Mekong River Commission

Weekly Wet Season Situation Report in the Lower Mekong River Basin

11 – 17 June 2024

Prepared by
The Regional Flood and Drought Management Centre
18 June 2024

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Key Messages

Key messages for this weekly report are presented below.

Rainfall monitoring and forecast

- In the period of 11 - 17 June 2024, there has been light to heavy rainfall has been observed over the LMB. The moderate to heavy rainfall has been observed over the LMB in Chiang Saen, Paklay, Vientiane, Nakhon Phanom, Thakhet, Pakse, Strung Streng, Kompong Chhnang, Bassac Chaktomuck.
- During 18 – 22 June 2024, the accumulated rainfall over the entire Lower Mekong Basin is distributed with light to moderate rain. However, during 19 - 23 June**,** moderate rainfall is expected in the central part of Laos, southwestern part of Cambodia, the 3S Basins of Sesan, Srepok, and Sekong, and the southern part of Mekong Delta.

Water level monitoring and forecast

- At 22 key monitoring stations along the Mekong mainstream from 11 – 17 June 2024, water levels are normal, and the flow threshold (PMFM 6C) are under normal conditions. It is also the same condition for Tan Chau and Chau Doc monitoring stations, which are significantly influenced by sea tidal fluctuation.
- In the period of 18 – 22 June 2024, Water levels are forecasted to be slightly decreasing and stable at upper stretches of LMB including Chiang Saen, and Luang Prabang. However, water level at other remaining stations from Chiang Khan to Pakse will drop, while other downstream stations will slightly rise. At Tan Chau and Chau Doc stations, the water levels are predicted to be also fluctuated, resulting from the influence of sea tidal patterns. Water levels at most of the stations are expected to be below their long-term averages (LTAs) except for Luang Prabang station.

Drought condition and forecast

- During 11-17 June 2024, the LMB was at moderate and severe droughts in the lower part. Severe drought specifically covered some areas of Battambang and Pursat of Cambodia, Buri Ram and Nakhon Ratchasima of Thailand, and Dak Lak of Viet Nam. They all were Short-Term Droughts.
- The next three-month forecast of rainfall indicates that north-eastern Cambodia, middle and southern Laos and eastern Thailand are likely receiving below average rainfall in June and July, while Cambodia is forecasted to be the wettest area which is likely receiving above average rainfall in June and July. The forecast also indicates that the LMB might receive less than average rain specifically in the middle and south-eastern regions and southern Laos is likely the driest area in the region.

1 Introduction

This Weekly Wet Season Situation Report presents a preliminary analysis of the weekly hydrological situation in the Lower Mekong River Basin (LMB) for **11** – **17 June 2024**. The trend and outlook for water levels are also presented.

This analysis is based on the daily hydro-meteorological data provided by the Mekong River Commission (MRC) Member Countries – Cambodia, Lao PDR, Thailand, and Viet Nam – and on satellite data. The water level indicated in this report refers to an above zero gauge of each station.

The report covers the following topics that are updated weekly:

- General weather patterns, including rainfall patterns over the LMB.
- Water levels in the LMB, including in the Tonle Sap Lake.
- Flash flood and drought situation in the LMB.
- Weather, water level and flash flood forecast, and
- Possible implications.

Mekong River water levels are updated daily and can be accessed from:
http://ffw.mrcmekong.org/bulletin.php.

Drought monitoring and forecasting information is available at:
http://droughtforecast.mrcmekong.org

Flash flood information is accessible at: http://ffw.mrcmekong.org/ffg.php

2 General Weather Patterns

During the last week, the Lower Mekong Basin influenced by the low-pressure cell and the moderate southwest monsoon. The light to heavy rainfall has been only observed over this region.

Figure 1 presents mean sea level pressure over the region. It is forecasted that the moderate southwest monsoon and the low-pressure will be influenced to the Lower Mekong Basin from 18 – 24 June. Therefore, in the upcoming seven days, over the Lower Mekong Basin are expected to experience light to moderate rainfall, especially moderate rainfall is expected in the central parts of Lao PDR, the 3S basin of Sesan, Srepok and Sekong, the southwestern part of Cambodia, and the Mekong delta.

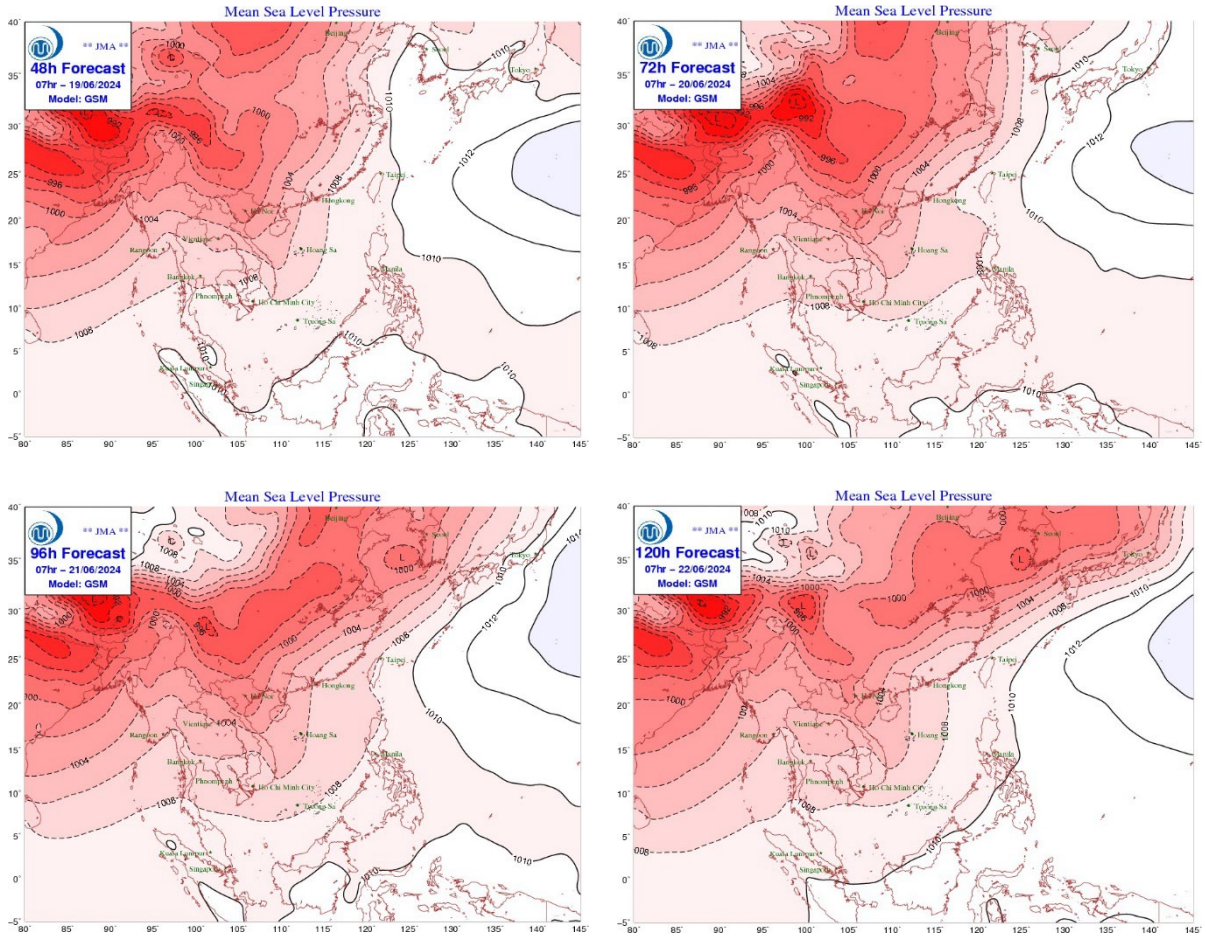


Figure 1: Weather conditions over the LMB

According to the ASEAN Specialised Meteorological Centre (ASMC, http://asmc.asean.org/home/), the subseasonal weather outlook (10 – 23 June 2024) indicates that the western part of Lower Mekong Basin (LMB) is likely in in wetter condition, while drier condition is likely at the Mekong Delta. Moreover, the warmer conditions are predicted to occur almost the entire LMB. **Figure 2** shows the outlook of weather condition from 10 to 23 June 2024 in Southeast Asia based on results from the NCEP model (National Centres for Environmental Prediction).

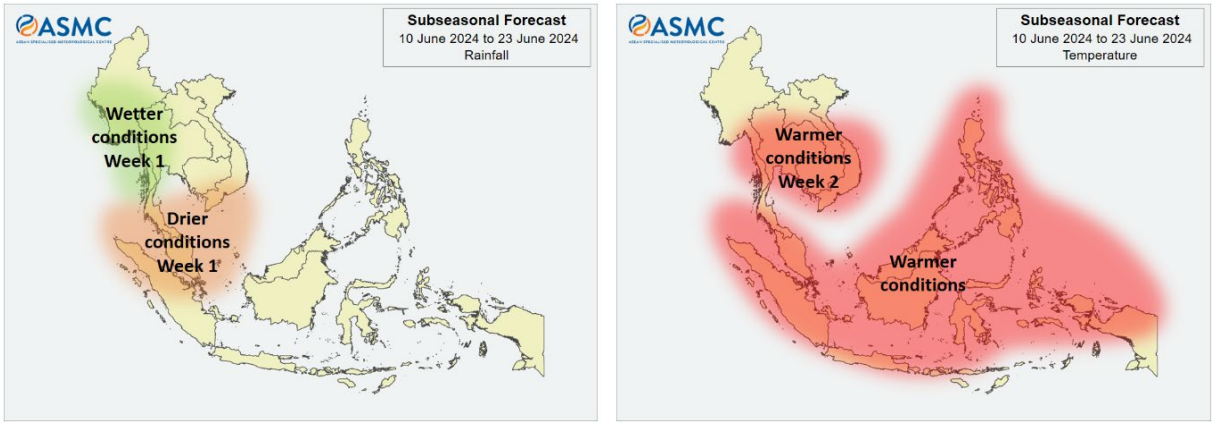


Figure 2: Outlook of wet and dry conditions over the Asian countries by ASMC.

Based on the tropical storm risk (TS) (https://www.tropicalstormrisk.com/), there is no active NW pacific system as of 17 June 2024 as displayed in **Figure 3.**

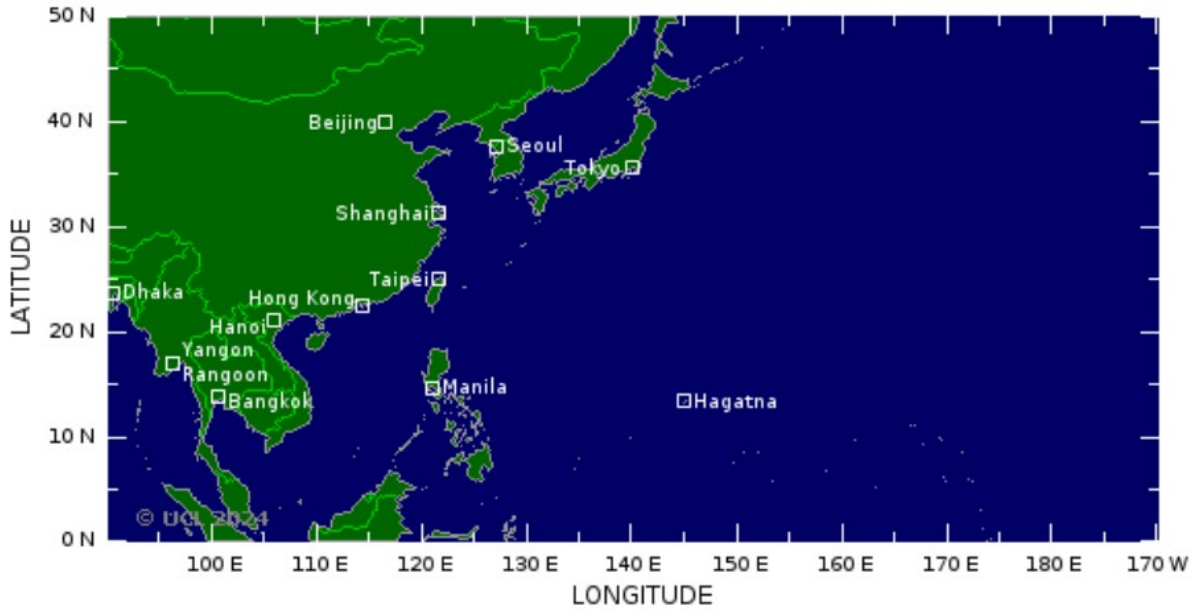


Figure 3: One tropical storm risk observed on 17 June 2024

3. Rainfall and Water Level Monitoring

3.1. Rainfall monitoring

The weekly accumulated rainfall based on the observed data provided by the MRC Member Countries – Cambodia, Lao PDR, Thailand, and Viet Nam – from 11 - 17 June 2024 (**Figure 4**). The light to heavy rainfall has been only observed over the LMB. The moderate to heavy rainfall has been observed over the LMB in Chiang Saen, Paklay, Vientiane, Nakhon Phanom, Thakhet, Pakse, Strung Streng, Kompong Chhnang, Bassac Chaktomuck.

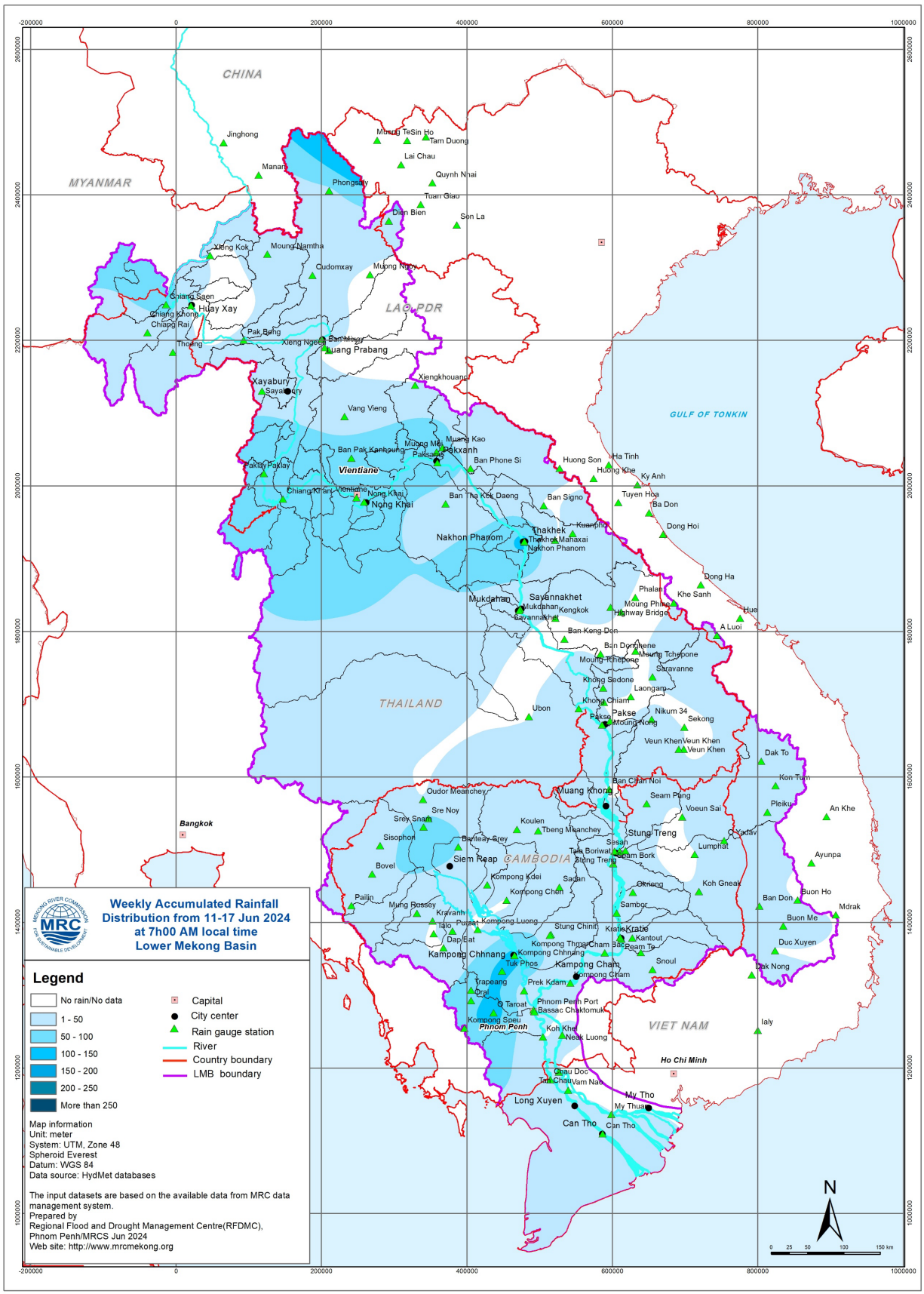


Figure 4: Weekly rainfall distribution over the LMB during 11 – 17 June 2024

3.2. Water level monitoring

The hydrological regimes of the Mekong mainstream are illustrated by recorded water levels and flows at key mainstream stations: at Chiang Saen to capture mainstream flows entering from the Upper Mekong Basin (UMB); at Vientiane to present flows generated by climate conditions in the upper part of the LMB; at Pakse to investigate flows influenced by inflows from the larger Mekong tributaries; at Kratie in Cambodia to capture overall flows of the Mekong Basin; and at Viet Nam's Tan Chau and Chau Doc to monitor flows to the Delta.

The key stations along the LMB and their respective model application for River Flood Forecasting during the wet season from June to October and River Monitoring during the dry season from November to May are presented in **Figure 5**. The hydrograph for each key station is available from the MRC's River Flood Forecasting: http://ffw.mrcmekong.org/overview.php.

During 11 – 17 June 2024, the observed water level (WL) at Jinghong hydrological station[1], was almost constant and ranges between 536.49 m and 536.71 m, which are corresponding to the outflow between 1,740.00 m^3/s to 1,910.00 m^3/s (recorded on 7:00 am), respectively (**Figure 6**). The water level in Chiang Saen station also indicated a slight fluctuation ranging from 3.16 m to 3.43 m. At the same period, the water level in Luang Prabang station also slightly increased with an approximate value of 0.25 m from 9.25 m to 9.50 m as compared to the previous week.

During the same period, the water levels observed at upper parts of the basin at Chiang Khan, Vientiane, Nongkhai, Nakhon Phanom, Thakhek, Mukdahan, Savannakhet, Paksane, Khong Chiam, Pakse, Stung Treng and Kratie have been slightly increasing from 5.27 m to 6.02 m, 2.4 m to 3.58 m, 1.92 m to 3.33 m, 3.29 m to 3.90 m, 2.8 m to 3.59 m, 4.02 m to 4.78 m, 2.93 m to 3.65 m, 1.37 m to 2.02 m, 3.42 m to 4.06 m, 2.28 m to 2.78 m, 3.49 m to 3.58 m and 8.95 m to 9.05 m, respectively.

Moving down to the floodplain area at Kampong Cham, Phnom Penh (Bassac), Phnom Penh Port, and Prek Kdam the water levels have decreased from 3.53 m to 3.52 m, 2.18 m to 1.93 m, 1.13 m to 0.94 m, and 2.42 m to 1.82 m, respectively from previous week. However, at Neak Luong, the water level has slightly increased from 1.44 m to 1.52 m.

Similar to the previous week, the water levels from 11 to 17 June 2024 at Viet Nam's Tan Chau and Chau Doc fluctuated between their LTA values due to daily tidal effects from the sea. At the Tan Chau station, the water levels varied between -0.39 m and 0.71 m, while at the Chau Doc station, they ranged from -0.34 m to 0.87 m.

[1] Near-real time data of hydro-meteorological monitoring at the Jinghong hydrological station is available at https://portal.mrcmekong.org/monitoring/river-monitoring-telemetry.

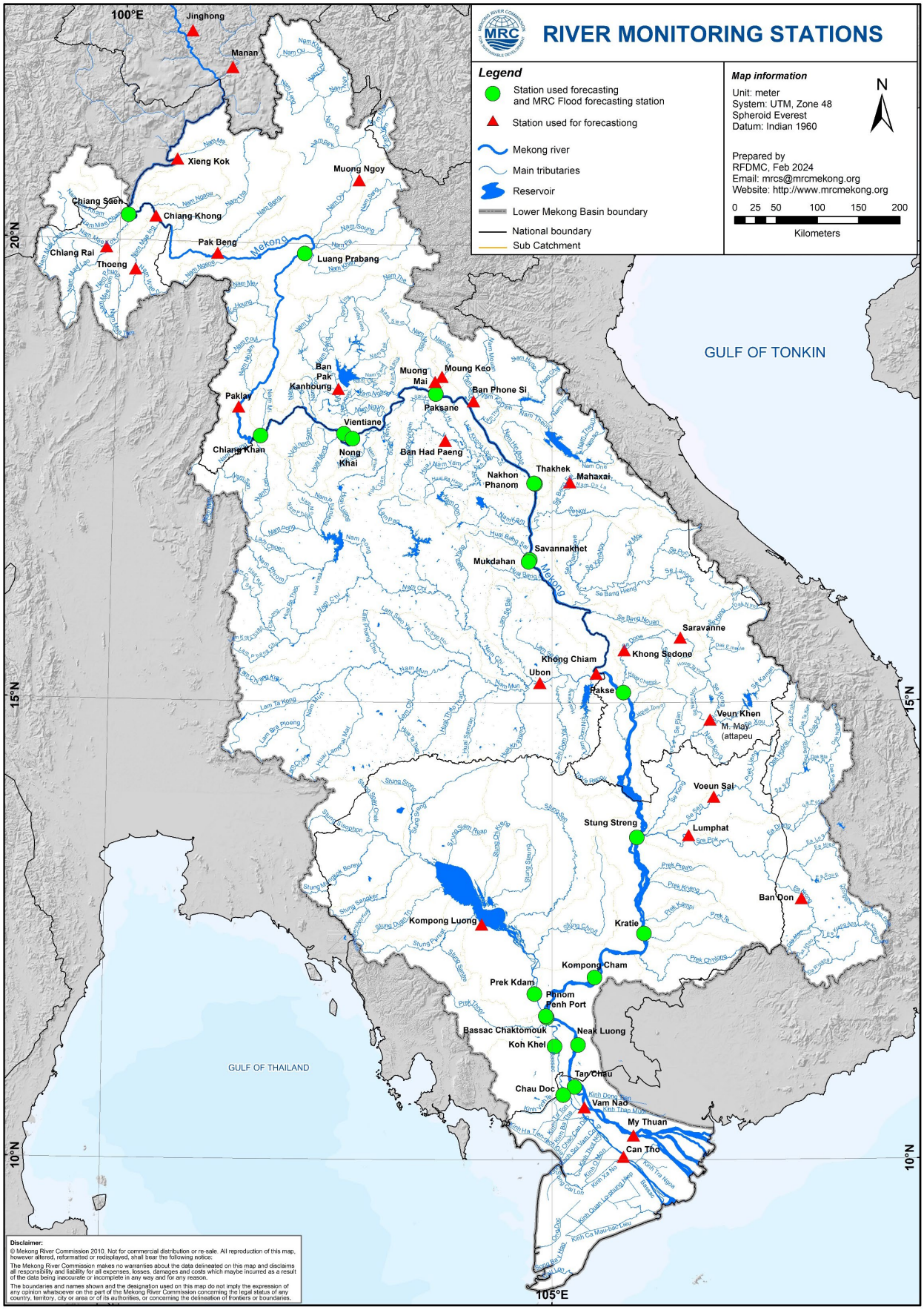


Figure 5: The key stations along LMB for river flood forecasting

The water levels in key monitoring stations on 17 June 2024 are below their long-term averages (LTAs) except for the Luang Prabang station. Moreover, all stations with available PMFM (Article 6C) thresholds are in normal conditions. The graphics of water level monitoring in all key stations are presented in **Annex A** and the weekly water levels and rainfall at each key station are summarised in **Annex B**.

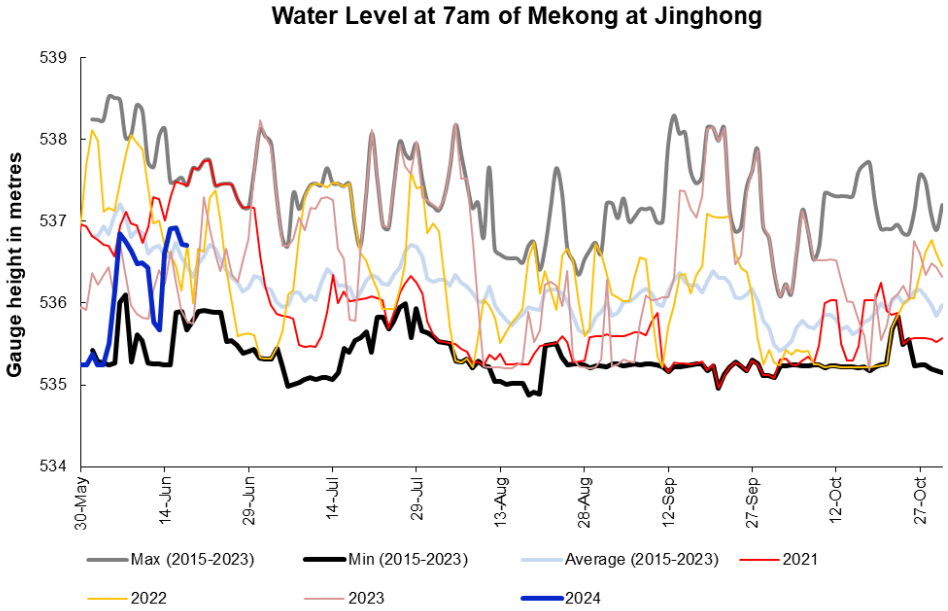


Figure 6. Water level at the Jinghong hydrological station up to 17 June 2024.

At the end of the wet season, when water levels along the Mekong River subside, the outflow of the Tonle Sap Lake (TSL) returns to the Mekong River and then to the Delta. This phenomenon normally takes place between September and October. Based on flow observation at Prek Kdam monitoring station, the outflow of the Tonle Sap Lake took place since 28 September 2023.

The outflow flow is calculated based on a formula of rating-curves using by difference of water levels at Kompong Luong and Phnom Penh Port stations for slop and Prek Kdam as cross-section of the Lake. The formula of flow is as follows:

$$Flow = WL_{Prek\ Kdam}^{1.2} \times \sqrt{|WL_{Phnom\ Penh\ Port} - WL_{Kampong\ Luong}|}$$

Where, WL is water level in m (msl).

The seasonal changes of the inflow/reverse flow and the outflow of the TSL at Prek Kdam in comparison with the flows of 2020, 2021 and 2022, 2023 and their LTA level (1997-2023) are illustrated in **Figure 8**. Up to 17 June 2024, it was observed that the main outflow to Tonle Sap Lake decreased due to limited rainfall and less inflows from upstream **(Figure 8)**. This decreased outflow of Tonle Sap Lake was most likely caused by low inflows from its tributaries.

The seasonal changes in monthly flow volumes up to 17 June 2024 for the TSL compared with that in 2020, 2021, 2022, 2023 and their LTAs, and the fluctuation levels (1997–2023) are presented in **Table 8**. The mean monthly water volume of the Tonle Sap Lake in May 2024 is lower than its LTA (about 87.34 %), 2023 and 2022 but higher than that in 2019, 2020, and 2021 during the same period **(Figure 8 and Table 1)**.

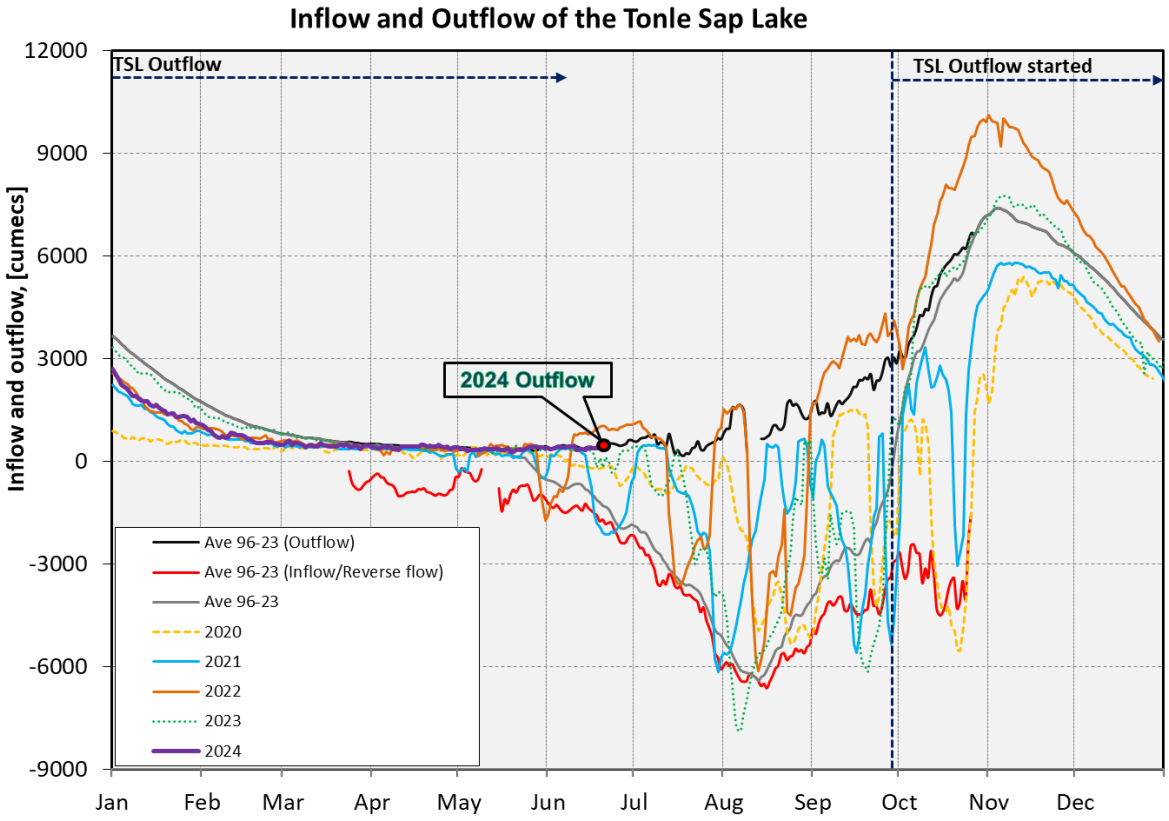


Figure 7: Seasonal change of inflows and outflows of Tonle Sap Lake.

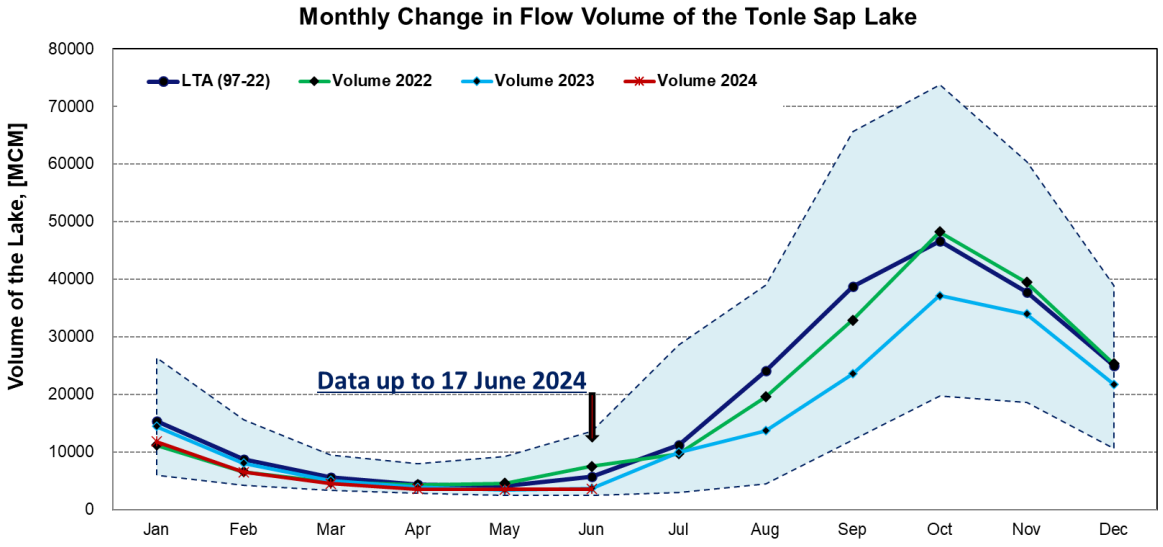


Figure 8. The seasonal change in monthly flow volume of Tonle Sap Lake.

Table 1. The monthly change in the flow volume of Tonle Sap Lake.

Month	LTA (97-22) [MCM]	Max Volume [MCM]	Min Volume [MCM]	Volume 2019 [MCM]	Volume 2020 [MCM]	Volume 2021 [MCM]	Volume 2022 [MCM]	Volume 2023 [MCM]	Volume 2024 [MCM]	Volume in 2024 [%], compared with its LTA
Jan	15322.86	26357.53	5906.80	10285.31	5906.80	9923.80	11214.32	14422.11	11824.86	77.17
Feb	8723.39	15596.22	4198.60	6019.30	4264.19	5832.97	6558.79	8069.29	6505.88	74.58
Mar	5602.68	9438.24	3347.07	4354.62	3553.99	4264.88	4736.52	5080.64	4488.23	80.11
Apr	4327.36	8009.14	2866.91	3667.47	2992.61	3556.68	4288.31	3884.16	3569.01	82.48
May	4027.82	9176.93	2417.81	3266.43	2594.92	3240.78	4556.83	3438.66	3517.79	87.34
Jun	5699.50	13635.01	2468.70	3517.06	2641.88	3798.29	7489.04	3689.97	3562.21	62.50
Jul	11188.79	28599.56	2925.86	4001.99	2925.86	5346.73	9703.79	9953.41		
Aug	24070.98	39015.12	4433.46	7622.71	5941.07	10547.80	19554.70	13694.57		
Sep	38787.47	65632.35	12105.31	24194.19	12105.31	16382.34	32860.34	23550.60		
Oct	46562.09	73757.23	19705.50	30358.38	20799.13	27318.21	48199.12	37141.40		
Nov	37739.30	60367.33	18534.61	19112.65	27546.80	28982.93	39452.53	33929.52		
Dec	25009.52	38888.95	10563.49	10577.29	18251.65	20170.76	25346.65	21757.70		
	Critical situation: lower than long-term minimum values (LTMIN)									
	Normal condition: within the range of long-term min (LTMIN) and max (LTMAX) values									
	Low volume situation: lower than long-term average (LTA)									
Unit: Million Cubic Meter (1 MCM= 0.001 km^3)										

Remarks: the volume of Tonle Sap Lake in 2024 is updated untill 17 June 2024.

4. Flash Flood in the Lower Mekong Basin

During the weekly monitoring period from 11 – 17 June, the LMB received light to heavy rain and thunderstorms in some areas.

According to the Southeast Asian Flash Flood Guidance System (SEAFFGS) and analysis, flash flood guidance was detected at low level in the next 1, 3 and 6 hours in some areas of Lao PDR, Cambodia, and Viet Nam on 11 June the reporting period as shown in Figure 14 and Table 2.

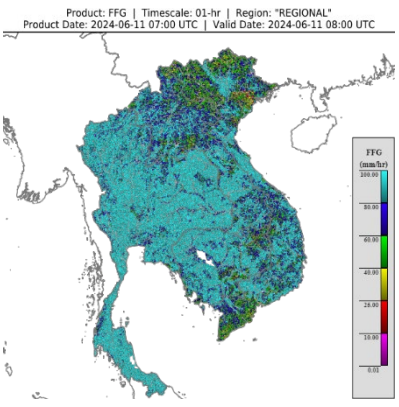
Table 2. Detected low-risk flash flood in the LMB on 11 June

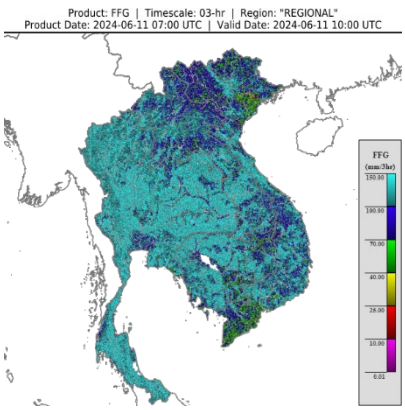
FLASH FLOOD GUIDANCE IN THE LOWER MEKONG BASIN								
In the next 01 hour			In the next 03 hour			In the next 06 hour		
Province	District	Level of FFG	Province	District	Level of FFG	Province	District	Level of FFG
Kampong Cham	Prey Chhor	Low	Kampong Cham	Stueng Trang	Low	Kampong Cham	Stueng Trang	Low
Kampong Cham	Kampong Siem	Low	Kampong Cham	Chamkaar Leu	Low	Kampong Cham	Chamkaar Leu	Low
Kratie	Sambour	Low	Kampong Cham	Prey Chhor	Low	Kampong Cham	Prey Chhor	Low
Kratie	Chhloung	Low	Kratie	Sambour	Low	Kratie	Sambour	Low
Mondul Kiri	Pechr Chenda	Low	Mondul Kiri	Pechr Chenda	Low	Mondul Kiri	Pechr Chenda	Low
Mondul Kiri	Kaev Seima	Low	Ratana Kiri	Ta Veaeng	Low	Ratana Kiri	Ta Veaeng	Low
Mondul Kiri	Ou Reang	Low	Ratana Kiri	Veun Sai	Low	Ratana Kiri	Veun Sai	Low

FLASH FLOOD GUIDANCE IN THE LOWER MEKONG BASIN								
In the next 01 hour			In the next 03 hour			In the next 06 hour		
Province	District	Level of FFG	Province	District	Level of FFG	Province	District	Level of FFG
Ratana Kiri	Ta Veaeng	Low	Ratana Kiri	Andoung Meas	Low	Ratana Kiri	Andoung Meas	Low
Ratana Kiri	Andoung Meas	Low	Ratana Kiri	Ou Chum	Low	Ratana Kiri	Ou Chum	Low
Ratana Kiri	Ta Veaeng	Low	Ratana Kiri	Koun Mom	Low	Ratana Kiri	Lumphat	Low
Ratana Kiri	Veun Sai	Low	Ratana Kiri	Ou Ya Dav	Low	Ratana Kiri	Ou Ya Dav	Low
Ratana Kiri	Koun Mom	Low	Ratana Kiri	Lumphat	Low	Stung Treng	Siem Pang	Low
Ratana Kiri	Ou Ya Dav	Low	Stung Treng	Siem Pang	Low	Stung Treng	Sesan	Low
Ratana Kiri	Lumphat	Low	Stung Treng	Sesan	Low			
Stung Treng	Siem Pang	Low						
Stung Treng	Sesan	Low						

FLASH FLOOD GUIDANCE IN THE LOWER MEKONG BASIN								
In the next 01 hour			In the next 03 hour			In the next 06 hour		
Province	District	Level of FFG	Province	District	Level of FFG	Province	District	Level of FFG
Bolikhamxay	Thaphabat	Low	Champasak	Champasac	Low	Champasak	Paksong	Low
Champasak	Paksong	Low	Vientiane	Xanakham	Low	Champasak	Champasac	Low
Champasak	Champasac	Low	Khammuane	Nakai	Low	Vientiane	Xanakham	Low
Khammuane	Nakai	Low	Khammuane	Nhommalat	Low	Khammuane	Nakai	Low
Khammuane	Nhommalat	Low	Khammuane	Mahaxay	Low	Khammuane	Nhommalat	Low
Khammuane	Mahaxay	Low				Khammuane	Mahaxay	Low
Khammuane	Xaybouath	Low						
Khammuane	Thakhek	Low						
Khammuane	Nongbok	Low						
Luangprabang	Ngoi	Low						
Oudomxay	Xay	Low						
Phongsaly	Nhot ou	Low						
Phongsaly	Phongsaly	Low						
Vientiane	Thoulakho	Low						
Vientiane	Xanakham	Low						
Xaysomboun	Thathom	Low						
Xaysomboun	Longxan	Low						

FLASH FLOOD GUIDANCE IN THE LOWER MEKONG BASIN								
In the next 01 hour			In the next 03 hour			In the next 03 hour		
Province	District	Level of FFG	Province	District	Level of FFG	Province	District	Level of FFG
Kon Tum	Sa Thay	Low	Kon Tum	Sa Thay	Low	Kon Tum	Sa Thay	Low
Kon Tum	Dak To	Low	Gia Lai	Duc Co	Low	Gia Lai	Duc Co	Low
Gia Lai	Chu Pah	Low	Gia Lai	Chu Prong	Low	Gia Lai	Chu Prong	Low
Gia Lai	Duc Co	Low						
Gia Lai	Chu Prong	Low						
Dak Lak	Cu M'Gar	Low						
Dak Lak	Cu Jut	Low						





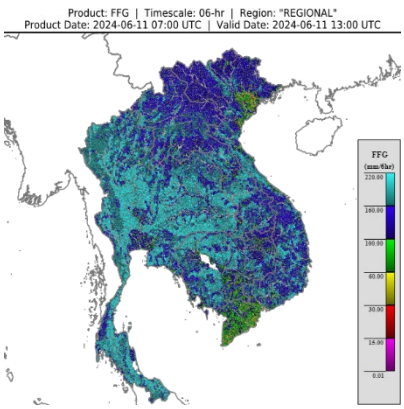


Figure 9. Flash Flood Guidance for the next 1-hr, 3-hr, and 6-hr on 11 June

5. Drought Monitoring in the Lower Mekong Basin

5.2. Weekly drought monitoring from 11 to 17 June 2024

Drought monitoring data for 2024 are available from Monday to Sunday every week; thus, the reporting period is normally delayed by one day compared to Flood and Flash Flood reports. We adopt the Index of Soil Water Fraction (ISWF) data obtained from FFGS to represent soil moisture of agricultural indicator for both dry and wet seasons.

- **Weekly Standardised Precipitation Index (SPI1)**

As indicated in **Figure 10** below, during 11-17 June, the LMB was facing severe meteorological drought over Battambang, Ratanakiri, Stung Treng, Prey Veng, Phongsaly, Luang Prabang, Savannakhet, Salavan, Attapu, Xayaburi, Loei, Chaiyaphum, Khon Kaen, Nakhon Ratchasima, Buri Ram, Surin, Roi Et, Maha Sarakham, Amnat Charoen, Gia Lai, Dak Lak, and Dak Nong.

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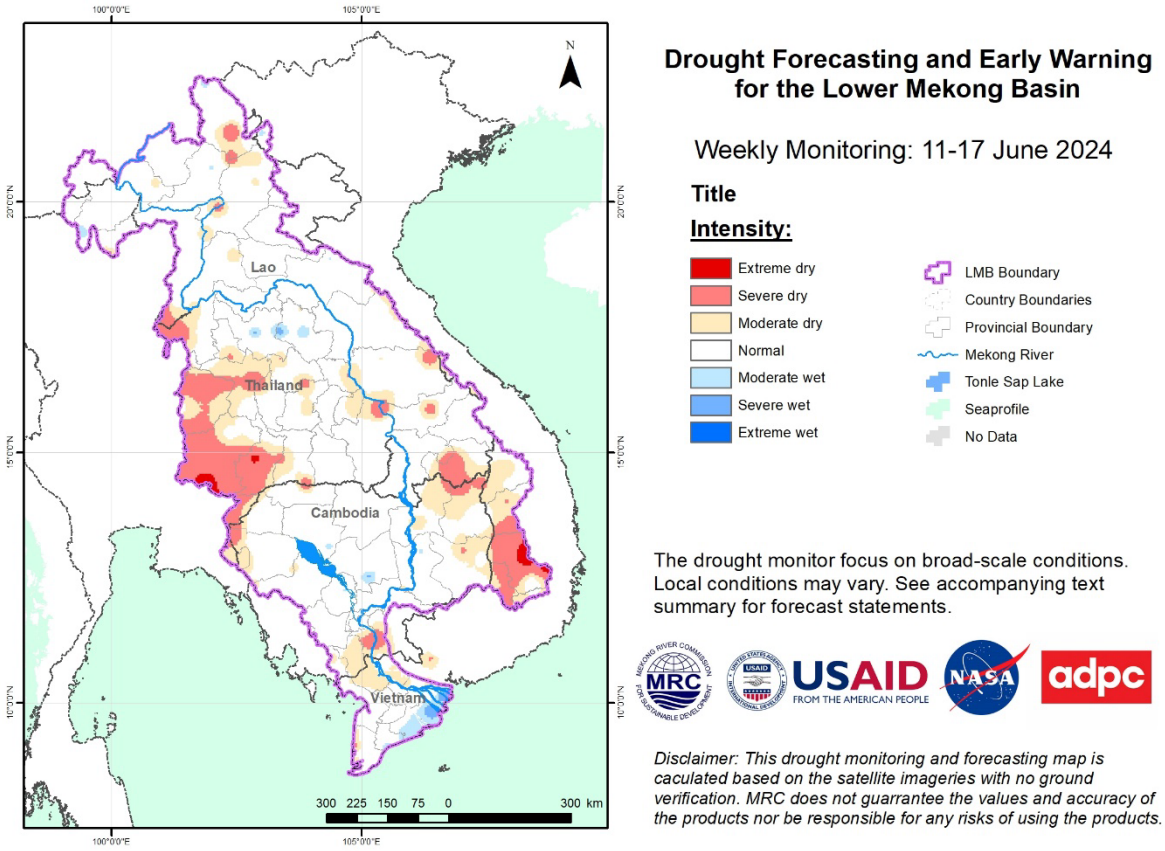


Figure 10: Weekly standardized precipitation index from June 11 to 17.

- **Weekly Index of Soil Water Fraction (ISWF)**

Some severe agricultural droughts, as displayed in **Figure 10**, were taking place in Battambang, Pursat, Gia Lai and Dak Lak during the monitoring week from 11 to 17 June. Other places were normal or wet.

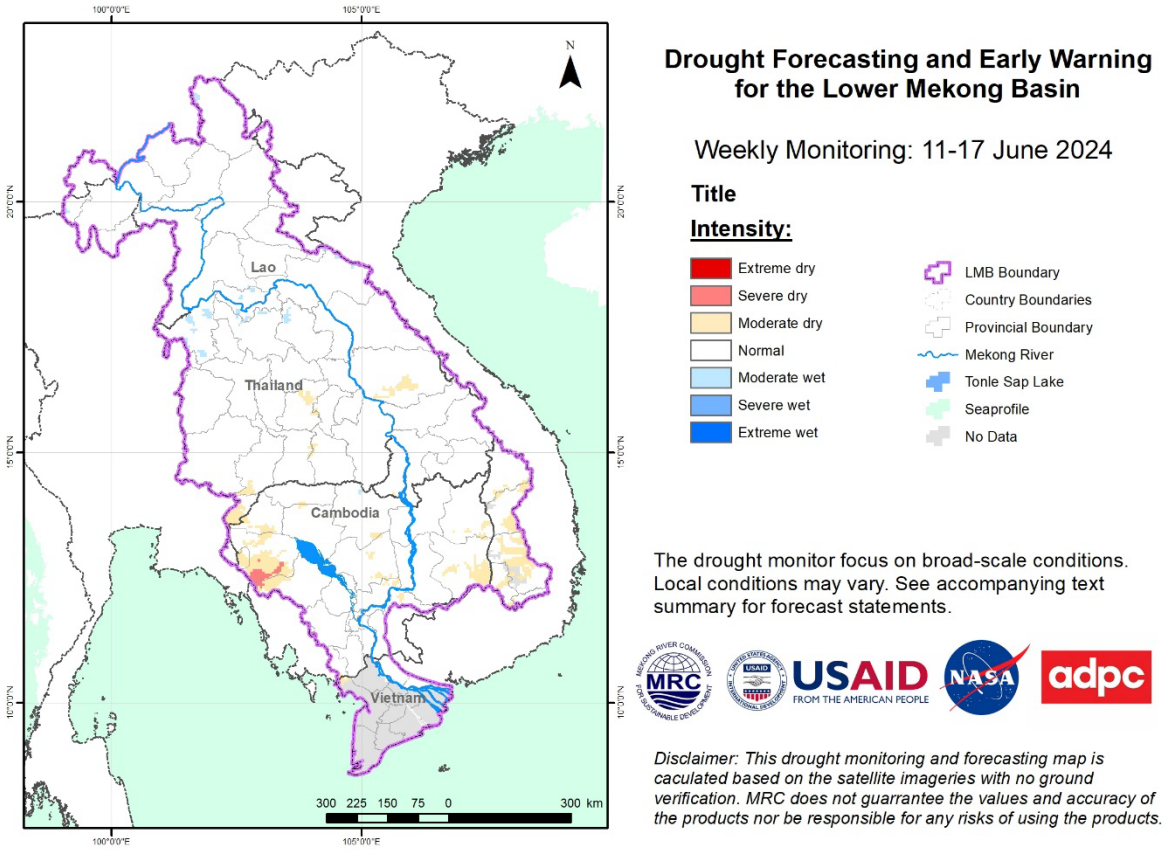


Figure 11: Weekly Index of Soil Water Fraction from June 11 to 17.

- **Weekly Combined Drought Index (CDI)**

The combined drought indicator, **Figure 11**, shows that the LMB was at moderate and severe droughts in the lower part. Severe drought specifically covered some areas of Battambang and Pursat of Cambodia, Buri Ram and Nakhon Ratchasima of Thailand, and Dak Lak of Viet Nam. They all were Short-Term Droughts.
The impacted areas are listed below:

Province	Mderate	Severe	Extreme	Exceptiona	Number	Country	Province	Mderate	Severe	Extreme	Exceptiona	Number	Country	Province	Mderate	Severe	Extreme	Exceptiona
Battambabang		S			24	Lao PDR	Oudomxai					47	Thailand	Udon Thani				
Banteay Meanchey					25	Lao PDR	Loungprabang					48	Thailand	Sakon Nakhon				
Kampong Cham					26	Lao PDR	Xayaburi					49	Thailand	Bueng Kan				
Pursat		S			27	Lao PDR	Xiengkhouang					50	Thailand	Nakhon Phanom				
Kampong Chhnang					28	Lao PDR	Vientiane					51	Thailand	Kalasin				
Otdar Meanchey					29	Lao PDR	Vientiane Capital					52	Thailand	Mukdahan				
Preah Vihear					30	Lao PDR	Xaisomboun					53	Thailand	Roi Et				
Kampong Thom					31	Lao PDR	Borikhamxai					54	Thailand	Yasothon				
Kratie					32	Lao PDR	Khammouan					55	Thailand	Amnat Charoen				
Mondulkiri					33	Lao PDR	Savanakhet					56	Thailand	Ubon Ratchathani				
Ratanakiri					34	Lao PDR	Salavan					57	Thailand	Si Sa Ket				
Tbong Khmum					35	Lao PDR	Xekong					58	Thailand	Surin				
Prey Veng					36	Lao PDR	Attapu					59	Thailand	Buri Ram		S		
Kampot					37	Lao PDR	Champasack					60	Thailand	Nakhon Ratchasima		S		
Takeo					38	Thailand	Chiang Mai					61	Viet Nam	Kon Tum				
Svai Rieng					39	Thailand	Chiang Rai					62	Viet Nam	Gia Lai		S		
Stung Treng					40	Thailand	Payao					63	Viet Nam	Dak Nong				
Kampong Speu					41	Thailand	Loei					64	Viet Nam	Dak Lak		S	S	S
Kandal					42	Thailand	Nong Bua Lam Phu					65	Viet Nam	Dong Thap				
Siem Reap					43	Thailand	Khon Kaen					66	Viet Nam	Tien Giang				
Bokeo					44	Thailand	Nong Khai					67	Viet Nam	An Giang				
Luangnamtha					45	Thailand	Chaiyaphum					Other provinces of the Mekong Delta of Viet Nam have no data						
Phongsali					46	Thailand	Maha Sarakham					Moderate		Severe				
												Severe		Exceptional				

Note: S: short-term drought, less than 1 months; L: long-term drought, more than 1 month

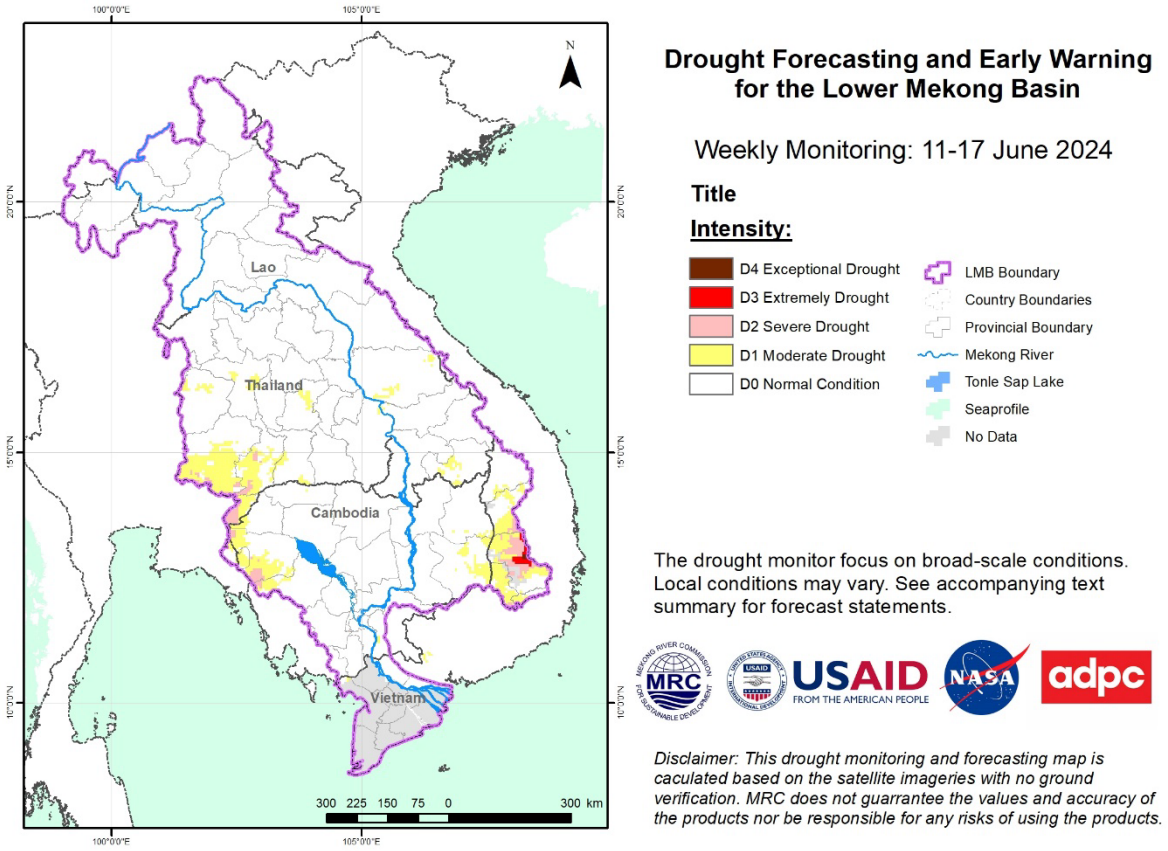


Figure 12: Weekly Combined Drought Index from June 11 to 17.

More information on Drought Forecasting and Early Warning (DFEW) as well as the explanation is available here: http://droughtforecast.mrcmekong.org/templates/view/our-product. DFEW provides not only weekly monitoring and forecasting information but also a three-month forecast of drought indicators with seasonal outlook which are updated every month based on international weather forecast models. Details on drought forecast are described in section 6.4 of this report.

6 Weather and Water Level Forecast and Flash Flood information

6.1 Rainfall forecast

During 18-22 June 2024, the accumulated rainfall over the entire Lower Mekong Basin is distributed with light to moderate rain based on CHIRPS-GFS (**Figure 12**). However, during 19 - 22 June, moderate rainfall is expected in the central part of Laos, southwestern part of Cambodia, the 3S Basins of Sesan, Srepok, and Sekong, and the southern part of Mekong Delta.

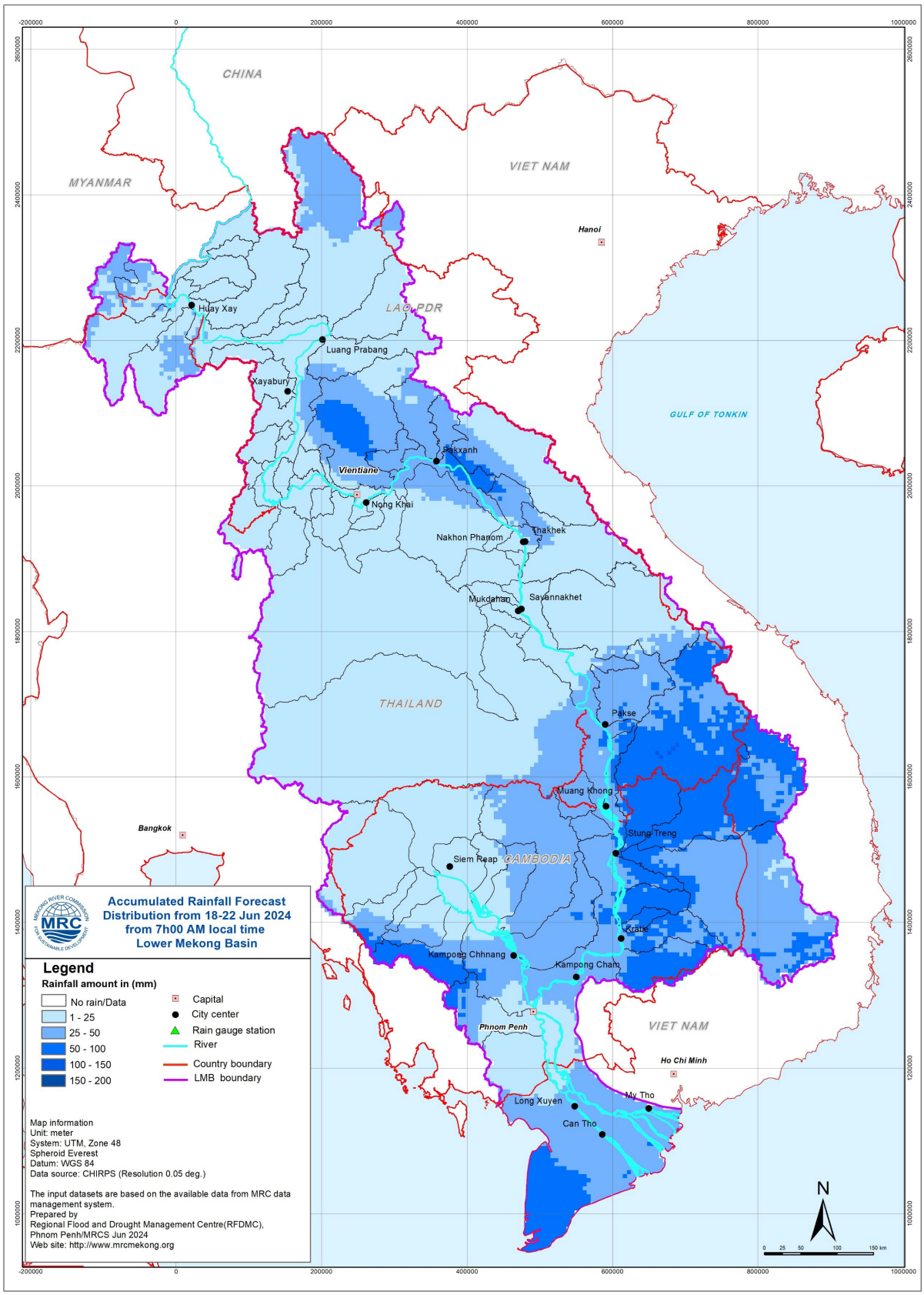


Figure 13: Accumulated rainfall forecast from CHIRP-GFS (18 – 22 June 2024)

6.2 Water level forecast

In Chiang Saen monitoring station, the water level is expected to be fluctuated over the forecasting period of 18 – 22 June 2024. However, it will slightly decrease from 3.43 m to 2.75 m. The water levels in Luang Prabang affected by backwater and Chiang Khan stations are likely stable.

Along the Mekong mainstream, the water levels at all other upper stations from Chiang Khan to Nongkhai will slightly increase. At Chiang Khan, Vientiane, and Nongkhai water levels are expected to increase approximately 0.48 m, 0.24 m, and 0.19 m, respectively. However, at Paksane, Nakhon Phanom, Thakhek, Mukdahan, Savannakhet, Kong Chiam, and Pakse water level will drop approximately -0.22m, -0.39 m, -0.38 m, -0.47 m, -0.52 m, -0.24 m, and -0.13 m, respectively. All stations located in Cambodia from Stung Treng to Prek Kdam, water levels are likely increasing approximately 0.34 m, 0.42 m, 0.38 m, 0.16 m, 0.16 m, 0.33 m and 0.17 m, respectively. However, water level at Neak Luong is expected to be stable as compared to the previous week.

For the Tan Chau station on the Mekong River and Chau Doc station on the Bassac River, water levels will be fluctuating approximately ranging from 0.71 to 1.20 m and 0.87 to 1.35 m, respectively, following daily tidal effects from the sea.

The water levels at key stations are forecasted to be below their LTAs except for Luang Prabang station from 11 to 17 June 2024.

The weekly River Monitoring Bulletin and forecasting issued on 17 June 2024 can be found in **Table 2.** Results of the weekly river monitoring and forecasting bulletin are also available at http://ffw.mrcmekong.org/bulletin.php

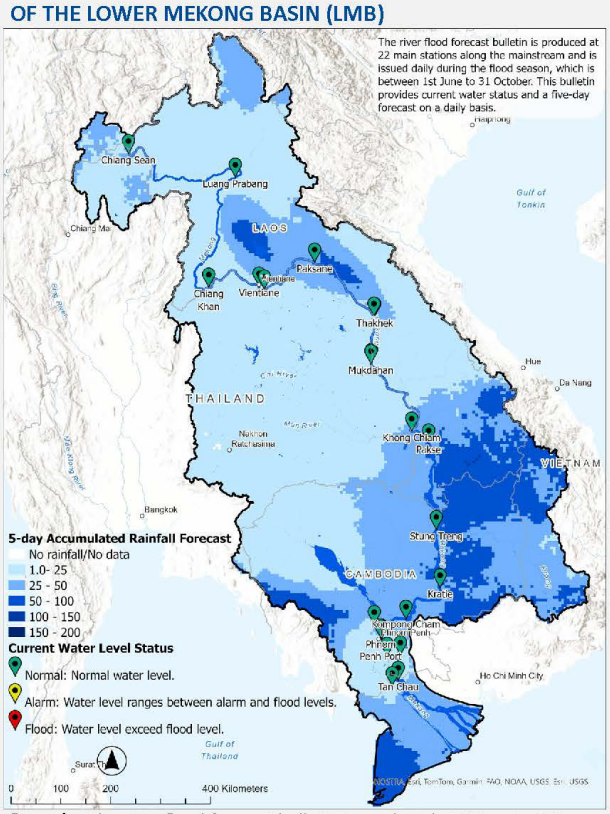
Table 3. River Monitoring and Forecasting Bulletin.

MEKONG RIVER MONITORING AND FORECASTING BULLETIN

Monitoring on 17 June 2024

Highlights: *Today's water levels in all mainstream stations are "normal", and the flow thresholds (PMFM 6C) are under "normal conditions.*

THE FORECASTING HYDROLOGICAL STATION MAP OF THE LOWER MEKONG BASIN (LMB)



Remarks: The river flood forecast bulletin is produced at 22 main stations along the mainstream and is issued daily during the flood season, which runs from 1st June to 31st October. This bulletin provides information on the current water level status and a five-day forecast on a daily basis.

WATER LEVEL STATUS DEFINITIONS

Normal	Normal water level.
Alarm	Alarm when the water level ranges between alarm and flood levels.
Flood	Flood is when the flood level exceeds. A flood level is determined by member countries.

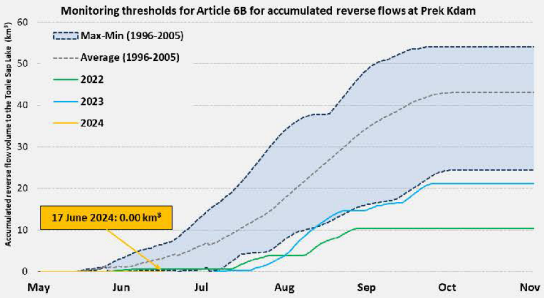
CURRENT WATER LEVEL STATUS

Monitoring Station	Water Level	Flow Threshold (PMFM*6C)
Jinghong	-	
Chiang Saen	Normal	Normal
Luang Prabang**	Normal	-
Chiang Khan	Normal	-
Vientiane	Normal	Normal
Nongkhai	Normal	-
Paksane	Normal	-
Nakhon Phanom	Normal	-
Thakhek	Normal	-
Mukdahan	Normal	-
Savannakhet	Normal	-
Khong Chiam	Normal	Normal
Pakse	Normal	Normal
Stung Treng	Normal	Normal
Kratie	Normal	Normal
Kompong Cham	Normal	-
Phnom Penh (Bassac)	Normal	-
Phnom Penh Port	Normal	-
Koh Khel	Normal	-
Neak Luong	Normal	-
Prek Kdam	Normal	-
Tan Chau	Normal	-
Chau Doc	Normal	-

** Procedures for Maintenance of Flows on the Mainstream*

*** Luang Prabang station is influenced by hydropowers at its upstream and downstream*

REVERSE FLOW VOLUME PREK KDAM (PMFM*6B)



Accumulated reverse flow volume at Prek Kdam

Flow volumes on 17 June 2024:	0.00 Km^3
Minimum reverse flow volume (1996-2005):	23.848 Km^3
Average reverse flow volume (1996-2005):	42.84 Km^3
Maximum reverse flow volume (1996-2005):	54.046 Km^3

**Procedures for Maintenance of Flows on the Mainstream*

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MRC Regional Flood and Drought Management Centre, Phnom Penh, Cambodia |
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http://www.mrcmekong.org/
http://ffw.mrcmekong.org/bulletin_dry.php
http://ffw.mrcmekong.org/report_dry.php
https://pmfm.mrcmekong.org/

MEKONG RIVER MONITORING AND FORECASTING BULLETIN

Forecasting from 18 to 22 June 2024

Highlights: *In the next five days, it is forecasted that water levels at all the mainstream stations will not reach the "alarm" levels.*

Forecasting Station	24 h Observed Rainfall (mm)	Zero gauge above M.S.L (m)	Observed Water Level against zero gauge (m)		Forecasted Water Level (m)					Alarm Level (m)	Flood Level (m)	Forecasted Water Levels Change in 5 days (m)	Max. Water levels change within next 5 days (m)	Min. distance to alarm level within next 5 days (m)	Min. distance to flood level within next 5 days (m)
	16-Jun		16-Jun	17-Jun	18-Jun	19-Jun	20-Jun	21-Jun	22-Jun						
Jinghong	19.5	-	536.92	↓ 536.72	-	-	-	-	-	-	-	-	-	-	-
Chiang Saen	0.0	357.110	2.91	↑ 3.27	↑ 3.42	→ 3.35	↓ 3.12	↓ 2.95	↓ 2.78	11.50	12.80	↓ -0.49	-0.49	8.08	9.38
Luang Prabang	0.0	267.195	9.52	→ 9.56	↑ 9.82	↑ 10.14	→10.18	↓ 9.78	↓ 9.52	17.50	18.00	→ -0.04	0.62	7.32	7.82
Chiang Khan	0.0	194.118	6.62	↓ 6.31	→ 6.26	↑ 6.36	↑ 6.75	↑ 7.05	→ 6.95	14.50	16.00	↑ 0.64	0.74	7.45	8.95
Vientiane	0.0	158.040	4.09	↓ 3.86	↓ 3.67	→ 3.69	↑ 3.89	↑ 4.10	↑ 4.21	11.50	12.50	↑ 0.35	0.35	7.29	8.29
Nongkhai	4.8	153.648	3.76	↓ 3.63	→ 3.56	→ 3.60	↑ 3.78	↑ 3.98	↑ 4.11	11.40	12.20	↑ 0.48	0.48	7.29	8.09
Paksane	0.6	142.125	3.85	↓ 3.84	→ 3.77	↓ 3.65	→ 3.72	↑ 3.87	↑ 4.12	13.50	14.50	↑ 0.28	0.28	9.38	10.38
Nakhon Phanom	53.7	130.961	3.69	→ 3.69	→ 3.65	→ 3.57	↓ 3.37	→ 3.29	↑ 3.41	11.50	12.00	↓ -0.28	-0.40	7.85	8.35
Thakhek	42.8	129.629	4.88	↓ 4.87	→ 4.80	→ 4.71	↓ 4.53	→ 4.44	↑ 4.56	13.00	14.00	↓ -0.31	-0.43	8.20	9.20
Mukdahan	0.0	124.219	3.65	→ 3.74	→ 3.73	↓ 3.56	↓ 3.38	↓ 3.25	→ 3.20	12.00	12.50	↓ -0.54	-0.54	8.27	8.77
Savannakhet	0.0	124.219	2.05	→ 2.10	→ 2.07	↓ 1.91	↓ 1.71	↓ 1.58	→ 1.52	12.00	13.00	↓ -0.58	-0.58	9.94	10.94
Khong Chiam	0.0	89.030	3.84	↑ 3.98	→ 4.06	→ 3.97	→ 3.90	→ 3.86	→ 3.80	13.50	14.50	↓ -0.18	-0.18	9.44	10.44
Pakse	21.2	86.490	2.65	↑ 2.76	↑ 2.99	→ 2.95	↓ 2.88	↓ 2.75	→ 2.70	11.00	12.00	↓ -0.06	0.23	8.01	9.01
Stung Treng	5.5	36.790	3.43	↑ 3.52	↑ 3.64	↑ 3.77	↑ 3.89	↑ 4.03	→ 4.08	10.70	12.00	↑ 0.56	0.56	6.62	7.92
Kratie	0.0	-0.101	8.81	↑ 8.95	↑ 8.98	↑ 9.17	↑ 9.39	↑ 9.60	↑ 9.83	22.00	23.00	↑ 0.88	0.88	12.17	13.17
Kompong Cham	nr	-0.930	3.46	↓ 3.44	↑ 3.58	↑ 3.63	↑ 3.80	↑ 3.99	↑ 4.19	15.20	16.20	↑ 0.75	0.75	11.01	12.01
Phnom Penh (Bassac)	0.0	-1.020	1.99	↓ 1.95	→ 1.97	→ 1.99	↑ 2.05	↑ 2.15	↑ 2.25	10.50	12.00	↑ 0.30	0.30	8.25	9.75
Phnom Penh Port	nr	0.070	0.99	↓ 0.95	→ 0.97	→ 0.99	↑ 1.05	↑ 1.15	↑ 1.25	9.50	11.00	↑ 0.30	0.30	8.25	9.75
Koh Khel	0.0	-1.000	2.03	↓ 1.96	↓ 1.88	→ 1.87	→ 1.87	↑ 1.92	↑ 1.99	7.90	8.40	↑ 0.03	-0.09	5.91	6.41
Neak Luong	0.0	-0.330	1.42	↑ 1.54	↓ 1.49	→ 1.51	→ 1.49	↑ 1.53	↑ 1.59	7.50	8.00	↑ 0.05	0.05	5.91	6.41
Prek Kdam	13.4	0.080	1.14	↓ 1.08	↑ 1.11	→ 1.13	↑ 1.20	↑ 1.29	↑ 1.38	9.50	10.00	↑ 0.30	0.30	8.12	8.62
Tan Chau	0.0	0.000	-0.12	↑ 0.27	↑ 0.71	↑ 1.12	↑ 1.34	↑ 1.42	→ 1.40	3.50	4.50	↑ 1.13	1.15	2.08	3.08
Chau Doc	4.0	0.000	-0.03	↑ 0.43	↑ 0.89	↑ 1.28	↑ 1.45	↑ 1.52	→ 1.50	3.00	4.00	↑ 1.07	1.09	1.48	2.48

WATER LEVEL FORECASTING DEFINITIONS

↑	Rising water level.
→	Stable water level: stable water level is defined as a daily change of less than 10cm from Chaing Saen to Savannakhet; less than 5cm at Pakse and Stung Treng; and no more than 3cm from Kratie downstream.
↓	Falling water level.
X	No data available.
Alarm stage	Alarm stage is when the water level ranges between alarm and flood levels.
Flood stage	Flood stage is when the flood level exceeds. A flood level is determined by member countries.

NOTES

- For **18-22 June**, moderate rainfall is expected to occur in the central parts of central part of Lao PDR, southwestern Cambodia, the 3S Basins and southern part of the Mekong Delta.
- For **18-22 June,** water level at stations from Chiang Saen is expected to decrease, while from Chiang Khan to Paksane stations, it is likely to increase. However, from Nakhon Phanom to Pakse stations water levels are forecasted to decrease, while from Stung Treng downward, water levels are likely to increase. Water levels at Tan Chau and Chau Doc are forecasted to fluctuate due to tidal influence.
- Water levels at all stations are expected to be below their long-term averages (LTAs) except for Luang Prabang, Tan Chau and Chau Doc stations from **18** to **22 June**.

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http://www.mrcmekong.org/
http://ffw.mrcmekong.org/bulletin_dry.php
http://ffw.mrcmekong.org/report_dry.php
https://pmfm.mrcmekong.org/

6.3 Flash Flood Information

With the predicted of rainfall for the coming week, flash floods might be detected in some areas in the LMB. And local heavy rain in a short period of time is possible with unpredictable short flash floods.

Further detailed information on Flash Flood Guidance Information, as well as on its explanation, is available for download here.

6.4 Drought forecast

There are several climate-prediction models with different scenarios in the upcoming months. The MRC's DFEWS adopts the global scale of North America Multi-Model Ensemble (NMME) that predicts average rainfall in daily average for the next coming three months.

Figure 13 below shows the average daily rainfall forecast from June to August 2024 over the LMB area.

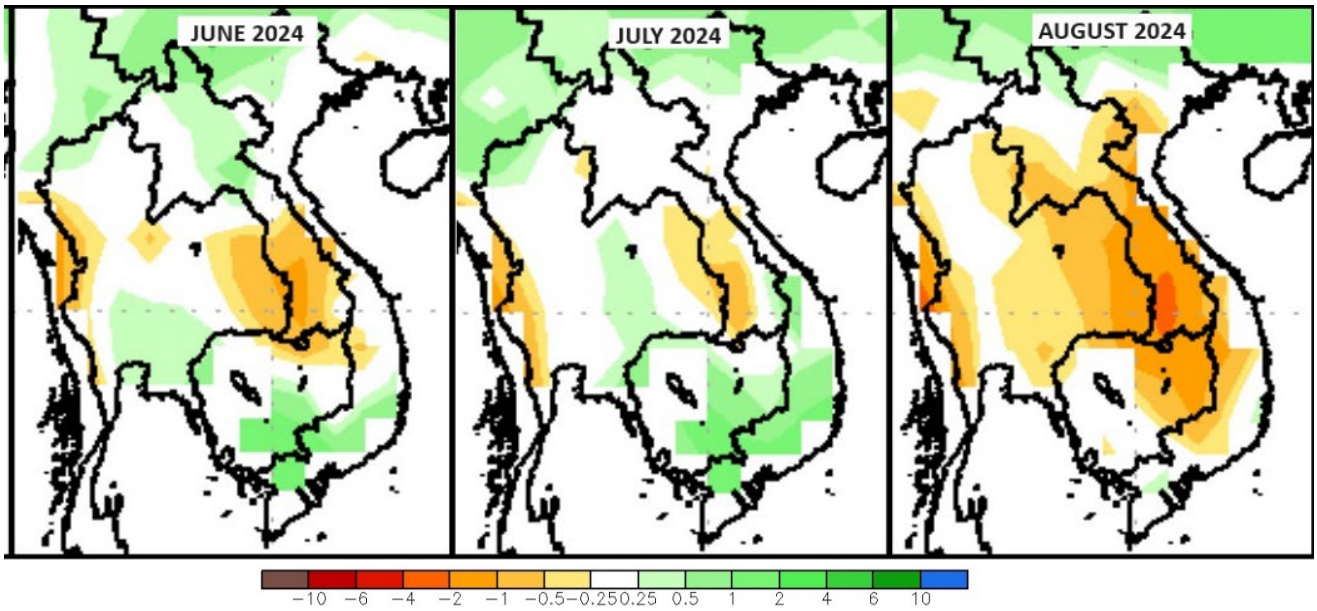


Figure 14. Monthly forecast of rainfall from NMME for June, July, and August 2024.

Figure 13 indicates that North-eastern Cambodia, middle and southern Laos and eastern Thailand are likely receiving below average rainfall in June and July, while Cambodia is forecasted to be the wettest area which is likely receiving above average rainfall in June and July. The forecast also indicates that the LMB might receive less than average rain specifically in the middle and south-eastern regions and southern Laos is likely the driest area in the region.

7 Summary and Possible Implications

7.1. Rainfall and its forecast

In the period of 11 - 16 June 2024, there has been light to heavy rainfall has been observed over the LMB. The moderate to heavy rainfall has been observed over the LMB in Chiang Saen, Paklay, Vientiane, Nakhon Phanom, Thakhet, Pakse, Strung Streng, Kompong Chhnang, Bassac Chaktomuck,...

During 18 – 24 June 2024, the accumulated rainfall over the entire Lower Mekong Basin is distributed with light to moderate rain. However, during 19 - 23 June, moderate rainfall is expected in the central part of Laos, southwestern part of Cambodia, the 3S Basins of Sesan, Srepok, and Sekong, and the southern part of Mekong Delta.

7.2. Water level and its forecast

At 22 key monitoring stations along the Mekong mainstream from 11 – 17 June 2024, water levels are normal, and the flow threshold (PMFM 6C) are under normal conditions. It is also the same condition for Tan Chau and Chau Doc monitoring stations, which are significantly influenced by sea tidal fluctuation.

In the period of 18 – 22 June 2024, Water levels are forecasted to be slightly decreasing and stable at upper stretches of LMB including Chiang Saen, and Luang Prabang. However, water level at other remaining stations from Chiang Khan to Pakse will drop, while other downstream stations will slightly rise. At Tan Chau and Chau Doc stations, the water levels are predicted to be also fluctuated, resulting from the influence of sea tidal patterns. Water levels at most of the stations are expected to be below their long-term averages (LTAs) except for Luang Prabang station.

7.3. Flash flood and its trends

With the predicted of rainfall for the coming week as mentioned earlier in part 2, the flash flood guidance at a low level will likely be detected in some areas of the LMB.

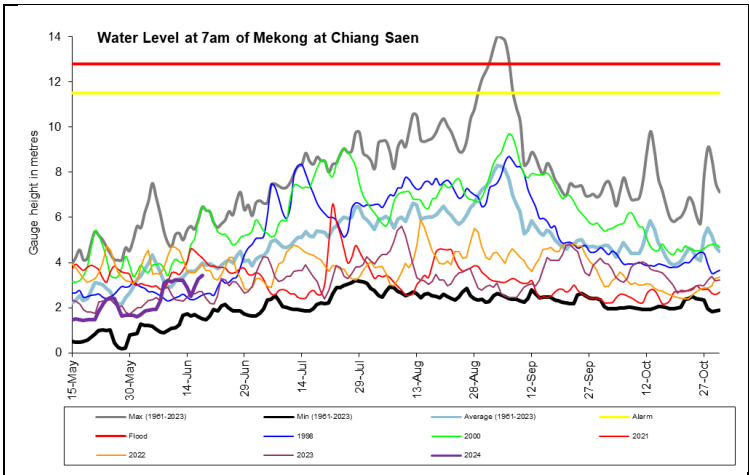
7.4. Drought condition and its forecast

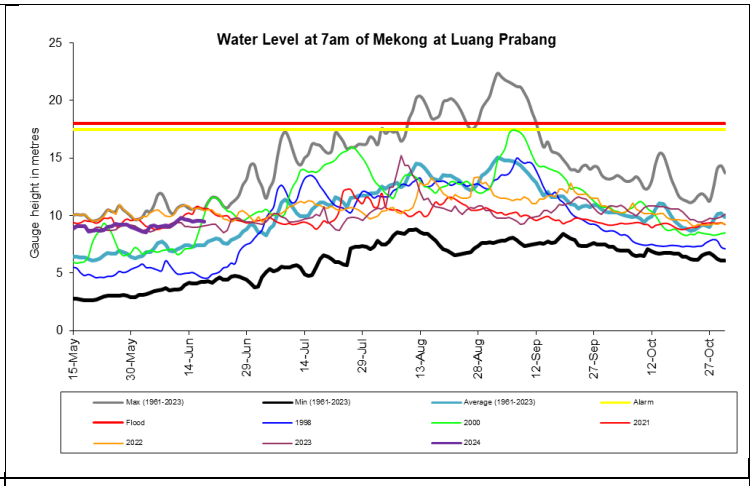
During 11-17 June 2024, the LMB was at moderate and severe droughts in the lower part. Severe drought specifically covered some areas of Battambang and Pursat of Cambodia, Buri Ram and Nakhon Ratchasima of Thailand, and Dak Lak of Viet Nam. They all were Short-Term Droughts.

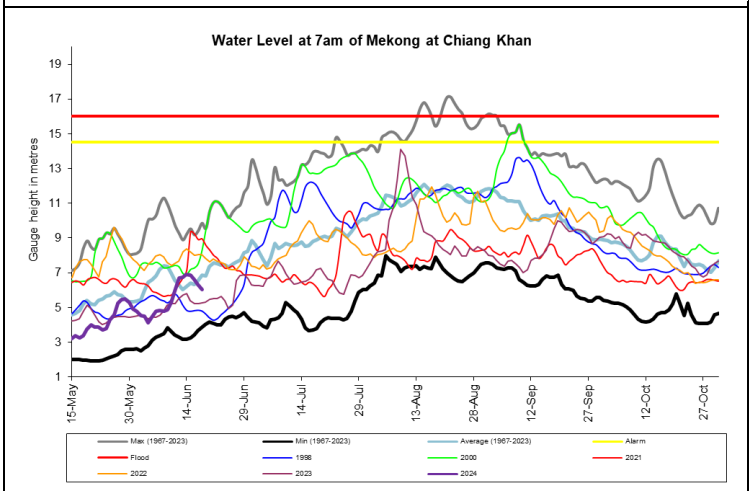
The next three-month forecast of rainfall indicates that north-eastern Cambodia, middle and southern Laos and eastern Thailand are likely receiving below average rainfall in June and July, while Cambodia is forecasted to be the wettest area which is likely receiving above average

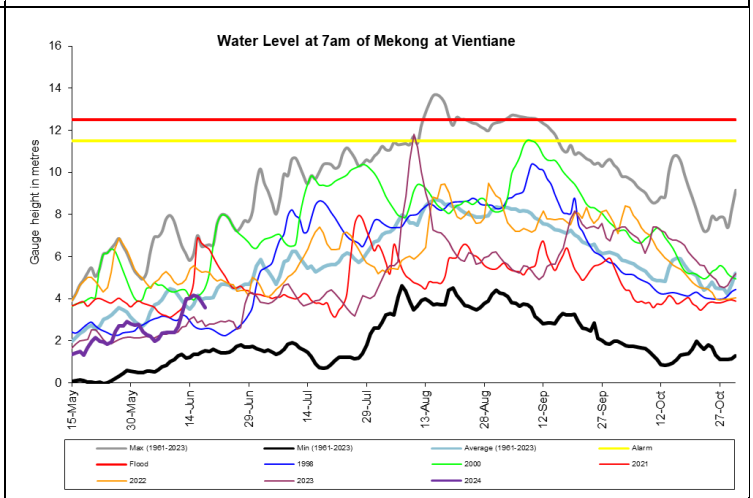
rainfall in June and July. The forecast also indicates that the LMB might receive less than average rain specifically in the middle and south-eastern regions and southern Laos is likely the driest area in the region.

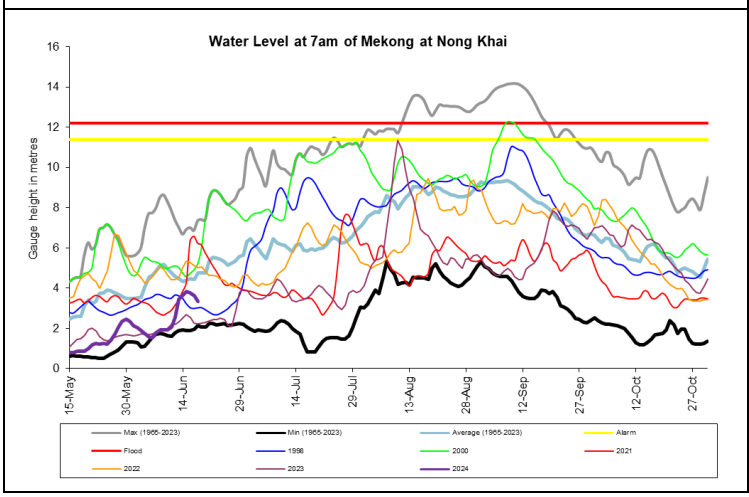
Annex A: Weekly water level monitoring at the 22 key stations

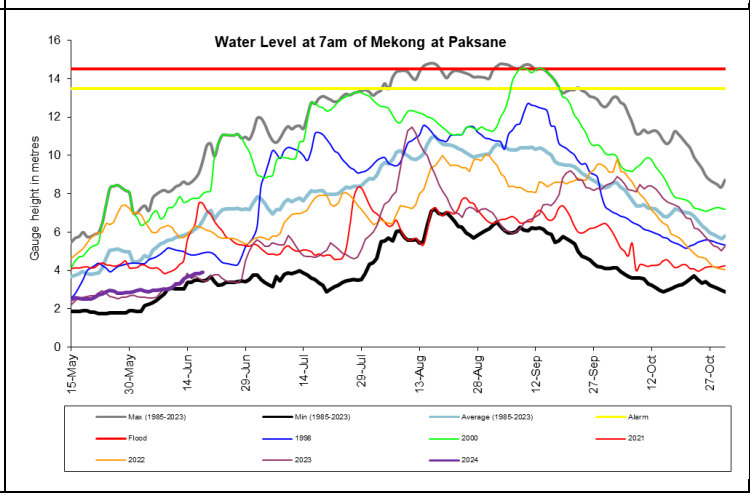


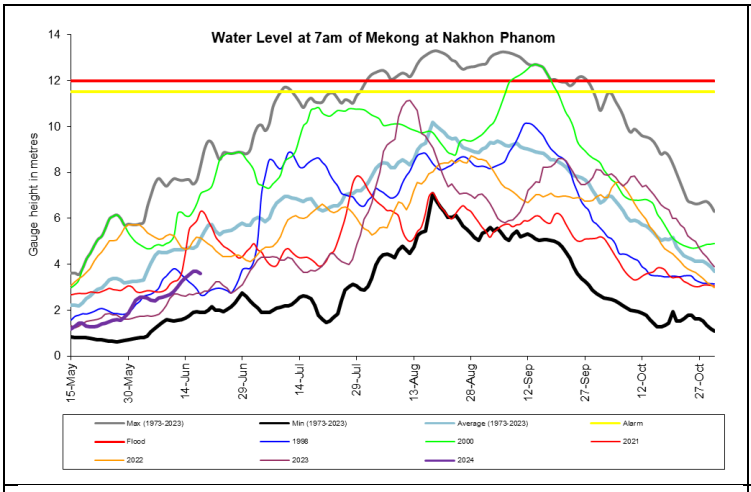


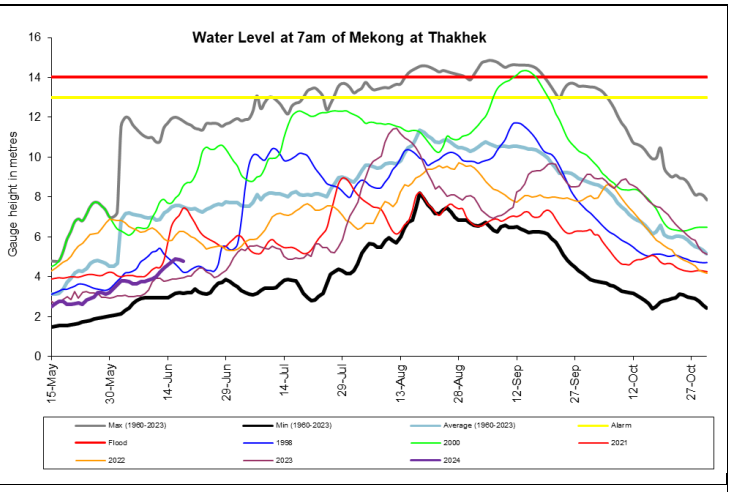


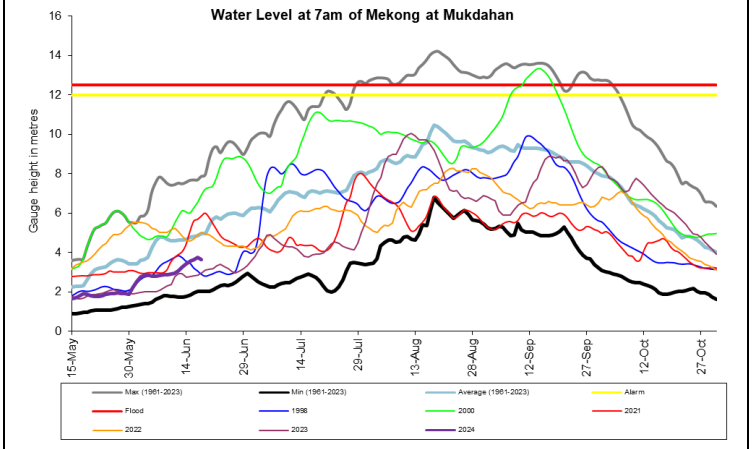


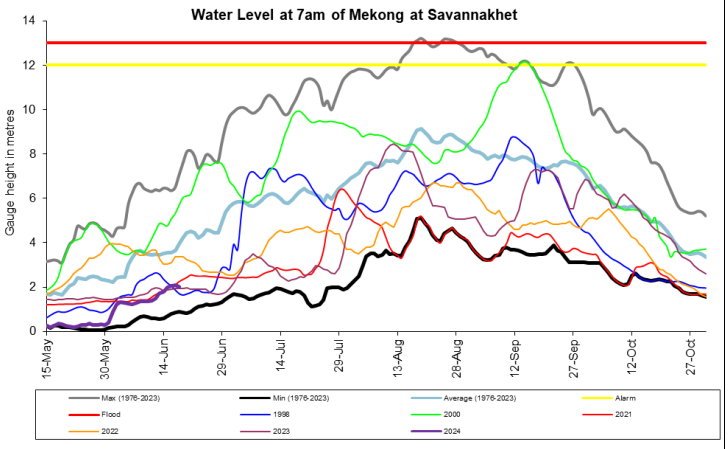


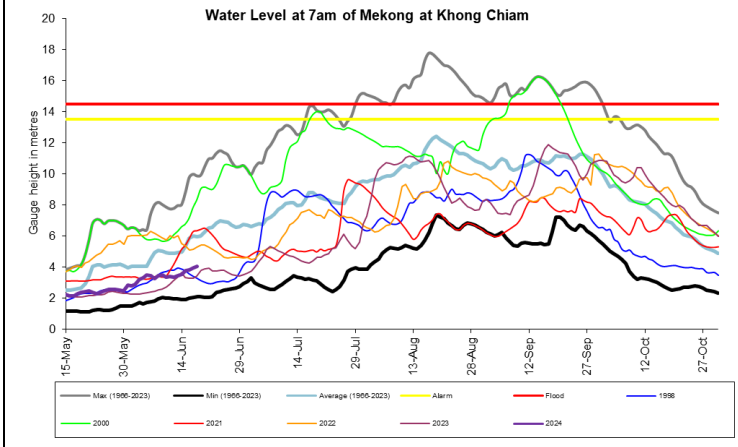


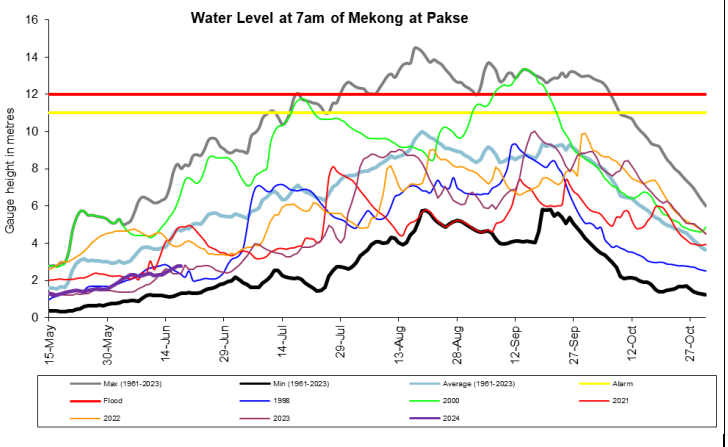

Water Level at 7am of Mekong at Nakhon Phanom
Gauge height in metres
15-May
30-May
14-Jun
29-Jun
14-Jul
29-Jul
13-Aug
28-Aug
12-Sep
27-Sep
12-Oct
27-Oct
Max (1973-2023)
Min (1973-2023)
Average (1973-2023)
Alarm
Flood
1998
2000
2021
2022
2023
2024

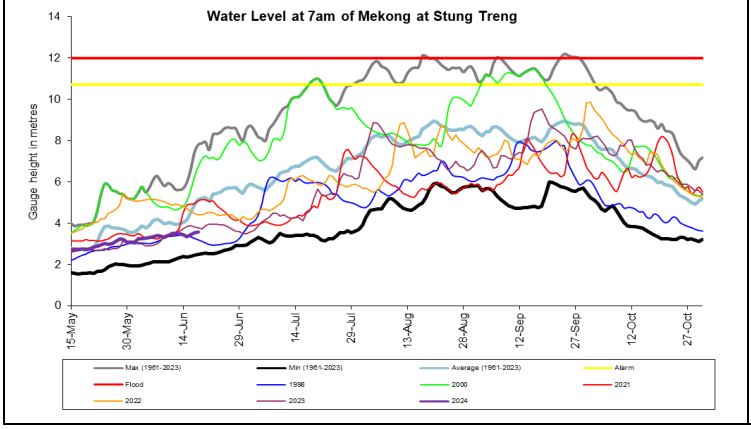

Water Level at 7am of Mekong at Thakhek
Gauge height in metres
15-May
30-May
14-Jun
29-Jun
14-Jul
29-Jul
13-Aug
28-Aug
12-Sep
27-Sep
12-Oct
27-Oct
Max (1960-2023)
Min (1960-2023)
Average (1960-2023)
Alarm
Flood
1998
2000
2021
2022
2023
2024

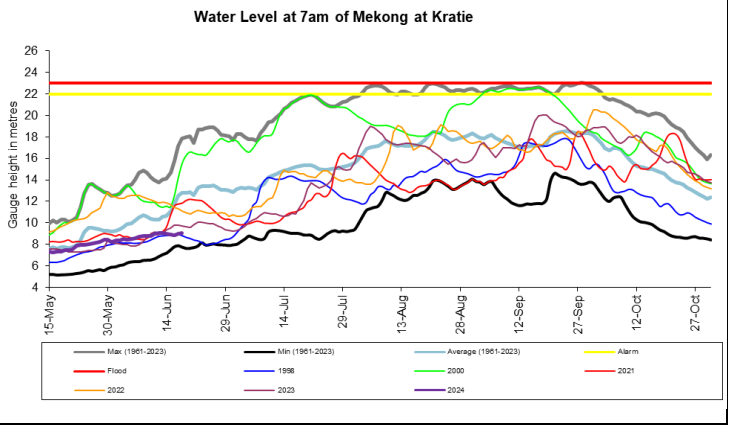

Water Level at 7am of Mekong at Mukdahan
Gauge height in metres
15-May
30-May
14-Jun
29-Jun
14-Jul
29-Jul
13-Aug
28-Aug
12-Sep
27-Sep
12-Oct
27-Oct
Max (1961-2023)
Min (1961-2023)
Average (1961-2023)
Alarm
Flood
1998
2000
2021
2022
2023
2024

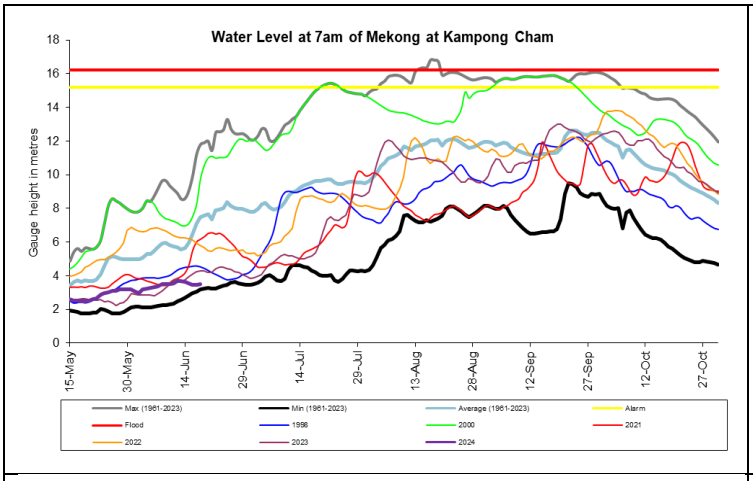

Water Level at 7am of Mekong at Savannakhet
Gauge height in metres
15-May
30-May
14-Jun
29-Jun
14-Jul
29-Jul
13-Aug
28-Aug
12-Sep
27-Sep
12-Oct
27-Oct
Max (1976-2023)
Min (1976-2023)
Average (1976-2023)
Alarm
Flood
1998
2000
2021
2022
2023
2024

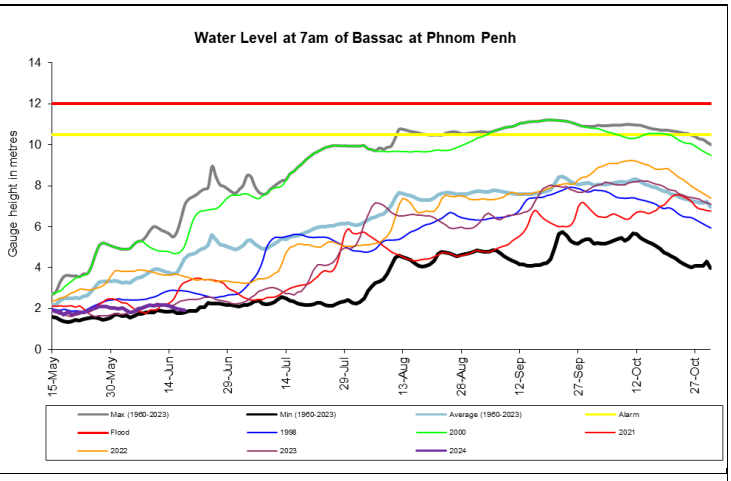

Water Level at 7am of Mekong at Khong Chiam
Gauge height in metres
15-May
30-May
14-Jun
29-Jun
14-Jul
29-Jul
13-Aug
28-Aug
12-Sep
27-Sep
12-Oct
27-Oct
Max (1966-2023)
Min (1966-2023)
Average (1966-2023)
Alarm
Flood
1998
2000
2021
2022
2023
2024

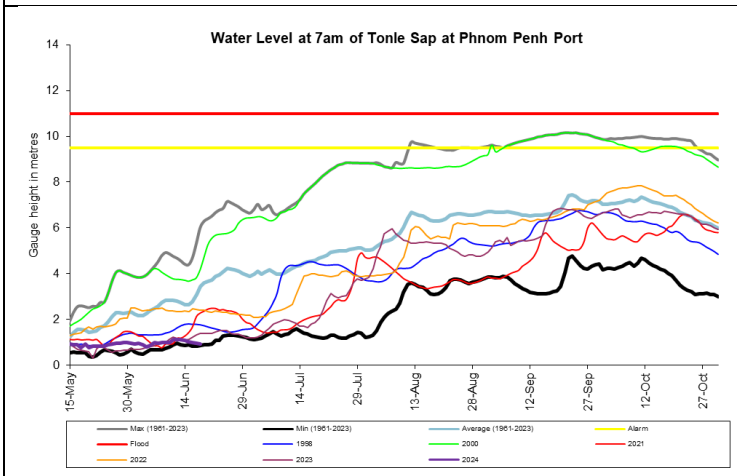

Water Level at 7am of Mekong at Pakse
Gauge height in metres
15-May
30-May
14-Jun
29-Jun
14-Jul
29-Jul
13-Aug
28-Aug
12-Sep
27-Sep
12-Oct
27-Oct
Max (1961-2023)
Min (1961-2023)
Average (1961-2023)
Alarm
Flood
1998
2000
2021
2022
2023
2024

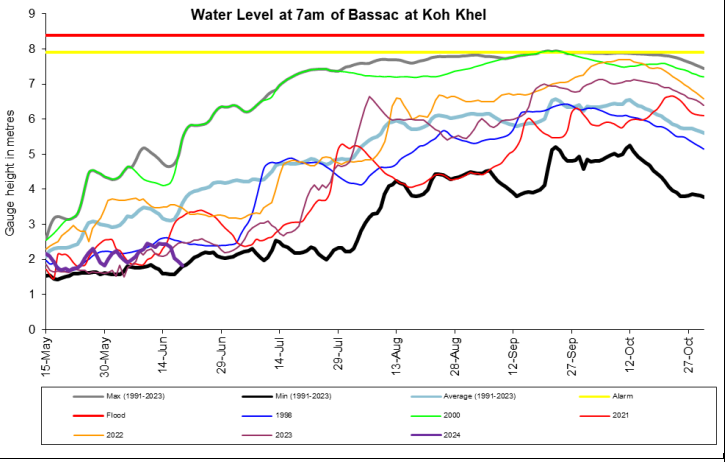

Water Level at 7am of Mekong at Stung Treng
Gauge height in metres
15-May
30-May
14-Jun
29-Jun
14-Jul
29-Jul
13-Aug
28-Aug
12-Sep
27-Sep
12-Oct
27-Oct
Max (1961-2023)
Min (1961-2023)
Average (1961-2023)
Alarm
Flood
1998
2000
2021
2022
2023
2024

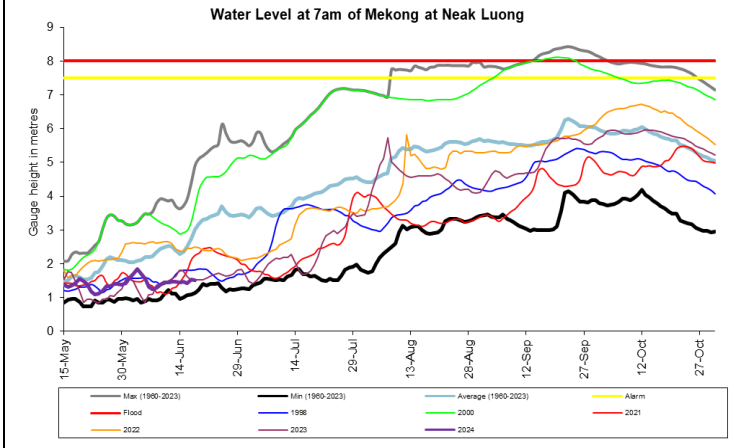

Water Level at 7am of Mekong at Kratie
Gauge height in metres
15-May
30-May
14-Jun
29-Jun
14-Jul
29-Jul
13-Aug
28-Aug
12-Sep
27-Sep
12-Oct
27-Oct
Max (1961-2023)
Min (1961-2023)
Average (1961-2023)
Alarm
Flood
1998
2000
2021
2022
2023
2024

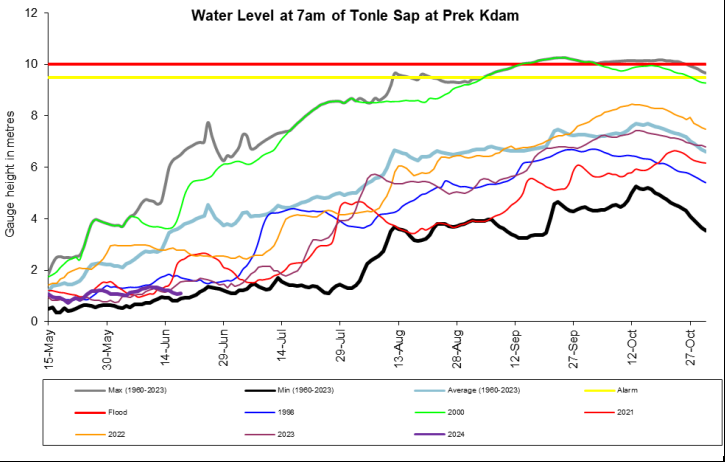

Water Level at 7am of Mekong at Kampong Cham
Gauge height in metres
15-May
30-May
14-Jun
29-Jun
14-Jul
29-Jul
13-Aug
28-Aug
12-Sep
27-Sep
12-Oct
27-Oct
Max (1961-2023)
Min (1961-2023)
Average (1961-2023)
Alarm
Flood
1998
2000
2021
2022
2023
2024


Water Level at 7am of Bassac at Phnom Penh
Gauge height in metres
15-May
30-May
14-Jun
29-Jun
14-Jul
29-Jul
13-Aug
28-Aug
12-Sep
27-Sep
12-Oct
27-Oct
Max (1960-2023)
Min (1960-2023)
Average (1960-2023)
Alarm
Flood
1998
2000
2021
2022
2023
2024


Water Level at 7am of Tonle Sap at Phnom Penh Port
Gauge height in metres
15-May
30-May
14-Jun
29-Jun
14-Jul
29-Jul
13-Aug
28-Aug
12-Sep
27-Sep
12-Oct
27-Oct
Max (1961-2023)
Min (1961-2023)
Average (1961-2023)
Alarm
Flood
1998
2000
2021
2022
2023
2024


Water Level at 7am of Bassac at Koh Khel
Gauge height in metres
15-May
30-May
14-Jun
29-Jun
14-Jul
29-Jul
13-Aug
28-Aug
12-Sep
27-Sep
12-Oct
27-Oct
Max (1991-2023)
Min (1991-2023)
Average (1991-2023)
Alarm
Flood
1998
2000
2021
2022
2023
2024


Water Level at 7am of Mekong at Neak Luong
Gauge height in metres
15-May
30-May
14-Jun
29-Jun
14-Jul
29-Jul
13-Aug
28-Aug
12-Sep
27-Sep
12-Oct
27-Oct
Max (1960-2023)
Min (1960-2023)
Average (1960-2023)
Alarm
Flood
1998
2000
2021
2022
2023
2024


Water Level at 7am of Tonle Sap at Prek Kdam
Gauge height in metres
15-May
30-May
14-Jun
29-Jun
14-Jul
29-Jul
13-Aug
28-Aug
12-Sep
27-Sep
12-Oct
27-Oct
Max (1960-2023)
Min (1960-2023)
Average (1960-2023)
Alarm
Flood
1998
2000
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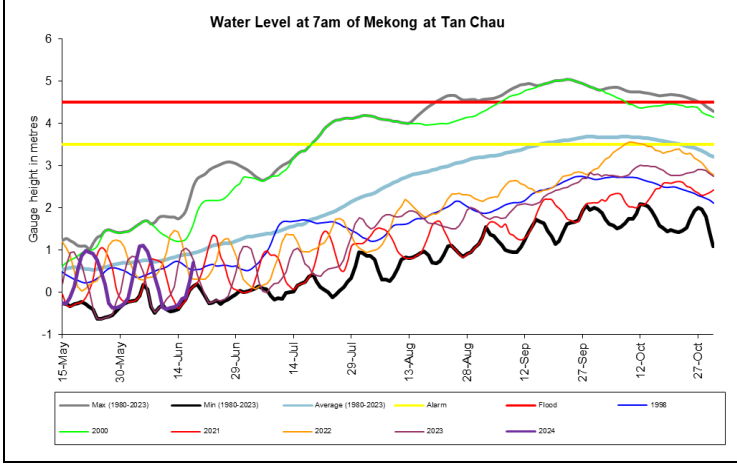
2022
2023
2024


Water Level at 7am of Mekong at Tan Chau
Gauge height in metres
15-May
30-May
14-Jun
29-Jun
14-Jul
29-Jul
13-Aug
28-Aug
12-Sep
27-Sep
12-Oct
27-Oct
Max (1980-2023)
Min (1980-2023)
Average (1980-2023)
Alarm
Flood
1998
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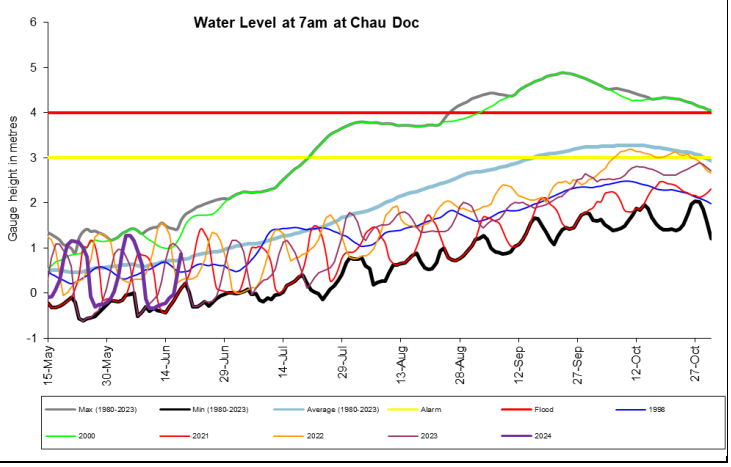
2022
2023
2024


Water Level at 7am at Chau Doc
Gauge height in metres
15-May
30-May
14-Jun
29-Jun
14-Jul
29-Jul
13-Aug
28-Aug
12-Sep
27-Sep
12-Oct
27-Oct
Max (1980-2023)
Min (1980-2023)
Average (1980-2023)
Alarm
Flood
1998
2000
2021
2022
2023
2024

Annex B: Tables for weekly updated water levels and rainfall at the Key Stations

Table A1: Weekly observed water levels

2024	Jinghong	Chiang Saen	Luang Prabang	Chiang Khan	Vientiane	Nongkhai	Paksane	Nakhon Phanom	Thakhek	Mukdahan	Savannakhet	Khong Chiam	Pakse	Stung Treng	Kratie	Kompong Cham	Phnom Penh (Bassac)	Phnom Penh Port	Koh Khel	Neak Luong	Prek Kdam	Tan Chau	Chau Doc
11-06-2024	536.43	3.24	9.53	5.94	2.66	2.08	3.29	2.81	4.02	2.93	1.37	3.42	2.28	3.49	8.95	3.53	2.18	1.13	2.42	1.44	1.32	-0.39	-0.34
12-06-2024	535.77	3.22	9.78	6.70	3.25	2.56	3.32	3.01	4.24	3.10	1.50	3.36	2.32	3.51	9.05	3.68	2.15	1.12	2.36	1.46	1.34	-0.37	-0.28
13-06-2024	535.67	3.22	9.70	6.75	3.98	3.43	3.58	3.25	4.45	3.26	1.72	3.47	2.30	3.49	9.06	3.70	2.15	1.12	2.46	1.46	1.26	-0.35	-0.26
14-06-2024	536.60	2.88	9.58	6.92	4.04	3.66	3.70	3.40	4.60	3.43	1.77	3.56	2.40	3.43	9.00	3.66	2.12	1.10	2.44	1.45	1.22	-0.30	-0.22
15-06-2024	536.91	2.50	9.50	6.85	4.16	3.82	3.74	3.54	4.74	3.56	2.00	3.78	2.52	3.34	8.89	3.56	2.05	1.02	2.36	1.46	1.22	-0.16	-0.11
16-06-2024	536.92	2.91	9.52	6.62	4.09	3.76	3.85	3.69	4.88	3.65	2.05	3.84	2.65	3.43	8.81	3.46	1.99	0.99	2.03	1.42	1.14	-0.12	-0.03
17-06-2024	536.72	3.27	9.56	6.31	3.86	3.63	3.84	3.69	4.87	3.74	2.10	3.98	2.76	3.52	8.95	3.44	1.95	0.95	1.96	1.54	1.08	0.27	0.43
Flood level		12.80	18.00	16.00	12.50	12.00	14.50	12.50	14.00	12.50	13.00	14.50	12.00	12.00	23.00	16.20	12.00	11.00	7.90	8.00	10.00	4.50	4.00

Table A2: Weekly observed rainfall

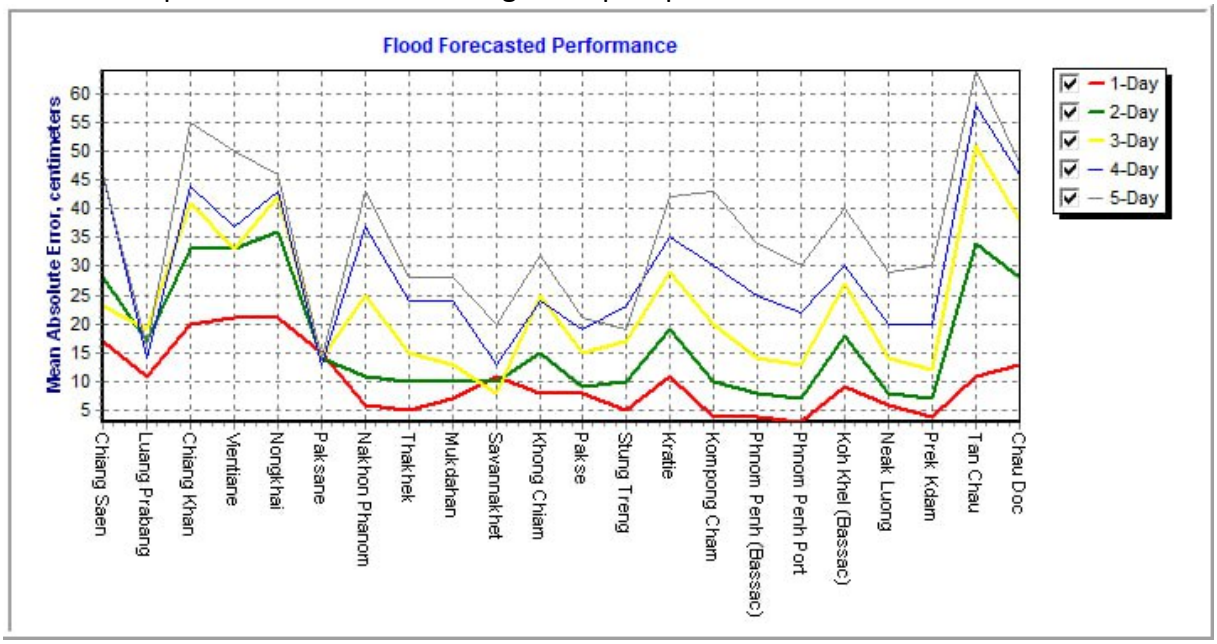
2024	Jinghong	Chiang Saen	Luang Prabang	Chiang Khan	Vientiane	Nongkhai	Paksane	Nakhon Phanom	Thakhek	Mukdahan	Savannakhet	Khong Chiam	Pakse	Stung Treng	Kratie	Kompong Cham	Phnom Penh (Bassac)	Phnom Penh Port	Koh Khel	Neak Luong	Prek Kdam	Tan Chau	Chau Doc
11-06-2024	11	35.6	4.6	11.3	37.1	21	16.2	13.7	19.7	9.7	17	13.5	6.2	0	0	0	0		0	0	0	0	2
12-06-2024	0.5	39	8.8	38.6	45.3	24.8	58	37.5	32.6	1.5	0	0.6	3.8	0	0	0	0		0	2.4	0	0	0
13-06-2024	7.5	0.5	0	4	13.8	15.8	6.5	4	0.2	0	0	0	0	0	0	0	34.3		0	4.2	0	2	24
14-06-2024	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
15-06-2024	7.5	0	0	0	0	2.5	0	7.3	7.8	0	0	1.3	0	3	0	10.5	0		0	0	0	0	0
16-06-2024	10	0	0	0	0	0	0	0	0	0.9	0	0	0	27	2.9	1.5	0		1	0.4	0	0	8
17-06-2024	19.5	0	0	0	0	4.8	0.6	53.7	42.8	0	0	0	21.2	5.5	0	0	0		0	0	13.4	0	4
Sum	61.0	75.1	13.4	53.9	96.2	68.9	81.3	116.2	103.1	12.1	17.0	15.4	31.2	35.5	2.9	12.0	34.3	0.0	1.0	7.0	13.4	2.0	38.0

Annex C: Performance of the weekly flood forecasting

"Accuracy" here refers to the state where data recorded in the MRC's Mekong River Flood Forecasting System are cleaned and verified.

The adjustment of flood forecasting outcomes from the flood forecasting system requires flood forecasters to have extensive knowledge in hydrology and statistical modelling for estimating the relationships between stations upstream and downstream in the Mekong River Basin. Flood forecasting performance presented in the graph below shows the average flood forecasting accuracy at each key station along the Mekong mainstream from 11 to 17 June 2024.

The forecasting values from 11 to 17 June 2024 show that the overall accuracy is fair for a four-day to five-day forecast in lead time (less than 250 cm) for all of the stations from the upper to the lower parts of the Mekong River with combine information of rainfall and reservoirs' operation in this area during the report period.



Note: The higher percentage of flood forecasting accuracy is due to several key factors as follows:

- Missing rainfall in Cambodia (DOM) data and data input are not sufficient to be used for inputting into the flood forecasting model system.
- Chiang Saen station is influencing by hydropower upstream operation from China.
- Luang Prabang to Chiang Khan and Paksane to Stung Treng to Kratie have been influenced by hydropower operations upstream, tributaries inflows.
- The influence of heavy rainfall caused by storms and hydropower operations from upstream, tributaries inflows and the lower part of the Mekong floodplain, including the 3S (Stung Treng and Kratie).
- Fluctuations of the water levels at Tan Chau and Chau Doc stations were due to daily tidal effects of the sea in the Mekong Delta.
- Satellite rainfall data were not representative of the actual rainfall at ground stations in some areas of the Mekong region.

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