



# **Compendium of Climate and Hydrological Extremes in Bhutan (2017-2021)**

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National Centre for Hydrology and Meteorology  
Royal Government of Bhutan





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National Centre for Hydrology and Meteorology  
Thimphu Bhutan



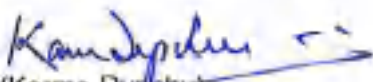
Foreword

Bhutan is impacted with disasters mostly from hydro-meteorological and geological hazards. Glacial Lake Out-burst Flood (GLOF), flash flood, riverine flood, windstorm and landslides are the most common events reported across the country. The impact of climate change has made this worst with increasing number of such events and increased intensity posing threats to the people who are settled along the river basins. Moreover, the temperature and precipitation variability has caused problems across the climate sensitive sectors (agriculture, energy, health and disaster). More than 70% of the country's populations are settled along river valleys and also national economic structures such as hydropower are built along the river. Recurrent flash floods/GLOF have a high impact not only to the life and livelihood of the people but also to the national economy as a result of damages to hydropower facilities, agricultural land, roads, bridges, buildings and other infrastructure. The breach of Lugge Tsho causing GLOF event in October 1994 and the intense rainfall from Cyclone Aila in May 2009 caused huge loss to national economy due to damage of the critical infrastructure and loss of lives.

National Centre for Hydrology and Meteorology (NCHM) is mandated to undertake scientific and technological services in hydrology, water resources, meteorology, climatology, and cryosphere to ensure the safety and socio-economic well-being of people and to support national and international needs. This documentary publication titled “Compendium of Climate and Hydrological Extremes in Bhutan (2017-2021)” is the second volume and an update to the earlier publication issued in 2017 which documents the past hydro-met extremes to provide reference and to learn and prepare for present and future such disasters.

As the data and record of the past pertaining to extreme weather and floodings in Bhutan are limited, NCHM compiled these events from the articles published by Kuensel to make an inventory and carrying out long-term analysis of flood occurrence, temporal and spatial variations of flood events and their underlying meteorological causes over time. This publication aims particularly at providing information about the historical occurrence of floods in Bhutan, their meteorological and geological causes and severity of the flood events. Hence, it is hoped that this information will be useful and invariably improve the understanding of flood risk analysis and flood hazard mapping in Bhutan.

I would like to take this opportunity to express our gratitude and appreciation to the Hydrology and Water Resources Services Division (HWRSD), National Centre for Hydrology and Meteorology (NCHM) for their hard work in initiating the publication of this book.

  
(Karma Dupa)  
Director

# **FLOOD EVENTS**

## Summary Table – Flood Events

Year	Date/Month	Flood Event	River/ Basin	Dzongkhag	Page No.
2017	April 25	Flash Flood	Punatshang Chhu	Gasa	1
2017	May 5	Flash Flood	Manas	Trashigang	1
2017	June 26	Nakpola and Kukturgang caused flash flood	Kholong Chu, Manas	Trashi Yangtse	2
2017	July 18	Flash Flood	Mangdichhu, Manas	Trongsa	4
2017	July 17	Swollen stream caused flood	Khomachhu, Manas	Lhuentse	5
2017	July 22	Heavy rain caused flash flood	Phuntsharge, Sankosh	Wangdue	5
2017	July 28	Heavy rain caused flash flood	Manas	Lhuentse	6
2017	August 30	Flash Flood	Aichhu	Gelephu	6
2017	August 8	Flash Flood	Dhaula River, Manas	Gelephu	7
2017	August 10	Heavy rain caused flood	Mao River, Aichhu	Gelephu	8
2017	September 4	Heavy rain caused flood	Dhaula River	Sarpang	9
2017	August 13	Small Flash Flood	Cherichhu, Wangchu	Thimphu	10
2017	October 12	Flood	Manas	Mongar	11
2017	August 9-11	Flood	Punatsang chhu	Punakha	12
2018	June 13	Flash flood	Manas	Lhuentse	16
2018	July 22	Flash Flood	Mithimdrang stream, Manas	Trashigang	17
2018	August 1	Flash Flood	Buna Stream, Manas	Trashigang	22
2019	June 24	Heavy Rain	Aichhu (stream beneath the bridge)	Gelephu	22
2019	April 29	Flash Flood	Lekpagangchhu stream, Manas	Lhuentse	23
2019	July 25	Flash Flood	Manas	Lhuentse	25
2019	July 26	Flash Flood	Wangchhu	Chukha	25
2019	August 6	Flood	Punatsangchhu	Punakha	
2020	July 20	Flood	Mao River	Gelephu	27
2020	October 1	Flash Flood	Chamdey Gangchu Stream, Manas	Trongsa	30
2020	October 4	Flash flood	Puntsangchu	Wangdue Phodrang	31
2021	June 15	Flash Flood	Khenbachhu	Trongsa	
2021	June 16	Flash flood and landslide	Punatsangchhu	Gasa	42
2021	August 8	Flash flood	Serkang stream, Manas	Trashiyangtse	45
2021	August 26	Flash flood	Punatsangchhu	Gasa	46
2021	August 25	Flood	Maochhu	Sarpang	47



# Flash flood cuts off Gasa

April 27th, 2017

Gasa is once again cut off after a flash flood washed away a section of road at Tashithang along the Punakha-Gasa highway on the night of April 25.

According to the chief engineer with the Department of Roads (DoR) office at Lobesa GM Rai, the flash flood washed away more than 12 metres of the road.

He said the DoR office in Lobesa has sent an excavator and a bulldozer to the site to restore the road. He said the machines reached the site yesterday night and work would start early morning today. The road is expected to be restored



by this evening, the chief engineer said. up to hold its Moenlam Chenmo next month. In 2012, the dzongkhag remained cut off for more than three months following a cloud burst at Damji. Almost every year the dzongkhag gets cut off due to landslides or flash floods.

Gasa dzongkhag administration is gearing

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## Heavy rain floods Bartsham

May 8th, 2017

A windstorm on May 4 night blew off roofs of eight houses in Bartsham gewog, Trashigang. Of the eight, roofs of three houses were completely damaged. No casualty was reported.

The windstorm was followed by heavy rains on May 5 night causing the drains to overflow into a flash flood that damaged farm roads and washed away crops in four of the five chiwogs.

Debris and boulders that washed down the slope where Bartsham central school is located covered the multipurpose hall and partially damaged a hostel after the rain

flooded the hostel. No students were harmed since the students were evacuated the same night.

Gup Kelzang Dawa in a telephone interview said the gewog connectivity road was also damaged but the road is now open to traffic while other farm roads remain closed. He said the last time Bartsham saw such weather was about 25 years ago.

He said a Hilux, which was parked in front of a farmer's house was also buried under the debris while another farmer's house, which is under

construction, was partially damaged.

“The debris washed off all the potatoes and maize, which were ready for harvest and paddy saplings that were just transplanted,” he said. “The houses affected in the windstorm have been provided tarpaulin sheets from the dzongkhag but the affected families are still putting up with relatives or neighbours.”

Kelzang Dawa also said that the students have returned to the hostel. “I will be going to the dzongkhag administration to follow up on insurance,” he said.

Trashigang dzongdag Chekey Gyeltshen said officials along with disaster management team are already assessing the damage to houses and crops. Insurance assessments have already been completed but they are yet to release the payment.

The dzongdag said that most farm roads are also closed and may need to be rebuilt since they are completely damaged. A machine will be deployed to clear the school hall today.

Bartsham is 21km from Trashigang.

# Heavy rains trigger flood alert

July 10th, 2017

## Flood Monitoring and Command Room is monitoring the water level in river basins

With river levels rising due to the rains, the National Centre for Hydrology & Meteorology (NCHM) issued a flood advisory yesterday afternoon.

The advisory stated that water levels were dropping, however, it could rise as more rainfall was expected. River basins of Amochhu, Wangchhu, Punatsangchhu, Drangmechhu, Mangdechhu, Kurichu and Chamkharchhu have been rising.

Engineer and In-charge with Flood Monitoring

and Command Room (FMCR), NCHM, Sangay Tenzin said that there are early warning systems and automatic stations where people are placed to observe the level of water near the river basins. “The division is vigorously monitoring the level of water and would be updating the situation of water levels,” he said.

The advisory cautioned people living nearby mountain slopes, in low-lying areas and commuters to be alert for possible flash floods and landslides.

Sangay Tenzin said that people are worried mostly about the situation of glacial lakes melting and adding to the

rise of water level. However, he said that the situation of glacial lakes melting has been moderate. “So far there has been no danger regarding the glacial lakes,” he said. “The division is monitoring potentially dangerous lakes at the source.”

NCHM also issued a press release on July 7, forecasting the possibility of heavy to very heavy rainfall over southern parts of the country in Samtse, Phuentsholing, Sarpang and Dagana and in eastern parts of Samdrupjongkhar and Pemagatshel within the next 72 hours.

He said that the river level has been rising intensely especially in

southern and western river basins. The division has been closely observing the water level and predicts the intensity of rainfall through cloud movement.

Sangay Tenzin said that people tend to be careful only near major rivers and take small rivers for granted. “People should be careful of small tributaries as these small rivers are unpredictable,” he said.

According to him there are two major early warning systems and more than 30 monitoring stations across the country. Shawa village is 28km away from the gewog centre.

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## Two flash floods in Trashiyangtse destroy five bridges

June 28th, 2017

Two flash floods that began in Bumdeling, Trashiyangtse, on June 26 washed away three reinforced cement concrete (RCC) and two wooden bridges.

It also washed away an excavator in the gewog and destroyed paddy fields, irrigation water sources and fallow lands belonging to 16 households.

Following heavy downpour in the gewog, the two tributaries of Kholongchu, Nakpola and Kukturgang stream in Tshaling village swelled, causing the flood. The incident took place around 6pm.

The Nakpola stream located around 3km from Bumdeling gewog centre washed away an RCC bridge and a wooden bridge after the stream destroyed the gabion wall constructed to protect flood in Nakpola.

Officials from the dzongkhag disaster management said that after the gabion wall was partially washed away, the flood destroyed around 1.15 acres of paddy field and some 25 acres of fallow land.



# Flash floods: Bhutan's biggest dilemma

July 8th, 2017

## As Bhutan braces for yet another torrential monsoon, Gopilal Acharya, explores the threats of water-induced disasters to the country

In the evening of June 26 last week, Bhutan got its first warning sign of a potentially stormy summer once again. A couple of flash floods in the east of the country damaged public infrastructure and destroyed paddy fields.

Indeed, Bhutan's vulnerability to water-induced disasters is well known. Historically, rivers and streams have overflowed their banks, causing destruction. Glacial lakes have burst because of moraine dam ruptures. Bhutan's sloppy and mountainous terrain makes for easy surface runoff, and the rivers, running through deep gorges and ravines, receive huge volumes of surface runoff during monsoon. All these set up a perfect backdrop for water-induced disasters.

Warming trends and melting glaciers pose serious threats to the nation and its inhabitants. Research reveals that temperatures increase more dramatically in mountain areas, which translates into faster glacier retreat and more glacial lake outburst floods (GLOFs). Further, monsoon variability is now an established fact.

"Bhutan will see more water-induced disasters in the future," says Karma Dupchu, chief of Hydrology and Water Resource Services Division of the National

Centre for Hydrology and Meteorology. "Flash floods are our biggest threat."

Records show that monsoon brings torrential rains from June to September. In fact, these monsoon rains account for 70 percent of the country's annual rainfall.

## Global warming is the bad guy

Experts say global warming is partly to blame for these heavy rainfalls. This is because warmer air can hold more moisture, which means heavier rains.

Putting global warming in a wider perspective, the fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC) estimates that by 2100, South Asian countries, including Bhutan, will experience increase in average temperatures, with increases in daily minimum and maximum temperatures, mostly taking place at higher altitudes. A 5 percent decrease in rainfall is expected during the dry season, and an 11 percent increase during the wet season is expected in the long term.

Bhutan does not have records of scientific climate-related data longer than 25 years. Therefore, establishing a mean temperature rise over the last century is impossible. However, the government claims that 2016 was the hottest year in the recent times.

According to a study of 638 years of summer

temperature variability over the Bhutanese Himalayas, done by a group of scientists in 2014, the warmest period occurred within the most recent decade, 2004-2013. The scientists (from Bhutan, Sweden, Greece, and the US) warn that Bhutan faces two important and immediate challenges related to climate change.

"Foremost among these threats are altered precipitation patterns and accelerated glacial melt that together trigger mass-wasting events such as landslides, as well as glacial lake outburst floods, endangering life and cultural heritage. Second, increasing variability and unpredictability in stream discharge creates challenges for hydropower generation—which threatens the foundation of Bhutan's economic security," states the study.

The secretary of the National Environment Commission, Chenchu Norbu, says the other important factor to consider is the loss of vegetation due to development activities. "This exposes our fragile ecosystem to more hazards," he says, adding that any surface denuded of vegetation eases runoff during rainfall. "That's why a lot of disasters are human-induced, mainly because of land-use change."

Chenchu Norbu feels field observations and stories from the farming communities are important to validate scientific predictions.

## Recent disaster trends

The Asian Development Bank's (ADB) climate change country risk assessment for Bhutan states that, based on the available evidence, Bhutan will experience more extreme weather events with increased frequency. The ADB identifies flood risk, and particularly flooding from heavy downpours and GLOFs (of 2,794 glacial lakes in the country, 22 are potentially dangerous) as one of the key climate threats for Bhutan. Extreme flood events such as the one in 2016 could become more frequent and severe, putting homes, businesses, and public infrastructure at greater risk.

Bhutan saw a number of significant water-induced disasters in the last 10 years. Three major events stand out: the 2009 Cyclone Aila-induced floods, the 2015 Lemthang Lake outburst flood, and the 2016 southern Bhutan monsoon floods. These disasters not only resulted in the loss of several human lives, but also displaced people and wiped out homes. They caused damage to major public infrastructures, including roads and bridges.

## Preparedness, poor but improving

In its 2015 country ranking, the Global Adaptation Institute (GAIN) index places Bhutan at 113th out of 181 countries (with a



# Flash floods: Bhutan’s biggest dilemma

score of 47.8). The GAIN index further shows that Bhutan ranks 134th (out of 182) in the vulnerability score (higher ranking means less vulnerable) and 91st (out of 185) in the readiness score (again, higher ranking means greater readiness to climate change). Contrast this to Denmark, ranked at number 1, with a score of 81.3, making it the most prepared country in tackling climate change and the least vulnerable to climate change impacts.

Bhutan’s low readiness score is attributed to the country’s “low financial and investment freedom”. Other factors considered in the vulnerability scoring include food capacity where Bhutan’s score reflects the fact that the country has low agricultural technological capacity and high import

dependency. To augment this fact, officials from the Ministry of Agriculture say the growth of the agriculture sector has been slow. They attribute the slack to decreasing public investment in agriculture, lack of modern farming technologies, shortage of water for irrigation, and an increasing shortage of farmhands.

However, there is an increasing investment in the area of preparedness. The Bhutanese government is now laying emphasis on developing flood early warning systems along its rivers and building a robust national network of weather stations. Most weather stations have now been automated to provide near real-time information, and a few prediction models are being tested in the selected basins.

The National Centre for Hydrology and Meteorology has a 24/7 monitoring system in place. The centre’s capacity has vastly improved over the years. Some of its staff have been trained in satellite rainfall estimation methods.

“All this is expected to improve weather forecasting,” says Karma Dupchu, adding that flash flood forecasting could still be very difficult.

Accurate estimates of rainfall are needed to forecast floods. Moreover, flash floods are highly localised requiring a close network of monitoring stations. In Bhutan, measuring stations are few and far between, and the available rainfall information is inadequate for forecasting floods with

certainty. Moreover, the past events show that flash floods in Bhutan happen mostly in the tributaries where a small babbling brook suddenly turns into a thundering monster sweeping huge boulders and other debris downstream.

For this monsoon, the centre predicts a fairly good amount of rain, mostly in the form of high-intensity short-duration showers.

“This kind of rainfall pattern is often responsible for flash floods, but we cannot say for certain if there will be flash floods this monsoon,” says Karma Dupchu. “We will stay alert and try our best to communicate to the public whatever information we can generate.”

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## Officials clear debris at Thruelpang Palace

July 19th, 2017

Heavy rain and swelling stream caused flash flood at Thruelpang in Trongsa yesterday.

Officials of Trongsa dzongkhag administration along with Dessups and Royal Bhutan Police removed sand and debris from the Thruelpang Palace compound.

Media focal person with the dzongkhag administration, Samuel Pradhan, said there was heavy rain for about three hours before the flood.

“It rained continuously from 9pm till 11pm on July 17; stream swelled and flooded the next morning,” he said.

More than 30 people were involved in cleaning the debris from the palace and the surrounding area. The parking area at Thruelpang is also filled with sand and debris.

Samuel Pradhan said the rain also destroyed the town’s drinking water source and the town did not have water till yesterday evening.



“A team from the municipal office was at the source with water pipes,” he said.

East-West highway at Thruelpang was blocked but was soon cleared.

# Flood destroys crops in Lhuentse

July 19th, 2017

Around 20 households in Shawa village in Gangzur, Lhuentse lost at least 17 acres of crops when the swollen stream flooded on the night of July 17.

Gangzur gup Kuenzang Dorji said the flood damaged about five acres of dry paddy field and more than 12 acres of wetland.

Tempa Tshering, a farmer, lost about an acre of paddy.

Jamyang Choden, another farmer, said, she is already worried about feeding her family of six. “I was happy thinking that the production would be good this year. Now, all’s lost,” she said.

Another villager, Tobgay, too lost about an acre worth of paddy.

“All my hard word is gone,” said Tobgay. He said he had expected



paddy production to be good this year.

“From where would we get wetland now?” asked Jamyang Choden.

Tobgay said he is worried about where to grow paddy next year. The villagers of Shawa are hoping that the dzongkhag and the agriculture ministry would provide

compensation accordingly.

Paddy is the only source of income for the people of Shawa village.

Kuenzang Dorji said that as per the directives of the dzongkhag administration, wetland would be relocated.

Lhuentse Dzongrab Kinley Dorji said damage

assessment is underway. “We will compile the report and send it to the department of disaster management.”

The dzongrab, accompanied by dzongkhag kidu officer, dzongkhag disaster officer, and gewog officials, visited the damaged fields and met the victims.

## Flash flood washes away bridge in Lopokha

August 2nd, 2017

On August 5, volunteers will construct a temporary bridge in Lopokha village in Wangdue which was washed away on the night of July 22.

Heavy rain, which caused the flood, also damaged crops.

Disaster focal person Sonam Tobgay and some officials from the dzongkhag, National Council member Tashi

Dorji and gewog officials visited the affected area for the assessment on July 27.

Sonam Tobgay said: “We are processing land substitute for three households whose land were washed away completely.” He added that for now the two chiwogs are completely disconnected without a bridge.

“We are concerned about the safety of the people because it is risky for the commuters to cross the river without a bridge,” said Sonam Tobgay.

The Athang Gup, Khandu Dorji said that this is the first flash flood in the village. “We are helpless because disaster is not manmade and we must bear it.”

The national council member Tashi Dorji met

with the victims and provided them rice and oil.

The people of Lopokha and Lumtshokha chiwog get their basic necessities from Kamichu, an hour drive away.



# Rain and flash flood damages two suspension bridges in Lhuntse

August 7th, 2017

Heavy rain on July 28 damaged a suspension bridge in Kilung village, affecting about 50 households and students of Thimyul Lower Secondary School in Lhuntse.

Kilung-Somshing tshogpa, Sonam Lhamo, said the dzongkhag officials, after visiting the site, advised people not to use the Kilung suspension bridge since it is risky.

She said that the villagers requested officials to construct a temporary bridge, as many farmers, who own wetlands in Thimyul, are affected. “The school could not lift the rations on time because of the lack of a bridge.”

The tshogpa explained that although there is an alternative way, it takes much longer. “The initial 10 to 15 minutes journey was increased to about three hours.”

She said the dzongkhag authorities advised the day-scholar students to be kept in boarding schools.



Meanwhile, a flash flood on July 17 damaged more than 11 acres of land, washed away few domestic animals, an electric pole, irrigation canals and a mini hydropower supply water in Shawa village of Gangzur gewog.

The flood also washed away a suspension bridge in Rotpa.

A teacher of Thimyul shedra, Pema Wangda, said that 11 households of Rotpa village, the shedra and two households in Thimyul village are affected after the flood washed away the

suspension bridge in Rotpa. “It affected the students more.”

He said that the monks, who go to offer Soelkha and conduct daily rituals to a nearby monastery, had to stop the chore.

Pema Wangda explained that they have to now take a long journey to go to the nearest road point, which takes about an hour. “When the bridge was there, it only took about five to 10 minutes.”

He also said the flood destroyed some acres of belonging to the shedra.

A parent, Dawa, said that the children from Rotpa study in Thimyul lower secondary school now take two to three hours to reach the school. “It is risky for us to send our children to school on rainy days.”

Lhuentse dzongdag Jambay Wangchuk said that both the suspension bridges are not fit to be used but there is an alternative route.

He also said we cannot do anything about it immediately. “We will discuss what to do about it.”

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## Flash flood damage Gelephu-Assam highway, again

September 1st, 2017

It took less than half an hour of heavy rainfall to wash away the temporarily reinstated Gelephu-Assam highway on August 30.

The flooding did not cause any damage to property and settlement. Gelephu thromde

officials said that although it started raining since 8am, it rained heavily between 9.30-10am causing the flash flood.

An official said that the water accumulated at the border gate area over flowed into the water

reservoir below the airport. “The reservoir could not contain the water this time because it burst on August 25 and washed away almost 100 meters of the Gelephu-Assam highway near the border gate. The same portion was again washed away yesterday.”

Thromde’s engineer, IP Phuyel, said that the recently reinstated road was the only damage. “We had done sand-filling last time and the floodwater washed it partially.”

The highway was rebuild after the rain.

# Unclogged drains save Phuentsholing thromde from flooding

July 22nd, 2017

Unlike in the past, there is no issue of clogged drains this summer in Phuentsholing town.

Until this year, Phuentsholing town area near the main gate used to be flooded with water every time it rained heavily.

This, according to the thromde officials, is because they recently cleaned the drains after more than 20 years.

Phuentsholing thrompon Uttar Kumar Rai said it was the first cleaning of the drains after it was constructed.

He, however, said there are many areas in town where the drains will have to be renovated. “Once the urban design, which currently is under process, completes, these drains will also be renovated,” he said. “Until the design is

complete, people will have to bear with the existing drainage system.”

A businessman in town, Bijoy Chhetri, said that the thromde took a good initiative by cleaning the drains.

A taxi driver, Yeshey Wangdi, also said that the drainage system was much better compared to previous years. “I did not see roads flooded with drain water this year.”

Thromde officials say proper drainage system in the extended town areas of Kabreytar and Dhamdara will be constructed this winter.

Meanwhile, the business settlements along the Amochhu embankments have also been safe despite heavy rainfall so far. The ongoing dredging work has helped in diverting the river

from the settlement areas.

Three construction firms have continuously dredged the Amochhu embankments. A total of 2.4km stretch has been piled with stones and boulders.

Thromde officials and stakeholders, after a meeting, decided to keep these contractors on work. There is no investment made by the thromde.

Contractors invest on their own but they get to sell the leftover stones and boulders.

Thromde officials said that the dredging work was an ad hoc disaster management.

“It is a win-win situation for thromde and the contractors,” Uttar Kumar Rai said.

“Everything is properly monitored.”

However, the thromde invested in constructing the 450 metres gabion walls to support the dredging works.

A businessman at the Amochhu embankment, Tenzin Dorji, said the dredging works have helped.

Phuentsholing was one of the most monsoon-hit places in 2015 and 2016.

Last year, the swollen Amochhu washed away land and the government had to spend more than Nu 2 million (M) in compensation.

Excluding the Amochhu flood, incessant rain caused thromde a loss of about Nu 35M in 2016 to repair damaged roads, walls, drains, and several other infrastructure.

## Heavy rains flood Gelephu

August 9th, 2017

Heavy rains that flooded Gelephu until late afternoon yesterday did not cause damage to life and property, Gelephu thromde officials said.

The rainwater that flooded the border gate area soon dried up and there was no requirement for evacuation, according to officials.

To avoid more flooding in the low laying areas, thromde officials were deployed full time near the border gate’s storm water drainage to clear debris that kept clogging the drains.

About six kilometers away, the Dhaula River swelled stranding many travellers for over five hours yesterday morning.

Further up around eight kilometer away at the aie-slip, a major landslide blocked traffic flow until late afternoon.

Stranded vehicles were allowed to pass by 3pm, Department of Road’s engineer Kishor Chhetri said.

The situation was worse at Box cutting. Muck kept eroding making it difficult for the DoR to



clear the road while it was still raining.

“This is the heaviest roadblock so far this year. We’re fulltime here during the day with machinery to clear the road as soon as the rain

stops,” he said. “People should avoid traveling after dark.”

Several minor roadblocks were reported along the Gelephu-Zhemgang highway



# Heavy rains flood homes, block Gelephu-Zhemgang highway

August 11th, 2017

Gelephu thromde evacuated at least three families from the low lying areas in Jampheling demkhong yesterday after their makeshift huts were flooded with rainwater.

They are temporarily staying at the guesthouse near the water treatment plant. Gelephu thromde officials said that the over flow of Mao River drains into the Lower Jampheling, which is located about 500 meters away. The evacuees’ huts were built at a level lower than the road.

The families were evacuated along with their belongings. Other areas in the town however did not flood from the downpour. “Other parts of the town are safe as of now,” thromde officials said.

## At least 500 meters of the highway was washed away at Box Cutting

Following heavy rainfall, the Gelephu-Zhemgang highway also remained blocked at several locations. With at least 500 meters of the highway washed away at box cutting, it took three heavy machinery almost eight hours to clear the road yesterday.

An engineer with the Department of Roads (DoR), Kishor Chhetri, said, the road remains closed until late afternoon because of heavy landslide. On August 9, a pay-loader skid and fell into the river. The driver however, managed to jump off the machine and escaped. He was



immediately taken to Gelephu referral hospital and is in stable condition. The machine that fell into the river was hired to assist three other excavators to clear the roadblock sooner.

“The traffic flow cannot be smooth as the land above continues to slide,” he said.

Department of Roads has also deployed two excavators at Setikharey stream to scoop out sand from the riverbed. Scooping out sand, Kishore Chhetri said, lets water flow in one direction and prevents it from flowing into the village.

He said that the drainage below a culvert at the

highway is narrow and clogs easily. Should that passage remain clogged for sometime, during heavy rainfall the water could overflow into Perlithang Khamaed village below the Gelephu-Zhemgang Highway.

# His Majesty The King grants semso soelra to Shawa farmers

August 11th, 2017

Lhuentse dzongdag Jambay Wangchuk handed over a semso soelra of Nu 600,000 from His Majesty The King to 19 households of Shawa village, Lhuentse who lost their agricultural land and crops to the July 17 flash flood.

The dzongdag, while distributing the semso soelra on August 9, said His Majesty The King was concerned for the affected and sent the semso soelra soon after the dzongkhag administration submitted

the damage assessment report. “This should motivate the farmers to work hard.”

The farmers of 19 households, who lost about 12 acres of paddy fields and nine acres of dry land, received compensations from Nu 3,000 to Nu 70,000 depending on the extent of damage.

Farmers from Shawa village said they are grateful to His Majesty The King for granting them the soelra.

A farmer, Sonam Tobgay, 40, said it was thoughtful of His Majesty The King, to look after the welfare of all the citizens. “As gratitude, we can only pray for His Majesty’s long life.”

Another villager, Kezang Tshomo, 34, also expressed gratitude to His Majesty. “It is a blessing to receive the soelra after a disaster.”

Besides agricultural land and crops, farmers also lost a recently renovated water mill, a suspension bridge and three oxen in

the flash flood. It also destroyed electric poles and fencing in Shawa.

Shawa village, which is located 28kms away from Gangzur gewog, is one of the remote villages in Lhuentse. Paddy and maize are the staple crops for the farmers here.

Meanwhile, dzongdag Jambay Wangchuk said the dzongkhag administration is working to clear the gewog centre (GC) road and redevelop the damaged paddy fields.

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## PM visits flood damage site in Sarpang

September 6th, 2017

A heavy rainfall on the night of September 4 washed away more than 200 metres of Serzhong gewog centre road in Sarpang.

Prime Minister Tshering Tobgay visited the affected area yesterday. The road connects four gewogs of Serzhong, Chuzargang, Tareythang and Umling.



Prime Minister Tshering Tobgay said he was concerned because this stretch of road is important and it was damaged because of improper drainages along the road. He directed the dzongdag to get in touch with the contractor immediately and to build

proper drainages along the road before blacktopping.

Efforts are being made to reinstate the road immediately.

Department of Roads has deployed two excavators at the site. Executive Engineer Sonam N Wangdi said that by late evening the DoR could open the road to traffic.

“The road was washed away solely because of lack of proper drainage,” he said.



# Landslides close seven highways to traffic

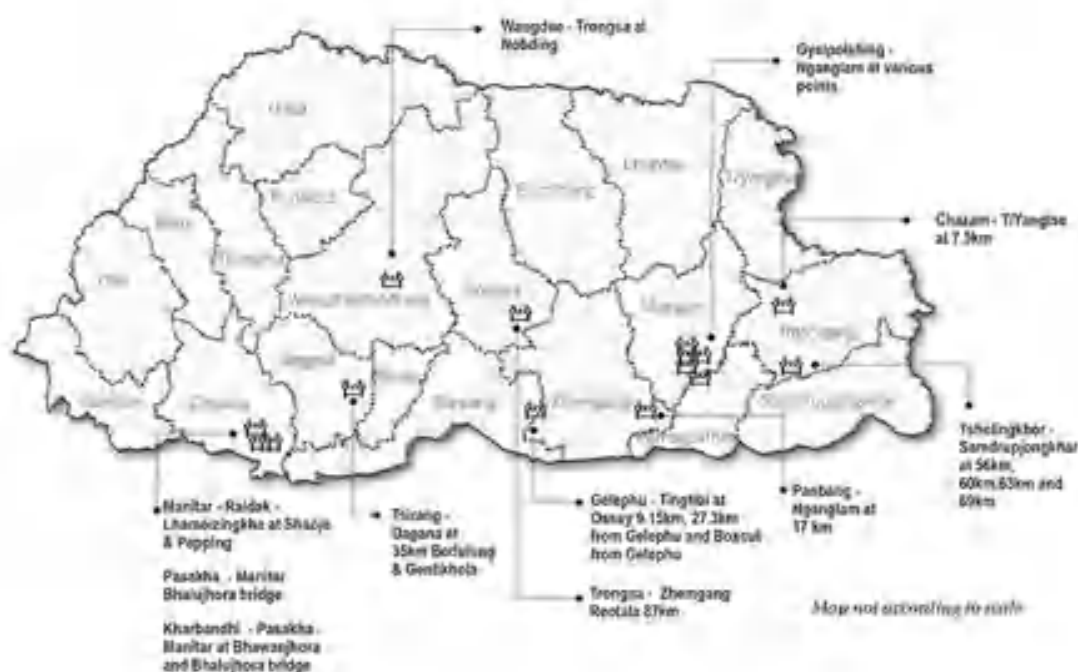
August 14th, 2017

A 'small' flashflood was reported at the sites of Cherichu in Thimphu around 8.45PM yesterday, according to Flood Monitoring and Command Room officials. An official said there was no major impact and that they are still monitoring the situation.



Heavy rains over the last few days have left about seven highways closed to traffic with about 15 blocks across the country.

The Manitar-Raidak-Lhamoizingkha highway has been blocked at Shaoja and Pepping since July 9. Executive Engineer with Department of Roads (DoR), Neten Tshering, said that road width has been cut off due to heavy rain. "The roads will be cleared after a week if the rain stops," he said.



According to DoR, the Mongar – Pemagatshel highway is blocked at various places in the Gyelpoishing to Nganglam road since August 11. The block caused by landslides and falling boulders is likely to take more than a month to clear.

The road between Tshelingkhor and Samdrupjongkhar is expected to open to traffic by today evening. Landslides had blocked the road at four places since August 10.

DoR's engineer, Cheki Wangchuk, said, that the Chazam to Trashiyangtse road is blocked at 7.5 km from Chazam to Doksum. "The block will be cleared today if we don't receive any rain," he added.

The Royal Bhutan Police  
on its social media page

stated that as of 1PM yesterday, the Tsirang – Dagana highway was blocked at Bedulum and Gentikhola due to landslides. The update also reported a block at Nobding on the Wangdue – Trongsa highway since yesterday due to landslides.

DoR's engineer, Kharananda Gautam, said, that the Gelephu – Tingtibi road is blocked at Ossey and Boxcut due to landslides. "The road is blocked since August 10. We are not sure when the road will be cleared," he added.

Road officials said that the Pasakha-Manitar road, which was blocked since August 10 due to

swollen river at  
Bhawajhora and  
Bhalujhora bridge point  
will be cleared in two  
days.

The Tingtibi – Gomphu road has also been blocked at 12 and 14 km due to falling boulders and landslides, according to a DoR official. The block is likely to be cleared today.

One of the engineers with DoR, Ugyen Dorji said that the Punakha to Gasa highway opened to traffic yesterday. The block at Trongsa-Zhemgang highway will be cleared today.

Meanwhile, the in-charge  
at the Flood Monitoring  
and Command Room

(FMCR), Sangay Tenzin, said, that the water level on average has been receding. “South eastern parts of the country such as Gelegphu and Sarpang have increase in water level,” he said. However, officials said that the level is not as bad as the Mangdechhu danger level, which occurred recently.

The National Centre of Hydrology and Meteorology (NCHM) stated that the weather in northern, western and central parts of the country would improve. It forecasts that during the next 72 hours, the southern and eastern

# Landslides close seven highways to traffic

parts of the country are expected to receive light to moderate rainfall.	He said that last year active monsoon which lasts for about a week or two occurred in June and July. “This year, active monsoon is occurring this month,” he added.	informed of severe weather conditions.	will provide assistance if the situation demands.
Deputy Chief of the Weather and Climate Service Division, NCHM, Tayba B Tamang, said that as per the forecast, the weather will be normal in the next 72 hours.	He said that NCHM is monitoring the weather and the public will be	Senior Programme Officer with the Department of Disaster Management (DDM), Jigme Chogyal, said that there has been no severe cases reported to DDM. He said that the DDM	He added that other than the increasing river level and roadblocks across the country, the DDM didn’t receive any serious cases of disaster.

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## NCHM proposes to install early warning system in Wangchhu basin

August 15th, 2017

The National Centre for Hydrology and Meteorology (NCHM) officials confirmed that the small flood reported from Cherichhu in Thimphu on the night of August 13 was a flash flood and not glacial lake outburst flood.	after few people shared about the flood on social media.	there are high chances of flash floods.”	Sangay Tenzin said that early warning system has become the need of the hour. “Vulnerability is increasing with more settlements.”
NCHM’s In-Charge for Flood Monitoring and Command Room (FMCR), Sangay Tenzin, explained that the flood did not start from the water source but because of landslide and continuous heavy rainfall.	Sangay Tenzin explained that the Cheri flash flood occurred after heavy logs and debris clogged the river, which narrowed the water channel.	The Chief of Hydrology and Water Resource Services Division, Karma Dupchu, said that such floods are normal during monsoon season. “This kind of flash floods occur in almost all river basins.”	NCHM has put forward a project proposal to Japan International Cooperation Agency for establishing an early warning system in Wangchhu.
The flash flood that started around 8:45pm panicked people living downstream of Thimchhu	He said that the water flux had risen to about 30-40 cm, causing the flash flood. “It, however, did not cause any impact.”	He said that the Cheri base is not inhabited and because of narrow valley when there is heavy precipitation, landslides and flash floods occur almost every time.	There are four major early warning systems in four major river basins in Bhutan today, Phochhu and Mochhu basin of Punatsangchu, Chamkharchhu and Mangdechhu.
	NCHM had issued a flood advisory on August 12.	Meanwhile, NCHM is planning to set up comprehensive early warning system near Wangchhu basin.	

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## Flood destroys crops in Tsakaling

October 14th, 2017

A flood triggered by heavy rain on October 12 night damaged crops in Tsakaling, Mongar.	“I have got nothing,” Pemala said.
Pemala, 35, said his cropland is now filled with debris. More than 250 orange trees were also washed away.	Mangmi Pema Tenzin said lack of drainage along the gewog road could have caused the flood.
	Officials from dzongkhag’s agriculture sector are inspecting damage in the gewog.



# PHPA-II flooding normal, project officials claim

August 24th, 2017

The Punatsangchhu-II hydroelectric project (PHPA II) dam site was filled with water and debris from the flooding between August 9 and 11 this year when the Punatsangchhu spilled over the cofferdam.

There are two cofferdams, 888m long and 12m diameters, one upstream of the campsite and another below it.

While many people, who watched the flooding on social media sites, were worried about the flooding, officials say that there is nothing to worry, as the cofferdam is designed for flooding.

Project officials said the dam height have reached varying heights, the tallest at about 20 meters.

## ***The revised project cost is Nu 72.9 billion today***

PHPA II officials said work would resume once the water and debris that the flood deposited at its site is removed.

PHPA-II's managing director, RN Khazanchi, said that it might take at least three months to clear the area.

But observers said that such flooding could be averted if there were more diversion tunnels. The 1,020-mega-watt project has only one diversion tunnel.

"This design is made considering the cost analysis between building more tunnels to divert the river so that the cofferdams don't flood



and letting the cofferdams flood," a senior engineer said.

He said the engineers calculate at what stage of the dam construction the flooding could be. "So the work progress also takes place according to that timing. The flooding will not cause damage to the dam."

Project officials said similar flooding occurred in June last year for about three days.

RN Khazanchi said the project studied the annual discharges over the past three decades.

"The highest discharge of water was during the flood in 1994 with 2,500 cubic meters of water. We also took in the discharge during the peak seasons."

The diversion tunnel has the capacity to divert 1,800 cubic metres of water.

The PHPA II dam will be 86m tall and 213.5m wide at the top. The intake structure near the dam is more than 80 percent complete, project officials said.

The revised project cost as of today remains at Nu 72.9 billion.

Work on the project started on December 17, 2010, with a completion schedule of seven years with fund from the government of India at 30 percent grant and 70 percent loan at the rate of 10 percent interest per annum starting from one year after the date of commercial operation.

The project is located on the right bank of Punatsangchhu along the Wangdue-Tsirang highway between 22km and 35km downstream of Wangdue bridge.

# Flood destroys crops and drinking water source in Sarpang

September 8th, 2017

Seven years ago, almost, Bala Ram Katel harvested almost 800kg rice from his 72-decimal paddy field in Pelrithang village, Gelephu. There is today not a single sign of terraces.

His paddy field has turned into a riverbed.

During heavy rainfall, huge river runs through his land. Besides a few banana trees and bamboo plants, the field is full of sand and boulder. It is the Dhaula River that has changed its course and diverted toward private land.

Bala Ram Katel said after Dhaula River damaged his field a few years ago,

he gave up paddy cultivation altogether because it was a waste of time. “I sowed fodder grass but that is also all under sand. This land used to give food rice yield.”

He had a total of 1.26 acres land here, which has now turned to a riverbed.

Next to his house lives Chandra Lal Ghimeray, who is a sharecropper. Flashflood has partially damaged the paddy. “The damage is minimal right now, but some more heavy rain might cause more damage.” He is worried.

On the other side of Gelephu, Shershong gewog officials comprising Mangmi, tshogpa, agriculture extension officer and engineer toured villages for the whole day yesterday to access flashflood damage.

Mangmi Ugyen Tshering said that among all the damages, washing away of the drinking water source is a major one. The source, about two kilometers away from Shershong gewog centre has been completely washed away.

It was a water source that benefited the people of Norbuling and Chuzargang gewog.

“All the pipes have been washed away,” the Mangmi said. People are now requesting gewog centre for immediate supply of pipes to reconnect water supply.

The mangmi said that there wasn't much the gewog could do immediately to restore the water supply. The gewog will submit its assessment report to the dzongkhag.

Flashflood also damaged some paddy fields in Barshong chiwog. The dzongkhag's disaster focal person has directed all gewog officials to report damage in their respective gewog.

## Thimphu at risk of rainfall induced flood

October 20th, 2017

Among the different types of flood Bhutan experiences, Thimphu is most vulnerable to rainfall-induced floods. This was shared during the Thimphu thromde's disaster management committee meeting held on October 16.

Thimphu thrompon Kinlay Dorjee said that although there is no lake at the source of Wangchhu, the disaster management team still needs to prepare, as there are chances of flood due to heavy rainfall.

He said that if there is continuous rainfall, about four areas are identified along the Wangchhu as risk areas – the Lingkana palace area, Changlimithang, Changjiji football ground, and the **Thimphu probabilistic flood hazard map**



**prepared with limited data available (Photo courtesy: MoWHS)**

Convention Centre. “It is important to research, prepare, and inform the public about flood especially to those who are staying in the risk prone areas.”

Deputy executive engineer of Flood Engineering and Management division with the works and human settlement ministry, Kuenzang Choden, said that a research was done to improve the current flood management in Wangchhu basin through improved flood hazard mapping using global data sets.

The research focuses on how, where, and which places might be affected in case of flooding in the four risk prone areas of Thimphu.

Kuenzang Choden said that the team collected

data, and conducted flood frequency analysis before setting up the hydrodynamic models. “After the hydrodynamic models were set up, the results were analysed and the probabilistic flood hazard map for 100 years return period was produced.”

She said that although the map is not 100 percent accurate, it could be used to predict where the flood might occur, the depth of the flood, and the flood's reach, so that people could avoid building important structures or build appropriate structures in the areas. “After understanding the uncertainties in the input data and the model itself, I would suggest not to

# Thimphu at risk of rainfall induced flood

focus only on mapping itself but conduct detailed field investigation,” she said. “The detailed field investigation and flood vulnerability assessment for small streams such as Olarongchu and Chubachu are underway.”

Kuenzang Choden said that retaining walls are built taking only the amount of water it can withhold into account, and not other things that rivers carry.

She said it is important to not block the natural course of the river. “With the experience in flood management, it is sometimes the small obstructions in river flow path that matters more. It appears to be a small risk but has the potential to cause huge damage,” she said. “Therefore, it is important to create room for rivers by cutting trees that grow in the river path, stabilise slopes near the rivers, and clear other obstructions such as old bridges that are not in use anymore.”

Kuenzang Choden said that it is important to lay critical infrastructures such as water supply and sewerage pipes at locations where there is no risk of flooding or any other hazard. “These infrastructures were however, found to be laid on and across the stream bed and flood plain areas along Chubachu and Olarongchu stream.”

Thrompon Kinlay Dorjee said that to minimise flood impact and according to town planning, no plot is given

or structures be built within 30 metres from a river and 15 metres of streams. However, he said that there are some houses built within the area, which have been relocated.

A member of the committee suggested that Bhutan being a religious country should also have a group from the Zhung Dratshang, and an astrologer from the Pangrizampa monastery to conduct religious rituals during and after disasters.

## Yangtse municipality to build flood protection wall along Serkang stream

March 28th, 2018

Residents of Choeten Kora town in Trashiyangtse can now heave a sigh of relief, as the dzongkhag municipality decided to build a flood protection wall along the Serkang stream.

The dzongkhag tshogdu (DT) last year ordered that a wall be built along the stream after the residents raised concerns that the swelling stream in monsoon poses flood threats.

Works on the 475-metre wall began since November last year.

According to the municipal officials, almost 40 percent of the works have been completed so far.

Unlike the flood protection in Trashigang (rectangular), the protection wall in Yangtse would be a trapezoid and would use

the technique of plum concreting.

The municipal assistant engineer, Tashi Rabten, said as per the request from the dzongkhag, they had come up with an effective design that would incur minimum expenditure. “The design is made in a way that it would allow us to construct footpath along the stream in the future.”

Serkang stream that runs through the heart of the Choeten Kora town has a history of swelling unpredictably. In June 2016, the stream swelled at midnight forcing people to evacuate the town towards the new dzong area.

Locals say that the stream swelling occurred several times. “Even during a bright sunny day, the stream swells suddenly leaving us worried all the time,” one of the residents said.

According to the former chimi, Nima Wangchuk, the stream swells especially during auspicious days (15th and 30th day of the Bhutanese calendar).

Local people claim that the source of the stream is located at a cliff called Tongbrak (thousand-cliff). “Inside the cliff, it is believed that there are a thousand monks meditating. During auspicious occasions, when the monks perform rituals at the cliff, the water level rises,” Nima Wangchuk said.

Given the unpredictable nature of the stream, the thromde ngotsab, Ugyen Lhamo, said that the matter had to be prioritised for the safety of the people.

“It was troublesome,” a resident, Dorji, said. “During summer, we had to be ready to leave the house anytime. We lived in fear until we heard

that the dzongkhag is constructing a protection wall. It was a big relief.”

The construction of the wall is divided into two phases –Phase I includes the construction of 300-metre of the total 475-metre which is expected to complete by May. The second phase would be completed within the 2017-18 financial year.

Around Nu 14.5 million would be spent in the construction of the wall.

Meanwhile, works on expansion work on the two bridges have also begun in the dzongkhag. Given the smaller dimensions of the existing bridges (one above Choeten Kora and one another the Police Camp), Tashi Rabten said that it had to be expanded for the safety reasons.

The two new RCC bridges would be 3-metre high and 10-metre wide.



# NAPA II project identifies four critical landslides and flood prone areas

April 13th, 2018

Watershed management plans to protect Pasakha industrial area and landslide stabilisation measures at Phuentsholing have proven helpful, Phuentsholing thromde officials said.

These are part of the various project activities under the National Adaptation Programme of Action (NAPA) II project that started in 2014. The activities at Phuentsholing worth USD 4.388M will end this October.

With three rivers in its vicinity, Pasakha industrial area was identified as one of critical areas under the risk of flooding.

Phuentsholing thromde's project engineer, Lhendup Dorji, said that of the three rivers passing through the area, Barsa river poses the maximum threat of flood and landslide. "There are three clusters at the industrial area and this river passes through two of the clusters adjacent to each other."

According to a study conducted at the area, the monsoon river level and the intensity of extreme rainfall events are increasing at Pasakha industrial area. These have contributed to increased erosion along

the river banks and chances of flooding.

Lhendup Dorji said that Phuentsholing thromde would have prevention, prevision, protection, and crisis management measures in case of a flood. A flood risk prevention plan, watershed management, and sensitisation are among the prevention measures.

The thromde would install a water weather station and an automatic station to measure water level. "The protection measures include flood protection structures and conservation of the watershed."

The thromde has constructed two flood mitigation structures along the Barsa river today. Lhendup Dorji said that following the completion of one of the structures in 2017, the performance of the structure was monitored during monsoon. "We recorded videos and it showed that the structure was keeping the overflowing Barsa river from reaching the houses near the river."

To further manage the watershed area, 17 hectares of land have been identified for enrichment plantation at Pasakha. Plantation at Samphelling and

Ganglakha will begin this month.

Measures to stabilise landslide areas are also underway at Rinchending. The Rinchending check post, Reldri Higher Secondary School, Rinchending Goenpa, and the old hospital colony were identified as landslide prone areas in Phuentsholing.

Phuentsholing thromde's former project manager, Gautam Thapa, said that to stabilise the slopes that lead to landslides, a soil nailing procedure is being used at Rinchending Goenpa area in Phuentsholing. "Soil nailing is a procedure to reinforce and strengthen the ground adjacent to an excavation by instilling closely spaced steel bars called nails as construction proceeds from top down."

Soil nailing procedure was adopted for the first time in Bhutan at Rinchending Goenpa area.

Lhendup Dorji said that a survey has shown that land movement at the check-post and goenpa has decreased following the interventions. "The movement has not completely stopped but has decreased up to 80 percent."

Also under the NAPA II project, Department of Geology and Mines identified four critical landslide and flood prone areas – Phuentsholing watershed, Wamrong or Moshi in Trashigang, Lamsorong in Samdrupjongkhar and Box cutting at the Gelephu-Zhemgang highway.

Economic affairs ministry's project manager, Tashi Tenzin, said that a report of the four critical landslide and flood prone areas would be published.

The report will include information on geology, landslide characteristics, hazards, vulnerability, and the risks associated, map on proposed mitigation measures, and recommendations on both long and short-term mitigation measures.

He said that stabilisation measures would include construction of walls, drainage, road realignment, sealing of tension cracks and non-structural measures such as bioengineering. "The reports and maps will be published soon and will be shared to relevant stakeholders."

Funded by Least Developed Countries Fund, NAPA II project has a budget of USD 11.49 million.



# Flashflood washes away 13 temporary sheds in Lhuentse

June 15th, 2018

A flash flood washed away a labour camp consisting of 13 temporary sheds and a motorbike at Silibe in Maedtsho gewog, Lhuentse on the evening of June 13.

Local residents say that what started as a light rain around 5 to 6pm turned into a torrential downpour, causing the flood.

Residents also said that this is the first time it has rained in the gewog.

While there were no casualty and crop

damages, the flood washed away laptops, printers, ration and beddings in the labour camp.

People living in the camp went to a safer place when the flood occurred but lost all their belongings. Victims said they were informed about 6:30pm about the flood and they ran for safety, leaving everything behind.

The flood also affected some portions of the gewog road and farm roads.

It also damaged the under-construction RCC bridge that connects a native cattle-breeding centre of Sertsham to the grazing area located on the other side of the river.

Maedtsho gewog officials said they suspect a lake near a hill might have burst and caused the flood.

Yurung Bumdhir tshogpa, Choda Jamtsho, said there was heavy rain at the mountainside, which could have triggered the lake to burst.

Dzongkhag kidu officer, Tshering Chophel, said the dzongkhag disaster management team distributed disaster kits to the victims. The kits have beddings and utensils.

Meanwhile, a villager, Tshering Wangmo, said farmers have been waiting for the rain to cultivate paddy. “Farmers are now rushing to the fields to transplant paddy saplings.”

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## Flash flood damage roads, bridges in Jarey

June 16th, 2018

The flash flood that occurred on the evening of June 13 washed away five farm roads and two bridges in Jarey gewog, Lhuentse. This has affected students and villagers who need to visit the dzongkhag and gewog offices.

Ladrong Primary School, which is located about 2kms away from gewog office, has 94 students.

Since the bridges and farm roads were damaged by the flood, 35 students from Yumcheo

chiwog and Pum chiwog couldn't attend school on June 14.

The parents and gewog officials helped the students to reach the school yesterday.

A parent, Sonam Yangdon, said it is risky to send children to school.

Ladrong tshogpa, Sangay Lekshey, said there was no casualty and damages to crops.

Pum Tshogpa, Tshering Wangmo, said with the road washed away, it will be difficult when there are emergencies and people fall sick in the villages.

Gup Kuenzang Minjur said the gewog officials visited the affected areas and compiled a report to be sent to the dzongkhag administration.

Dzongkhag kidu officer, Tshering Chophel, said there are reports from Gangzur gewog, stating

paddy fields were washed away in Shawa village.

The dzongkhag developed the paddy fields recently.

Meanwhile, Tshering Chophel said that on the command of His Majesty The King, the labourers, who lost their rations and beddings in Maedtsho gewog were provided with one-month ration. They were also provided with disaster kits.

# Flood protection wall saves Trashigang town’s lower market

July 24th, 2018

A flash flood from Rangshikhar in Trashigang on the evening of July 22 caused the Mithimdrang stream to swell and wash away a wooden cantilever bridge near the archery range.

## Mithimdrang stream after the flash flood

The flash flood started around 7:13pm. The bridge over the flood protection wall was covered in muck cutting off traffic in the town.

An hour later, the water level subsided allowing officials to clear the bridge. The traffic was reopened at 10:12pm the same night. Some 30 residents of the lower market area were also evacuated to one of the resorts.

## Four vehicles including two trucks remain stuck in the muck

Although no major damages were reported, the meat shop and the ground floor of the vegetable market

including two huts and the children’s park were completely covered in muck. Four vehicles including two trucks were also stuck.

Officials said they are assessing the damages.

The drinking water source for the town was also washed away during the flash flood. A team comprising of municipal officials, police and residents were sent to fix the source yesterday.

Men and machine were deployed by 8am to clear the 7ft deep muck accumulated on either side of the stream since yesterday.

Officials said that it would at least take about two months to clear all the debris.

Trashigang dzongdag, Chekey Gyeltshen, said public institutions like hospitals would require water on a continuous basis. “Fixing the water source and making it available to the public is our top priority.”

Meanwhile, this is not the first time the Mithimdrang stream has swollen and caused damages in the town.

Twenty-four years ago, a similar flash flood washed away houses and other properties in the town. “Although there were no casualties then, the damage caused was major,” the thromde thuemi, Thinley Namgay, said. “If it wasn’t for the flood protection wall, the lower market would have been completely washed away this time.”

He said that the stream has a history of swelling suddenly even during a bright sunny day. “There were many minor floods after the major one in 1994. Since then this was the biggest flood that has hit the town in recent years.”

The thuemi said it is believed that the name of the stream was derived from an incident that took place some 100 years ago. “There was a major flood that washed away all the people and

their animals. This is why it is known as Mithimdrang (stream that drowns people).”

Given the history with the stream, the dzongdag said that further safety measures would have to be put in place. “We are studying measures to increase the height of the bridge including the installment of a siren system to alert the public at times of flood disasters.”

Residents living alongside the stream said that the flood protection wall was the reason that there were no major damages during the incident. “If it wasn’t for the wall, beside the property loss, people would have died,” a resident, Dorji, said. “I’ve seen the previous floods but this was more powerful.”

The 266 metre long reinforced cement concrete (RCC) flood protection wall was completed last year. It is around 8ms wide and about 5ms tall.



# Jangchub choeten stands unscathed in the flash flood

July 25th, 2018

A 21-year-old Jangchub choeten, which lies close to the reinforced cement concrete (RCC) wall and the bridge in Trashigang town, remained untouched in the recent flood.

The areas around the choeten were covered with muck and debris.

The flash flood of July 22 in Trashigang, residents say is one of the biggest disasters that have hit the town in the recent times.

However, with technological advancement and state of art safety measures put in place, the town was saved from major damages. The recently completed RCC flood protection wall

came to the rescue of the town, minimising damages to both life and proprieties.

While science proved its effectiveness in such situations, residents believe a higher power saved them.

The right side of the wall where the choeten is located is slightly lower

than the left side. However, during the flood, muck and debris accumulated on the left side of the wall and had stopped a few inches before touching the choeten’s base.

Build in 1997 the choeten was specifically constructed to ward off disasters caused by fire,

# Jangchub choeten stands unscathed in the flash flood

wind, water and earthquake.

A senior resident of the town, Tshewang Phuntsho, said that the flash flood that hit the town in 1994 caused major damage to the residents. “The flood flowed through the centre of the current lower market destroying prosperities along the way,” he said. “There was no choeten that time and the course of the flood was from the place where the choeten stands today.”

Following the incident, residents of the town led by late gomchen Lekden decided to build a choeten to prevent similar disasters in future.

Tshewang Phuntsho, who was one of the volunteers at the construction site, said that on the request of Lekden, Rangshikhar Rinpoche, Togden Jigme Chogyal Tshering, provided his personal carpenters and oversaw the choeten’s construction.

“The location of the choeten, its design including the zung (relic) that were put installed at the choeten were all provided by Rinpoche,” said Tshewang Phuntsho. The Rinpoche consecrated the choeten.

Inside the choeten, a stone slab with the carving of Drubthob Thangthong Gyalpo is placed facing north, the source of Mithimdrang stream, said Tshewang Phuntsho. “The stone slab was presented to the residents of Trashigang by the Dudjom Rinpoche to protect the place from flood disasters in the 1970s.”

There are other sacred items placed in the remaining three directions to ward off disasters.

“The recent flood is a proof of our beliefs,” he said. “Incidents like this allows us to have faith in our beliefs.”

Another resident, Sangay, said that it was the combination of science and religion that saved the town from the flood. “While the wall had served its purpose, we cannot rule out the importance of religion and our beliefs in times of disasters,” he said.

According to the dzongkhag engineers, a block from a boulder near the meat shop had caused the water to divert its course along the canal pushing the muck and debris to accumulate more on the left side of the wall.

Meanwhile, a group of 24 volunteers from Sherubtse College joined DeSuups, town residents and dzongkhag officials to clear the debris yesterday.

## 15 acres of land left fallow at Thimyul

November 29th, 2018

At least 15 acres of paddy field have been left fallow at Thimyul village in Gangzur, Lhuentse this year after a flood washed away the water source last year.

The land, which belongs to Thimyul Dratshang is cultivated by about 20 households of Kelungkhar village.

The flood, which affected about 40 households, also washed away two suspension bridges over Shawa river and Kurichu river.

Farmer Norzin Lhamo, 31, is one of the land users. The field is today used as a grazing land and has no paddy to harvest for her family or the dratshang.

She said that without the suspension bridge over Kurichu river, it takes them more than two hours on foot to cross across from Kelungkhar village to Thimyul. Until June last year when the bridge existed, it took them 20 minutes.

Another farmer Lhamo, 30, said there is no irrigation channel for farmers like her who cultivate on the land and depend on the harvest for their livelihood.

Tashi Wangmo, 24, a cow herder said she has been raising her Jersey cows at Thimyul for over a decade now. Everyday, she starts from home 7am to walk to Gangzur gewog, crosses the suspension bridge over Kurichu and then walks another hour to reach Thimyul.

“I have a very difficult time now,” she said.

Thimyul dratshang lam, Drupju Tenzin said that annually, the dratshang collected about 1,000kgs of paddy from the 20 households but none could cultivate this year. “I don’t know what to say.” He also said that the monks have to walk about an hour to get a kilogram of salt from a shop nearby the gewog office.

When monks go to conduct rituals in villages or fall sick, the long walking distance becomes a challenge. The dratshang has written to the dzongkhag administration to construct a new suspension bridge.

Shomshing chiwog tshogpa Sonam Lhamo said she raised the issue during the gewog tshogdu and requested local government leaders on the need to reconstruct the bridge.

Gangzur gup Kinzang Dorji said that after the tshogpa raised the issue, local leaders visited the site to propose a new bridge in the 12th Plan. As soon as the budget is released, he said, the construction of a bailey bridge would begin.

Shomshing tshogpa Sonam Lhamo said the reconstruction and maintenance of the irrigation canal was awarded to a contractor and was about to complete when it was washed away again. However, the reconstruction work has resumed, she said.

# Flash flood causes drinking water shortage in Trashigang town

July 27th, 2018

The flash flood of July 22 in Trashigang washed away water pipelines in three different locations at the source near Rangshikhar, affecting about 5,000 residents.

Drinking water supply for the town, hospital and Melphey area has remained disrupted since the flooding. The same water source is also channeled to the Royal Bhutan Police colony in Phomshing and the prison at Lungzor.

Efforts to restore the damaged water source began on July 23 with officials from the dzongkhag municipality office, police and residents heading to the source.

Municipal officials said the four water tanks at the source were intact but the distributing pipes had been completely washed away. Another group of

volunteers and officials were sent to fix the damages the next day.

Trashigang dzongdag, Chekey Gyeltshen, said the officials had managed to temporarily replace the broken pipelines towards the evening. However, it was again washed away following rainfall at the location.

“Since the pipelines have suffered major damage we have to replace it with a whole set of new pipes,” he said. “It will take us some time to get the pipes but in the meantime, we have fixed it temporarily so that people can at least have water at homes.”

On July 25, some 15 volunteers and officials left for the source as early as 5am. “I’m told that the replaced pipelines are much stable by now,” the dzongdag said.

Few residents in the forest colony and town started receiving water towards the evening by July 25.

As an interim measure, a private contractor, Ugyen Wangchuk, has been supplying water to the town residents since July 24 from his water tanker.

The water tanker has delivered some 60,000 litres of water to the residents until July 25. “I’m willing to supply the water until the source is fixed,” he said.

One of the hoteliers, Sangay, said the business is affected when there is no water. “There is nothing much we can do without water,” she said. “The dishes get piled up but we get continuous orders. We cannot maintain hygiene in such conditions.”

The fire engine of the RBP is also involved in ferrying water to the hospital. Until July 25, the fire engine has ferried water twice to the reservoir tank.

Hospital officials said with the help of the ferried water, all necessary clinical works at the hospital are in full swing. “There are only minor issues, as there are several patients and attendants who require water on a continuous basis,” said one of the officials.

Meanwhile, residents are also making use of the two spring waters that are tested safe for drinking. While some are capitalising on the rainwater, people are also seen travelled some 5km to ferry water from Pam village and Godi on the way to Rangjung.

## A tough year for Trashigang and Trashiyangtse

February 5th, 2019

From being almost wrecked by a flash flood to curfews at night, residents of Trashigang town had to brave numerous challenges in the year of the dog.

A flash flood from Rangshikhar on the evening of July 22 caused the Mithimdrang stream to swell and wash away a wooden cantilever bridge near the archery range.

The bridge over the flood protection wall was covered in muck choking traffic in town. Some 30 residents of the lower market area were also

evacuated to one of the resorts following the event.

Although no major damages were reported, few structures and four vehicles were completely covered in muck.

The flash flood also washed away drinking water pipelines in three different locations at the source near Rangshikhar, affecting about 5,000 residents.

The dzongkhag administration is yet to carry out the restoration

works in the affected areas.

Another highlight in the dzongkhag was the rumour of presence of headhunters (Khekpa) in the nearby area. During the initial days of the rumour, shops in the town closed early and children and adults locked themselves home.

Police later ruled out the presence of headhunters in the area. In connection to the rumour, Trashiyangtse dzongkhag court sentenced Serpang-Shali tshogpa, Dorji Wangdi, of Khamdang

gewog to two months imprisonment for spreading false alarm on the presence of headhunters in the gewog.

The year of the dog also saw a common leopard attack three vehicles near the Bhutan Oil Distributor (BOD) station. While no casualties were reported from the attack, a van was damaged with multiple scratches and a large dent in the front.



## A tough year for Trashigang and Trashiyangtse

The attack, according to residents of Pam and Kheri areas was the first in the locality. While they claimed to have seen sights of the animal in the past, there were no incidences of the animal attacking human and properties.

A major forest fire razed more than 100 acres of chirpine forest in Bartsham. The fire was one of the biggest in the last three years in the dzongkhag. The fire was contained after a week.

Trashigang dzongkhag administration forwarded a case involving two sister companies for failing to complete three different projects in Merak, Phongmay and Bidung gewogs.

The dzongkhag court sentenced an 83-year-old man from Melphey in Trashigang to three years and one month in prison for child molestation.

The defendant, Rinchen, is the paternal great-grandfather of the two 13-year-old girls.

The year of the dog also brought in some good news for the dzongkhag as the renovation and conservation works on the 359-year-old dzong were completed in October.

Last year dzongkhag's annual tshechu was performed at the dzong after four years since the renovation works began in February 2014. Renovation work at the

dzong began after the dzong's eastern and southwestern sides suffered major cracks from the 2009 and 2011 earthquakes.

While the monastic body has moved into the renovated dzong, the dzongkhag administration is yet to be shifted.

The 2018 National Council election saw the former Member of Parliament, Lhatu, return as the dzongkhag's councillor.

During National Assembly elections, Trashigang saw its two former ministers get eliminated in the primary rounds. However, the dzongkhag received two new ministers from Thrimshing and Sakteng gewogs.

With construction works for new water distribution network underway, residents in the town are expected to get uninterrupted, clean and safe drinking water towards the end of this year.

In Trashiyangtse, Kholongchu project grabbed headlines.

With no signs of any major civil works going on, Kholongchu Hydro Energy Limited (KHEL) in Trashiyangtse began scaling down of some of its operations.

Three years after the commencement of the

project, KHEL had returned one rented office in Samdrup-jongkhar and downsized a guesthouse, which had doubled as an office in Thimphu. The company has also cut down its manpower and hiring of equipment and vehicles.

The project management had started to scale down some of its operations to save cost.

However, towards the end of the year, the project began works at their first phase KHEL colony in Doksum, Trashiyangtse.

The phase I of the colony would comprise 40 residential buildings (113 units) with five non-residential buildings for office, guesthouse, multipurpose hall and two clubs. The structures are expected to complete towards the end of 2020.

Besides the delay in construction works, the dzongkhag administration in one of their letters to the National Housing Development Corporation Ltd stated that with the commencement of the Kholongchu project, the civil servants in the dzongkhag have continued to face acute housing shortage since 2016.

The then Institute of Zorig Chusum in Trashiyangtse also made it to the news with confusion surrounding

over the former government's step to establish three colleges in the east.

The institute was converted into a college and renamed as College of Rigney. However, five months after the College of Rigney was established, the college received directives from the labour ministry to close it for good.

Following directives from the government, the College of Rigney was renamed as the College of Zorig Chusum.

It was learnt that the labour ministry in a letter to the institute had stated that the ministry in the 12th Plan would work towards establishing a College of Zorig Chusum in Trashiyangtse. However, the institute was renamed immediately following media reports on the closure of the then College of Rigney.

Trashiyangtse College of Zorig Chusum (TCZC) introduced a national diploma programme in Jimzo (sculpture) in August last year, signaling the first major change at the institute since it was renamed into a college earlier that year.

Meanwhile, residents of Trashiyangtse town, who were unhappy with the revised collection fee on solid waste the municipality imposed on them, had asked the dzongkhag tshogdue(DT) to remove their thuemi.

# Removal of flash flood debris to complete by September end

July 28th, 2018

Trashigang dzongkhag administration awarded the work to remove muck and debris left by the recent flash flood in the town to a private contractor on July 26.

Given the limited number of machinery and other resources, the dzongkhag administration decided to outsource the work to local contractors with adequate number of men and machine at their disposal.

Trashigang dzongdag, Chekey Gyeltshen, said a large amount of muck and debris on either side of the flood protection wall had to be removed at the earliest including the clearing works on the canal. “This is a big task and the dzongkhag office does not have the resources to carry out the work on its own.”

He said that with monsoon picking up, there are possibilities that small landslides could inflict major damage to the town and residents if the canal is not cleaned at the earliest. “We are doing this so that the works are completed faster.”

The 396m reinforced cement concrete (RCC) flood protection wall remains covered in debris and boulders today. The



wall is about 4.5m deep and about 8.7m wide.

Clearing of the muck on one side of the wall began on July 23. Until yesterday about 200m of muck has been cleared. “We could work with only one machine alongside the wall since there is no space for more,” the dzongdag said.

The overall cost for the clearing works is estimated to be about Nu 1.5M. Of the total estimate, Nu 194,875 has been used until yesterday.

“We do not have the budget for this work. We are requesting the Department of Disaster Management (DDM) to provide us with the budget,” the dzongdag said.

It was also learnt that during the visit of the works and human settlement minister, Dorji Choden on July 25, the minister extended her support to help seek fund from DDM.

The dzongkhag tender committee (DTC) on July 26 called a spot quotation among seven contractors who are also the residents of the town. The work went to the lowest bidder who had proposed the remaining works at Nu 1.2M.

Remaining works include the removal of muck on either side of the wall, removal of boulders and debris from the canal without damaging the riverbed and the walls. No restoration works would be included in the quoted bid.

For the safety of the residents living nearby, the contractor is not allowed to use hydraulic breakers and large dynamites to break the boulders.

The works will begin next month and will be completed within two months.

Meanwhile, the water level of the Mithimdrang stream has increased following a heavy downpour on July 26.

The flash flood triggered by a cloudburst from Rangshikhar on July 22 is one of the major disasters that have hit the town in the recent years according to the locals.

The flood lasted for more than an hour.

# Flash flood in Buna washes off road, paddy fields and poultry farm

August 3rd, 2018

Multiple flash floods including three major blocks along the Trashigang-Rangjung highway have cut off all traffic flow along the route since August 1.

A flash flood at Buna, about 12.5kms from Trashigang towards Rangjung, has completely washed away the road along the stretch.

According to local residents, the Buna stream suddenly swelled between 8-9pm following heavy rainfall in the area. “It has been raining here for more than a week now but that night the rain was unusually heavy,” a farmer said.

Another farmer, Chedup, lost about 1.7 acres of his paddy field to the flash flood. “I was at home when the stream suddenly swelled,” he said. “I immediately ran near the stream fearing that it would damage my crops which is located just below the stream.”

The 56-year-old said that by the time he reached near the stream, most of his paddy field was already covered in muck. “There was no way I could go near my crops and block the water. Few minutes later, my entire field was covered as I watched helplessly from the road above.”

Chedup is the sole breadwinner in his family of eight. “This land was the only source of income for my family. I’m not sure how we would survive now,” he said. “It is discouraging to see your hard work being washed away right in front of your own eyes.”

Another flash flood at Dramang, about 11kms from Trashigang towards Rangjung has washed away a semi-commercial poultry farm including the road in the area.

Residents said that a major flood occurred in the same place some 25

years ago. “Every monsoon we receive heavy rainfall but this time it was different,” said a farmer. “There was a loud roar after which everything along the way was completely washed away.”

The owner of the poultry farm, Nima Tshering, said he had alerted night guards of the impending danger following the continuous rainfall.

“However, it was too late to relocate the coops and other equipment that I had at the farm.”

The flash flood washed away three wooden structures including rice and corn mills. Around 400 pullets were also killed in the incident. Nima Tshering said that he lost around Nu 0.5 million worth of properties during the incident.

Another farmer from Radhi, Sangay Tenzin, said that the authorities

concerned failed to provide an immediate response. “There were passenger buses stuck in the block but the response team arrived very late at the scene,” he said. “If such practices continue in the future, there could be casualties due to lack of immediate response.”

Officials from the Department of Roads (DoR) in Trashigang said after receiving the news they had sent men and machines at the site to clear the blocks immediately.

A passenger bus en-route to Radhi was sent back to Trashigang from Lungtenzampa after clearing the minor blocks in the area on August 1.

DoR officials said the traffic is expected to open towards 7pm yesterday provided there is no rainfall.

## Heavy rain causes damages in Phuentsholing and Gelephu

June 25, 2019

Incessant rain last night caused several damages in Phuentsholing and Gelephu.

In Gelephu, the reinforced concrete cement bridge (10 metre) near the domestic airport was completely washed away. The incident took place between 2-3am after the stream beneath

swelled. A mini-tripper truck belonging to Sashastra Seema Bal (SSB) was also washed away. Multiple passenger busses and other vehicles were stranded along the road (1.5km away from the Gelephu town). Traffic was reopened around 9am after a bypass road was

constructed through the riverbed of the stream.

In Phuentsholing, drainage water flooded an automobile workshop in Toorsa this morning. Toorsa river has swollen but there are no risks reported at the moment. Two kilometres away from Gedu, about hundred vehicles are

stranded due to a roadblock. Works to clear the road are on-going. Landslides are reported at several places. In Kabreytar, police evacuated the residents at 3am. Toorsa and Omchhu have swollen and residents evacuated from the confluence of Omchhu and Toorsa.



# Flash flood damages properties in Lhuentse

May 2nd, 2019

A flash flood on April 29 evening has left parts of Lhuentse covered in debris.

The early childhood care and development centre (ECCD) in Nakeythang for 20 children was among the three public structures the dzongkhag lost to the flash flood.

Incessant rain swelled the Lekpagangchu stream caused the flash flood, which lasted for about an hour. The damage it left behind is the biggest for the dzongkhag in the last three years. The ECCD would remain closed for more than a week.

Lhuentse received one of the heaviest rainfalls in the country on April 29. A convective rainfall, which occurs for short duration and a normal incidence during the transition period from winter to summer, caused the flash floods,

according to the National Centre for Hydrology and Meteorology report.

The dzongkhag education sector plans to clean the debris with the help of parents who enrolled their children at the ECCD. However, the restoration of a room that the centre lost to the flood is expected to take more time.

Dzongrab Kinley Dorji said that preliminary damage reports were reported to the department of disaster management yesterday. “If the damage merits funding from the centre we have to wait,” he said. “Otherwise, we have a monsoon restoration budget that can be used for the renovation though it may not be enough.”

The dzongkhag’s annual monsoon restoration budget is about Nu 1 million.

Water sources that catered to residents living near a car automobile workshop at Jabin, which is about 14 kilometres away from Lhuentse dzong, an open-air gym at Nakeythang and the ECCD centre had started operation a year ago.

Temporary measures to restore water supply to nearby towns and residential area, and the roadblocks near Nakeythang were cleared on April 30.

Kinley Dorji said no major damages occurred at the water sources that supply water to the town and nearby residential areas near dzong areas. “Restoration works of damaged water pipes are on-going and we are planning to resume water supply in a day or two.”

Tenzin Dema, a resident of a nearby housing colony at Nakeythang

said the colony did not have water supply since the flash flood until yesterday. “We managed using muddy water and used clothes to filter it for drinking,” she said.

The single storied fire hydrant system pump house remains covered in sediments and muddy water. It was renovated last year and handed over to the dzongkhag police division for operation.

The flood also damaged a bridge connecting the dzongkhag court and its reconstruction is estimated cost about Nu 4 million. The dzongkhag administration said it would take time to restore.

Meanwhile, a roadblock at Jabin, Tangmachu that had stranded more than 30 vehicles along the Mongar-Lhuentse highway opened to traffic around 9pm on April 30.



# Heat wave and delayed monsoon caused Thorthormi to breach

July 3rd, 2019

The breaching of subsidiary lake II of Thorthormi lake on June 20 helped drain out about 2.73 million cubic metres (mcm) of water from the main lake, avoiding a disaster.

Officials from the National Center for Hydrology and Meteorology (NCHM) say the breaching was in a way like the artificial mitigating measure conducted in 2009-2012, but through a natural process. Between 2009-2012, lake Throthormi’s

level was lowered in what was called Operation Thorthormi to reduce risk of glacial lake outburst flood (GLOF).

Officials said the 2.73mcm of waters did not drain out at once, which is why there was not much impact downstream, but it happened in the course of three days and helped in lowering the water level in the lake by 0.80ms.

Experts, who went to Lunana to assess the lake, say consistent rise in

temperature in the months of April, May and June this year led to the melting of ice in the main Thorthormi lake, which caused a glacial surge.

Glaciologist Karma Toeb, who has been to the lakes more than 22 times said the presence of water accelerated glacier basil sliding, causing the rise in water level in the main lake on June 20.

Showing the ice blocks displaced about a metre away up from the shore of the main lake and at

the subsidiary lakes, Karma Toeb explained that the displacements occur only when there is a rise in water level.

“The rise in water level was caused by excess water and the source of the excess water was from the main lake itself.”

He said they initially suspected the rise in water in the main

# Heat wave and delayed monsoon caused Thorthormi to breach

Thorthormi to have come from Lugge I glacier, but when they visited the sites, they found nothing happened at Lugge Tsho and the dams between the two lakes and water outlets were intact.

Karma Toeb said the temperature sensor in Thanza station showed that there was abnormal

## What caused the breach?

Officials say the morphosis of Thorthormi lake is changing every day because of the rise in temperature and satellite images show lots of movements have taken place in Thorthormi lake and the displacement of glacier is more than 0.4 metres a day, which is considered high.

Karma Toeb said that because of the rise in temperature for the days prior to June 20, lots of melting took place inside Thorthormi lake and that meltwater within the glaciers caused basil sliding.”

He said that when basil sliding rate is high, it causes glacier surge. “When the surge occurred, it pushed the excess water, which overtopped and caused the new breach.”

He said the new breach is the weakest moraine. “When the excess water overflowed to subsidiary lake I, which had strong

rise in temperature this year.

He said the hourly temperature record of the last seven years showed that the highest temperature was on June 14, 15 and 16, which was above 16 to 17 degree Celsius.

moraine, it spilled to subsidiary lake II, which breached and drained out completely.”

Karma Toeb said 18,160 cubic metres of water was drained out from subsidiary lake II on June 20, which is why there wasn’t much impact downstream.

NCHM’s chief for weather and climate service division, Singay Dorji, said they conducted a lot of study after the breach of the lake and found out it was more to do with the heat wave this year and delayed monsoon.

## GLOF hazard

Karma Toeb said Thorthormi looks stabilised for now, but it would depend on factors such as weather parameters and other external triggers like seismic activity.

He, however, said glacial lake outburst flood (GLOF) hazards from lakes in Lunana like Thorthormi, Rapstreng and Lugge still remain high. “We are not

NCHM’s weather and climate division analysed the temperature trend from Thanza station and it showed that in the last nine years, the temperature of June this year was the highest.

“The monthly average temperature for April, May and June of last nine years shows that the concluding that Thorthormi is risk free.”

## Restoration of EWS and AWLS

There are 18 sirens, 15 along the Phochhu, three along the Mochhu and 10 remote automatic water level stations (AWLS) to warn vulnerable communities along the river valley downstream.

A team of experts, NCHM officials in Lunana, teachers and caretaker of Lhedi Primary School, health assistant and livestock officer reinstalled the AWLS of subsidiary lake II to subsidiary lake I.

Karma Toeb explained that they initially planned to relocate the AWLS to the main lake, but since the main lake now has two outlets, they had to shift it to subsidiary lake I to capture all water outlet.

In Thanza, officials rectified the damaged terminal assemblage by replacing the sensor’s damaged bubble pipe.

three months this year recorded the highest temperature. The temperature recorded for the months this year is above normal,” Karma Toeb said. “Satellite images also show lots of melting on June 1, 3, 13 and 15. This correlates with the temperature trend we observed.”

NCHM officials say that besides the usual monitoring of the water level through sensors, staffs manually monitors the water level thrice a week on alternative days.

## Way forward

NCHM officials say there is no way they could reduce the risk of GLOF but people could adapt through the GLOF early warning systems (EWS).

Karma Toeb said the EWS should be enhanced. “Right now our EWS is for detection but it could be enhanced to forecast and install seismic sensors.”

He said the temperature monitoring system should be reality based.

NCHM’s director, Karma Dupchu, said present EWS were installed in 2011 and it needs replacement. “There are also more hazards increasing by building infrastructure along the hazard zones.”

# Landslide buries three in Dumtey

July 24th, 2019

Two department of roads (DoR) workers and one private excavation operator, all men, died yesterday when a landslide buried them at Khalinggaon, which is about 22.5km towards Haa from Dorokha on the new Samtse-Haa national highway.

The incident occurred around 11am when they were cleaning a drain along the road. The landslide was caused due to incessant rain.

The two deceased who worked under DoR were both labourers, a 19-year-old from Mongar and a 39-year-old from Namgaychholing, Samtse. Both were working under the muster roll scheme and earned a wage of Nu 215 per day.

The 28-year-old machine (backhoe loader) operator was from Dumtey in Samtse. He operates the private excavation machine DoR had hired.

Dorokha drungpa Karma Jurmi, who visited the site with a team from police, gewogs, and DoR officials said the bodies were handed over to their respective families.

“Although they were still at the site due to block, they would be transshipped,” drungpa Karma Jurmi said.

He said that the Samtse-Dorokha road has been blocked between Halhaley and Dorokha due to landslides caused by heavy rainfall. The road is expected to open by noon today, he added.

The weather in upper regions of Samtse has not improved. It started raining on the night of July 22 and continued throughout the day yesterday.

This is the second fatal incident this monsoon in Samtse. In early morning of June 25, a landslide at Damphuchen village in Dorokha, washed away and buried a 11-year-old girl student along with her 65-year-old grandmother.



# Two lives lost in Lhuentse flashflood

July 27th, 2019

Search is still on for the bodies of two women, a mother and a daughter who were washed away by the flashflood at Dogarpang in Gangzor gewog, Lhuentse around 11pm on July 25.

The mother was 49, and her 23-year-old daughter was seven months pregnant. They were washed away when they tried to escape the flood



# Baunijhora floods again

July 27th, 2019

After 12 hours of digging and dredging, the department of roads (DoR) at 6:30pm yesterday cleared the sediments that had submerged the new Baunijhora Bridge by a flashflood early yesterday morning.

Roads officials still fear of a flashflood and yet another blockade.



# Empowering local leaders to tackle climate-induced risks

November 27th, 2019

If the Kabji Hoko Tsho (lake) bursts, Dongkola goenpa (between Paro and Thimphu) would be under water!

This is what village elders in the Punakha-Wangdue valley say when they discuss the lake. Some used this allegory to describe the size of the lake in upper Kabji valley in Punakha. Some in today's context relate this to the impending dangers of a lake burst.

The Punakha-Wangdue valley, most part of it, is located along the red zone in the disaster management's hazard zonation map. The two dzongkhags in the recent past experienced a glacial lake outburst flood.

Mindful of the impending risks, and to prepare and inform local government leaders on the state of climate, glaciers and associated risks of GLOFs in Punkha-Wangdue valley, a science seminar was conducted for local government (LG) leaders in Wangduephodrang yesterday.

It is expected that the skills of local leaders in understanding climate change adaptation and mitigation would be crucial in mitigating risks from natural disasters, especially from glacial lakes in the valley.

Their skills would be strengthened using hydro-met data and would let local leaders and communities have access to data.

Director of National Centre for Hydrology and Meteorology (NCHM), Karma Dupchu said, "Hydro-met data has become more precious in the light of changing climate to understand the past and predict the future."

The seminar, which also included officials from Punatsangchhu and Basochhu hydropower projects, was found necessary and timely as the flashfloods due to Thorthomi subsidiary lake breach in June caused panic and damage in the downstream settlements.

Karma Dupchu said that after the 1994 flood in Punakha, this year's flood was the second extreme event. "The most significant impact of climate change in Bhutan is the formation of supra-glacier lakes due to the accelerated retreat and melting of glaciers with increasing temperature."

The melting of ice from these receding glaciers are increasing the volume of water in glacial lakes, melting the ice core within the moraine dams. It leads to destabilisation

and damming materials, increasing the risk of GLOFs to a critical level.

This year alone, Bhutan reported cases of extreme climatic events such as windstorm, delayed monsoon, highest temperature record and shortage of drinking and irrigation water. It also caused climate-induced epidemic such as dengue in different parts of the country.

Official records showed that the month of April, May and June recorded the highest monthly average temperature compared to the last eight years.

Wangduephodrang dzongdag, Sonam Jamtsho said that it has been about four years since the dzongkhag received untimely monsoon. "People left their lands fallow and the dzongkhag administration took risk by encouraging the farmers to cultivate."

Intergovernmental Panel on Climate Change report 2019 found that glacier retreat and snow changes are causing decline in agriculture yield across the world.

About 70 percent of the settlements in the country are along the river valleys. Out of 2,674 glacier lakes in Bhutan,

17 were identified as potentially dangerous.

Meanwhile, a detailed assessment concluded that the flashflood of June 20 was caused by excessive melting of the glaciers, which in turn fractured ice towards the upper end of the glacier.

"Sudden displacement pushed ice masses along with water," said Phuntsho Tshering from cyrosphere services division in NCHM.

However, if a total breach of Thorthomi lake occurs, it would have triple the effect of the 1994 flood.

NCHM in collaboration with the Department of Local Government organised the seminar. UNDP funded the programme, attended by 18 LG leaders from Punakha, Gasa and Wangduephodrang dzongkhags.

Director of local governance, Kado Zangpo, said that there were plans to provide fund to about 100 gewogs to carry out climate change adaptation and mitigation activities.

Out of 2,674 glacier lakes in Bhutan, 17 are identified as potentially dangerous.

# No comprehensive study done on flashfloods in Wangdue

February 15th, 2020

If a flashflood occurs again in Wangdue’s Athang gewog, of the kind it saw August last year, devastation could be huge.

Mitigation plans are affected by an acute shortage of expertise and other resources.

Last year, the formation of an artificial lake upstream caused the small stream, Phangruchhu, to swell. As a result, there was massive structural damage and loss of human lives. Punatsangchhu Hydropower Project II suffered a loss of Nu 7.5 billion.

In response to the question from Athang-Thedtsho’s Kinley

Wangchuk in National Assembly yesterday, Home Minister Sherub Gyeltshen said that although the authorities concerned had carried out assessments at the site of the incident, there was no solid finding due to capital and human resource constraints.

The report submitted by the specialists from the National Centre for Hydrology and Meteorology, Department of Disaster Management (DDM) and Department of Geology and Mines had concluded that the flashflood was caused by an outburst of an artificial lake formed by a convective cloudburst.

Cloudburst occurs when warm air meets cold air

and saturated air meets unsaturated air.

The report was not comprehensive since the specialists couldn’t visit the source due to challenges related to the location of the area, Lyonpo said. “Topographical and geographical mapping couldn’t be conducted.”

Since the Punatsangchhu project started in 2007 before DDM was formed, Lyonpo said the project should be responsible and carry out disaster risk assessments to avoid loss. “Disasters are inevitable in the fragile landscape caused by drilling and cutting of the mountains.”

Constant disturbance to the landscape could have

caused disruption, Lyonpo said.

The home ministry, he said, was ready to carry out detailed aerial and ground surveys to confirm the causes of the flood and prevent such catastrophes in the future but there was shortage of budget and human resources.

Last year’s was the second flashflood in Zawa-Jarogang chiwog in Athang gewog.

According to flood hazard assessment for Wangdue by the human settlement ministry, there are two major rivers in Athang Gewog. Nyebachhu and Marachhu caused flooding in 1968 and 2017.

## 21 rescued from Maochhu yesterday

July 22nd, 2020

### Missing bodies recovered

Migma Norbu Sherpa along with his staff of a private crushing unit climbed on a mound of sand and boulders when the Maochhu level started to increase.

Migma Norbu Sherpa and 15 other people were stranded at the crushing unit located over 100 metres down the water treatment plant when the river level started to increase at around 12:30am on Monday. They didn’t dare to escape by crossing the river. It was too late.

On the other side of the swollen river was a lone man, who was stranded overnight at the Thromde



water treatment plant. Dendup Gyeltshen climbed on one of the water tanks as the water level kept rising.

“We tried to bring the caretaker with us towards midnight but to no avail. He was alone,” said Migma Norbu Sherpa.

As the water level started to fall the next morning, Migma Norbu Sherpa and his group of 16 people, all stranded near the water treatment

## 21 rescued from Maochhu yesterday

plant overnight were helped by the rescue team comprising of Royal Bhutan Army soldiers, police, DeSuups, forest and thromde officials among others at 8am yesterday. The staff of the crushing unit was working at the site for the past two years with family and children.

On the same night, four forest officials who were on Covid-19 duty at an observation point near the border area were also stranded towards the end of Maochhu where two observation points were built close to the border until 3am. Their colleagues along with the rescue team helped them to safety.

The works to reach the stranded people resumed by 4am yesterday after heavy rainfall increased water level and stopped the team from trying further on Monday night.

“I had my diner around 3:30am. I don’t know what I ate,” said one of the rescue officials. The rescue team also found the two missing bodies of the soldiers yesterday.

Meanwhile, the diversion wall that diverted water to the Thromde treatment plant and the fishery unit had collapsed, leading to the change in the course of Maochhu on July 20, according to officials.

Gelephu gup, Ugyen Wangchuk who is also a DeSuup said there is a need to do proper dredging and river protection walls to reduce the risk of flooding in the area.



“Now the dredging works are completed and the debris started to fill daily. This led to change in the course of the river,” he said. “Without proper dredging and protection walls, the situation would remain the same.

Several tributaries from nearby hills end into Maochhu increasing the water volume during monsoon.

About seven streams and rainwater from Aieslip, Balaykhochoa, and Passang chhu, Jogikhola, Dawlakhola, and Shetikhari, among others, flow into the Maochhu.

The diversion wall for the water treatment plant and the fishery was constructed in 2000, according to sources.

The water level at Maochhu during the flood increased to over 11.1 metres because of heavy rainfall. The highest rise in water level was reported at noon on Monday.

Officials from National Center for Hydrology and Meteorology (NCHM) said plans to install early warning systems at the critical flood areas are being explored. “The advisory warning of flood and heavy rainfall in the

southern region on July 18, 19 and 20 were announced,” he said.

The flooding has also caused minor damages to the paddy plantation located near the riverbank. However, the damages to the water treatment plant could not be assessed yet.

Kuensel could not contact the five contractors who were rescued from near the water treatment plant when the flood occurred.



# Heavy rains damage homes and properties in Tsirang

July 24th, 2020



Following heavy continuous rain since July 20, Tsirang reported more damages to properties, crops and public infrastructure.

A landslide on the midnight of July 21 damaged poultry shed, killing about 180 laying birds in Chuzomsa chiwog under Patshaling gewog. With the help of neighbours, farm owner Pema Tamang rescued about 100 birds from the damaged shed.

Senior Livestock Health Supervisor with the gewog, Amber Bdr. Gurung said that as there is no compensation scheme unless the farm is insured, they may consider a subsidy if there are heavy damages on the structure.

The consolidated damage report compiled by the dzongkhag disaster management unit recorded more than 30 other damages across six gewogs.

Patshaling gewog reported the most number of damages, 20 including six homes.

In Patshalingmaed, the mudslides on the night of July 21 damaged a house and washed away a carpentry shed. It was reported that the carpentry machine worth Nu 100,000 was buried.

Gewog officials have assessed the damages and advised residents to be cautious.

Except for two structures, Patshaling Gup Chabi Kumar Rai said that rest of them were not insured.

“We have also informed officials from Royal Insurance Corporation of Bhutan and they are yet to assess them,” the gup said.

The incessant rainfall has also damaged over 1.3 acres of cardamom plantation in the gewog.

The irrigation canals in Pemashong and

Zamlingzor chiwogs in Mendrelgang suffered partial damages. The gewog administration would restore the canals.

Damages to private irrigation canal were also reported in Barshongmaed under Barshong gewog. The gewog officials are inspecting the damaged structures.

In other gewogs of Rangthaling, Kilkhorthang, Pungtenchu and Barshong, multiple minor blocks on farm roads and gewog centre roads, and damages to public infrastructure were also reported.

The gewog officials were coordinating the clearing of the roads.

Meanwhile, UNICEF issued a press release stating that over 700 people have died and dozens are missing in across four countries in South Asia.

The monsoon rain has caused landslides across the country and is hampering transport and communication as the main highway and inter-district roads have been damaged. The flash floods were caused by the overflow of the seven streams and tributaries to the Maochhu.

“Even for a region that is all-too-familiar with the devastating impact of extreme weather, the recent heavy monsoon rains, rising floods and continued landslides are creating a perfect storm for children and families affected,” said Jean Gough, UNICEF Regional Director for South Asia.

“The Covid-19 pandemic and containment and prevention measures add an additional complication to the mix, as Covid-19 cases are accelerating in some of the affected areas,”she added.

# MHPA remains shut after Chamdey Gangchhu flood

October 3rd, 2020

The Mangdechhu Hydro Power remains shut down since October 1 midnight for safety after the Chamdey Gangchhu stream flooded creating an artificial dam above Bjeezam in Trongsa.

MHPA officials said that the plant has been shut and the flood gates of the dam opened to let floodwater out.

Officials said that everything was going well and that they preparing to resume generation.

The debris from the flood formed an artificial dam at the confluence of the stream and Mangdechhu river, which still poses risk to the plant. It is not revealed when the plant's operation would resume.

The flood also swept away belongings of six families near Bjeezam leaving them homeless. A shop, two huts and the bridge to Nubi gewog centre were washed away.

The backflow of water from the artificial lake has submerged the manual gauge and monitoring station of the early flood warning system.

One of the tenants and a construction worker, Ram Badhur lost everything.

“Luckily it happened before dusk, if not we might have lost our lives too,” he said.

“Even my mobile phone was washed away with my certificates.”

Had it not been for the tenants and neighbours, Matia Rai would have been washed away along with her shop. They literally dragged her out from her shop as the water subsided. She was found half-submerged in the water. “I couldn't do anything. I kept praying,” she said.

With the water level subsidised the tenants and other friends helped her get out. “I am left with nothing,” she said. She was wearing borrowed clothes yesterday.

Suk Bahadur Rai said that it would be difficult for them to live there as it is all covered with debris.

“We would be grateful if we are given a substitute land to settle,” he said.

A local resident, Sonam said that artificial dam bursts it could affect the nearby settlements.

The stream flooded two times this year, but the earlier one was a minor flood.

The dzongkhag kidu office disbursed His Majesty's Royal Semso and other essentials to the victims. Disaster management committee handed over the emergency disaster kit.

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## Landslides force 7 families to evacuate

October 6th, 2020

Seven families living in makeshift houses in Rochu near Punatsangchhu Hydroelectric Project I (PI) powerhouse were evacuated as landslides threaten their homes. Rochu is around 20km from Bajo, Wangdue.

Continuous rainfall the previous day triggered multiple landslides on the slope above the Wangdue-Tsirang highway.

Debris from a landslide damaged a room of Krishna Bdr Rai's home and the land behind another house.

Krishna Bdr Rai said that while the residents wanted to run towards the road above their colony for safety, the route to the area was blocked. “So we ran through the forest and spent the night along the road,” he said.

The residents of the colony have been living there for 13 years. Two households collected their belongings and left the area yesterday evening.

Some said while numerous calls were made to officials, no one turned up to help.

One of the relatives claimed that he had called Wangdue police, who directed him to contact the substation in the area. “Police official said they would visit the area. I don't know if they visited but no one came for help.” Kuensel learnt that Zawakha police was engaged in evacuating and clearing landslide at various areas along Basochhu. And there were some miscommunication about the location.

Until around 8pm yesterday, five families remained in their homes despite the risks.

One of the residents, Muna Limbu said that without any relatives in Wangdue, shifting was difficult.

“My grandfather cannot even walk. Last night, I had to carry him on my back while running to safety.”

However, after the rains continued the families moved to with their friends and relatives for the night.

“I have a daughter in Bajo. So I had to come because my children were really scared to be there,” Bir Maya Subba said.

# Flash flood damages nearly 3 acres of paddy

October 9th, 2020

A flash flood in Ruecheykha village, Ruebisa gewog has damaged more than three acres of ripe paddy belonging to 11 households.

According to Ruebisa gup Karma Wangdi, the flood occurred past midnight on October 4.

He said that the disaster had damaged paddy fields at a time when the harvest season was a few days away. The same flood has also damaged farm roads to Jala village.

Ruecheykha village didn't have electricity for two days as the flash flood disrupted power lines.

Ruecheykha tshogpa Kado said that the households were provided temporary water supply as the existing water sources were damaged.

"Kitchen gardens and around 30 litchi trees and other fruits were also damaged," he said.



Excessive rain for two days had triggered the brook above the village to flood.

Kado said that the mudslide flowed through Ruecheykha village, and damaged over five road turnings to Jala. "Then the flashflood flowed straight to the river", he said.

Today, the Punatsangchhu Hydroelectric Project I (PI) is clearing the roadblock between Jala bridge along the Wangdue-Tsirang highway and Ruecheykha village.

PI has its butterfly valve chamber (BVC) at Ruecheykha.

Gup Karma Wangdi said that damage report was filed to the department of disaster management and other relevant officials.

"We were hoping that PI would continue to clear the blocks to Jala. I have talked with PI officials. I hope they would help us like in the past."

Ruecheykha village is located around 10km away from Jala. Numerous landslides along the Ruecheykha-

Ula road were also reported the same night. Ula is also cut-off from the gewog today.

Tshogpa Kado said that the farmers were currently using an old path to commute.

"PI might clear the road from Jala bridge to Ruecheykha, which is around 7km. From there, if farmers are to clear the road, it would take some time."

## Landslide in Garzhikha

July 22nd, 2021

A landslide buried an attached toilet in Garzhikha, Wangdue yesterday morning.

The landslide occurred around 4:30am.

No casualties were reported.

According to Bjena Gup Khandu, a machine was also deployed yesterday and had cleared the slide to avoid further storage of water to avoid slides.

"The main house is safe. The landslide had just passed over the toilet,

which was attached to the house."

Yesterday, the gewog and dzongkhag officials processed required documents for insurance, Gup Khandu said.

He added that the house resided below wetland areas, which had overflowing water due to rainfall. "There was heavy rainfall at night prior to the slide. That was the lone house in the area."



# Shetikhari stream flooding remains a threat to those nearby

October 24th, 2020

Almost two years since dredging and surface collection began along Shetikhari stream in Gelephu gewog, those living nearby were left exposed to the threats of flooding.

There are no mitigation measures in place to date except for seasonal dredging and emergency excavation when settlement nearby gets flooded.

Dredging for three kilometres at Shetikhari is contracted to two different private companies.

Most of it is carried out by KN Construction Private Ltd and the rest by NRDCL.

The construction of walls at critical points remains incomplete.

Gelephu gup, Ugyen Wangchuk said that it was discouraging to see farmers lose their fields to flash floods during monsoon. The gewog is hoping to see mitigation works in place before the start of the next monsoon.

“We need to secure the lives and public properties located alongside the stream. Dredging at the upper part of the river was done properly. But, the dredged area at the lower part gets filled within 30 minutes, causing a flood,” he said.

Surface collection and dredging works along the Shetikhari stream was divided into two parts.



The first stretch, starting from Zomlingthang was allotted to KN Construction Private Ltd in 2019.

NRDCL had allotted dredging works along the remaining stretch to other contractors.

KN Construction Private Ltd was required to build 100 metres of protection wall every year in the critical areas, dredge, and build a motorable bridge connecting Zomlingthang, Pemathang, and Pelrithang, according to the gup.

The company had built a motorable bridge and also carried out dredging for at least three times a year as per the agreement. This saved millions of money the gewog administration had to spend for dredging works.

The proprietor of the KN Private construction Ltd, Karma Nidup said that building a protection wall along the critical areas could not be done so far. “But, other mitigation

activities were carried out as per the agreement,” he said.

He added that NRDCL should help build protection walls at the site like it was done in the remaining parts of the stretch. “I had been paying over Nu 2,000 per truck (10-wheeler) for the river bed materials (RBM) collected from the site. It would mutually benefit the gewog, government, and me,” Karma Nidup said.

He added that his crushing unit had been running in loss to date. “Almost 70 percent of RBM collected are waste. I have to pay over Nu 700 per truck to use that waste material,” he said.

At a consultative meeting held in Gelephu gewog last week, an official from NRDCL said that the construction firm was allowed to collect RBM from the site at a lower rate compared to those collected from other river beds.

“There were mitigation works like dredging, building approach roads and other work to be done at the site,” said the official.

A private exporter had to pay Nu 2,290 for six wheelers while the cost of materials collected from the Shetikhari Khola for 10 wheelers was Nu 2,022.

He added that it would be difficult for other crushing units to sell their aggregates if the cost of materials at Shetikhari is reduced further. There is a need to ensure a fair market rate and control market rate fluctuations, according to the official.

Manager with NRDCL Choney Dorji said that the organisation was not consulted when the dzongkhag issued approval to set up a crushing unit at Shetikhari.

“This is not related to dredging. We have separate terms of agreement with the contractor when it comes to dredging at Shetikhari,” he said.

The official added that all mitigation works were carried out at the site to date. NRDCL in consultation with the gewog administration had constructed a 150-metre protection wall at a critical area below the Gelephu-Trongsa highway.

# Flood mitigation structures construction at Maochhu begins

November 14th, 2020

Gelephu Thromde has started planning new mitigation structures along the Maochhu. The dzongkhag has spent millions building levee and other protection structures.

Sarpang dzongdag Karma Galay said that the dzongkhag had requested a holistic programme from the work and human settlement ministry. “We have provided an uninjured reaction during a flood so far, doing small works here and there. Over time we had cumulatively spent a huge amount.”

He added that it made sense to undertake a bigger project, a sustainable and one-time intervention. “But, these are going to cost huge.”

A flash flood triggered by a heavy monsoon in July washed away a 200m-gabion wall, parts of

Bhutan Football Federation’s football pitch, and the supply line of thromde’s water treatment plant.

Four soldiers lost their lives trying to rescue stranded people.

Maochhu course is diverted back to the main course with the construction of more than 250m boulder wall, replacing the gabion wall that was washed away during the flash flood in July.

Gelephu Thromde has started foundation work to construct RCC lining and embankment walls at one of the critical points—near the point where Shetikhari stream joins the Maochhu.

The thromde is carrying out river protection walls worth Nu 20 million with fund support from the

department of disaster management.

Chief engineer with thromde, Ugyen Dorji, said the temporary structure built along the Maochhu might not restrain the monsoon flood. “There is budget constraint and it’s not feasible to build concrete lining along the whole stretch.”

He added that the situation would remain the same unless separate riverfront development measures are taken up. Gabion structures last only for three to four years.

So far, all mitigation projects along the Maochhu have been based on trial and error method, according to the official.

An inception report by Netherlands Enterprise Agency and Flood

Engineering and Management Division, MoWHS stated that Bhutan suffers in general from a lack of data and information.

Nearly 10,000 acres of arable land have been eroded so far.

According to the report, nearly 10,000 acres of arable land have been lost due to flooding along the Maochhu banks.

The report stated that river course changed periodically. The flood in July occurred with the change in the course after the protection collapsed near Shetikhari. “Flood problems in Gelephu are caused by heavy rainfall in the upper catchment areas. Because of the very steep mountains, high discharges are observed in the downstream part of the rivers.”

## Danger of wrathful waters in Lhuentse

November 17th, 2020

**Low-lying areas of Lhuentse face twin risk of GLOF and artificial dam burst**

Autsho town in Lhuentse faces the risks of glacial lake outburst flood (GLOF) from the source of Khomachhu and an outburst flood from an artificial dam formed by Tsatichhu.

The town is located in the Kurichu basin at 868 metres above sea level and 85 metres from the river bank. It covers 200sq. metres and is populated by more than 1,000 people making up 72 households, including 14 shops and Autsho Central School.



# Danger of wrathful waters in Lhuentse

Flood Hazard Assessment for Lhuentse Dzongkhag conducted by the Ministry of Works and Human Settlement in 2019 underlined Autsho’s vulnerability to flood as ‘the most critical and identified to need to produce hazard map’. The study recommended the creation of flood hazard maps for the settlement and update them regularly.

## Threat from Tsatichhu artificial dam

The Tsatichhu dam was formed in September 2003 when an entire hillside slid down and blocked the course of Tsatichhu stream in Jaray Gewog. The dam is formed by 33 million cubic metres of debris. It is 1.4 sq. km, 113 metres deep and contains 12.5 million cubic metres of water.

The dam was initially thought to be stable but it partly burst on July 10, 2004, resulting in a massive flood. The flood submerged part of Autsho town with water level reaching up to the second floor of some houses. After the burst, the water level of the dam decreased by only five metres.

The chief geologist of the Department of Geology and Mines (DGM), Ugyen Wangda, said a heavy downpour that loosens the soil will cause in the wall of the dam to burst.

A field study carried out in May 2004 by a taskforce from the DGM alongside consultants from Kurichu Hydropower Project found that the landslide that formed the dam measured 2,354metres on the top

and 1,710 metres at the base.

A geologist from the DGM, Ugyen Namdol, said that weathering of angular boulders and prolonged inundation coupled with saturation caused by extreme weather conditions would lead the dam wall to give way.

Another study carried out by the DGM on the stability of the Tsatichhu dam from July 10-19, 2004, assessed the downstream hazard from the dam. The study found that heavy rainfall could feed supplementary inflows which would cause the water level to rise and burst the wall. The study warned of serious threat to settlements and infrastructure downstream.

Ugyen Namdol said an eventual Tsatichhu dam failure could be similar to the cloud burst that occurred at Punatsangchu II, adding that the hillsides are made up of ‘graphitic phyllite rock’ or loosely structured rock which tends to crack and disintegrate at any irregular earth movement. In such an event, a huge landmass can fall into the dam leading to an outburst.

If the dam bursts, besides Autsho, the flood or, as the locals put it, the ‘wrath of waters’ could damage low-lying areas such as the farm road to Ladrong and Khuling, paddy fields in Rewan, and perennial landslide area of Rothpazhong.

Moreover, the Kurizampa bridge, which is about 8 metres above the water level, and Kurichu

Hydropower are at serious risk.

However, Druk Green Power Corporation says it sees no risk to the hydropower project from the possible flood.

The Disaster Management Committee of Lhuentse Dzongkhag said that it had not monitored the dam since 2004 dam failure. But it has plans to monitor the dam.

Lhuentse Dzongda, Jambay Wangchuk, said that climate is unpredictable and the risk reduction methods for low-lying areas will be conducted based on research evidence.

**Threat from GLOF** Autsho town and other low-lying areas in the Kurichhu basin also face risks from GLOF.

A study on re-assessment of glacial lakes in Bhutan piloted by National Centre for Hydrology and Meteorology (NCHM) in 2019 listed Terjatse Tsho as potentially dangerous. The lake feeds Khomachu, a major tributary of Kurichhu.

Terjatse Tsho is located at an elevation of 4,373 metres. The latest images show the lake has a surface area of 167,450 square metres. International Centre for Integrated Mountain Development (ICIMOD) reported 161,706.43 square metres surface area in 2001.

Glaciologist Karma Toep from NCHM said that Terjatse Tsho is potentially dangerous due to steep morphology at the outlet of the lake. An attempt at ground verification could not be

successful due to avalanche.

ICIMOD in 2016 reported that the biggest climate-related threat in Bhutan was GLOF. The centre reported that Bhutan’s 24 weather stations showed a rise in temperature of about 1 degree Celcius in summer and 2°C in winter since 2000.

Bhutan Glacier Inventory 2018 by NCHM identified 90 glaciers covering 55.29 square km area in the headwaters of Kurichu described as the most dominant type of mountain glaciers in the basin.

In the event of a GLOF from Terjatse Tsho, besides Autsho and other low-lying areas downstream Kurichu, the flood could damage settlements by the banks of Khomachu such as Khomagang, Dhenchung, and Tsikhang.

Khomagang is located at 2,126 metres and 80 metres away from the bank of Khomachu. The village has eight households and experiences frequent flash floods due to extreme weather conditions in the mountains.

Dhenchung village is located at 2,292 metres and 50 metres from the river bank. Tsikhang Army outpost is around 500 metres upstream of Dhenchung and is about 45 metres from the river bank. Khomagang, Dhenchung, and Tsikhang are collectively known as Tsangno. A severe flash flood in July 2011 damaged some swatches of land in Tsangno which will face the brunt of a GLOF.



# Dangers in the shadows of the Himalayas

February 10th, 2021

As we watch, and watch again, the images of the glacial lake outburst flood in the Indian state of Uttarakhand reminds us of our vulnerability of being located in the fragile Himalayas.

The topography, the vegetation and the river system at the flood site looks no different from ours. Settlements along the river, hydropower projects to tap the white gold, roads and bridges that connect our remote places can all vanish in a few seconds when nature strikes.

In Uttarakhand, a portion of the Nanda Devi glaciers broke off on Sunday morning, triggering a massive flood that killed at least 30 people with 190 still missing as of last night. The cause of the GLOF is attributed to glacier calving. That was what was visible to the eyes, the bigger and more worrying unseen reason is what caused the portion of the glacier to calve when temperatures are below freezing point.

Even as scientists explore the reasons behind the reason, all fingers are pointing to climate change or global warming. This is the second time in less than a decade that the state experienced GLOF. It is an indication that the dangers are clear and present.

The GLOF comes as a reminder of our vulnerability. As climate changes, GLOF are becoming more common. It is proven that global temperatures are rising and glaciers are melting, creating lakes that can burst violently, devastating communities and properties downstream.

We are in the same region where scientists have confirmed that glacial melting rates have increased. Our own experts have confirmed, as recently as November 2020 that the 700 glaciers in Bhutan are losing mass at an alarming rate, to the extent that the glaciers could disappear in the next 50 years if the trend continues.

The biggest problem with glaciers and GLOF is that there is no warning when a lake would burst. With increase in global temperature, the natural moraine dam, mostly pile of rocks and soil with ice, can be breached with the slightest disturbances like glaciers caving or the moraine dam itself melting.

The warnings are scary. It is said that by 2035 the Himalayan glaciers will have drained themselves and, in a century, we will be staring at the bare rocks of Himalayas. We have experienced the impact before and even intervened by artificially lowering the level of water in the glacial lakes. We are known as champions of the earth. Our carbon emission is in the negative and we have a rich environment. The problem is what we do is not enough and we will pay the price of what others do or not do.

While stopping climate change is out of our hands, we should focus more on what we can do following the Uttarakhand experience.

Hours after the GLOF, Indian rescue teams including Paramilitary reached the disaster site to carry out a massive rescue operation. We do not have the resources or the capacity to do the same. We have not taken it seriously even if we are aware of the impending dangers.

A similar incident in the Lunana glaciers could spell disaster to the entire nation. We have two massive debt-ridden hydropower projects downstream of the Punatsangchhu. Worst, we are seeing more settlement along the river even after the hazard zonation. Khuruthang and Bajo town are in the red zone, yet we cannot stop settlement kissing the Punatsangchhu. Should we wait for an Uttarakhand experience to act?

The Sunday GLOF in India is far away from Lunana, yet so close to us. Mother nature is warning us to learn and act.

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## High probability of Uttarkhand-scale flood in Bhutan

February 18th, 2021

The devastation caused by the Uttarakhand floods earlier this month has once again brought into sharp focus the vulnerability of the fragile mountain ecosystem in the Himalayas. The probability of such climate-induced events, according to experts, is high in Bhutan.

With over 70 percent of the settlements in the

valleys and major hydropower projects development along basins, a glaciologist with the National Hydrology and Meteorology Centre (NCHM), Toeb Karma, said that a flood of Uttarakhand-scale was likely to occur in Bhutan.

Although media reports attributed the cause of the Uttarakhand flood, which killed hundreds of

people and damaged two hydropower projects, to ice breakage, avalanche, and collapse of a rock's edge, Toeb Karma said that it could have been caused by rupturing of a lake hidden beneath or within a glacier called in-glacial lakes.

Although the lakes are not visible on the surface, occurrence of in-glacial lakes are common in the

Himalayas. Bhutan does not have official records of the in-glacial lakes, but Toeb Karma said that it was prominent in the country. "There is a 13km in-glacial lake at Tshojong in Lunana."

Rupturing of in-glacial lakes can be triggered by earthquakes, which might cause rockslides



# High probability of Uttarkhand-scale flood in Bhutan

and landslides in steep terrain.

Records with NCHM show that the incidence of small-scale Glacial Lake Outburst Floods (GLOFs) has increased since the 1994 flood. “Uttarakhand incidence is a good reminder to Bhutan,” said the director of NCHM, Karma Dupchu.

He said that the Mangdechu project was at a higher risk. Mangdechu has five potentially dangerous glacial lakes upstream. “Mangdechu is a flashy river and the gradient is high.”

In flashy rivers, floods occur and recede suddenly in a short period of time.

NCHM estimates show that, from the monitoring room in Jongthang to Mangdechu dam site, the flood will only take about 50 minutes, and 88 minutes from Jongthang to the power plant.

According to reports, if the moraine dam breaches at Thorthormi lake, there will be 53

million cubic metres of water rushing down.

## What can be done?

The government has identified 17 potentially dangerous lakes in the country. Water levels of Thorthormi and Rapstreng lakes have been reduced to safe levels. Hazard zonation maps and early warning systems (EWS) have been installed along Mangdechu, Chamkharchu, and Punatsangchu.

This, however, is not enough, according to Karma Dupchu.

He said that there was a need to upgrade EWS to a flood forecasting system, which needs more funds and government support. “EWS is the future. The casualties in Uttarakhand dam site could have been minimised if they had EWS.”

Most of the victims were power projects’ workers.

Although EWS had a life span of only five years, Karma Dupchu said that the EWS along Punatsanghu was used for over 10 years. They

were maintained with the help of the United Nations Development Programme.

He said that the centre and Druk Green Power corporation should enhance partnerships to install and sustain the EWS infrastructure instead of depending on donors. Punatsangchu and Mangdechu projects co-financed the initial installation but not maintenance.

Installation of EWS along Wangchu is underway with support from the Japan International Cooperation Agency. A recent assessment has shown expansion of glacial lakes in the Pachu basin.

He said that to create a vibrant, research- and science-driven centre, there should be a separate office instead of being embedded within the ministry compound. “The science-based organisations should be well-equipped. We don’t even have enough space in the current office.”

He said that, during the lockdowns, it was difficult to maintain

data and monitoring activities. Duplication of weather and climate-related projections by individuals, agencies, and institutions impeded the centre’s role in disseminating correct projections.

The centre also faces challenges due to lack of technology and equipment, inaccessibility to glacial lakes, and lesser window of opportunity to carry out surveys and monitoring works.

Bhutan has 700 glaciers that are losing their mass or retreating at an alarming rate. Experts warn that glaciers could disappear in the next 50 years if the trend continues.

The region has about 15,000 glaciers, which are retreating at a rate of 100 to 200 feet per decade. In Nepal, Bhutan, India and Pakistan, a large number of glacial lakes have been deemed imminently dangerous by the International Centre for Integrated Mountain Development.

# Ruecheykha residents want flash flood debris removed

March 6th, 2021



Residents of Ruecheykha in Jala, Wangduephodrang, are still recovering from the flash flood that occurred last October.

Three households have requested for settlement, saying they are scared another flashflood might occur this monsoon.

Other villagers have requested the dzongkhag and gewog to remove the debris the flashflood left on the road.

Villagers still remember how the irrigation water in the village turned into a flash flood, damaging fields belonging to 11 households when paddy was ready for harvest. Ruecheykha village has 20 households.

Following the flashflood, power lines were disrupted and water sources damaged.

A farmer, Gyeltshen, said the three households that requested resettlement are close to the stream and it posed a risk to the residents.

Jala tshogpa, Kado, said clearing works were done near four houses in Ruecheykha after the flash flood. “There was a big boulder near one house.”

The flashflood also damaged the farm road connecting the village and Jala. “Before the mudslide ran through the village, it also damaged over five road turnings.”

Kado said the road was cleared with gewog budget.

However, villagers say debris above the turnings pose a risk for commuters, especially with monsoon approaching.

A villager from Jala, Damchoe Dorji, said that, during the flash flood in October, he was stuck in the village for two weeks.

He stays in Bajo but had gone to his village to treat his wife. “There were others who were also stuck here. We didn’t have issue with ration but it was risky for those who needed medical assistance”

Damchoe Dorji said that, although the roads were cleared today, it still posed a risk to commuters. “Debris above the road might come down during heavy rainfall. We worry that the road will be further blocked by the flash flood.”

Chiwog tshogpa Kado said he requested the dzongkhag disaster management team to pave a new 1km road stretch to avoid the path

along the flashflood area to avoid more damage to the existing road. “We’ve also informed about the risks there is to the three households.”

While the gewog and dzongkhag together cleared the blocked routes and debris near the households, villagers are yet to receive crop compensation.

Gyeltshen said villagers have to prepare for the paddy season but the fields are damaged. “We’d be grateful if it’s cleared.”

Ruebisa gup Karma Wangdi said they conducted inspection for crop damage and filed a report to the Department of Disaster Management. “We clear the road whenever necessary.”

# Lhuentse dzongkhag resolves to fight GLOF and floods

March 30th, 2021

The disaster management committee of Lhuentse dzongkhag has decided to conduct an in-depth study and assessment on the potential risk of glacial lake outburst flood (GLOF) to the low-lying areas of the dzongkhag. The decision was taken in a recent committee meeting attended by the dzongdag, gewog leaders, and other committee members. The dzongkhag has decided to build flood protection walls in Tsikhang, Khoma, Sumpa, and Autsho town.

The meeting decided to seek support from the Department of Disaster Management (DDM), the National Centre for Hydrology and Meteorology (NCHM), and the Department of Geology and Mines (DGM) to save Lhuentse from potential threats of GLOF and flash floods.

The dzongkhag will consult relevant agencies and experts to install an early warning system at various locations where threats of lake outburst are real. The dzongkhag has limited capacity to carry out any study on such threats. The committee chairperson, Dzongdag Jambay Wangchuk, told the meeting that the meeting's sole purpose was to discuss the heightened risks associated with GLOF to low-lying areas of Lhuentse highlighted by this reporter's story. He said the meeting was primarily deliberated on the implementation plan for risk reduction methods and frameworks to respond to GLOF.

## Deliberations

The discussion focused

on risk assessment and mitigation plans alongside Khomachu and the settlements in the Kurichu basin, particularly Autsho. Autsho has been identified as a high-risk area. Dzongkhag Tshogdu (DT) chair and Jarey Gup, Kinzang Minjur, called for an extensive study to assess threats so that the dzongkhag could develop risk mitigation and adaptation mechanisms. Chief DEO Ugyen Pem proposed that the history of threats and risks to people's lives and infrastructure be studied for mitigation.

Khoma Mangmi Pema Tshering contented that the lake that posed the threat of GLOF is not Terjatse Tsho but Toh Toh Tse Tsho, which is likely to burst at any time. He said relevant agencies must carry out a risk assessment, hazard zonation and vulnerability to GLOF and artificial lakes for any intervention to begin.

Tsenkhar Gup Tsheten Wangdi echoed a similar view calling for flood protection walls and identifying safe places in the event of a natural disaster.

DT chair informed the meeting that Tsatichu artificial lake, which falls under Mongar Dzongkhag, was least likely to burst. Druk Green Power Corporation, in an earlier report, stated that the lake did not pose any threat, but there is no update on the status of the lake. Tsamang Gup Sonam Dargay said that, although the artificial lake did not pose an imminent threat, it was important to be prepared for any possible danger.

## Response from agencies

Lhuentse dzongkhag is planning to seek support for mitigating the twin risks of GLOF and artificial lake outburst from DDM, NCHM and DGM. However, these agencies are not in a position to support the dzongkhag financially. Instead, they suggest an "integrated approach" to disaster response, whereby they provide technical support and the dzongkhag mobilises financial resources. The chief of the Risk Prevention and Reduction Division from DDM, Thinley Norbu, suggests that the dzongkhag disaster committee prepare a contingency plan for risk reduction and implementation. The department expects to receive an official confirmation from Lhuentse dzongkhag on a systematic approach and a preparedness contingency plan.

Meanwhile, the director of NCHM, Karma Dupchu, said there was no need to install an early warning system for Kurichu as settlements are limited to Autsho, a small community. He added that people could be alerted of an impending disaster even without an early warning system in place as long as they are connected to mobile networks. "Moreover, we have our technicians placed in Sumpa, Autsho and Kurizampa to inform people about floods," he said.

Karma Dupchu said the installation of an early warning system needed to be studied from the cost-benefit point of view because it was

challenging to operate it as maintenance is laborious.

However, the chief of Hydrology and Water Resources Services Division of NCHM, Tayba Buddha Tamang, said an early warning system for the Kurichu basin would be definitely activated in the future. "Currently, we're working for Wangchu in Thimphu and Pachu in Paro," he said. For this to happen, the dzongkhag has to mobilise funds to conduct study and assessment for potentially dangerous glacier lakes as NCHM does not have financial resources.

Chief glaciologist of Cryosphere Service Division of NCHM, Karma Toep, said, "We can provide critical apparatus and technical expertise only if the dzongkhag mobilises financial resources with a systematic approach to conduct an assessment for Terjatse Tsho." He suggests a broad, holistic approach if the early warning system has to be activated in the Kurichu basin.

DGM has no plan to update its study on the stability of Tsatichu artificial lake and risk assessment as there is no proposal to do so from either Lhuentse or Mongar dzongkhags. The director general of DGM, Choiten Wangchuk, recommends that dzongkhag formally seek technical assistance and expertise if there is a need to conduct a re-assessment for Tsatichu artificial lake. Meanwhile, the co-ordination among different government agencies to mitigate the threats of GLOF and artificial lake outburst of floods is hinged on financial resources that none of them has.

# Landslide threatens Dobji Dzong

April 14th, 2021

As usual, Dobji Lam Yeshe completed the night study and was on his way to the toilet when something nearby rumbled.

It was at around 9.30pm. Some of them at the shedra (monastic school) ran to the exit door of the courtyard. By then, Lam Yeshe said that the landslide took away the retention wall and a temporary store constructed near the exit door. The incident happened on April 12.

In 2013, a similar landslide incident happened, and the gewog built a 50 metre retention wall adjacent to the *utse* (central tower). The shedra built the temporary store to house essential items as the *utse* was being renovated.

Essential items such as clothes of mask dancers (cham gho), utensils, mattresses, thongdrel items were lost in the landslide.

According to Lam Yeshe, the retention wall had bulged after the recent earthquake and the constant rain in the past few days caused rainwater runoff from the dzong over the loosened soil above the wall.

Monk's toilet near the store hairline cracks. The lam said that the bathroom has to be relocated.

No casualties were reported. Dzongkhag officials, police, and experts from Thimphu assessed the damages yesterday.

Dogar Gup Lhap Tshering said that the gewog had requested both dzongkhag and the Department of Culture to build a retention wall at the earliest. He said that if the sliding area was not fixed, rainfall and windstorm might affect other structures.

To divert the rainwater runoff from the rooftop, he said there was a need to construct a gutter. Otherwise, he said that there could be more landslide due to incessant rainfall.

A group of volunteers from Dogar will start clearing the debris from today. Dobji Dzong under Dogar Gewog in Paro is considered as one of the first Dzongs in the country.

Paro dzongkhag disaster focal person, Naphey said that the main dzong was intact. He said that the dzongkhag was awaiting a directive from DoC to build a retention wall. "Dzongkhag engineers will estimate the cost which will be forwarded to the finance ministry."

He said that the dzongkhag was working in collaboration with DoC experts to build a proper wall to prevent landslides.

Ngawang Chogyal, the brother of Drukpa Kuenley, popularly known as the "Divine Madman," built Dobji Dzong in 1531.

## Lhamoidzingkha in need of flood mitigation walls

May 4th, 2021

Situated between two giant rivers of Sunkosh and Kalikhola, residents of about 50 houses in Lhamoidzingkha and Kundrelthang chiwogs in Lhamoidzingkha, Dagana, live in fear of flooding every summer. Local residents say changing river courses and swelling during monsoon pose threat to their lives and properties. They said except for a few embankment walls and emergency excavation when settlement nearby gets flooded, there were no major flood mitigation measures put in place. Between 2011 and 2017, a mitigation wall was constructed along the river Sunkosh in two phases. Lhamoidzingkha gup, Surja Bahadur Limboo said that although there was a plan for the third phase construction, work couldn't be executed without a budget in the current plan. "A 600ms long wall is required along the river to protect nearby settlements." He said Kundrelthang chiwog is at high risks of flooding, as the river changed its course and flows towards the village. "We've written to the drungkhag administration last year, requesting for budget to divert the river course," he said. "It couldn't be done, as it required permission from Indian counterpart." The gup said floods washed away protection walls constructed along the river in the 1990s. Kundrelthang tshogpa, Barun Majhi, said that if the mitigation measures are not put in place at the earliest, 28 houses might be affected. "There are also government reserved forest and private reserved land at the site." He said that although the wall constructed between 2011 and 2017 was built to protect at least 35 households, floods washed away most of the walls last year. With financial support from the dzongkhag disaster management committee, a wall measuring 60ms was constructed along Kalikhola last year at a cost of Nu 500,000. Gup Surja Bdr. Limboo said that although temporary mitigation measures like seasonal dredging and river course diversion could be done along the Kalikhola river, a flood mitigation wall is necessary to protect settlements near river Sunkosh. "With monsoon nearing, the threat of flooding is even more," he said. The issue of a need for a flood mitigation wall was also raised during the ninth dzongkhag tshogdu (DT) last month. The DT recommended the gewog administration to study the potential risks and submit the report. The gup said they would soon carry out the study and submit the report along with estimated cost. The dzongkhag administration has also kept a provisional budget of Nu 0.583M for construction of flood mitigation wall in the fiscal year 2021-2022. Local leaders, however, said that a huge budget is needed to construct a wall. Meanwhile, Kalikhola is said to have flooded more than five times since 1992.



# Saving Toorsa banks from flooding

May 21st, 2021



Phuentsholing has been experiencing heavy downpours for the past week with the onset of monsoon. Toorsa river is swelling and has turned brown.

If some mitigation measures aren't up in time, residents are worried about flooding.

Since the lockdown was enforced on April 16, construction work at the Phuentsholing Township and Development Project (PTDP) along the Toorsa embankment have completely stopped. With this work stopped critical work has also stopped, according to the sources.

Prior to the lockdown, AFCONS Infrastructure Limited had stopped the temporary protection wall construction to raise permanent protection. However, the work had not been completed. This exposes the area to flooding risk.

Rigsar Construction was working on it and its proprietor Sherab Dorji said the area is at risk. "Construction of the permanent protection walls is still incomplete."

However, Rigsar Construction has already written to the Task Force about this risk. The construction work will begin today.

PTDP's project manager from the implementing agency Construction Development Corporation Limited (CDCL), Kamal Dhakal said the risk of flooding was always there.

"However, there is not much risk to the project area."

While the permanent wall construction was completely stopped due to the lockdown, Kamal Dhakal maintained only a small portion from the temporary protection wall was dismantled. It can still be closed, he explained.

The current PTDP is a development work of 162.88-acres at Zone A (Package-I). There are five primary components—river training, backfilling, walkways (upper and lower), landscaping and 12 cross-drainage work. CDCL awarded the package to AFCONS.

Even if Zone A, located near the town has low flood risks, many are of the view the real danger is for Zone B area, which is upstream of Zone A.

Natural Resources Development Corporation Limited (NRDCL) has huge stockpiles of boulders in this area. River water has already reached the area where the boulders are stocked, which is currently shielding the area from flooding.

Should a flood-hit Zone B, it will be the eight-acre boulder containment zone at risk. The area was developed by Bhutan Exporters Association (BEA) and its members, spending Nu 16.5 million.

Considering the two major floods that changed the face of Toorsa embankments in 2015 and 2016, if a flood hits Zone B, water would come through Chamkuna area. But a road is being constructed in Chamkuna and a flood would ruin the progress. Also, the river will wash away the NRDCL boulders.

NRDCL Phuentsholing regional manager,

Nawang Denden said Zone B had higher flood risks compared to that of PTDP project Zone A.

"We have started protection work yesterday."

NRDCL and a contractor have jointly started protection works near the BEA containment zone, Nawang Denden said.

A river protection wall will also be constructed upstream of the BEA containment zone. A 100-metre (five metre in height) gabion wall project, worth Nu 2 million, has been tendered.

"It has not been awarded right now," Nawang Denden said.

Meanwhile, residents are worried following the notification from the National Centre for Hydrology and meteorology warning possible heavy showers in Bhutan due to the disturbance in the Bay of Bengal in India.

# Heavy rain drives tenants out of homes in Toorsa

June 10th, 2021



Heavy rain in the past two nights in Phuentsholing has people living in a private housing colony at Toorsa hunting houses yesterday.

The drain water had swollen and flooded the colony.

One of the tenants, Deki Choden said her house was flooded with human excreta.

“My house is unfit to live in,” said Deki, who has been living in it with five others.

With movement within Mega Zone 1, Deki Choden and her friend, Jamyang Seldon have been house-hunting for two days since the heavy rain started.

“The first day when it rained heavily, we slept

inside the old vehicles nearby,” Jamyang Seldon said.

On the night of June 7, her husband, who is a truck driver, had returned and they, along with a few others, slept inside.

The two women have rented an apartment and decided to live together.

Thrompon Uttar Kumar Rai said the tenants in private houses, including the property owners, had been asked to vacate the place due to similar drain water flooding in the past.

Half the settlement was dismantled and the tenants had left but seven families were still there.

“They look for the house only at the last moment,” he said.

“Thromde had been evacuating them every time there was a problem.”

Thrompon said the settlement location will be taken over for Phuentsholing-Chamkuna road construction.

Meanwhile, out of the seven families living in the colony, two had left on June 7. Two left the following day and the remaining families were planning to settle down with friends and relatives.

Thromde office helped them with transportation.

The only remaining family that did not move anywhere, has been provided a temporary shelter in another location.

Although it had rained heavily on the nights of June 6 and 7, no major damages were reported along the Toorsa embankments.

The Phuentsholing Development and Township Project manager, Kamal Dhakal said all is good. “There are no issues at our site,” he said.

However, some minor rain cuts and debris collections were seen along the drains, he said.

The road block at Chamkuna, near the National Housing and Development Corporation Limited housing colony, due to debris from the stream water was cleared on June 8.

# One of the worst tragedies claims 10 lives in Laya

June 17th, 2021

Five other cordyceps collectors who were injured recovering at Thimphu hospital

In one of the worst tragedies in the country's history, 10 highlanders from Laya died after the tents they were living in were swept away by a landslide near Tshari-Jathang, Ri-Druzhi in Laya, early morning yesterday.

The accident occurred at around 1am. The highlanders, three men and seven women, were out collecting cordyceps in the area since May 17. Seven of them were from Lungo village in Laya.

Five individuals who were injured at the site were airlifted using the two helicopters as soon as the accident was reported at around 3am. All the five, four men and a woman, are in stable condition and recovering at the national referral hospital in Thimphu.

According to doctors, besides a man who had suffered facial bone fracture and needed surgery, none suffered life-threatening injuries. The man also sustained a wrist fracture.

Another patient sustained multiple rib fractures including a chest injury. However, doctors said that the man was out of danger given the timely intervention made available.

"They were evacuated right on time and reached the hospital before their conditions worsened," said a doctor at the emergency department.

"It'd have been a different story if it wasn't for the helicopter assistance because the nearest health facility is several hours from the accident site."

By 11am, all the injured were airlifted to the national referral hospital.

## A tragedy

At around 2am yesterday, Laya Gup, Lhakpa Tshering, woke up to a frantic knock on his door. The gewog's mangmi had come with a grave news about cordyceps collectors near Tshari-Jathang.

The gup and mangmi started inquiring details of the accident from a villager, Phuba, who was among the 20 plus cordyceps collectors camped at Ri-Druzhi, which is located about a day's walk from Laya.

According to the gup, there were about 18 tents pitched in the area out of which 12 were submerged under the slide.

"Phuba informed that 10 people were likely dead and five more injured at the site. He said that the injured would also die if the helicopters did not come to help," he said, adding that the focus was then to call in the helicopters for rescue.

Calls to the Gasa dzongdag, disaster management focal person and health officials were made starting at 4am. The first chopper reportedly

reached the site of the accident around 6:45am.

A team was formed to leave for Tshari-Jathang by 7am. "We arranged 10 horses and rations to go with them," said that gup. At around 8:30am, a team of 19 individuals left from Laya Central School.

By noon yesterday, all contacts to the survivors and the team who left for the site ceased. The gup said that it could be because of the poor network and lack of battery in the phones of the cordeyceps collectors who had been in the field since mid May.

Every year, the cordyceps collectors in Gasa are screened for high blood pressure, diabetes and other diseases to ensure safety before they leave for collection in the mountains.

The collectors received their permits on May 17 this year. The collectors still have 10 days until their collection time expires.

It was leant that some of the groups who left for collection from Laya were returning home yesterday.

A Laya resident, who was also collecting cordyceps at a different location, said that they had family members in their group and they had returned to help the bereaved.

He said that every year, around five groups went to different locations to collect cordyceps. It was learnt that cordyceps grow in abundance

once every four years. "And in Laya, there would have been more cordyceps this year. So many people went for collection this time, thus the group had many people," he added.

The groups who left for collection mostly consist of close family members. "There were couples in the group who have passed away leaving their young children behind. It was really sad when we heard the news and we couldn't eat or focus on finding cordyceps. So we decided to return home," said another resident.

Tshari-Jathang is among the furthest cordyceps collection sites located in Laya.

## Rainfall

Sources said that the landslide yesterday morning was triggered by heavy and continuous rainfall in Laya for the past few days.

Data with the National Center for Hydrology and Meteorology (NCHM) recorded the highest rainfall of 23mm on June 14 for the month of June, a day prior to the accident. On June 15, the station in Gasa recorded 13.6mm of rainfall.

This time last year, between June 12 and June 16, the stations recorded rainfall measuring not more than 10mm.

Last year, the dzongkhag recorded the highest number of rainy days — 214 days.



# Landslide claims two lives in Phuentsholing

July 1st, 2021

A 39-year-old woman and her seven-month-old son died after a landslide caused by a heavy rainfall washed away their house at Naudhokay village in Sampheling (Pasakha) gewog between 1am and 3am on Tuesday.

The mother and the child were reportedly sleeping in a room when the landslide hit the house. The deceased's husband and another child, who slept in a different room, escaped.

Although help reached, the woman and the baby died on the way to the hospital.

Thrompon Uttar Kumar Rai said the woman could not reach the hospital because of a huge roadblock near the Rinchening check post. "The deceased were transhifted in the block area."

The mother and the child were declared dead when they reached the hospital around 2am.

By 8:30am, police, de-suups, and other relevant government officials and local residents helped evacuate 10 houses in the vicinity.

Sampheling Gup, Mani Kumar Rai, said people living in those houses were accommodated in a safe rental place nearby.

He said there were blocks in different areas, which had delayed people from arriving early at the incident site.

Meanwhile, the boulder export, which had resumed recently, also came to a halt yesterday because of flood in Bangaychhu at Chamkuna along the Toorsa embankment. All the roads were filled with water.

After the Bangaychhu had swollen, 38 people involved in dredging and export of boulders, who were in self-containment areas near the Bhutan Exporters Association (BEA) containment zone were stuck there on the evening of June 29.

The 38 individuals, including officials from forest, customs, and BEA were brought to Phuentsholing side after clearing the blocks at 1:30am yesterday.

On the evening of June 29, a boulder truck also slipped off the road. The driver was unharmed and safely escorted across the border.

Although the risk of the river was very high as it kept raining, there was more risk of Bhutanese mingling with the Indian drivers who were also stuck.

Kuensel learnt that 108 drivers, who were kept in self-contained areas, were escorted across the border by yesterday.

All the Bhutanese who stayed in the self-containment had been tested and sent home yesterday. It is unlikely the boulder export will resume today.

An exporter said that the new SoP for exporting boulders, which required each exporter to have their own self-containment infrastructure to keep their staff, was risky due to the peak monsoon season.

"I shared this concern last time," an exporter said. "I knew it would happen. But I don't know why the authorities made this protocol."

Many exporters said that having self-containment was an additional expenditure.

At the Phuentsholing Township Development Project in Toorsa, water had entered into many construction areas and formed pools.

However, according to the project manager, Kamal Dhakal, there were no damages to any infrastructure or construction.

"But there was overflow from the outfalls that have caused accumulation of debris," he said, adding that they were clearing the debris.

Kamal Dhakal said the project has not seen any risk from the Toorsa river and Omchhu.

## Samtse

Samtse also saw heavy rainfall yesterday and on June 29. However, the rain subsided yesterday evening.

Roadblocks were reported in at least 11 different locations on highways and gewog roads.

Officials said machines have been deployed to clear the blocks and no casualties were reported.

Sources said Dorokha drungkhag's internet line was also disrupted a month ago and it could not be restored, as officials responsible to look after the problem were stuck in the red zone areas in Phuentsholing.

"Only yesterday we received the confirmation that they went to study the faults but it seems their effort got hindered due to road blocks and incessant rain," Dorokha drungpa Karma Jurmi said.

# Residents live in fear of flood from Kalikhola

July 19th, 2021



In the early 1990s, Motilal Gurung, 57, from Sibsooni in Lhamoidzingkha, lost four acres of his land to a flood. After waiting for about two decades, he got 2.9-acre land substitute in 2019.

For residents living along Kalikhola river, the monsoon has become a nightmare.

Motilal Gurung lives 50 metres away from the river and his agricultural fields are located along Kalikhola river. “There is increased risk. A gabion wall was built to protect us from flood, but during monsoon, it changes course and flows towards our village.”

Residents from Lal Bahadur Pradhan’s chiwog lost more than 50 acres of land to flood in 1992. They were not eligible for land substitute since it was not washed away. “One acre of my agricultural land is still under debris. I use it as a cowshed.”

Without land in a safer place, he lives about 400 metres away from the river.

In 2016, the local government (LG)

constructed a 600-metre-high gabion wall. “Accumulation on the river bank has increased from the debris deposited but during monsoon, it gets submerged. Water then overflows to our village that is lower than the river bank.”

A resident, Chandra Shaker Koirala said that the flood risk was high in Koilatar and Belaytar chiwogs even.

“During monsoon, people cannot sleep in peace due to the fear of losing their cattle and land to floods and landslides that can be caused by swollen Kalikhola river. Many households are near the river and every monsoon, the farmers are terrified,” he said.

He claims that such risks had been there since he was nine years old. “Today, I am 31 and our village is still going through the same problems. Although the LG officials and the members of the parliament (MP) are aware of the problem, not much has been done to reduce risk on our livelihoods.”

“It is time for the interventions by the

authorities concerned,” he added.

There are 15 households in Belaytar and 13 in Koilatar.

About five households live near the river source in Dorona.

Residents said that although they approached the officials and relevant agencies, it fell on deaf ears.

“The solution is simple. We need strong gabion walls that are effective in flood protection,” said one resident.

“Gabion wire would be helpful. Communities are forthcoming in carrying out mitigation works but we need support. A gabion wire could prevent boulders and deposits from accumulating,” said Lal Bahadur Pradhan.

In monsoon, he said that the river rises as high as 200-metre mark.

An irrigation canal of four chiwogs above the settlement also posed risk to settlements. “If there was a flood or if the canals burst, we will be washed away,” said a resident.

Villagers claim that the MPs and the minister for works and human settlement visited the area. “They said that they wouldn’t be able to help.”

According to one resident, the LG officials told them to seek support from the central government.

Lhamoidzingkha Gup Surja Bahadur Limbu said that the flood risk was increasing by the year.

Knowing the challenges and risks to people, he said that the LG approached the relevant stakeholders and even informed the ministry of works and human settlement about the risks. “The issue was discussed in Dzongkhag Tshogdu many times.”

“We carried out dredging and excavation works to change the course of the river but the risks are still rampant during monsoon,” Surja Bahadur Limbu said.

Recently, two households in the high-risk area were asked to relocate.

# Three students missing in Trashiyangtse

August 10th, 2021

A search and rescue team of more than 70 people, comprising police, de-suups and volunteers including teachers of Bayling Central School, are looking for the three boys who went missing since the afternoon of August 8 in Trashiyangtse.

A flash flood of Serkang stream that occurred at 2:45pm on a clear weathered afternoon is suspected to have washed away the three boys.

It was learnt that four boys of Bayling Central School went to the

Serkang stream, which is located about 20 minutes walk away from the school, for swimming.

Sources from Trashiyangtse said one of the boys escaped as he went for toilet after a quick dip when the flashflood occurred.

Bayling Central School's vice principal (VP), Chimi Dorji, said school authorities conducted attendance the moment local residents informed them about the flash flood.

"We found the four boys missing," he said. "We immediately formed group among the staff and went to the incident area to look for them."

According to the VP, some students learnt about the boy who escaped and school authorities rescued him from the other side of the stream. "We then informed the police, gewog and parents of the missing boys about the mishap."

The three boys, two aged between 18 and one was 19 years were studying in

class XI Arts and were staying in the hostel.

School officials said they have been cautioning students not to go near the stream.

Meanwhile, the search team combed the banks of Serkangri from the incident area until Choeten Kora, which will be about two kilometres stretch from 8am to 4pm yesterday.

Officials said the search and rescue team would continue the search today.

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## Educate and prepare local communities on flash floods

August 10th, 2021

Many Bhutanese, who were disturbed by a viral video of a flash flood washing away oxen in Trashiyangtse on the evening of August 8, had to wake up yesterday morning to another tragic news of missing boys.

Serkang stream in Trashiyangtse has a history of swelling unpredictably, especially on auspicious days like 15th and 30th day of the Bhutanese calendar. Residents of Choeten Kora town have been living in fear for decades. In 2016, residents had to evacuate at midnight after the stream swelled.

Experts say climate change is bringing in more water-induced disasters. Flash floods are becoming more common. It is the biggest threat in the country. With no control over it, the least

we can do is to prepare the communities for such a disaster.

Residents in Choeten Kora town approached authorities to initiate precautionary measures. They wanted a siren system near the source of the stream to alert them about the danger. Their plea fell on deaf ears.

We have had many tragedies. We are yet to recover from the Chukha incident in July 2009, where swollen Wangchhu washed away seven boys and the authorities and family members were left watching helplessly.

There are numerous questions that remain unanswered. How long are we going to keep facing and hearing about such preventable tragedies? How long should we keep on losing

innocent lives to flash floods? Why do our children have to keep going to streams and rivers to swim?

Even in urban areas like Thimphu and Paro, high-end hotels impacted by Covid-19 allow locals to use swimming facilities, but not many can afford it. The famous swimming pool in Thimphu has remained under lock and key for a while now. Without any swimming and recreational facilities, youth will take the risk.

When there is no way to stop children from going to the river, it is the responsibility of the government, dzongkhag and gewog authorities to sensitise about the dangers. Local leaders and school authorities are expected to educate the youth. The need of the

hour is flash flood forecasting and early warnings.

It will not be a surprise if the Department of Disaster Management issues a public notification, cautioning the public about the dangers of going near the river after this incident.

This is the typical way of the Bhutanese bureaucratic response. Everything will be forgotten in a few months' time, except the families of the boys who will have to live with the tragedy forever.

We cannot afford to lose young lives to the swollen streams and rivers every year. It's time we addressed the issue instead of blaming it as the misfortune of the boys. Every life is precious.



# Pemagatshel landslide kills couple, daughter missing

August 26, 2021

Two people were killed; one is missing after a landslide washed away the family’s hut in Khoreypam, Pemagatshel today morning.

The two are parents of the girl, who is still missing. The mother was found dead, while the father dies at Pemagatshel hospital.

Sources say that a father and a son living nearby were rescued and evacuated to PemaGatshel hospital but the man was reported dead when he reached the hospital. The boy is in stable condition.

## Swollen Mochhu wipes out Gasa tshachhu

August 27th, 2021

At 5am yesterday, Gasa Tshachhu Manager Tandin Dorji woke to a desolate sight—all six ponds, structures securing the tshachhu’s source, resting area, a choeten and the vegetable stall, among others, were wiped out.

“The Mochhu flowed over the area where the tshachhu ponds once stood. I was saddened by the sight,” Tandin Dorji said.

For the past week, Gasa has witnessed heavy rainfall. Gasa dzongkhag experienced the highest number of rainy days in 2020 with 214 days.

Tandin Dorji said that while the dzongkhag witnessed rainfall every day, for about a week, past 7pm, the rainfall was heavy.

“And on August 25, it was pouring after 7pm and we also heard noises. So at 10pm, we evacuated all people at the ponds to safety because some people tend to stay in the ponds at night.”

The visitors were sent to their guesthouses and the team went to bed around 1.30am and returned to the pond site at 5am yesterday.

“So we think the incident occurred around 3am,” Tandin Dorji said.

All 35 visitors left the tshachhu area yesterday morning. The visitors chose to leave after the notification from the National Center for Hydrology and Meteorology (NCHM) said moderate to heavy rainfall was likely to continue over isolated places of southern parts of the country, and the intensity of rainfall was likely to decrease only from August 28.

Tandin Dorji said that the road to the tshachhu area also had landslides, which was cleared for the visitors to leave.

Way forward

The dzongkhag staff, local leaders, police, and many others reached the site around 5:30am.

Gasa Dzongdag Rinzin Penjore said, “I am still not able to believe it. We tried our best but it was the forces of mother nature.”

Dzongdag Rinzin Penjore said that the dzongkhag staff would wait for the Mochhu to subside to assess and discuss a way forward. Currently, it isn’t sure if the tshachhu source is secure.

Manager Tandin Dorji said that the Mochhu has also washed off structures surrounding the source. “We hope the source is still there but we cannot tell for sure right now.”

Considering the risks the Mochhu posed to the tshachhu area, river diversion work had also started in December last year. However, due to continuous rainfall, work progress had been hampered several times.

Boulders and rainfall had made it difficult for the excavators to work, said the manager. However, on June 25, this year 30 percent of the Mochhu was diverted through a different route away from the tshachhu area.

The remaining 70 percent was to be diverted in winter when the river size was small.

“Because of the monsoon, we couldn’t do the work as machines were sinking in the river. So we thought to continue the work when the river size would be small during winter. We had hoped that there wouldn’t be many issues this year,” Tandin Dorji said.

Gasa tshachhu witnessed similar flooding in 2009. During the 2009 flood, the tshachhu ponds, shops, an outreach clinic and an attached room, and public toilets were washed off. It was reconstructed with a budget of Nu 40 million.

Pemagatshel

A rescue team is still searching for the body of the girl who went missing when her house at Khoreypam in Pemagatshel was swept away by a landslide yesterday morning. Continuous heavy rainfall was suspected to have caused the slide.

Her parents also died in the incident.

According to sources, the girl and her went missing under the slide while the father and a boy living nearby were rescued and evacuated to Pemagatshel hospital.

DeSuups, dzongkhag officials, police and volunteers from the community continued to search for the duo. The team discovered the mother’s body at around 10am.

Sources said the father was reported dead at the hospital while the boy is in stable condition. It was learned that the deceased were from Drametse gewog in Monga

# Change of Maochhu course strands people

August 27th, 2021

Maochhu has changed its course and is inching closer to properties, residents, and paddy fields located near the river after a flash flood on Wednesday breached a gabion wall constructed along the Shetikhari stream in Gelephu.

The flood also washed away temporary boulder wall connecting the Reinforced concrete wall at the confluence.

The sudden change in river course from near the Shetikhari and Maochhu confluence caused flash flood and stranded more than 20 people in the same location where four soldiers lost their lives in July last year trying to rescue people.

Thromde officials said 21 foresters guarding the porous border at Maochhu and caretakers looking after the thromde water treatment plant were brought to safety using excavators before the flash flood cut-off the access to the treatment plant and three outposts at Maochhu.

Labourers working at a crushing unit were asked to vacate the site following notification from National Center for Hydrology and Meteorology on flash flood, landslides and riverine floods.

Gelephu thromde used more than 15 truckloads of boulders at Shetikhari and Mao Chhu confluence to divert the river back to its usual course on Wednesday, but the boulder walls were washed away yesterday.

Gelephu thrompon, Tshering Norbu, said that river hit the weakest point after it changed its



course. “The water force is erratic and the change in course is unpredictable.”

He said it could be because of the heavy rainfall in the higher mountains. “We tried to protect the course and divert the river to its normal course.”

According to the thrompon, thromde would be constructing another 150m reinforced concrete wall (RCC) connecting 300m long RCC wall, which was completed in April this year. The 300m wall was built at the cost of Nu 25 million.

He said the RCC wall stands tall and there are no issues with it. “We would complete the RCC wall before summer next year and it would be connected to a safer point.”

Pelrithang residents, however, said that leaving the RCC wall incomplete, halfway in the middle of the Shetikhari and Maochhu confluence could have triggered the flash flood.

A resident of lower Pelrithang said the floodwater could have run from its regular

course if the wall was build from the point where Shetikhari stream joins Maokhola. “The wall was left halfway,” he said.

Thrompon said that the RCC wall could not be completed upstream because of budget constraints.

“We prioritised and have approved budget for the wall this time. We are yet to ascertain the damage to the water treatment plant. We hope the residents would understand our position at this time,” Tshering Norbu said.

The construction of the 150m long RCC wall is expected to cost Nu 12 million and thromde has approved Nu 10 million for the wall.

Meanwhile, officials have asked the residents residing downstream, close to Maochhu, to move towards a safer place for another 48 hours until the weather forecast improves.

Continuous rainfall for three days has also swollen the seasonal stream of Shetikhari, Dawalakhola, and Jogikhola in Gelephu gewog.

A temporary house located close to the drain and the roads were flooded with rainwater.

House owner, Sonam Delkar said the drinking water pipes kept inside the drainage caused the overflow. “De-suups came and took the pipe out of the drain. It helped. We requested gewog officials to keep the drain clear earlier,” she said.

Prem P Katel from lower Pelrithang said he and his neighbours had to move out of home at around 2am for the past two days when it starts raining, fearing floods.

“It has become risky for people. We have been facing the problem for a long time,” he said. “Allowing crushing unit at the source of the stream and lack of proper taming along the stream causes the flood.”

He also said floodwater spread outside its course because the dredging was not properly done. “Removing boulders and stones from riverbed has increased the risk of flood.

# Did we miss the warning?

August 27th, 2021

As if the loss of the lives of 10 highlanders in Laya earlier this year was not enough, another landslide claimed the lives of a couple who died yesterday in Pemagatshel while their daughter is still missing and feared dead by now.

Natural calamities, mainly flash floods and landslides, are claiming more lives and causing increasingly severe damages to properties by the year. If anything the Gasa Tshachhu incident has taught us, it clearly indicates that we cannot wait to take mitigating measures against such threats. The river diversion works were deferred to be resumed this winter due to numerous reasons. The consequences were disastrous. Like the Gasa dzongdag said the trail of damages such forces of nature would leave would no doubt be beyond our imagination.

A similar flood wiped out the tshachhu in 2009. The whole area around the hot spring ponds

were rebuilt at a cost of Nu 40 million, mostly borrowed money.

We were fully aware of something like this coming. That's why the government pushed for the river diversion project worth Nu 26 million to divert the river and ensure the safety of the tshachhu. Officials now fear even the source of the tshachhu might be lost forever. Even if the source remains, it would take many months or even years to restore the popular hot spring to its original state.

There is no denying the gravity of such disasters is becoming more intense. What is more worrying is that we never know when and where a flash flood might occur.

It now appears we are past the warning stage. But are we prepared?

The answer will depend on to whom one directs the question. For instance, the weather forecast officials will say they have never been

better prepared. We observed for a fact that the weather forecasting has improved to be much more precise than a few years ago.

What about local government officials? All dzongkhag agencies have disaster plans in place and are prepared to manage disasters. Many officials have been trained in search and rescue activities and the administrations are well equipped.

Then where must we be going wrong? People say it is only talk and not action.

Given the geology and the topography of our young mountains, a disaster could be waiting right around the next ridge. The vertical mountain cuttings for road construction only worsens our vulnerability to landslides.

The recent spate of tragedies also frames another imperative — of re-examining the ways in which mountains and

high-altitude areas have been positioned in the country's development discourse. The country's science and environment institutions have to do more research and policy makers have to be abreast with such research while making decisions that impact fragile ecosystems.

We need to treat our mountain ecosystem with sensitivity and care, plug gaps in research. Climate change and its impact on lives and properties are evident from Siberia to Australia to Europe and the Americas. If it is not heat waves, it is floods or droughts.

Mainstreaming disaster risk reduction measures into development activities is vital to prevent soil erosion and ensure the sustainable development of mountain communities.

While we are pained to see our popular hot spring disappear, the thing about damaged property is that it can be replaced. People can't be.

# Gasa dzongkhag to assess flood damages and plan mitigation works in tshachhu

September 6th, 2021



Gasa dzongkhag would plan for flood mitigation works after assessing the damages at Gasa tshachhu, according to dzongrab Dorji Gyeltshen.

The swollen Mochhu washed away the tshachhu ponds on August 26 this year.

According to the dzongrab, the dzongkhag administration is waiting for the river to subside to assess the damages and implement mitigation work.

He said that before reconstructing the ponds at the site, a flood mitigation work was important. “We are making a comprehensive plan before

reconstructing the tshachhu ponds.”

Dzongrab Dorji Gyeltshen said flood mitigation plan would try to broaden the river course to decrease the speed of the river and avoid damage to the tshachhu site.

Earlier, a river diversion work had diverted 30 percent of the river through a different course, while 70 percent of the Mochhu flowed near the tshachhu ponds.

According to the dzongrab, the small hill separating the two river courses would be merged to broaden the river course. “A retaining wall would be constructed along the riverbank near the tshachhu ponds.”

He said they would raise the ground of the tshachhu if possible. “But that will depend on how forceful the tshachhu source is. If the tshachhu water cannot reach up, then we cannot raise the ground but if there is force, we will raise the level of the tshachhu ground.”

The volume of the Mochhu is expected to subside only by November when the dzongkhag starts receiving less rainfall.

“Since Gasa falls in a rain shadow, the river will only subside by November,” Dorji Gyeltshen said. “Until October, there is nothing we can do.”

Currently, an excavator has been deployed at the site. Boulders are being deposited at the site to protect the source and avoid further erosion of the land at tshachhu site.

Dorji Gyeltshen said that the source was intact. “But the height of the source might go down because a valley has been created by the river.”

The tshachhu witnessed similar flooding in 2009, when ponds, shops, an outreach clinic and an attached room, and public toilets were washed off.

Currently, the tshachhu manager and a police constable are at the site to keep guard of the property.



# **WEATHER EVENTS**

# Windstorm affects houses and government structures in Punakha

April 17th, 2017

A windstorm has blown away roofs of several houses and government structures in six gewogs of Punakha yesterday afternoon.	While the dzongkhag disaster focal person and committee are yet to confirm the number of affected households, they confirmed that gewogs of Guma, Chubu, Goenshari, Kabjisa, Toepisa and Shenga Bjimiga were affected.	The dzongkhag disaster management office had issued an immediate relief for the affected households.	both the dzongkhag administration and concerned offices soon.
No casualties were reported.		Meanwhile, damage assessment is underway and the final report would be submitted to	

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## More than 300 households affected by windstorm in Punakha

April 18th, 2017

Prime Minister Tshering Tobgay visited the windstorm-affected households of Punakha yesterday.	Lyonchoen conveyed the deep concerns of His Majesty The King and informed the affected households that His Majesty immediately Commanded dzongkhag, Desuup volunteers and the Royal Bhutan Police to provide necessary support to the affected families.	immediate relief work and help they received following the destruction.	affected the roofs and wooden components of three lhakhangs and nine government structures.
At least 318 houses including several government structures and lhakhangs suffered various damages following a strong windstorm that lasted for more than seven hours. The windstorm began at 10am on April 16.	The people of Sirigang expressed their gratitude to His Majesty The King for the immediate relief and continuous support rendered to them.	More than 145 houses in Kabjisa were affected, making it the gewog with the highest number of damaged houses, among the nine affected gewogs. Chubu gewog reported 45 affected houses, followed by Guma with 33 and Goenshair gewog with 30. In Talo gewog, around 22 houses were affected by the windstorm, Dzonmi gewog reported nine damaged houses and Toepisa gewog saw seven, while Shegana and Toewang gewogs saw three affected houses each.	Dorji Wangchuk, 42, of Sirigang village lost the roof of his house to the windstorm. “It will take time for us to recover from this destruction,” he said. He added that as his cattle was already out grazing in the forest, further disaster was likely averted.
Lyonchoen Tshering Tobgay met the windstorm-affected households of Sirigang village in Kabjisa, which suffered the most damage with more than 72 households reportedly affected. Lyonchoen also visited the Chorten Nyinpo Monastic School in Kabjisa which sustained severe damage during the windstorm.	Lyonchoen told the affected households not to regard the incident as a bad omen but to consider it as simply a disaster, and to try to build stronger roofs. The people of Sirigang expressed their deep gratitude towards His Majesty The King for the	A total of 220 houses sustained major damage, while 86 structures suffered minor damage. The windstorm also	He added that the windstorm also affected the chilli saplings and beans planted in their kitchen gardens.
			Kencho Zam, 76, said that while she had experienced other windstorms, this was the strongest one she had observed in her lifetime.

# Windstorm damages four houses in Tsirang

May 5th, 2017

Heavy rain and windstorm on May 1 damaged at least four houses in Tsirang's Kilkorthang gewog. Roofs of two houses were completely blown off in Maenchhana and Sasangm chiwogs while roofs of two other houses were partially damaged. No casualty or injuries were reported.

Farmer Thukten, 40, who owns the house in Sasangm chiwog, said his three children were home when the winds blew off the roof. "They were scared and had taken shelter inside a hut adjacent to the house," he said. "It was disheartening to see our roof-less house in the evening."

Thuken did not have cash in hand to buy new CGI sheets and the Royal Insurance Corporation of Bhutan (RICBL) has not released the insured amount yet. He borrowed Nu 20,000 from his friends and relatives to buy CGI sheets.



The other damaged house in Tashiyangjong chiwog belongs to Tshering Dema. A tree fell on the roof damaging the truss and the house partially. "Luckily the tree did not injure any of our family members," she said.

But rainwater seeped inside the house and flooded the floor. Since the incident, the eight-member family lived in one corner of the house. Tshering Choden said she

does not have money to even buy a tarpaulin sheet, let alone CGI sheet to reroof her house.

Her house is insured and RICBL officials have already verified the damages. "I'll have to wait for the insurance money to reroof my house," she said adding that she hopes to get at least Nu 20,000.

Another house that also lost its roof in the

windstorm is in Nyizergang chiwog.

Gup Beda Moni Chamlagai said Kilkorthang gewog saw heavy rainfall with windstorm that day with windstorm. "But since maize is just sprouting and people have not yet transplanted paddy, there won't be major crop damage," he said.

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## Windstorm affects 21 households

May 5th, 2017

Mongar dzongkhag disaster management team gave tarpaulin sheets to eight households of Gongdue gewog in Mongar after a windstorm blew off the roofs of the houses on May 1.

Five households of Yangbari village and three households of Dakla village were affected by rain and windstorm.

This is the second time windstorm has affected the gewog, as six houses of Daksa and one house

in Gongdue village were affected on April 3.

The windstorm also blew off roofs of four houses in Thangrong gewog on April 28 and two houses in Drepong gewog. They were also given tarpaulin sheets.

The dzongkhag disaster management officer, Karma Rigdhen, said that the disaster management team is set up mainly for helping the victims during the disaster.

"We managed to help the people," he said.



He, however, said it would be more convenient if dzongkhag disaster management has their own budget to provide immediate help.

While the affected people are worried how they would re-roof their houses before insurance companies provide the insurance claim,



dzongkhag disaster their report to insurance  
management officials offices.  
said they would forward

## Windstorm damages eight houses in Bartsham

May 6th, 2017



A windstorm damaged eight traditional houses in Bartsham, Trashigang yesterday around 1am. Of the eight, three houses were completely damaged. The dzongkhag disaster management team assisted the affected families and provided them with tarpaulin sheets.

## Hailstorm damages 100 houses in Lhamoizingkha

May 8th, 2017

### Falling tree kills one

A 75-year-old man from Kereni village was killed and about 100 houses were damaged after a strong hailstorm hit Lhamoizingkha, Dagana on May 6 evening.

The man died on impact when a broken tree fell through the roof of his house and struck him on his head during the hailstorm.

His wife and daughter, who were also home during the mishap escaped with minor injuries.

Karmaling Gup Gyan Bahadur Subba said the mother and the daughter were taken to the hospital and are in stable condition.

“There was heavy rain with hailstone and windstorm,” the gup said.

The family of the deceased lived in a make shift house roofed with CGI sheets. He said the windstorm snapped the tree to fall on the house.



Since the hailstorm, Lhamoizingkha Drungkhag officials and the gup have been going around to record the destruction. CGI roofs of more than 100 houses have been damaged in Karmaling and Ninchula gewogs and numbers are likely to increase.

While livestock deaths were not reported, farmers reported heavy

damage to their maize fields. More than five acres of maize fields were recorded as damaged so far with gewog administration still locating damages to crop.

Nichula Gewog, where hailstones rained for about half an hour on May 6 evening reported damage to the roofs of 50 houses in three chiwogs.

“People and livestock were not affected but it damaged three acres of maize field,” Gup Dilip Gurung said.

Officials from gewog administration, drungkhag, and Royal Insurance Corporation of Bhutan Limited have inspected the affected areas.



About a month ago, strong hailstorm damaged about eight houses in Tintaley village in Lhamoizingkha.

## Windstorm damages homes in Paro

February 10th, 2018

**Hydro-Met services department recorded wind speed at 20.5km an hour after 1pm**

Families of about five households in Naja gewog in Paro had to take shelter in their neighbour’s house last night after a windstorm completely blew off the roofs of their houses.

According to the gewog mangmi, Chundu Tshering, the windstorm yesterday afternoon damaged roofs of 18 houses in the gewog. “The most affected village is Wanakha.”

The mangmi said he is not sure how many roofs were blown off completely and how many were partially damaged. “The gup and gewog administrative officer verified the damages yesterday.”

Gup, Kinley Wangdi, said that roofs of five houses are completely blown off,

while others were partially torn off.

He said the gewog office submitted the incident report to the dzongkhag and Royal Insurance Corporation of Bhutan (RICB) office in Paro. “The officials said they would come for site verification today.”

The CGI sheets blown off from the houses also damaged two vehicles in Wanakha, according to the gup.

Paro dzongkhag’s disaster focal person, Naphey, said that Naja gup informed him about the incident through social media. “Dogar gup also informed that windstorm affected houses and two choetens in the gewog.”

The Department of Disaster Management’s (DDM) director general, Karma Tshering, said they did not receive any windstorm report as of yesterday afternoon.



He, however, said that they would respond once the dzongkhag administration informs them. “The dzongkhag officials will inform us if it is beyond their level. Otherwise, they will respond to it and send us the report.”

The disaster toll-free emergency contact number 233 was also not in service yesterday.

Meanwhile, officials from the Department of Hydro Met Services said the wind speed was 20.5km an hour since 1pm

yesterday. The routine wind speed is 5km an hour.

The chief of weather and climate services division, Singay Dorji, said the gust is a seasonal wind and that they issued an advisory caution after observing some disturbance.

Northern and western parts of the country are expected to experience similar wind gust today.

## Timber kidu will be provided to windstorm-affected households in Paro

February 12th, 2018

The February 9 windstorm damaged about 70 houses in Paro.

Paro’s disaster management officer, Nagphey, said that most households would be eligible for insurance claims. “As the damage were not major, these households will be provided timber kidu. The number of timber would be based on the

size of the house or the parts damaged.”

In Dogar gewog, parts of two choeten’s were damaged. Walls and window parts of houses were also damaged. Twenty houses were damaged in Naja.

Department of Disaster Management’s (DDM) officials said that timber would be provided to the

houses after estimates are worked by the dzongkhag engineer, which would be forwarded to the dzongkhag’s forest officer.

Naja Gup kinley Wangdi said that officials of Royal Insurance Corporation of Bhutan inspected the damaged houses on February 10. “People were collecting the parts

of the rooftops that were blown off by the wind today. Some had already started repairing their rooftops.”

DDM officials said that all houses damaged were insured. “Of the 27 houses damaged in Doteng, only one house seems ineligible to avail of insurance claims as the house was newly built.”

Officials said that besides Naja and Doteng gewog, damage was also reported from four other gewogs in the dzongkhag. “Ten houses in Dopshari, two in Lango, nine in Tsento, and one in Dogar were damaged by the windstorm.”

# Hailstorm damages crop and property in Sarpang

March 30th, 2018

Hail and windstorm in several gewogs in Sarpang yesterday afternoon damaged crops and property. left over 400 poultry birds, six goats, and a cow dead. Gewog administrative officer, Dawa Zangmo, said that the hailstorm damaged crops and vegetables in four chiwogs. eat when the storm struck and blew away their plates.

No casualties or injuries have been reported so far. Mangmi Ash Man Rai said that for the time being affected households were provided with tarpaulin sheets. Almost all the households in the two chiwogs reported vegetable and cash crop damage. “All our belongings are drenched,” she said.

Preliminary disaster assessment report found damage in three gewogs of Shompangkha, Dekiling and Gakidling. Shompangkha is the most affected gewog. In Singye gewog, preliminary damage report collected by the gewog administration found over 100 areca nut trees damaged. Some areca nut trees were damaged in Dekiling gewog.

As of late evening yesterday, assessment could be carried out in just half of Darjaythang and Kencholing chiwogs. One of the families in Darjaythang was conducting final rites of a member of the family when the windstorm blew away the roof of the kitchen. Rainwater flooded the rooms. National Council common forum in Dekiling gewog was delayed by about half an hour because officials were stranded and voters turned up late.

Roofs of at least four houses were blown away in Gakidling gewog. Huge hailstones got in through CGI sheet in two houses. Dzongdag Karma Galay said that since the disaster stuck in the afternoon and lasted for a few hours, damage assessment is yet to be completed.

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## Storm damages at least 87 acres of crops in Sarpang

March 31st, 2018

The wind and hailstorm that struck in two gewogs of Shompangkha and Gakidling Sarpang blew away roofs of six houses and twelve poultry sheds. beans and 4.14 acres of potato were damaged by the hailstorm.

Among the crops, the storm damaged 8,907 fruit bearing areca nut trees, 9,939 flowering orange trees and 3,757 banana trees. About 174 litchi trees, 64 mango trees, 31 guava trees and 132 papaya tree were also damaged. The storm also left 14.1 acres of vegetable field, in which onion, egg plant, cabbage, tomato and pumpkin were grown, barren. The assessment report states that at least two jersey cows, seven goats and 710 poultry birds were killed. Over 1,500 eggs were also damaged. Dargaythang and Kencholing chiwogs suffered extensive damages.

Shompangkha gewog administration assessment found at least five jackfruit trees, 210 pineapples, three coconut trees, 13 lemon trees and 246 coffee plants were damaged. One of the farmers who suffered extensive damage is San Bahadur Subba of Norbugang village. He lost over 20 fruiting areca nut trees and about two acres of chili. He also lost over 250 poultry birds, which were just a month old and would have started giving eggs in another two months.

According to the final assessment report, 69.9 acres of maize, 8.59 acres of chilli, and 4.76 acres of decimal plot was completely damaged. Nima Lama said although he suffered minor losses compared to his neighbours and other farmers, the storm damaged vegetables planted in about 15-decimal land. “I lost 15 poultry birds as well,” he said. Shompangkha Mangmi Ash Man Rai said that the gewog adminis-tration has informed agencies concerned such as Royal Insurance Corporation for the house insurance of the affected houses. “We’re not sure what can be done to the crop and livestock losses farmers suffered,” he said. Meanwhile, electricity is yet to be restored in Shompangkha, Gakidling and the dzongkhag administration area in Sarpang. Electric poles

and cable wires were damaged at several locations.

# Windstorm blew off roofs of five houses in Tsamang

April 3rd, 2018

Windstorm blew off roofs of five houses in Tsamang, Mongar, on the night of April 1. The dzongkhag disaster management team and Royal Insurance Corporation of Bhutan (RICBL) officials are assessing the damage.

## Windstorm affected homes receive compensation in Sarpang

April 18th, 2018

It is a pleasant day in Kencholing village of Shompangkha in Sarpang yesterday.

The leaves of areca nut trees sway gently in the cool afternoon breeze. The maize fields are lush green and farmers are busy.

What happened here three weeks ago seems a long time ago except for few remains of broken areca nut trees. Life has become normal.

“We can’t afford to dwell for long on our loss,” an elderly woman said. “We’ve to work so we have something to eat.”

Phul Maya Tamang was at home in Kencholing looking after her two kids on the afternoon of March 29.

A little past 1pm, Phul Maya Tamang had just left the 15-days old kid near the mother goat to feed when it started to thunder and hailstorm.

“The strong winds were blowing off the roof of our hut and I rushed back in to my children,” she said.

She clutched onto them and crouched over them. The hailstorm, that lasted for about 10 minutes

pounded with such strong force that she thought they would die.

As soon as the hailstones stopped, Phul Maya Tamang remembered the goats outside. She rushed out. All six goats tethered in the open ground belonging to her family lay still.

She said she took a closer look and would not be able to forget what she saw.

The mother goat lay over her kid. One of her front limbs and the head was over her kid.

“As a mother, I felt sad that the mother goat died trying to protect her child,” she said. “I should have returned it to the shed when I went in.”

Her family also lost five hens.

Phul Maya Tamang’s family was among the 361 households who reported damage from the storm. The wind and hailstorm swept through Shompangkha, Gakiling and Singye gewogs of Sarpang. Of the three, Shompangkha suffered the most damage.

The storm blew off the roof of six houses and 12 poultry sheds. A total of

329 households reported damage to their crops and 39 households harming their livestock including the death of 710 poultry birds and 1,500 broken eggs.

The storm broke 8,907 areca nut trees of 249 households, 3,757 banana trees, 69.95 acres of maize field of 89 households, 14.1 acres of mixed vegetables and 8.59 acres of chilli belonging to 50 households. It also damaged trees such as litchi, mango, guava, jackfruit, papaya, pineapples, coconut and lemon along with coffee, beans and potato.

The agriculture ministry distributed free vegetable seeds and 840kgs of maize seeds for re-sowing.

Sarpang kidu officer, Karma Choeda, said the villagers were compensated Nu 769,000 worth of seeds and livestock.

He said the major damage is on areca nut trees and those will be compensated with three-year-old saplings.

Dorji Lhamo from Shompangkha lost 34 of her 400 areca nut trees. “We pray that such a

weather does not come again.”

Meanwhile, those who do areca nut business are worried that their produce would fetch lower prices in the market.

An areca nut businessman, Tshering Dorji collects areca nut from these three gewogs and supplies to Punakha and Wangdue.

“It’s sure I won’t make as much money but for the farmers, they have lost the source of income,” he said.

Most villagers have sold the orchards to businessmen like Tshering Dorji and collected the money long ago.

The kidu officer said even the chilli plants were ready for harvest.

Elders in the villages said they have only experienced such hailstones in the 1960s.

On April 4, 2015, a hailstorm in Sarpang blew away the roof of a house and killed four calves in Chudzom gewog. It also left the dzongkhag facing frequent power cuts for days.

# Windstorm affects 21 households in Orong

April 27th, 2018

A windstorm blew off roofs of three households, damaged 10 acres of maize plants and killed cattle belonging to 21 households in Orong, Samdrupjongkhar on April 25.

Orong gup, Jigme, said the windstorm affected three villages, Suzung, Menchuri and Tokorong. “Suzung village is the worst hit as it blew off the roof of a house and damaged maize plants of 21 houses.”

He said it also damaged the roof of a house in Menchuri and Tokorong. “Luckily there was no casualty.”

The gup said the houses are insured with Royal

Insurance Corporation of Bhutan and he has informed the officials for an assessment.

He said he informed the gewog agriculture extension officer and the dzongkhag agriculture officer. “I met all the affected families yesterday.”

The compensation, he said, would be based on the assessment report the extension officer submits.

One of the affected farmers, Khandu, 38, from Suzung village, who lost about two acres of maize plants, said it is a pain to see their hard labour go in vain.

“I am the only one who works in the farm here and I not only grew maize but also guarded it against monkeys, wild boars, deer, and porcupines for the nights until now.”

Another farmer, Tenzin, 49, from Menchuri, said the windstorm damaged the roof of his house and it would be helpful if the officials carried out the assessments soon. “We are sleeping in the cowshed because the main structure of the house was also affected by the storm,” he said.

Kerpo, 50, said he lost a milking jersey cow to the windstorm. “The cowshed was destroyed. He said he lost about 1.5

acres of maize to a windstorm.

“Although the gewog agriculture extension officer and gewog officials are carrying out the assessments, we are worried since no one has told if we will be getting compensation,” Kerpo said.

The gewog agriculture extension officer, Pelden Tshomo, said she is still carrying out the assessment. “I cannot comment on compensation but I will send the assessment report to the dzongkhag administration after it is complete.”

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# Windstorm damages maize in Chudzom, Sarpang

August 10th, 2018

A windstorm on the night of August 6 damaged maize in two villages of Chudzom gewog in Sarpang.

Fourteen households in Hungrel village and five households of Rujeyang lost all their maize plants. The two villages are located at a high altitude and are one of the remotest villages in the gewog. It is at least an hour’s walk from the nearest road point.

A farmer, Dil Bahadur Rai, 27, is one of the affected owners.

He said his maize in 50 decimal land is flattened.

“I’m shattered. We depend on maize as a staple diet in the locality.”

He said people in the locality depend on maize, as the land is not feasible for paddy plantation and faces water scarcity.

Dil Bahadur said the maize had just started bearing corn. “I don’t know how my family will survive this year.”

Another affected farmer is Mohan Subbha, 30, who also owns a 50 decimal land.

He said that his family of eight expected a

bountiful harvest this year as each maize plant bore at least three cobs. “A bountiful harvest meant not having to buy additional ration from the market, which was difficult for the family to afford.”

He said losing the crop also meant losing feed for cattle and poultry.

Mohan said that he couldn’t go out of the village to work because he has cattle to rear and look after his aged parents. “There is no source for cash income in the village.”

A day after the damage, gewog officials assessed and found that at least 21 acres of maize field was damaged in Hungrel village and about three acres in Rujeyang village. The damage report was submitted to the dzongkhag administration.

Drakchu chiwog tshogpa, Tek Nath Gautam, said that the situation in the affected villages is bad. “Farmers are crying over the damage. Maize was the only crop they grew abundantly and now it’s completely damaged.”



# Windstorm damages houses and crops in Darla, Chukha

May 30th, 2018

Lightning struck a 28-year-old woman of Darla (Tala) in Chukha on the night of May 28.

The woman was referred to Phuentsholing general hospital yesterday and health officials say she is recovering.

The same evening, a windstorm blew off roofs of about 12 houses in eight villages and damaged acres of cornfields in the locality.

Officials from Phuentsholing drungkhag and Darla gewog administration were still compiling reports of the total crops as of yesterday evening.

At Gengu village, the roof of a house was completely blown off. Parts of the roofing sheets were strewn in the cornfields.

The house owner, Pema Drukpa, said the wall supports inside the house are also tilted. “I was at my brother’s house when the windstorm struck.”

He said that he is hopeful of getting help from relevant government agencies.

Another villager of Gengu, Goray Gurung, 52, said although his house was not affected, his maize plants are completely destroyed.

“The maize fields were already affected two times this year,” he said, adding he had worked hard to bring up the affected corn plants. “Now, these plants will not grow as it has been hit severely.”

Darla gup, Mil Kumar Mongar, who was inspecting the affected homes with his team yesterday, said roofs were damaged the most. “Some houses also reported of developing cracks.”

He said Darla is a big gewog and they are assessing the damages.

A farmer, Bhim Bahadur Karki, 80, of Barkhey village said his house developed a crack. Vegetables such as pumpkin, plum, and maize have also been affected in his garden.

Another farmer, Deo Maya Poudyel, 55, said the windstorm was a ferocious one.

Although her house is not affected, Deo Maya Poudyel showed the greenhouse destroyed in her garden, and said chilies, tomatoes, and corn were completely damaged by the windstorm.

Meanwhile, some farmers also had re-roofed their houses by yesterday afternoon.

A villager, Bhakta Bahadur Mongar, said he borrowed CGI sheets from a friend, as he couldn’t find his roofs.

“I have to be ready before the night falls,” he said. “We haven’t slept through the night.”

Officials from Phuentsholing drungkhag, Darla gewog, and insurance company inspected the villages yesterday. Other infrastructures affected by the windstorm are Darla farm-shop, Chumilakha primary school (CPS), gewog office, and poultry and piggery farm.

In CPS, the partially damaged three-unit classrooms and a staff quarter have been restored yesterday, while the two-unit classroom that was totally damaged will be restored in few days.

Phuentsholing drungpa Karma Rinchen said not all houses were affected severely.

“However, we have identified 12 houses for insurance,” he said. “We have asked RICBL to speed up the process for compensation.”

Meanwhile, farmers are planning to help each other restore the houses.

Karma Rinchen said the whole community would help rebuild the homes once they get the insurance.

The drungpa said that the damage is more for crops. “The complete report for the crops damaged will be known today.”

Meanwhile, falling trees blocked the Phuentsholing-Thimphu highway between Kamji and Gedu. The road has been cleared for traffic.

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## Recent windstorm damages 90 structures in 10 dzongkhags

March 2nd, 2019

The windstorm earlier this week damaged 90 structures, including houses, community lhakhangs, schools and agriculture extension offices. It also damaged 60 areca nut trees.

According to the report compiled by the Department of Disaster Management (DDM), 72 structures were damaged by the windstorm that struck on February 25 and 26 windstorm.

# Windstorm damages structures in three dzongkhags

February 27th, 2019

A windstorm damaged more than 19 houses in Paro yesterday and the day before, forcing residents to take shelter with neighbours and relatives.

According to reports compiled by the dzongkhag disaster management focal officer, Nagphel, roofs of 14 houses were blown off on February 25 and roofs of another five houses were blown off yesterday.

One affected structure was the kitchen of Chidru goenpa in Doteng gewog. “Of the 14 houses affected on February 25, 10 houses were two-storied traditional houses whereas four houses were one-storied houses,” he said.

Two houses were affected in Lamgong gewog, two in Hungrel, two in Wangchang, four in Tsento, one in Doteng and one in Dopshari.

The windstorm blew off roofs of two houses, a

two-storied and three-storied house, in Tsento gewog yesterday, a two-storied house in Lungye and another two two-storied houses in Lamgong.

Nagphel said Royal Insurance Corporation Ltd officials already assessed the damages and the dzongkhag engineers would estimate the timber requirement and then the dzongkhag administration would forward it to the forest office.

In Wangduephodrang, two teams were formed to assess the damages yesterday.

According to the dzongkhag disaster management focal officer, Kencho Dorji, one team visited Gangtey, Phobjikha, Sephu and Dangchu gewogs and another team, lead by the dzongkhag procurement officer visited Khotakha.

“In Gangtey, the windstorm damaged five houses and one

community property,” he said. In Phobjikha, eight cattle sheds were damaged. In Sephu, one kitchen in Busa and a mani dungkor was damaged. In Dangchu, one cattle shed was damaged.

In Khotakha, nine houses were damaged by the windstorm where some roofs were completely blown off and some partially blown off.

Kencho Dorji said that they would assess the other gewogs today. “The figures are from the preliminary report and it might change as we assess it today.”

He also said the dzongkhag disaster section provided tarpaulin sheets to houses that suffered major damages and those with their roofs completely blown off.

RICB and gewog officials also assessed the damages.

The home minister, Sherub Gyeltshen, said three dzongkhags of Wangduephodrang, Paro and Bumthang reported damages from the windstorm as of yesterday evening in the ‘WhatsApp’ group. “Wangduephodrang reported damages on 31 houses yesterday.”

Bumthang dzongdag Pasa ng Dorji said they are assessing the damages as of yesterday evening and would provide the details of the damages today.

Disaster management’s director general, Jigme Thinley Namgyal, said they did not receive any detailed report and therefore have not compiled the figures dzongkhag disaster management focal officials sent, as they asked them to reassess the damages and categorise it.

He said that it would be too early to provide any information as of yesterday evening.

## 33 houses in Wangdue report damages from windstorm

March 1st, 2019

Phurba, 49, has been living over his neighbours for about three days now.

The windstorm on February 25 afternoon uprooted a tree, which fell on Phurba’s house in Themakha village in Bjena, Wangdue.

The house was empty and caused no casualties but the impact has severely damaged the house.

Phurba said it would take more than a month to repair the house. “We will have to repair the house even if it entails huge expenditure. Living in the old house is risky. Everything is damaged.”

Another resident, Passang Lham is still staying at her house, whose roof was partially blown off during the windstorm. “Rain does seep in through the broken roof but we are

managing right now. The CGI sheets and all the roofing would need to be redone,” she said.

Except for five gewogs, the remaining 10 gewogs in Wangdue reported damages from the windstorm. Until yesterday, 33 houses reported damages, most on the roofs.

With 12 households having their roofs blown

off, Rubesa gewog had the highest number of household damaged from the storm.

Apart from damage to the houses, five community properties including roof of a lam’s residence, roof of prayer wheels, and lhakhang kitchens were also reported damaged.

The dzongkhag administration distributed 29 tarpaulin

sheets to households with severe damage.

## Windstorm damages houses in Sakteng

March 2nd, 2019

A windstorm on a snowy evening of February 28 damaged 18 houses and two government structures in Sakteng, Trashigang.

The windstorm also blew off the roof of an old drungkhag office and store of Sakteng Lower Secondary School.

Gewog officials say nine structures were damaged completely and 11 houses were partially damaged.

## Windstorm causes havoc in eastern Bhutan

April 2nd, 2019

A late afternoon windstorm destroyed over 60 residential and public structures in Mongar and Trashigang on Sunday, March 31.

The damage to the affected households in two dzongkhags was immediately assessed and affected families received support from the respective disaster management sector yesterday.

More than 30 households were affected by the windstorm in Mongar. Jurmey gewog was the worst affected with 13 houses destroyed. One in 13 households lost the entire roof to the storm.

The gewog in the past years also experienced similar disasters. Gewog administration officials said that such natural mishaps affected those households that couldn't afford to build strong houses.

"There are only a few people who could afford to build stronger

structures," said Jurmey Gup Rinchen Gyelpo.

Damages to structures were also reported to the disaster management office and respective local government administration in Drametse, Narang, Kengkhar, Thangrong, and Drepong in Mongar.

On the same day in Trashigang, a windstorm in the evening damaged more than 33 houses and public buildings that included an early learning centre and a police office.

Among 33 households, Thrimshing and Udzorong gewog reported the highest number of houses with damages. Yangner gewog was the least affected.

In Thrimshing gewog, the storm blew off the roof of police office and ECCD centre in Thungkhar. One staff quarter of the dungkhag was also damaged.

Gewog officials say 10 structures were damaged

completely while two were partially damaged.

According to Thrimshing gewog administration officials, the gewog was most affected with more than seven houses destroyed by the windstorm.

Gup Ngawang Dorji said the locals experienced a fierce storm for about an hour at around 1:30pm. "The gewog collected the report and informed dzongkhag disaster management and Royal Insurance Corporation of Bhutan (RICB) to assess the damages."

RICBL officials said that except for one house, all houses that suffered damages were insured with RICB.

RICBL official, Dawa Dhendup said that RICBL will have to compensate a maximum Nu 30,000 per household and the office will have to provide compensation worth more than Nu 400,000.

Trashigang dzongkhag's disaster focal officer,

Phuntsho Wangdi said officials from disaster management went to the field for assessments and provided necessary facilities to the people.

He said the total number of affected households could not be confirmed, as respective gewogs were still compiling the reports.

A resident, Phuntsho Wangdi, said the roof of his house was completely damaged and he is taking shelter at a neighbour's house. "It might cost more than Nu 30,000 to repair my two-storied house. I am worried."

Few affected individuals are now taking refuge with neighbours and the disaster management sector has provided all those affected with tents.

Kidu official from the dzongkhag also assisted the dzongkhag disaster management sector in assessing the damages and provided support kits to the affected households.

# Hailstorm destroys crops in Trongsa and Yangtse

April 4th, 2019

At this time of the year, people of Changrey in Trongsa will be busy transplanting chili sapling or harvesting barley.

Not this year.

A severe hailstorm on Tuesday, that lasted for about an hour, covered Changrey in Drakteng gewog in white, making it look like as if it snowed.

The storm destroyed all the chili saplings, buckwheat, cardamom, maize, potatoes and oranges in the area. The farm road in the area was also affected. Every household in Changrey cultivated acres of chili and buckwheat.

Tshogpa Loday said with chili, the main source of cash for the people, destroyed people are worried about the year ahead. The gewog administration and other relevant agencies were all informed about the disaster.

Tshering Lham, 69, said her chili sapling, young and sturdy, were all ready to be transplanted or sold as seedlings, but the hailstones have destroyed it all. "I am worried that this year we have to buy chili from others."

Farmers said they make around Nu 40,000 from selling chili seedlings only.

A farmer, Sonam Norbu said every year after the transplantation of the seedlings, the remaining is sold to Bumthang. "We will have to buy this year," he said. The farmer also lost his buckwheat to



the storm. "I will make the cows eat the remaining. It is too late to cultivate again."

The area was once affected by hailstorm in 2016. People claim that after informing and investigating the affected area, no compensation was provided.

## Potatoes damaged in Jamkhar

In Jamkhar Trashiyangtse, the hailstorm on April 2 afternoon severely damaged potato fields belonging to at least 48 households in two chiwogs.

This was the first time Tongla - Shingkharchiwog and Chema - Takchেমachiwogs were hit by heavy hailstones. Some villagers were weeding the potatoes when the storm occurred.

Tongzhang agriculture extension officer Karma Chezang said some parts of chiwogs were hit so badly that most of the fields were damaged. "We cannot say if the potatoes will recover from the damage. Production will be affected."

Chema - Takchেমachiwog tshogpa, Cheki Wangchuk said one household had his acre of potato field damaged. The least affected household had only about 20 decimal.

He said that after heavy rains in the afternoon, hailstones hit the potato fields, which remained on the ground until evening. "A few other villages were also hit by the hailstone, but there were no major damages," he said.

Tongla - Shingkharchiwog tshogpa, Bopola said the hailstone that lasted more than two hours started around noon. The hailstones measured about two inches in diameter.

"There was a sudden shower of hailstones after a heavy downpour," he said. Besides crops, farm road were also affected with drains being damaged and some portions of the road getting blocked.

Businessman, Sonam Tshering said hailstones rained three times that day. "The first was light but the second and third damaged the potatoes the most." "I took a loan to

grow potatoes. I am worried," he said. Sonam Tshering claims he earned Nu 50,000 last year. "I was expecting a good harvest this year."

Meanwhile, Kelzang, 82, said she had never seen a heavy hailstorm like the one she experienced in a day. "This is the first time in my 82 years. I was shocked to see the intensity of the damages on the potatoes," she said.

The octogenarian was worried if the hailstone would damage her house too. "Everybody stayed in fearing the storm."

A resident, Dorji Wangmo said potatoes are sensitive to hail. "Once they are damaged, there is no hope of regeneration," she said. "It is not like maize."

Potato is their main cash crop.

"All household expenses, including spending on school going children and annual puja are met through the sale of potato," said Dorji Wangmo.

Villager said farmers wouldn't be able to earn much from what is left. "I doubt if the harvest would even be enough for us," he said.

Langa Tshering said farmers from the gewog usually sold more than 20 truckloads every year and each household would earn between Nu 40,000 to Nu 150,000.

The gewog administration and agriculture extension



officers are assessing the damages. As of yesterday evening, they recorded potatoes in Chema- Assessment is ongoing in Takchema chiwogs. other chiwogs.

## Windstorm hits three gewogs in Chukha

April 18th, 2019

A windstorm on the night of April 16 damaged seven structures of three gewogs of Bongo, Darla, and Geling in Chukha, according to the dzongkhag disaster management officer.

In Bongo gewog, roofs of four houses were damaged.



## Windstorm damages seven houses in Bardo gewog

April 22nd, 2019

A windstorm along with rain and hailstone blew off the roofs of seven households in Bardo gewog, Zhemgang, on April 20 afternoon.

Sources in Zhemgang said roofs of six households of remote Langdurbi village and a house in Khomshar were blown off.

Of the six houses in Langdurbi, two were semi-permanent and three were constructed with the help of Tarayana Foundation. The house in Khomshar is a two-storied structure constructed five years ago.



Tarayana Foundation built the house few years ago

As of yesterday evening, an official from the Royal Insurance Corporation of Bhutan Ltd (RICBL) and Bardo gewog mangmi were inspecting the damages. It was learnt that the people were

living in the damaged houses.

Kuensel learnt that the dzongkhag disaster management office sent four tarpaulin sheets to the four permanent houses in Langdurbi,

which was not enough to cover the damaged houses. The tarpaulin sheets were sent with the RICBL official.

“There was no tarpaulin sheets for the semi-permanent houses,” a

source in Zhemgang said. “The people living in the semi-permanent houses are poor and they did not get any help.”

The source also said that some of the victims would not be able to

repair their houses, as they do not have anyone to support them.

Zhemgang dzongdag Lobzang Dorji said he has asked the dzongkhag

disaster focal person to provide the disaster kits. The dzongdag was on his

way to the dzongkhag yesterday evening.

# Windstorm damages 93 houses in S/jongkhar and P/gatshel

April 3rd, 2019

The March 31 windstorm that struck eastern Bhutan for about an hour damaged about 93 houses in Samdrupjongkhar and Pemagatshel including three government structures.

Three jersey cows were also killed in Martsala gewog in Samdrupjongkhar.

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## Country alerted on cyclone Fani impact

May 4th, 2019

The Department of Disaster Management (DDM) has alerted disaster management and rescue officials to keep rescue and search equipment ready for possible disaster in the wake of a cyclone warning.

Yang Dorji from the Preparedness and Response Division, DDM, said that there was no need for people to panic and that all the dzongkhag and gewog disaster management bodies were alerted.

“We have alerted the dzongkhags and gewogs and schools to remain alert,” he said.

The DDM yesterday issued an advisory to dzongdags and thrompons, asking them to sensitise the general public and dzongkhags officials, including gups and disaster management staff in the dzongkhag.

“The DDMO may also be instructed to fully charge their radio equipment and keep their search and rescue (SAR) equipment ready. They may also inform all the SAR teams to be ready for response,” it stated.

Cyclone Fani made landfall in Odhisa, India yesterday morning. “The cyclone will have impact all over West Bengal and some parts of Assam,” DDM stated.

Fani is likely to bring heavy to very heavy rainfall over the southern, eastern and isolated places of central parts of the country. The rest of the country, according to the advisory, is likely to receive moderate to heavy rain from May 3 to 5.

The advisory alerted that gusty winds are very likely over the country during this period. “Due to very heavy rainfall flashfloods, floods, landslides and windstorms are likely over the eastern and southern parts of the country.”

The system is expected to dissipate from May 6.

The education ministry also issued an advisory yesterday asking education officials in dzongkhags to remain on high alert in the wake of the warning about the impacts of possible of heavy rainfall, flash floods, landslides and windstorms.

The ministry has asked schools, ECCD, NFE and Youth centres to remain on high alert and take precautionary measures to ensure safety of children, youth and learners.

Schools have been specifically asked to brief all the students, staff and family members on the threat of cyclone Fani. It has reminded all schools, students and parents to take care and ensure all young children are accompanied by older siblings, family members or friends during such situations.

The ministry notification has asked the schools to avoid unnecessary travels and call off classes, if the situation becomes bad from the worsening of weather conditions. It advises people to travel with extreme caution, in case of unavoidable cases.

Gelephu Thromde, one of the thromdes that is likely to be affected the most, has also alerted residents. Southern Bhutan, especially Sarpang has been marked as the red zone for all these three days. Officiating thrompon Tashi Wangmo yesterday

issued a public notification asking all thromde thuemis to sensitise the public.

### Two airlines monitoring situation

The Druk Air has notified its station managers about the possible cyclone, according to its management. “For us, the number one priority is safety, the business aspect comes second,” said Druk Air CEO Tandin Wangchuk, adding that the situation was being monitored.

However, he said that Fani had not affected its business as of yesterday.

The CEO said that there is no scheduled flight between Paro and Kolkatta today. Asked if the adverse weather will affect flights from tomorrow, Tandin Wangchuk said, “When we deal with something like possible disaster, we can know things as we deal with it.”

CEO of Bhutan Airlines, Phala Dorji, said that that the management is keeping itself updated with the situation. He said that no scheduled flights were cancelled or postponed.

“We are operating as per our schedule.”

## Windstorm damages homes in Naro

December 6th, 2019

A windstorm ripped off roofs of six houses and public structures in Naro gewog, Thimphu, and Lunana in Gasa on December 4 morning.

A one-storey house in Naro collapsed completely when a tree fell on it rendering the inhabitants, a family of four, homeless.

The roofs of the other houses and latrines were partially damaged.

But no casualty was reported.

Thimphu disaster management focal person, Tandin Wangchuk said the houses that suffered damages were insured with Royal Insurance Corporation of Bhutan Limited (RICBL).

Dzongkhag and RICBL officials are assessing the damage to the affected houses and public structures.

Tandin Wangchuk said that the compensation would be based on the assessment report.

Kuensel learnt that the dzongkhag disaster management sector provided tarpaulin sheets to the families in the damaged houses. They were also given a set of basic accessories.

Meanwhile, it was learnt that few affected individuals were taking refuge with neighbours while some families continue to live in the damaged houses.

In Lunana, a strong windstorm at around 10AM blew off the roof of

Mendrelthang extended classroom (ECR) in Tshozhong chiwog.

The windstorm was experienced in other highland communities like Soe and Lingzhi gewogs, but no damage was reported.

“While the regions have experienced similar storms and mishaps in the past, it normally used to occur towards the end of the first month of Bhutanese calendar,” said Naro gup, Wangchuk.

## Roadblocks due to heavy snowfall

January 6th, 2020

Continuous snowfall for the past two days on the passes has caused roadblocks and hampered vehicle movement in some parts of the country.

Phrumsengla between Mongar and Bumthang, Chelela pass between Paro and Haa, and Tergola pass between Haa and Sangbaykha remains blocked to traffic. It is the second day these roads remained closed. Clearing works are under way.



Road block at Phrumsengla (Photo: RBP)

Traffic on the Phuentsholing-Thimphu highway was stopped yesterday afternoon following heavy hail storm and snowfall around Gedu where

many vehicles were stranded. The vehicle movement was stopped from Rinchening in Phuentsholing. A light snowfall was also reported in Tsimasham

in Chukha at around the same time.

Roadblocks at Dochula and Lamperi were cleared yesterday and vehicle movement

resumed. However, commuters are cautioned to travel safely as the road remains slippery from ice and snow. There were no report of vehicle accident.



# Bhutan experiencing a colder winter this time

January 9th, 2020

Many people, including commuters and residents were taken by surprise when it snowed in Gedu on the night of January 4, stranding vehicles and causing inconveniences to commuters.

Official records indicate Gedu received its first snowfall this year. Some Gedu residents said the place received a light snowfall in 2008. “But this is the first time we are receiving snowfall of such thickness,” a local resident said.



*Passes like Dochula were*

*covered with snow*

Many people attributed the snowfall to climate change.

The National Centre for Hydrology and Meteorology (NCHM) officials, however, said western disturbance along with convective clouds, which were fed with continuous moisture from the Arabian Sea caused the snowfall with hailstorm and thunderstorm in Gedu.

A hydromet officer, Pema Syldon, said surface temperature of Gedu was one degree Celsius that evening. “Since Gedu had favourable conditions such as drop-in

temperature and moisture in the air, precipitation occurred in the form of snow with hailstorm.”

She said that due to frequent western disturbances, the country was experiencing precipitation this winter season. “There will be numerous snowfalls this winter.”

Although many said the change in weather conditions was because of climate change, the hydromet officer said that winter precipitation over the country was governed by seasonal variability.

She also said that a single event shouldn’t be directly linked with climate change because climate change studies require longer historical data analysis.

Meanwhile, rainfall and temperature forecast of Bhutan for 2019 winter season projected most likely ‘below normal’ temperature forecast for winter.

Thimphu experienced its coldest day on December 18 last year in 23 years. The lowest minimum temperature reached -9 degree Celsius, which is about 3.7 degrees below

the average for winter from 1996 to 2019.

As per the record with NCHM, the average minimum temperature recorded from 1996-2019 was -5.3 degrees Celsius.

As of today, the winter temperature observed across the country is below normal by an average of 3 degrees Celsius.

Meanwhile, NCHM forecasts snowfall in the northern, western and central regions of Bhutan today.



# Heavy snowfall blocks highways

February 27th, 2020

Snowfall since the evening of February 25 blocked several highways, stranding commuters. Except for Dochula, high passes remained closed to traffic as of yesterday evening.

Travellers have been stopped from plying via Pelela between Wangduephodrang and Trongsa, Thrumshingla between Mongar and Bumthang, Chelela between Paro and Haa and Tergola between Haa and Sangbaykha.

According to Department of Roads (DoR) officials, the thickness of snow along the road between Sengor and Thrumshingla was 16.5 inches and it might take two to three days to clear the road for traffic.

The roadblock at Yotongla between Trongsa and Bumthang was cleared yesterday afternoon and vehicles were allowed to ply. While travellers were also allowed to ply via Dochula, commuters were cautioned, as the road remained slippery.



Superintendent of Police (SP) for traffic division, Lt. Colonel Namgay said that one of the major roadblocks was in Tergola pass between Haa and Sangbaykha. “Clearing works are underway.”

He said DoR officials used de-icing salts to melt the snow.

SP Namgay said that there was no report of

major vehicle accidents owing to the snowfall.

Meanwhile, the National Center for Hydrology and Meteorology (NCHM) stated that cloudy weather with light to moderate snowfall is expected over Haa, Gasa, Bumthang, Trongsa, Paro, Thimphu, and high passes until yesterday. NCHM also mentioned that other places can expect light rain.

“Weather is expected to improve from today.”

This year’s first snowfall was reported on January 3 in the high passes like Thrumshingla, Pelela and Dochula. Places located in higher altitude in Thimphu also received snow, but the capital city is yet to receive its first snowfall.

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## Amphan weakens

May 21, 2020

The cyclone Amphan has weakened into the Cyclonic Storm today (21 May) over Bangladesh, according to the National Center for Hydrology and Meteorology (NCHM). It

is likely to continue to move north northeast and weaken further into a depression later today. NCHM forecast says mostly cloudy with light to moderate rain is likely

over northern, western and central parts of the country during the next 48 hours (May 22-23). Southern and eastern parts of the country can expect moderate to heavy

rainfall during the next 24 hours (May 22). Thunderstorms and gusty winds are likely at isolated places over the country during the next 48 hours.



# 19 families lose maize to windstorm

September 22nd, 2020

A windstorm destroyed more than four acres of maize belonging to 19 households at Durungri in Dungmaed gewog, Pemagatshel at around 4am on September 20.

The dzongkhag agriculture officer (DAO), Tashi Phuntsho, said that the gewog agriculture extension officer and gewog administration carried out the assessment and submitted the report to the dzongkhag disaster management office.

“Of the 19 households, three households have been severely affected as they lost more than 10 percent of their crops.”

The DAO said that since maize is in the tasseling

stage, most of the plants He said that the “The estimated yield loss



would recover as they were not severely damaged. This is the second time windstorm had destroyed maize. dzongkhag agriculture office would provide high-breed maize seeds to the farmers. to the storm was found to be more than five metric tonnes.”

## Windstorms damage crop in Trashiyangtse

October 8th, 2020

A windstorm on the evening of October 4 damaged maize and paddy in four villages of Toedtsho gewog in Trashiyangtse.

Eighteen households in Sep village lost all their maize and paddy.

A farmer, Dorji Wangdi, 42, said: “I am shattered. All I had is now gone.”

Another affected farmer, Sangay Lhaden, said that her family of five had expected a bountiful harvest this year. “We are left with nothing.”

Sangay Lhaden said people in the locality depend on maize, as the land is not feasible to grow paddy. Villagers said that they are experiencing more and more natural disasters in the village.



“Nature disasters like windstorm, heavy rainfall and hailstone are common in the villages,” said one of the villagers. A villager from Sep said he lost crops to windstorm last year. sector assessed and found that maize belonging to 27 households were damaged in Toedtsho and Khamdang gewog. Nangkhar-Sep tshogpa, Rinzin Dorji, said that the situation in the affected villages was bad. “Farmers are crying. They are now left with nothing.”

Officials from dzongkhag disaster management and dzongkhag agriculture The damage report would be submitted to the Ministry of Agriculture and Office of the Gyalpoi Zimpon.



# Soe in the wake of terrible windstorm

December 1st, 2020

Houses in Jumphu, Soe all look a bit run down, shingle disordered and ready to come off.

A windstorm did it on November 22. The windstorm raged on for two days, the locals say, of the kind they had never witnessed.

Some, who could afford, have repaired their roof. Others remain exposed to the harsh elements of winter. Many are still recovering from the shock.

Jumphu is the first village you arrive at on a journey to Soe Gewog Centre from Shanazam in Paro.

Beyond the gewog centre there is more of them—partially damaged houses.



Pema Om, 25, from Dotabithang lives in a house without roof with her mother and uncle.

“We will fix it soon,” says Pema Om.

On the second day, when the windstorm got worse she quickly locked her house and ran for the nearest forest where she felt safe. She could hear CGI sheets tumbling from her house.

The village Tshogpa came to assessed the damage on Pema Om’s house.

It took four days for Ngawang Jigme from Changmatabsa to get the roof of his house, toilet and store repaired. His brother helped him. “There was little I could salvage from the wreckage.”

Ngawang Jigme applied for the timber permit at

the forest office. This takes time. Even the forest office has suffered significant damage. But Ngawang Jigme is determined to build a very strong roof.

Ngawang Gyeltshen, 35, said he had to retrieve CGI sheets from a forest far away.

Mangmi Tshering Dorji said that tshogpas were instructed to assess damages in the villages and submit a report to the gewog. The gewog will evaluate the report and forward it to dzongkhag disaster management division.

He said that windstorms damaged houses every year in Soe.

## Windstorm damages 11 houses

December 25th, 2020

A windstorm yesterday afternoon damaged roofs of 11 houses in Paro.

Doteng gewog was severely hit with eight homes affected. Other gewogs—Naja, Lamgong, and Tsento—reported damage to one house from each gewog.

There were no casualties.

Disaster focal person of Paro dzongkhag, Nagp hey said that residents could still stay in their homes.

He said that the dzongkhag



administration was compiling the reports of the damage so that they could claim insurance.

According to Doteng gup Lethro, there were no major issues. “As there is no rain and snowfall, there is no problem.”

Meanwhile, two forest fires broke out in the capital yesterday. One was below Wangditse Lhakhang and the other at Jemina.

Sharing the concern of such disasters amid the pandemic, Foreign Minister Dr Tandi Dorji asked people to be cautious.

He said that it was challenging to cater to such incidents when the limited frontline workers were already working hard to contain the infection.

# The Rat Year showered Trashigang and Trashiyangtse with publicity aplenty

February 14th, 2021

## Male Iron Rat Year

Astrologers predicted heavy rainfall and terrible windstorm in the year of the Rat. Looking back, the predictions came true for Trashigang and Trashiyangtse.

A windstorm damaged maize fields of more than 33 households of Khaling gewog, Trashigang. Continuous rain for seven days worsened the condition of the fields in three chiwogs of Khaling.

On October 4 evening, a windstorm devastated maize and paddy in four villages of Toedtsho gewog in Trashiyangtse.

Heavy rains in July washed away Kangpara gewog centre road leaving the gewog cut off for more than two months.

Trashigang dzongkhag was in both mainstream and social media on the

assault case in Wamrong Drungkhag. Wamrong drungkhag court later handed a compoundable sentence of 18 months prison term to the drangpon's wife for battering the wife of the cleaner of the court.

The drangpon's wife also appealed to Trashigang dzongkhag court on five grounds against the lower court's judgment. The court is yet to issue its judgment.

The year of the Rat also saw the conflict between the decision of the government and the Dzongkhag Tshogdu (DT). A group of highlanders from Merak appealed to the Prime Minister against DT's decision. DT had resolved to blacktop the Merak gewog centre (GC) road from Chaling.

After the Gross National Happiness Commission clarified its stand on

Merak GC road, the government decided to blacktop the road from Khardung. Later, the representative of Shongphu and Chaling appealed to Trashigang court, if the government's decision to blacktop the road from Khardung has violated the DT's decision.

Three days later, the court dismissed the petition. On the same day, the DT agreed to comply with the government's decision.

In Trashiyangtse, the dzongkhag court sentenced the Bumdeling Gup Yeshe Dorji to three years prison term for forgery. He was elected as the new gup after a bye-election in September 2019.

With the gup sentenced to prison, Bumdeling gewog elected its third gup, Phub Thinley from Gangkhardung. The first

Bumdeling gup, Mani Wangdra, who was elected in 2016 was sent to jail for 12 years for raping a minor girl.

Six years after the foundation stone was laid on, the government and the Kholongchhu Hydro Energy Limited (KHEL) signed the first joint venture (JV) hydropower project agreement between Bhutan and India. The 600MW run-of-the-river project is expected to generate about 2,568.88 million (M) units annually.

Meanwhile, villagers of Rinchengang, Chimsaningpa and Khaber were unhappy having been forced to be part of the thromde. They petitioned twice to the authorities to exclude them from the town's extended boundary. The decision remains.

## Windstorm at Phuentsholing

March 10, 2021

A windstorm in Phuentsholing has blown away CGI sheets of three temporary settlement huts at the Toorsa settlement. This means over 20 units' roofs have been blown away. The windstorm started about half an hour ago at around 5pm. RBA and all other officials are helping the residents at the moment. The rain has subsided for now.



# Windstorm wreaks havoc in Zhemgang

April 5th, 2021

A windstorm damaged more than 50 structures in Nangkor, Bardo, and Phangkhag gewogs in Zhemgang at around 3.45pm yesterday.

Nangkor gewog reported the most severe damages with 35 households reporting total damage to roofs.

More than 10 households suffered minor damages, according to gewog officials.



*A house in Bardo lost its entire roof*

Local government officials said that the affected families were moved to safety and provided temporary relief with support from desuups and tshogpas. They were also provided relief materials by the dzongkhag, according to Zhemgang Dzongdag Chimi Dorji.

The officials from the dzongkhag and gewogs were in the field providing relief materials and helping people move to safer places after the windstorms subsided.

The dzongkhag has mobilised a group of four desuups who would be sent to other gewogs for relief efforts. All affected families in Buli were provided with the required support from the dzongkhag and gewog administrations.

Around 11 households living in temporary and permanent structures in



Langdurbi, Bardo gewog were damaged by the windstorm.

The affected families were provided with temporary relief support with the help of gewog officials in the field and temporary tents pitched with the help of materials borrowed from the locals.

Mangmi, Tshering Tenzin, said the affected families were provided temporary relief support.

“We thought it might rain and we helped pitch tents for the affected families as we wait for the relieve materials from the dzongkhag,” he said.

The damages were reported from four gewogs in Zhemgang as of yesterday evening.

Meanwhile, around the same time, a tree fell on the Sarpang-Gelephu highway blocking it for more than two hours.

Some commuters used alternate routes from Dechenpelri.

Residents nearby the highway said the tree fell in the evening and they were left without a power supply for some hours.

The windstorms also caused minor damages to farmers in Samtenling, greenhouse structures were blown off and crops damaged.

# Windstorm affected households receive temporary relief support

April 6th, 2021



## Minor damages reported in eight gewogs in Sarpang

Authorities reached temporary relief support to all affected households in Nangkor, Zhemgang, which suffered the maximum damages in the windstorm on Monday evening, with the help of desuups, and the community.

Assessments for insurance for all affected families in the gewog were completed, according to the gewog officials.

The relief efforts started as early as 7am. Houses that lost roofs to the windstorms were temporarily covered using tarpaulin sheets, and tents were pitched for the affected families planning to start repair works soon.

Nangkor Mangmi, Singye Wangchuk said, “We could restore the roofs of

almost all the households that had materials ready. Those without the required materials were covered with tarpaulin provided by the dzongkhag.”

He added that dzongkhag officials were overseeing the relief efforts throughout the day. Almost all houses affected were insured, according to the mangmi.

The relief support had also reached families in Bardo gewog and the dzongkhag provided 15 small tarpaulin sheets to the affected families in Langdurbi chiwog yesterday.

Bardo gewog Mangmi, Tshering Tenzin said that the relief materials provided were not sufficient for the affected families. “But, we managed with the help of locals and started to

temporarily restore the rooftops. Assessment for those insured are underway,” he said.

Several public and private structures were damaged in Sarpang including schools, RNR centre, shops, and rooftops of over 10 houses in eight gewogs.

Dzongkhag disaster management officials said the damages were mostly minor and the assessment for houses that suffered major damages were ongoing.

Damages to roofs, summer vegetables, and polyhouse were reported in Sarpang following a windstorm on Monday evening, which lasted more than an hour.

The most affected were in Samtenling gewog with over 10 low-cost and 11 prefabricated polyhouses

damaged, according to dzongkhag agriculture officials.

The windstorm also affected crops and vegetables that were ready for the harvest in the dzongkhag.

Maize, beans, summer gourds, and betel nut trees were reportedly affected by the windstorm.

In Shompangkha, the windstorm also damaged 30 areca nut trees and 15 banana trees belonging to a farmer. Another 35 areca nut trees broke down in Samtenling according to dzongkhag’s report.

A total of 71 polyhouses, and two green shed houses were damaged on Monday evening.



# Windstorm damages 11 houses in Mongar

April 6th, 2021

A windstorm that occurred between 2.30pm to 5.30pm on April 4 that lasted for about three hours blew off roofs of 11 houses in six gewogs of Mongar. Among the affected were a house each in Balam, Dramitse and Thangrong gewogs, two each in Kengkhar and Sherimuhung gewogs, and three in Ngatshang gewog.

While the roofs of the six houses were totally blown off, the roofs of another five houses suffered partial damages.

While no casualties were reported gewog officials and volunteers have started rendering and facilitating rebuilding the damaged structures.



## Windstorm in Tashichholing

April 22, 2021



Between noon and 1pm today, a windstorm in Tashichholing (Sipsu), Samtse has reportedly damaged hundreds of betel nut trees of many households. Rooftops of many cowsheds and some houses have also been blown away. Tashichholing gup said that they were compiling the reports of the damages.

# Windstorm rips apart 60 structures in Zhemgang

April 30th, 2021

An earthquake and windstorms on April 28 damaged more than 45 houses and 21 public structures including lhakhangs, schools, and offices in eight gewogs of Zhemgang, officials said.

Bardo gewog reported maximum damage to 16 private and public structures. An earthquake on the same day also damaged three public infrastructures in the gewog, according to dzongkhag officials.

The dzongkhag administration received reports of damage caused by the windstorms and earthquake from Bjoka, Goshing, Nangkor, Ngangla, Phangkhar, Trong, and Shingkahr gewogs.

Three gewogs of Nangkor, Bardo, and Phangkhar were recovering from a windstorm that blew away the roofs of more than 50 houses on April 5.



Bardo Gup Kinzang Jurmey said that most structures in the gewog were not disaster resilient. “These are signs that the roofing for the house was not done properly. Maybe our people lack the expertise,” he said.

He added that it would be a huge loss to the government if such cases were reported frequently. “We need to set things right, train people, and be aware of having a strong structure. We cannot predict such

disasters,” said Kinzang Jurmey.

The gup said that the assessment on the upper part of the gewog was completed on Wednesday and the remaining ones are expected to be completed yesterday. However, all the affected families are safe, according to the official.

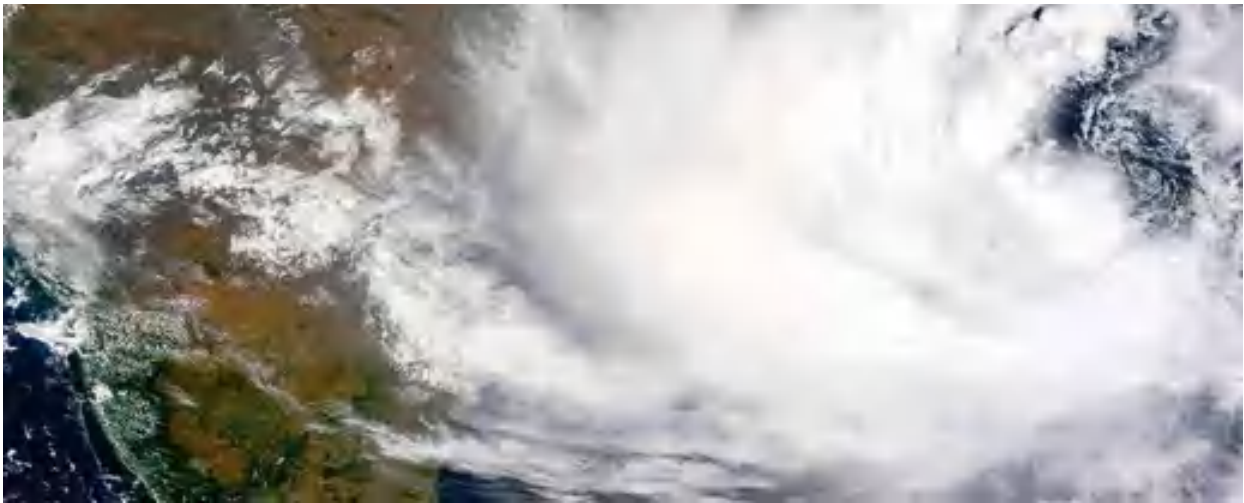
RICBL office in Zhemgang and Pemagatshel compensated all 67 households that were damaged by the recent windstorm.

The rooftops of Digala Primary School were blown away for the second time. The school suffered similar damage on April 5.

Officials from the dzongkhag said that most structures in the dzongkhag were of poor quality which resulted in frequent damage from such disasters.

## Cyclone YAAS to trigger moderate rain

May 26th, 2021



Cloudy weather with light to moderate rain is expected in the country in the next 72 hours, according to the National Centre for Hydrology and Meteorology (NCHM).

A cyclonic storm ‘YAAS’ formed as low pressure has intensified as a severe cyclonic storm since May 24, according to NCHM. The cyclone is likely to make landfall,

the event of a storm moving over land after being over water, in the form of a ‘very severe cyclonic storm’ in North Odisha.

Although there is no direct impact of the cyclone on Bhutan, Southern and Central Bhutan could experience moderate rain with thunder and lightning.



# Windstorm damages more than 10 acres of maize fields in Mongar

July 12th, 2021



Windstorm and rain damaged more than 10 acres of maize field in Ngatshang gewog, Mongar, recently.

Gewog officials, who assessed the disaster, recorded the impact of about 10.5 acres of maize field that belongs to 25 households in two chiwogs of Phanaas and Pelshuphu chiwog.

The maize plants were in the stage of bearing tassel. Maize is the

staple crop for farmers in the affected chiwogs.

Farmers suspect the force of the local deities dwelling on the mountain of Tsaenphu and Larjab above their settlement behind the disaster.

They claimed it is a ridam (strictly prohibited place to visit hillside) season and no one is allowed to visit those places. “But some people had visited

Tsaenphu and Larjab recently.”

Villagers said they had a similar incident in the past affecting only them, when nothing has happened to the rest of the gewog. “It’s a clear sign that the local deities are angry,” a villager from Pelshuphu said.

With the assessment completed recently, gewog officials are yet to submit the report to the dzongkhag disaster section.

Similarly, dzongkhag disaster focal person has received reports of minor farm road blockages in two gewogs, which are yet to be cleared.

Meanwhile, Department of Road’s regional office in Lingmethang, Mongar, has cleared the multiple roadblocks and landslides between Namling and Latong caused by heavy rainfall on the night of July 9.

# Five dzongkhags receive heavy snowfall

December 30th, 2021

The first snowfall of the season in five dzongkhags yesterday affected public transport services to and from Thimphu.

However, weather conditions are expected to improve from today, according to officials from National Centre for Hydrology and Meteorology (NCHM).

Officials said that transport services to the affected dzongkhags would resume today if the routes become pliable.

The roads to eastern dzongkhags remained closed at the high passes of western and central parts as of yesterday evening.

The director of Road Safety and Transport Authority (RSTA), Tashi Dawa, said that whether transport services would resume would depend on weather conditions.

The most affected points, which remained closed to traffic, were Thurumshing La on the Mongar-Bumthang highway, Pelela on the Trongsa-Wangdue highway, and Dochula on the Thimphu-Wangdue highway.

NCHM notified that high passes of western, central and eastern parts of the country are expected to receive moderate to heavy snowfall until 30 December.

It added that light to moderate snowfall is



likely in western and northern parts of the country during the period. “Rest of the country can expect light to moderate rain.”

An official from NCHM said that weather conditions were expected to return to normalcy from December 31.

He said that Thimphu, Paro, Haa, Gasa and Bumthang, and the higher points of Trongsa received snowfall yesterday.

No major accidents were reported, according to transport officials.

According to the NCHM, Haa received the heaviest snowfall at 24cm thickness, followed by Thimphu, which received snowfall of 9cm.

Public buses were stranded in Bumthang due to the closure of

passes.

Unlike in the past, the government did not declare a public holiday in Thimphu yesterday.

The Prime Minister’s Office (PMO) asked employees of government agencies to work from home.

“Public institutions in dzongkhags that are experiencing heavy snowfall today, December 29, are directed to continue to work through the activation of your ‘work-from-home’ protocols,” the PMO notified in the morning.

The PMO stated that agencies providing essential services such as medical must ensure that they were available to the general public while also ensuring the safety of the employees.

“The safety of our people is still of paramount importance today. However, technology today provides the means to work from any location, including one’s home,” the PMO stated.

The agencies were asked to activate the work-from-home protocols that were implemented during the pandemic. “The pandemic has also successfully tested our ability to continue to work from any location.”

Accordingly, the Royal Civil Service Commission (RCSC) notified that public services would be uninterrupted.

“All ministries, agencies, and dzongkhags closed due to snowfall, are required to ensure services are active and running by reactivating work-from-home for today,” RCSC notified.

ANNEXTURE								
Year	Date / month	Time	Flood event	River basin/ sub-basin	Dzongkhag	Village/ geog	Reported damage	Remark/ source
2017	April 25	Night	Flash flood	Punatshang-chhu	Gasa	Tashithang	Washed away a section of road at Tashithang along the Punakha-Gasa highway.	Kuensel
2017	May 5	Night	Flash flood	(Manas)	Trashigang	Bartsham geog	<p>Damaged farm roads and washed away crops in four of the five chiwogs.</p> <p>Debris and boulders that washed down the slope where Bartsham central school is located covered the multipurpose hall and partially damaged a hostel after the rain flooded the hostel.</p>	Kuensel
2017	June 26	6 pm	Nakpola and Kuktur-gang stream caused flash flood	Manas (Kholong Chu)	Trashi-yangtse	Bumdeling	Washed away three RCC bridges, two wooden bridges and an excavator in the gewog and destroyed paddy fields, irrigation water sources and fallow lands belonging to 16 households.	Kuensel
2017	July 17	Night	Swollen stream caused flooding	Manas (Khomachhu)	Lhuentse	Shawa in Gangzur	Around 20 households lost at least 17 acres of crops. Washed away few domestic animals, an electric pole, irrigation canals and a mini hydropower supply water	Kuensel
2017	July 18	Morning	Flash flood	Manas (Mangdichhu)	Trongsa	Thruiepang	Flooded Thruiepang Palace compound. Destroyed the town’s drinking water source.	Kuensel
2017	July 22	Night	Heavy rain caused flash flood	Phuntsharge (Sankosh)	Wangdue	Lopokha	Bridge was washed away and also damaged crops.	Kuensel
2017	July 28		Heavy rain caused flash flood	Manas	Lhuentse	Kilung	Damaged a suspension bridge affecting about 50 households and students of Thimyul Lower Secondary School in Lhuntse.	Kuensel
2017	August 8		Flash flood	Manas (Dhaura River)	Gelephu	Gelephu	<p>Rainwater that flooded the border gate area soon dried up, not requiring evacuation.</p> <p>Further up around eight kilometer away at the aie-slip, a major landslide blocked traffic flow until late afternoon.</p>	Kuensel
2017	August 10		Heavy rain caused flooding	Aichhu (Mao River)	Gelephu	Jampheling	Gelephu thromde evacuated at least three families from the low lying areas in Jampheling demkhong after their makeshift huts were flooded with rainwater.	Kuensel
2017	August 13	8:45 pm	Small flash flood	Wangchhu (Cheri-chhu)	Thimphu	Cheri	Had no major impact.	Kuensel



Year	Date / month	Time	Flood event	River basin/ sub-basin	Dzongkhag	Village/ geog	Reported damage	Remark/ source
2017	August 9-11	3 days	Flood	Punatsangchhu	Punakha	PHPA II	Dam site was filled with water and debris from the flooding the Punatsangchhu spilled over the cofferdam.	Kuensel
2017	August 30	9.30-10am	Flash flood	Aichhu	Gelephu	Gelephu	Washed away 100 meters of the temporarily reinstated Gelephu-Assam highway which was washed away on August 25 by the overflow from the reservoir below the airport.	Kuensel
2017	Sept. 4	Night	Heavy Rainfall caused flood	Dhaura River	Sarpang	Serzhong	Washed away more than 200 metres of Serzhong gewog centre road. Also washed away drinking water source about two kilometers away from Shershong gewog centre which benefited the people of Norbuling and Chuzargang gewog.	Kuensel
2017	October 12	Night	Flood	Manas	Mongar	Tsakaling	Damaged crops, more than 250 orange trees were also washed away.	Kuensel
2018	June 13	6:30 pm	Flash flood	Manas	Lhuentse	Slilibe in Maedtsho geog	Washed away a labour camp consisting of 13 temporary sheds and a motorbike, affected some portions of the gewog road and farm roads. Also damaged the under-construction RCC bridge that connects a native cattle-breeding centre of Sertsham to the grazing area located on the other side of the river.	Kuensel
2018	July 22	7:13 pm	Flash flood	Manas (Mithim-drang stream)	Trashigang	Rangshi-khar	Although no major damages were reported, the meat shop and the ground floor of the vegetable market including two huts and the children’s park were completely covered in muck. Four vehicles including two trucks were also stuck. Drinking water source for the town and water pipelines in three different locations were also washed away.	Kuensel
2018	August 1		Flash flood	Manas (Buna stream)	Trashigang	Rangjung	About 12.5kms from Trashigang towards Rangjung, the flood completely washed away the road along the stretch. A farmer lost 1.7 acres of his paddy field to the flood.	Kuensel
						Dramang	Washed away a semi-commercial poultry farm including the road in the area. Also washed away three wooden structures including rice and corn mills. Around 400 pullets were also killed in the incident.	Kuensel

Year	Date / month	Time	Flood event	River basin/ sub-basin	Dzongkhag	Village/ geog	Reported damage	Remark/ source
2019	April 29		Flash flood	Manas (Lekpa-gangchu stream)	Lhuentse	Nakey-thang	Damaged the water sources that catered to residents living near a car automobile workshop at Jabin, an open-air gym at Nakeythang and the ECCD centre.	Kuensel
2019	June 24	2-3 am	Heavy Rain	Aichhu (Stream beneath the bridge)	Gelephu	Gelephu	Reinforced concrete cement bridge (10 metre) near the domestic airport was completely washed away. A mini-tripper truck belonging to Sashastra Seems Bal (SSB) was also washed away.	Kuensel
2019	July 25	11 pm	Flash flood	Manas	Lhuentse	Gangzor gewog	Two women; a mother and a daughter were washed away by the flashflood.	Kuensel
2019	July 26		Flash flood	Wangchhu	Chukha	Baunijhora, P/ling	Sediments submerged the new Baunijhora bridge	Kuensel
2020	July 20	12:30a m	Flood	Mao River	Gelephu	Maochu Gelephu	16 people were stranded near the water treatment plant who were rescued the next morning. Four soldiers lost their lives. The flooding has also caused minor damages to the paddy plantation located near the riverbank. However, the damages to the water treatment plant could not be assessed yet.	Kuensel
2019	August 6		Flood	Punatsangchu	Punakha	Jarogang	Four workers of PHPA II went missing after the vehicle they were travelling in was washed away by the swollen river. Also damaged a house in Jarogang. About 700ms of the highway was completely submerged under the water.	Kuensel
2020	October 1	5:30 PM	Flash Flood	Manas (Chamdey Gangchu stream)	Trongsa	Bjeezam	Swept away belongings of six families near Bjeezam leaving them homeless. A shop, two huts and the bridge to Nubi gewog center were washed away. Artificial dam has been formed at the Mangdechhu river due to the flash flood debris. AWLS/AWS and manual gauge stations at Bjizam are submerged due to the back flow from the dam formation and not operational. The Mangdechhu Hydro Power remains shut down	Kuensel
2020	Oct 4	Mid-night	Flash flood	Punatsang chu	Wangdue Phrodrang	Ruechey-kha, Ruebisa geog	Damaged more than three acres of ripe paddy belonging to 11 households. Damaged farm roads to Jala village. Ruecheykha village didn't have electricity for two days as the flash flood disrupted power lines.	Kuensel

Year	Date / month	Time	Flood event	River basin/ sub-basin	Dzongkhag	Village/ geog	Reported damage	Remark/ source
2021	June 15	3:55-4 pm	Flash Flood	Khenbachhu	Trongsa	Chendebji village, Tangsibji Gewog	Damaged bridge, Mini Hydro-power house, cow sheds and timber logs in nearby area but there are no casualties according to local peoples. People access route was made difficult as they have to cross the other side of river to do daily farming works.	NCHM
2021	June 16		Flash flood and land-slide	Punatsangchu	Gasa	Laya	10 people died and 5 others were injured.	ECHO Daily Flash
2021	August 8	2:45 Pm	Flash Flood	Manas	Trashi-yangtse	Serkang stream	3 Human casualties reported	Kuensel
2021	August 26	2:00 Am	Flash Flood	Punatsang Chu	Gasa	Gasa Taschu	Four Concrete structures including one shop were washed away. There was no report of human casualties.  All the seven hot spring ponds and bridge damaged	Kuensel
2021	August 25		Flood	Maochhu	Sarpang	Gelephu	Breached a gabion wall constructed along the Shetikhari stream in Gelephu. Washed away temporary boulder wall connecting the Reinforced concrete wall at the confluence. Stranded more than 20 people	Kuensel





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