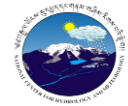




ཐུང་ཕྱུང་འཛིན་པ་དང་རྒྱུ་ལོ་རྒྱུན་ལྟོགས་ལྷན་ཁང་།
 རྒྱལ་ཡོངས་ཐུང་ཕྱུང་དང་གནམ་གཤིས་རིག་པའི་རྒྱེ་བ།

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



Status and River Level Trends:

Monday, August 12, 2019

Issued at: 10:00 AM

Glacier Lake Outburst Flood (GLOF) Early Warning System

1. Punatsang Chhu Sub Basin

Sl 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	Punatsang Chhu	Pho Chhu	Luggay Tsho		7.80	10.00	6.68	6.66	-0.02	Thanza, Tenchey, Lhodi and Lunana area and Downstream of Pho Chhu and Puna-Wangdue Valley
2				Thorthormi Tsho	7.50	5.00	5.85	5.85	0.00		
3				Rapstreng Tsho	7.40	5.00	6.33	6.32	-0.01		
4				Bay Tsho	7.40	5.00	6.32	6.49	0.17		
5				Thanza	7.70	8.70	NR	NR	#VALUE!	Pho Chhu Valley (Tamidanchu, Wolathang, Samdingkha, Khawjara, Shegangs, Khuruthang) Puna-Wangdue Valley and Downstream	
6				Tarina Wachey	8.50	10.50	7.06	7.02	-0.04		
7				Dangsa	5.50	7.00	4.95	4.81	-0.14		
8				Taksemakhang	7.50	8.50	6.13	6.00	-0.13		
9				Tashithang	9.00	10.50	8.07	7.40	-0.67		
10				Yehesa	5.00	7.00	2.69	2.41	-0.28		Gasa, Mo Chhu Valley, Puna-Wangdue Valley and Downstream

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

Sl 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 (Luggay Tsho)	Approx. Time available for Evacuation	Sl 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 hours 30 minutes
4	Lhedi	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	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.

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)	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	4.54	4.47	-0.07	Chokortoe Pry School, Kurje Village, Wangdicholing, Chamkhar Town, Gangrithang Pry School, Gyelkhar Village and Downstream settlement under Zhemgang.
2				Khagthang	5.50	6.00	4.94	4.85	-0.09		
3				Kurje	5.72	3.30	5.00	2.55	-0.08		
4				Jongthang		5.90	7.00	NR	NR	#VALUE!	Bijam Community, MHPA Dam, Power House and Downstream settlement of Trongsa and Zhemgang.
5				Bijam	5.52	4.20	5.50	2.86	2.77	-0.09	

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					
Sl Nos	Name of Place Downstream	Approx. Distance from the Tshampa AWLS	Approx. Cumulative Distance from Tshampa AWLS	Elevation	Approx. Lead Time	Sl 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	Chokhor 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	Wangdicholing	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						

3. River Level Status of Gauging Station

Sl 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	Thin Chhu	Dodena		2.11	2.09	-0.02	Sunny	Thimphu Valley and Downstream		
2	Principal				Lungtenphu	2.82	1.55	1.46	-0.09	Sunny			
3	Principal				Damchu	6.00	3.15	2.97	-0.18	Sunny		Chukha and Downstream	
4	Secondary			Haa Chhu	Haa	2.60	1.38	1.22	-0.16	Sunny	Haa and Wang Chhu Downstream		
5	Principal			Pa Chhu	Bonday		1.65	1.50	-0.15	Sunny	Downstream of Paro Valley and Wang Chhu Basin		
6	Principal			Amo Chhu	Dorokha		3.30	3.30	0.00	Sunny	Santse, Phunsholing and Downstream		
7	Secondary				Droyagang	7.07	3.47	3.38	-0.09	Sunny	Phunsholing and Downstream		
8	Secondary				Samdingkha	6.10	4.55	4.27	-0.28		Pana-Wangdue Valley and Downstream		
9	Principal	Basin II	Punatshang Chhu	Mo Chhu	Yebesa	3.94	2.67	2.40	-0.27		Mo Chhu Valley and Downstream		
10	Secondary												
11	Principal				Wangdue Bridge			3.80	3.15	-0.65		PHPA I, PHPA II and Downstream	
12	Principal				Wangdue Rapid	7.82	4.42	3.65	-0.77				
13	Principal				Punatshang Chhu	Turitar Sunkosh	6.68	4.25	3.65	-0.60		Downstream of Dagana and Lhamoizingkha	
14	Principal					Sunkosh Bridge			3.40	2.85	-0.55		Sunny
15	Secondary					Kerabari	11.90	6.42	5.86	-0.56	Sunny		Lhamoizingkha and Downstream
16	Principal				Mao Chhu	Sherzhong		4.35	4.30	-0.05	Sunny	Gelephu Valley and Downstream	
17	Principal	Basin III	Manas	Mangdue Chhu	Bjizam	5.35	2.88	2.78	-0.10	Sunny	MHPA Dam, Power House and Downstream of Trongsa & Zhemgang		
18	Principal					Dakpai Chhu	2.26	1.48	1.45	-0.03		Sunny	
19	Principal					Tingtibi	7.45	4.14	3.98	-0.16		Sunny	Downstream of Zhemgang and Panbang
20	Principal				Chamkhar Chhu	Kurjey	4.00	2.56	2.47	-0.09		Chamkhar Valley, Zhemgang and Downstream	
21	Principal								2.38	2.30	-0.08		Zhemgang and Downstream
22	Secondary				Kuri Chhu	Sumpa	7.65	4.80	4.62	-0.18	Sunny	Lhunse Downstream, Kurizampa, KHPA and Downstream along the Kuri Chhu	
23	Secondary						Khoma	5.30	2.28	2.15	-0.13		
24	Principal						Autsho	8.48	4.70	4.53	-0.17		Sunny
25	Principal						Kurizampa	18.45	8.91	8.74	-0.17		Sunny
26	Secondary				Kholong Chhu	Muktirap	6.00	2.50	2.40	-0.10	Sunny	Doksum, Kholong Chhu Hydro Power Project and Downstream of Gongri Chhu	
27	Secondary								3.35	4.33	0.98	Sunny	Kholong Chhu Hydro Power Project and Downstream of Gongri Chhu
28	Principal				Drangme Chhu	Chazam			9.05	8.85	-0.20	Sunny	Downstream Settlement of Kuri-Gongri and Panbang
29	Secondary			Ozorong		6.75	2.83	2.63	-0.20	Sunny			
30	Principal			Sheri Chhu		2.58	1.72	1.67	-0.05				
31	Principal			Panbang		12.48	6.75	6.29	-0.46	Sunny			
32	Principal		Ngara Ama Chhu	Pangzam			6.45	6.35	-0.10	Sunny	Bangtar Settlement and Downstream		
					Bangtar		2.76	2.67	-0.09	Sunny	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

MISSING

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

ISSUED BY: FMCR,HWRSD,NCHM