MEMBER REPORT

Lao PDR

ESCAP/WMO Typhoon Committee
19th Integrated Workshop
Shanghai, China
19 - 22 November 2024

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[The total number of items for each Member **should not exceed 15**. Please also kindly confine inputs to those relevant to tropical cyclone and Typhoon Committeeissues.]

I. Overview of tropical cyclones which have affected/impacted Member's area since the last Committee Session

1. Meteorological Assessment (highlighting forecasting issues/impacts)

- **The effects of the El Niño phenomenon**

El Niño has extended dry weather from mid-2023 into mid-2024, leading to elevated temperatures across the region. Many countries, including Cambodia, Lao PDR, Malaysia, Myanmar, Thailand, and Viet Nam, have experienced temperatures exceeding 40 degrees Celsius. This surge in temperature has placed plants under heat stress, adversely affecting their growth and ultimately impacting yield (https://www.apterr.org/). Table 1 shown the extreme maximum temperatures observed in March, April and May 2024.

Region	Extreme maximum temperature (deg. C)		
	March 2024	April 2024	May 2024
Northeastern	**37.8** on 11/03/2024, Xiengkhuang	**39.6** on 02/04/2024, Xiengkhuang	**41.5** on 01/05/2024, Xiengkhuang
Northwestern	**39.5** on 31/03/2024, Xaiyaboury	**42.3** on 23/04/2024, Luangprabang	**42.2** on 01/05/2024, Luangprabang
Central	**40.1** on 06/03/2024, Seno	**43.0** on 30/04/2024, Seno	**42.0** on 01/05/2024, Seno
Southern	**39.5** on 27/03/2024, Pakse, Sekong, Attapeu	**42.5** on 30/04/2024, Salavan	**40.6** on 02/05/2024, Pakse
Vientiane Cap	**38.4** on 06/03/2024	**42.6** on 30/04/2024	**42.5** on 01/05/2024

Table 1. Extreme maximum temperatures (deg. C)

- **The onset Wet Season 2024 in Lao PDR**

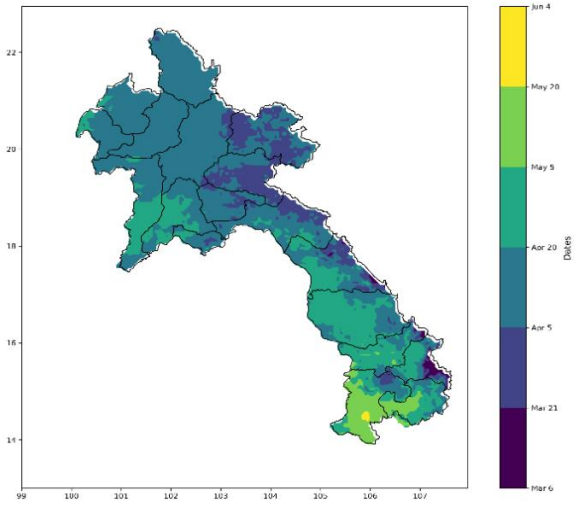

Figure 1. Spatial-temporal climatology of rainfall onset dates over Lao PDR for 42 years period (1981–2022).

The climate patterns in Lao PDR exhibit diverse characteristics across areas. Rainfall onset dates vary across various parts in Lao PDR. In eastern Xekong province, they typically occur between March 6 and March 21. Moving towards eastern areas bordering Vietnam, onsets are generally observed from March 21 to April 5. Northern Lao PDR experiences onsets between April 5 and April 20. In the southwestern regions, including parts of Vientiane and Xaiyabouri, onsets happen from April 20 to May 5. Southern Champasak has late onsets, occurring from May 5 to June 4.

Based on the 5 days accumulated rainfall, in 2024, Wet season in Lao PDR started mostly near normal over the country.

- **The tropical cyclones which have affected/impacted Lao PDR since the last Committee Session**

From November 2023 to October 2024, there are 3 tropical cyclones having affected Lao PDR, namely: Typhoon YAGI, Tropical Storm Soulik and Tropical Storm TRAMI. These 3 storms have caused damage to the lives and valuable property of the people and the counity, especially in the northern and central parts of Lao PDR.

➢ **TY YAGI (2411)**

Typhoon YAGI made landfall over Haiphong and Quang Ninh of Vietnam on 7 September 2024 and moved southwestwards inland then passing to northern part of Lao PDR on 8 September 2024; The combination of Typhoon Yagi and the southwest monsoon led to heavy rains over northern part of Lao PDR, causing widespread flash flood and landslides in various areas of Lao PDR.

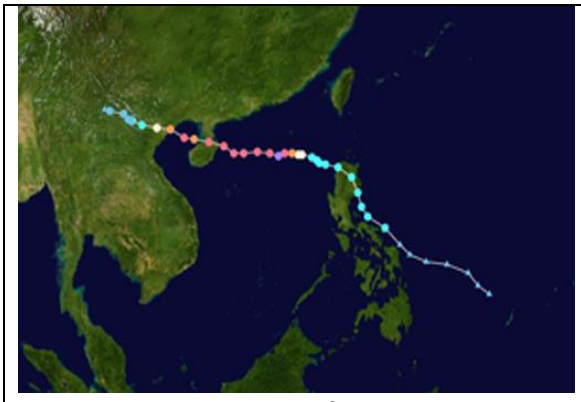

Figure 2. Best track of Typhoon YAGI

Daily rainfall (mm) observed		
Station	8 Sep 2024	9 Sep 2024
Viengxay	17.2	55.5
Sam Neua	25.9	41.4
Luangnamtha	38.7	106.8
Sing	56.6	122.2
Viengphoukha	62.3	42.2
Oudomxay	25.6	34.8
Huaysai	25.3	57.4
Luangprabang	166.6	17.5
Xiengkhuang	50.6	64.2

Figure 3. The impacts by TY YAGI

➢ **TS SOULIK (2415)**

Tropical Storm (TS) Soulik made landfall near Quang Binh and Quang Tri of Vietnam on19 Sep 2024 then it weakened to a tropical depression passed over central part of Lao PDR on 20 Sep 2024. The combination of TS Soulik and the southwest monsoon led to

heavy rains over Northeastern to central and southern parts of Lao PDR, causing widespread flash flood and landslides in various areas of Lao PDR

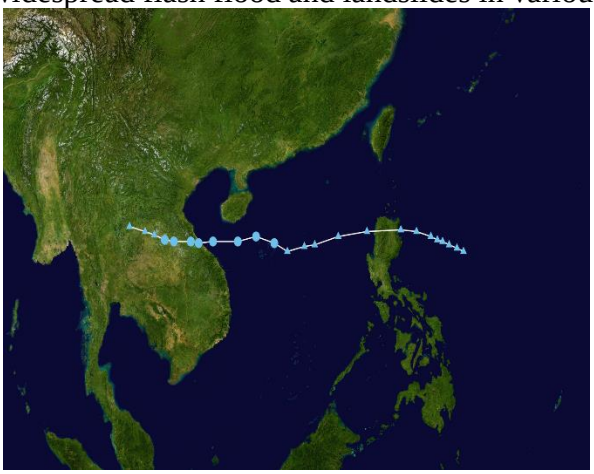

Figure 4. Best track of TS Soulik

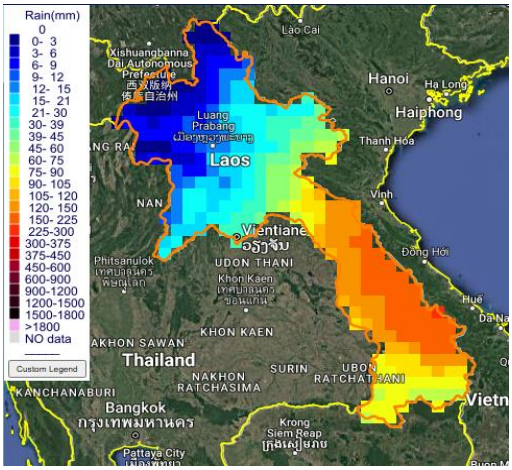

Figure 5. Accumulative rainfall from 17 – 22 Sep 2024

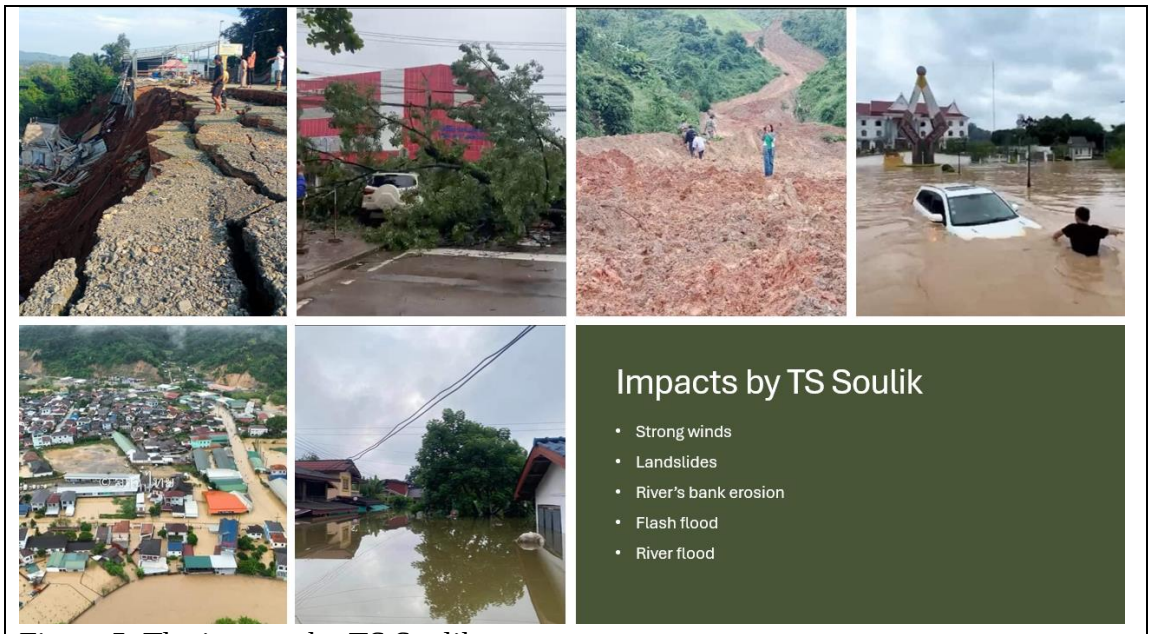

Figure 5. The impacts by TS Soulik

- **TS TRAMI (2420)**

Tropical Storm Trami encountered strong easterly vertical wind shear as it approached the coast of Vietnam, causing its core convection to become more linear. On 27 Oct 2024, Trami made landfall in Thua Thien-Hue and Da Nang of Vietnam and was drifting slowly inland while moving southwestward and passed over Sekong Province of Lao PDR. Resulted, there were heavy rain with strong wind in some areas of central and southern parts of Lao PDR.

Station	26 Oct 2024	27 Oct 2024	28 Oct 2024
Thakhek	03.4	11.4	Nill
Savannakhet	07.0	29.4	Nill
Seno	05.3	18.8	00.3
Salavan	26.4	33.0	05.1
Pakse	05.6	59.0	01.0
Paksong		40.8	00.8
Nikom 34	16.8	39.9	01.2
Thataeng	27.2	46.6	05.8

Sekong	15.8	50.1	02.6
Kalum Mai	40.5	110.0	30.0
Dakjeung	10.6	65.0	07.7
Attapeu	22.3	55.9	03.8

Table 2. Daily precipitation during the passages of TS TRAMI

2. Hydrological Assessment (highlighting water-related issues/impact)

Out of three typhoons occurred (as of YAGI; 8 Sep 2024, Soulik ; 20 Sep 2024, and TRAMI; 27 Oct 2024), there were three typhoons directly affected Laos across September through October, but only two (Typhoon No. T2415 Soulik and T2411 YAGI) of them landed inland of Laos in September. Especially, Typhoon YAGI landed on the northeastern part of Laos at dawn on September 11th and poured a lot of rainfall as it passed through the northern region toward the west. The maximum accumulated precipitation for one day after YAGI landed was 106.8 mm in Luangnamtha City, the northeast region of Laos. Since the typhoon's landing and movement route was in the northeast region on the right side of the country, there was some damage to the infrastructures, land properties, transportation systems and a few of local landslides occurs.

The government estimated the destroyed of recovery for damage caused by YAGI in 4 provinces of 486 villages and 27,972 families and 3,167 hectares of land property. In Luangnamtha, up to 106.8 mm of rainfall per day fell on Sep 11th, causing damage such as overflow flood destroyed houses, vehicles, and road in many places. In addition, Typhoon YAGI was huge damaged Xamneua City on September 22nd passing through Borkeo province which is located in the western part of Laos. Although it was small in size, it sprayed a lot of rainfall at around 57 mm per day while maintaining medium strength. As a result, more than 414 mm and 354 mm of heavy rain fell on Sep 22nd in xam neua and Luangnamtha City respectively due to Typhoon YAGI, a special announcement for typhoon warning was issued at the Luangnamtha Airport and dozens of flight schedule were cancelled, roads passable. However, fortunately there was no casualties but a major economic lost. In addition, the rainy season in Laos this year, a little earlier than usual, started in early May, within 15 days of the start, more than 149 mm of accumulated precipitation occurred in Luangnamtha City and 139 mm in Xamneau . In particular, during flooding in Luangnamtha, 31 villages were severely affected, flood and landslide occurred in Bountai, in Oudomxay province of Hoon and Xay districts had impacted with flooding on bridges and roads. In Bokeo, in Thonpheung and Meuang are also affected, and 18 villages in Xayabouly across 5 districts were affected by flooding, at least one people was missing.

The water level of the Namtha River rose by more than 4m per day as rainwater from the streams merged into the Namtha River flow due to heavy rain. In the Nam Xam River, water level rose more than 2.5 m per 8 hours (9 AM – 4 PM). The combination flow from the main tributaries with rainwater flew into the Mekong River and caused overflow flood in downstream such as some cities are located along the Mekong River as Luangprabang, Xayabouly, and Vientiane Capital City. Finally, rice paddies in Boun Neua, Phongsaly province reached over a few hectares. There are roads lost and floods damage occurred in various places due to landslides in the northern part of the country which is caused by rainstorm.

In 2024, four Flood Control Offices of the Ministry of Natural Resources and Environment, Lao PDR issued more than 20 floods cases occurred in nationwide from June to October, one case was severely impacted. Although there was some of inland damage caused by typhoons and flooding this year, but fortunately, there were not many severe flooding event and large-scale typhoon damage in Laos, but the number of official issues for flood watch and warning increased compared to the previous years.

3. Socio-Economic Assessment (highlighting socio-economic and DRR issues/impacts)

In year 2024, due to the seasonal weather and combined with the southwest monsoon and tropical cyclones passing through Lao PDR, there has been continuous rain in many provinces causing floods, flash floods and landslides and affecting 16 provinces and one capital, namely: Phongsali, Huaphan, Xiengkhouang, Udomxay, Luang Namtha, Bokeo, Luang Prabang, Xayabuli, Vientiane, Xayombon, Vientiane, Borikhamxay, Khammouan, Savannakhet, Saravan, Sekong and Champasak.

As a result of the impact, the Central Assessment Committee has joined forces with the Provincial Disaster Management Committee to make a damage assessment which can summarize all the damage expressed in each aspect as follows: the impact on all people in 96 districts, 1277 villages, 54314 families, 268780 people, 183703 women and 14 deaths.

- Economic Loss by flood 2024

Figure 6. Economic Loss by flood

- **Economic Loss by Landslides**

Figure 7. Economic Loss by landslides

- Economic Loss by local storms

➢ Disaster Response and Recovery

The Government is leading the response through the National Disaster Prevention and Control Committee, chaired by the Deputy Prime Minister.

On September 23, 2024, the Air Force Command of the Lao People's Army used Ma-600 aircraft to transport consumer goods of the Foundation for helping Children and Underprivileged Women, the Ministry of Labor and Social Welfare to help flood victims in Hua Phan Province.

The Lao People's Revolutionary Youth Center represents the donors who gave the aid to Luang Namtha Province with a total value of 231,000,000 kip. On September 21, 2024, the Lao People's Revolutionary Youth Center led by Mrs. Bouahom Somvichit, head of the Youth Media Department of the Lao People's Liberation Army, along with the team, brought aid from society, companies,

stores, and legal entities to the Lao People's Revolutionary Youth Center. The total value: 231,000,000 kip was given to the Luang Thanam Province Disaster Committee, which was received by Mr. Vong Mani for the head of the Public Planning and Investment Department. Luang Namtha Province. At the same time, the group that went to deliver the goods from the center together with the youth team of the province went to give relief goods to the people of Don Koon village in the number of 170 families, the goods that were delivered included: clothes, dry food, educational equipment, medicine and others.

The Government of Singapore handed over emergency flood relief supplies to the Lao PDR. The aid included: blankets, food packages, water filters, etc. This aid was transported by an aircraft of the Singapore Air Force, which also contributed to the delivery of aid from the ASEAN Disaster Relief Center (AHA) to Lao PDR.


4. Regional Cooperation (highlighting regional cooperation and related activities)

➢ **ASEAN Climate Outlook Forum**

The Department of Meteorology and Hydrology (DMH) Lao PDR, hosted the 22nd Session of the ASEAN Climate Outlook Forum (ASEANCOF-22), in coordination with the ASEAN Specialised Meteorological Centre (ASMC), Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES), United Kingdom Meteorological Office (UKMO), and World Meteorological Organization (WMO). ASEANCOF-22 was held in face-to-face modality over four (4) days from 27 to 30 May 2024, which also included two (2) days of pre-COF training.

ASEANCOF aims to provide collaboratively developed and consensus based seasonal climate outlooks and related information on a regional scale. These activities support decision making to manage climate-related risks. ASEANCOF-22 cover the forecast period June-July-August (JJA) 2024, and the focus of the last day was on climate services for agriculture

- **KMA Transfers Technology for Early Monitoring and Warning Against Extreme Weather in Lao PDR**

The Korea Meteorological Administration (KMA), led by Administrator Hee-Dong Yoo, signed the Record of Discussion (RD) for the Official Development Assistance (ODA) project titled "Improvement of Early Warning System for Disaster Response in Lao PDR (2024-2027)" with Permanent Secretary Anongsone Phommachanh of the Ministry of Natural Resources and Environment (MONRE) of Lao PDR on June 19, 2024.