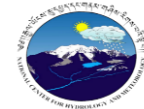




རྒྱལ་ཡོངས་རྒྱུ་ལྷན་ཁྲིམས་ལྷན་ཁུངས་ཉལ་ལྷན་ཁུངས་
 HYDROLOGY & WATER RESOURCES SERVICES DIVISION
 NATIONAL CENTER FOR HYDROLOGY & METEOROLOGY
 THIMPHU: BHUTAN



Status and River Level Trends:

Friday, July 19, 2019

Issued at: 10:00 AM

Glacier Lake Outburst Flood (GLOF) Early Warning System

Punatshang 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	Punatshang Chhu	Pho Chhu	Luggay Tsho		7.80	10.00	6.63	6.63	0	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	6.26	6.25	0.01	
4				Bay Tsho		7.40	5.00	6.35	6.38	-0.03	
5				Thanza		7.70	8.70	NR	NR	#VALUE!	
6			Tarina Wachey		8.50	10.50	6.84	6.84	0	Pho Chhu Valley (Tamidamchu, Wolathang, Samdingkha, Khawajara, Shengana, Khuruthang) Puna-Wangdue Valley and Downstream	
7			Dangsa		5.50	7.00	4.66	4.62	0.04		
8			Taksemakhang		7.50	8.50	5.81	5.78	0.03		
9			Tashithang		9.00	10.50	7.07	6.92	0.15		
10			Yebesa		5.00	7.00	2.29	2.22	0.07		

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	4.6 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	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

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	4.34	4.33	0.01	Chokortoe Pny School,Kurjey Village,Wangdicholing,Chamkhar Town,Gangrithng Pny School,Gyelkhar Village and Downstream settlement under Zhengang.
2				Khagthang		5.50	6.00	4.79	4.75	0.04	
3				Kurjey		5.72	3.30	5.00	2.34	2.3	
4			Mangdue Chhu	Jongthang		5.90	7.00	3.31	NR	#REF!	Bjizam Community,MHPA Dam, Power House and Downstream settlement of Trongsa and Zhengang
5				Bjizam		5.52	4.20	5.50	2.71	2.62	

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	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	46.3 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	0.3km	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		1.99	NR	#VALUE!		Thimphu Valley and Downstream	
2	Principal				Lungtenphu	2.82	1.22	1.18	0.04			Chukha and Downstream
3	Principal				Damchu	6.00	2.76	2.71	0.05			Haa and Wang Chhu Downstream
4	Secondary			Haa Chhu	Haa	2.60	1.05	0.99	0.06			Downstream of Paro Valley and Wang Chhu Basin
5	Principal			Pa Chhu	Bonday		1.33	1.36	-0.03			Samtse, Phuntsholing and Downstream
6	Principal			Amo Chhu	Dorokha		3.70	3.55	0.15			Phunsholing and Downstream
7	Secondary			Droyagang	7.07	4.28	4.23	0.05				Puna-Wangdue Valley and Downstream
8	Secondary	Basin II	Punatshang Chhu	Pho Chhu	Samdingkha	6.10	3.93	3.9	0.03		Mo Chhu Valley and Downstream	
9	Principal			Mo Chhu	Yebesa	3.94	2.25	2.19	0.06			PHPA I, PHPA II and Downstream
10	Secondary			Punatshang Chhu	Wangdue Bridge		2.85	2.7	0.15			Downstream of Dagara and Lhamoizingkha
11	Principal				Wangdue Rapid	7.82	3.35	3.15	0.2			Lhamoizingkha and Downstream
12	Principal				Turitar Sunkosh	6.68	3.50	3.30	0.20			Gelelephu Valley and Downstream
13	Secondary				Sunkosh Bridge		2.60	2.45	0.15			
14	Principal			Kerabari	11.90	5.84	5.61	0.23				
15	Secondary	Mao Chhu	Sherzhong		4.80	4.55	0.25					
16	Principal	Basin III	Manas	Mangdue Chhu	Bijam	5.35	2.73	2.64	0.09		MHPA Dam, Power House and Downstream of Trongsa & Zhemgang	
17	Secondary				Dakpai Chhu	2.26	1.48	1.45	0.03			Downstream of Zhmgang and Panbang
18	Principal				Tingtibi	7.45	4.22	3.72	0.5			
19	Principal			Chamkhar Chhu	Kurjey	4.00	2.34	2.3	0.04			Chamkhar Valley, Zhemgang and Downstream
20	Principal				Shinghar (Bemethang)		2.35	2.22	0.13			Zhemgang and Downstream
21	Principal			Kuri Chhu	Sumpa	7.65	4.63	5.05	-0.42			Lhuntse Downstream, Kurizampa, KHPA and Downstream along the Kuri Chhu
22	Secondary				Khoma	5.30	2.10	2.25	-0.15			Kurizampa, KHPA and Downstream along the Kuri Chhu
23	Secondary				Autsho	8.48	4.56	5.05	-0.49			KHPA and Downstream along the Kuri Chhu
24	Principal				Kurizampa	18.45	8.80	9.15	-0.35			Doksum, Kholong Chhu Hydro Power Project and Downstream of Gongri Chhu
25	Principal			Kholong Chhu	Muktrirap	6.00	2.39	2.57	-0.18			Kholong Chhu Hydro Power Project and Downstream of Gongri Chhu
26	Secondary			Drangme Chhu	Doksum		4.98	4.64	0.34			Downstream Settlement of Kuri-Gongri and Panbang
27	Secondary				Chazam		9.05	9	0.05			Downstream of Kuri-Gongri and Panbang
28	Principal				Ozorong	6.75	2.60	2.50	0.1			Manas and Downstream
29	Secondary				Sheri Chhu	2.58	1.75	1.7	0.05			
30	Principal				Panbang	12.48	7.05	6.68	0.37			
31	Principal			Ngara Ama Chhu	Pangzam		7.90	7.70	0.2			Bangtar Settlement and Downstream
32	Principal	Bangtar			3.60	3.22	0.38			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.

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

ISSUED BY: FMCR, HWRSD, NCHM