0.00	Cloudy	Kurizampa,KHPA and Downstream along the Kuri Chhu
24	Principal	Basin III	Manas		Kurizampa	18.45	9.11	9.40	0.29	Rainy	KHPA and Downstream along the Kuri Chhu
25	Principal				Muktirap	6.00	2.95	2.95	0.00	Cloudy	Doksum, Kholong Chhu Hydro Power Project and Downstream of Gongri Chhu
26	Secondary			Drangme Chhu	Doksum		4.35	4.37	0.02	Cloudy	Kholong Chhu Hydro Power Project and Downstream of Gongri Chhu
27	Secondary				Chazam		9.45	9.50	0.05	Rainy	Downstream Settlement of Kuri-Gongri and Panbang
28	Principal				Ozorong	6.75	2.94	2.87	-0.07	Light Rain	Downstream of Kuri-Gongri and Panbang
29	Secondary				Sheri Chhu	2.58	1.65	1.68	0.03		Downstream of Kuri-Gongri and Panoang
30	Principal				Panbang	12.48	6.34	6.45	0.11	Rainy	Manas and Downstream
31	Principal			Ngara Ama Chhu	Pangzam		6.10	6.00	-0.10	Cloudy	Bangtar Settlement and Downstream
32	Principal				Bangtar		2.25	2.28	0.03	Cloudy	Downstream of Bangtar Settlement

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 Bata has not been reported or Not Updated
GLOF & Rainstorm Early Warning System of Mangdue Chhu and Chamkhar Chhu Sub Basin is down.

ISSUED BY: FMCR,HWRSD,NCHM