



Mekong River Commission

**Weekly Wet Season Situation Report
in the Lower Mekong River Basin
28 May – 03 June 2024**

Prepared by
The Regional Flood and Drought Management Centre
04 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 28 May – 03 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, Paksane, Nakhon Phanon, Okrieng, etc.
- During 04 – 9 June 2024, the accumulated rainfall over the entire Lower Mekong Basin is distributed with light to heavy rain. However, from 05 to 06 June, the upper part of Laos, and the 3S area can expect heavy rainfall; and from 09 – 10 June, the upper part of Laos, the 3S area, and the western part of Cambodia can expect heavy rainfall.

Water level monitoring and forecast

- At 22 key monitoring stations along the Mekong mainstream from 28 May – 03 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 04 – 09 June 2024, Water levels are forecasted to be slightly increasing at all stations. 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 28 May-3 June 2024, the LMB was normal in most parts of the region during the monitoring week. Some moderate drought was detected in small areas of the Member Countries but not significant. Severe drought was detected in Cambodia's Pursat and Viet Nam's Dak Lak but in a small area only.
- 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 **28 May – 03 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 heat low-pressure. 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 04 – 10 June. Therefore, in the upcoming seven days, over the Lower Mekong Basin are expected to experience light to heavy rainfall and thunderstorms, especially from 05 to 06 June, the upper part of Laos, and the 3S area can expect heavy rainfall; and from 09 – 10 June, the upper part of Laos, the 3S area, and the western part of Cambodia can expect heavy rainfall.

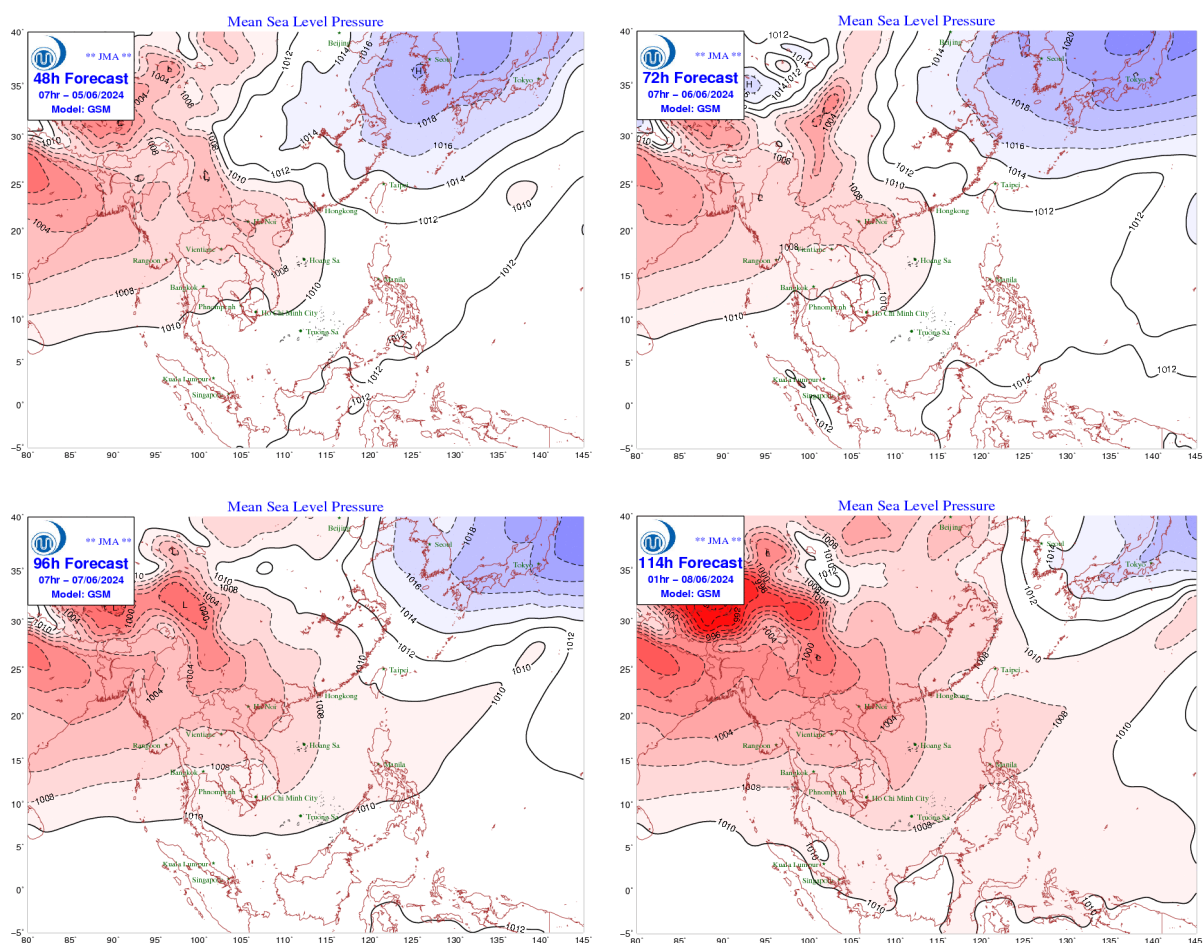


Figure 1: Weather conditions over the LMB

According to the ASEAN Specialised Meteorological Centre (ASMC, <http://asmc.asean.org/home/>), the subseasonal weather outlook (27 May – 09 June 2024) indicates that the Lower Mekong Basin (LMB) is likely in in wetter conditions. Moreover, the warmer conditions are predicted to occur lower to central parts of LMB including Cambodia, 3S basins and Mekong Delta. **Figure 2** shows the outlook of weather condition from 27 May to 09 June 2024 in

Southeast Asia based on results from the NCEP model (National Centres for Environmental Prediction).

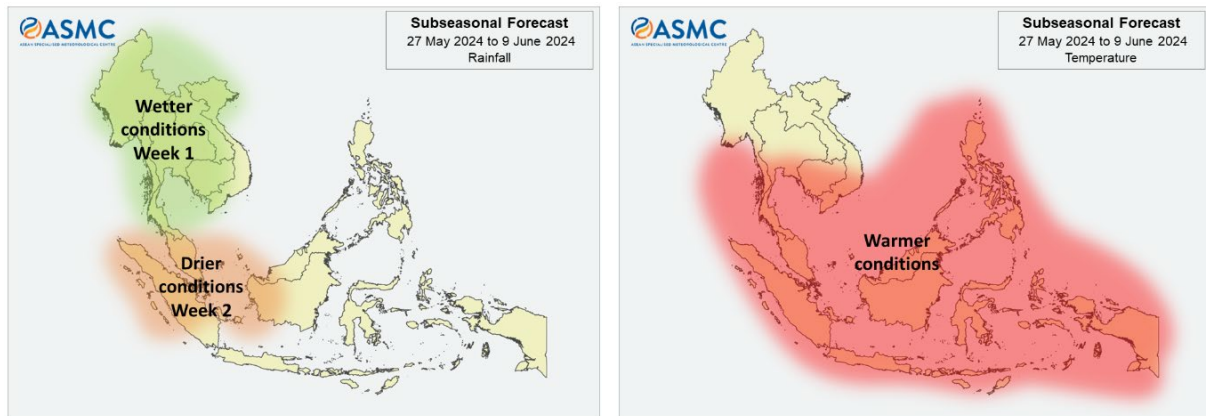


Figure 2: Outlook of wet and dry conditions over the Asian countries by ASMC.

Based on the tropical storm risk (TS) (<https://www.tropicalstormrisk.com/>), there is no active NW pacific system as of 03 June 2024 as displayed in **Figure 3**.

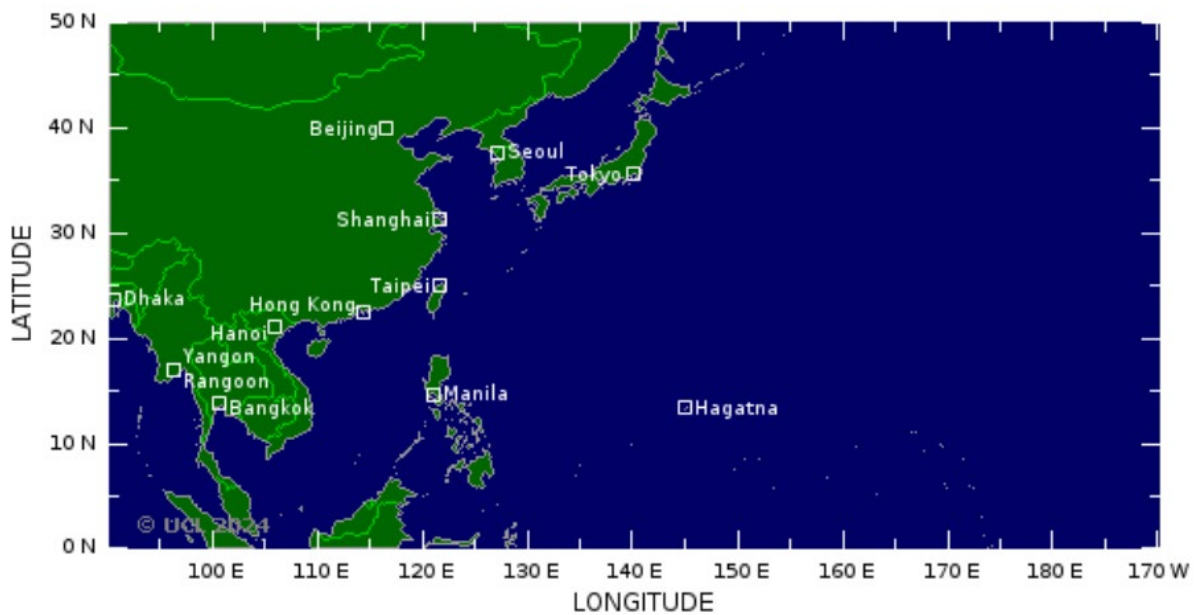


Figure 3: One tropical storm risk observed on 03 June 2024

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 28 May to 03 June 2024 (**Figure 4**). The light to moderate rainfall has been only observed over the LMB. However, moderate rainfall can be mostly observed in Lao PDR and 3S basins.

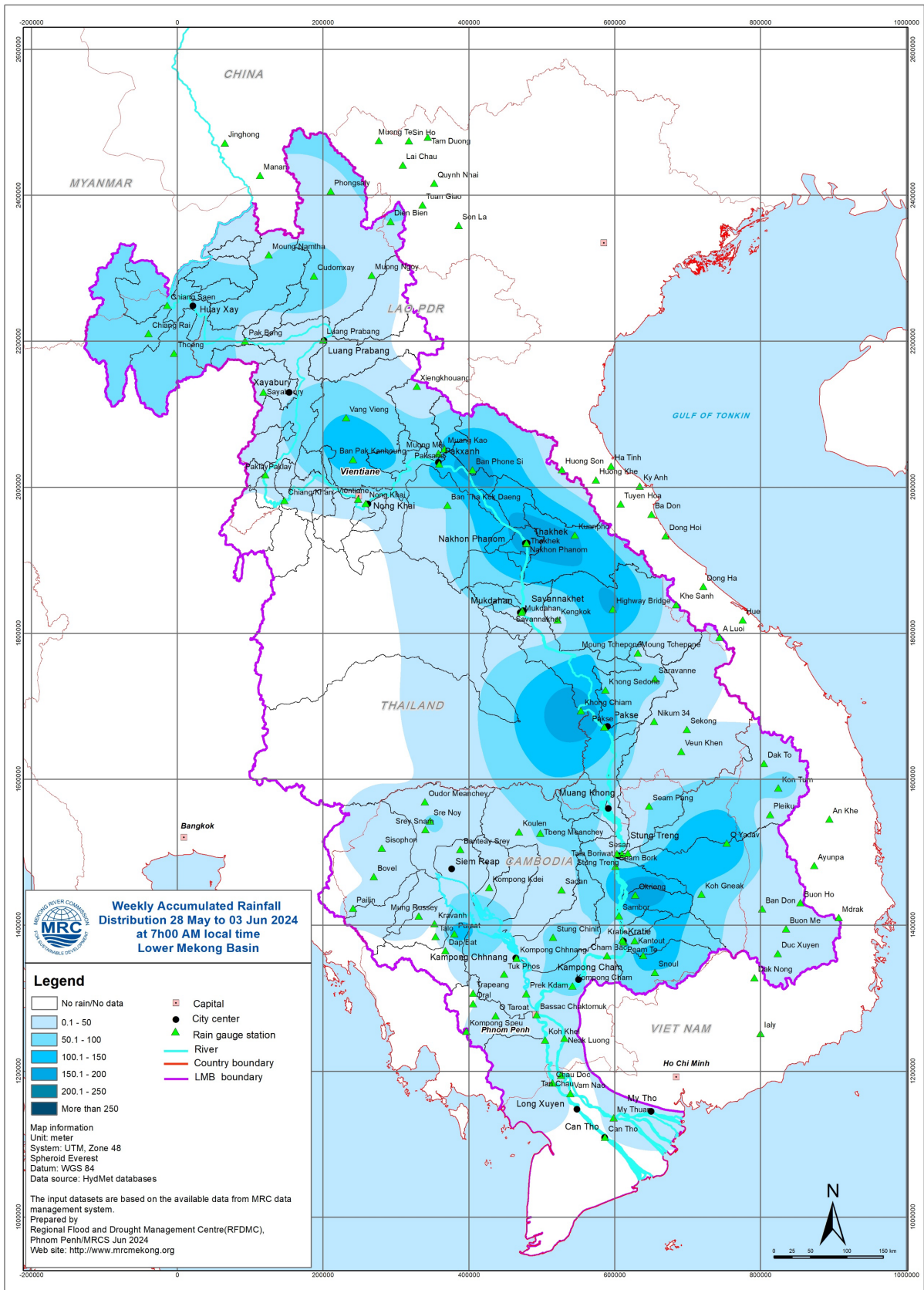


Figure 4: Weekly rainfall distribution over the LMB during 28 May – 03 June 2024

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 28 May – 03 June 2024, the observed water level (WL) at Jinghong hydrological station¹, was almost constant and ranges between 535.28 m and 535.25 m, which are corresponding to the outflow between 860.00 m³/s to 841.00 m³/s (recorded on 7:00 am), respectively (**Figure 6**). The water level in Chiang Saen station also indicated a slight fluctuation ranging from 1.64 m to 1.89 m. At the same period, the water level in Luang Prabang station also slightly decreased with an approximate value of -0.14 m from 9.22 m to 8.56 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, Khong Chiam, Pakse, and Kratie have been slightly decreasing from 5.46 m to 4.5 m, 2.72 m to 2.28 m, 2.05 m to 1.88 m, 1.55 m to 2.57 m, 3.2 m to 3.78 m, 1.92 m to 2.83 m, 2.56 m to 3.21 m, 1.54 m to 2.12 m, and 8.23 m to 8.5 m, respectively. However, at Paksane, Savannakhet and Stung Treng, the water levels have been considered stable as compared to previous week.

Moving down to the floodplain area at Kampong Cham, Phnom Penh (Bassac), and Phnom Penh Port, the water levels have been also stable from previous week. However, at Prek Kdam, the water level has slightly decreased from 1.22 m to 1.04 m, while that at Neak Luong has increased from 1.4 m to 1.84 m.

Similar to the previous week, the water levels from 28 May to 03 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 -0.37 m and 1.09 m, while at the Chau Doc station, they ranged from -0.26 m to 0.92 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>.

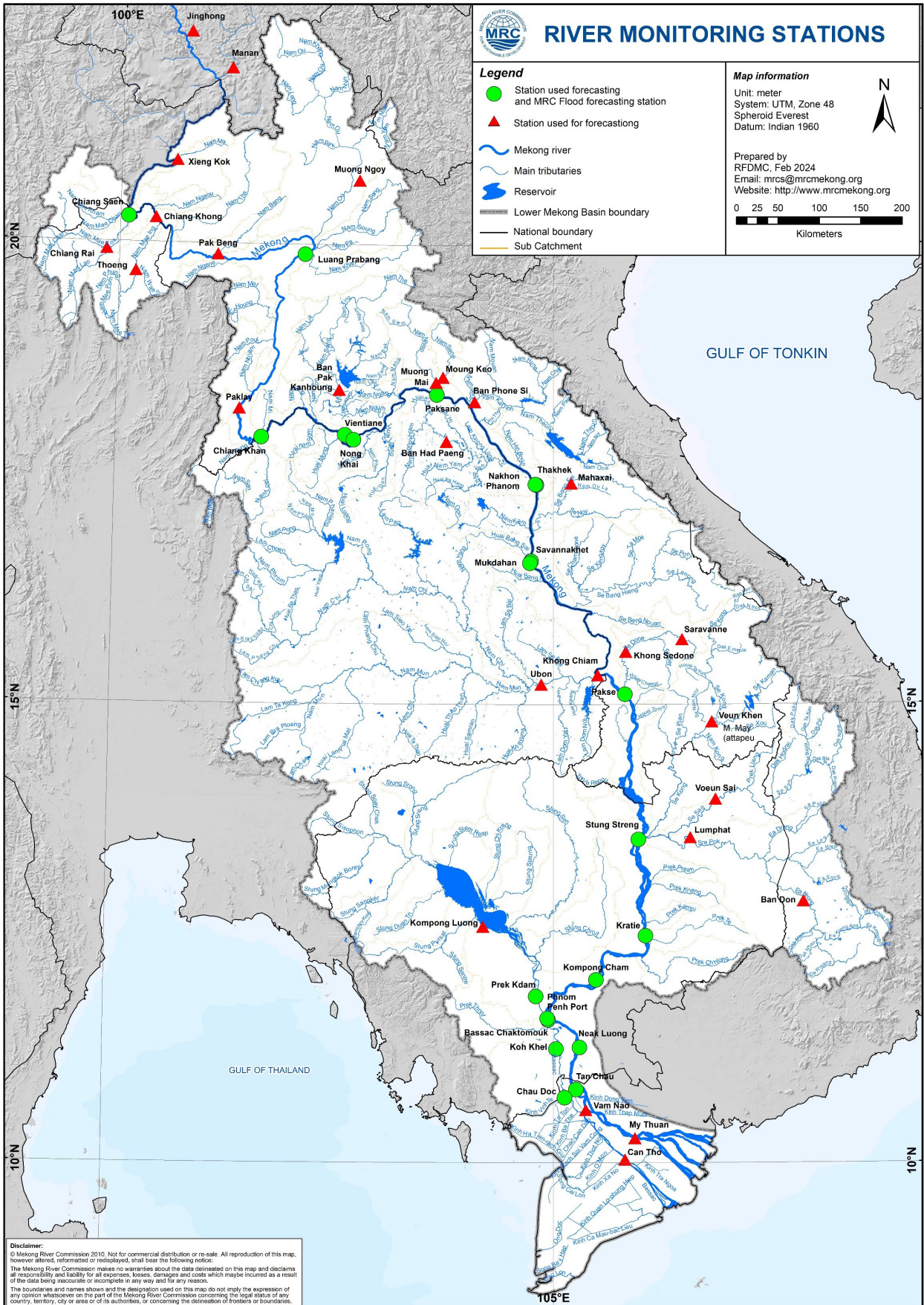


Figure 5: The key stations along LMB for river flood forecasting

The water levels in key monitoring stations on 03 June 2024 are below their long-term averages (LTAs) except for the Luang Prabang station. Moreover, all stations with available PMFM 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**.

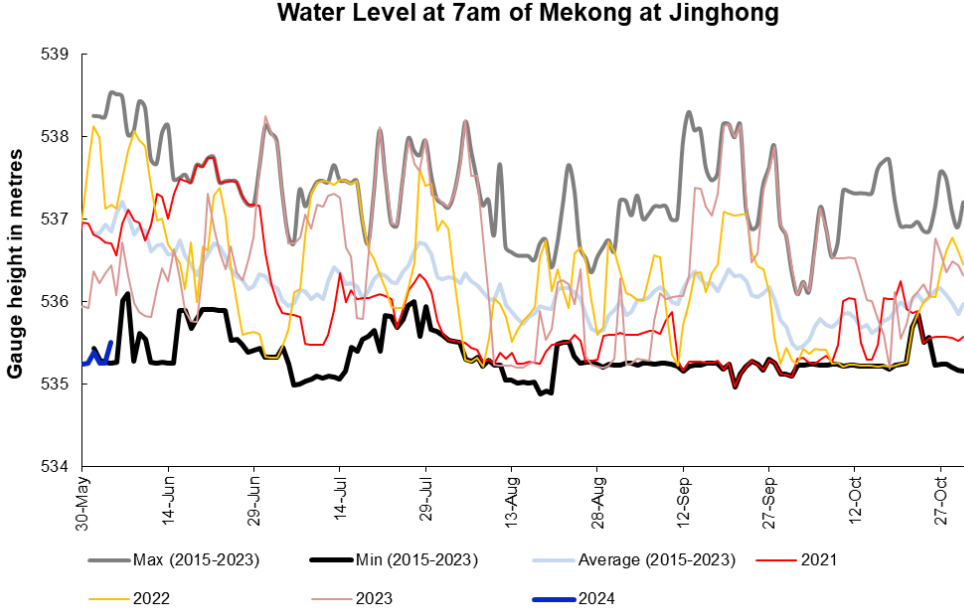


Figure 6. Water level at the Jinghong hydrological station up to 03 June 2024.

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:

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

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 03 June 2024, it was observed that the main outflow to Tonle Sap Lake decreased due to no 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 03 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**).

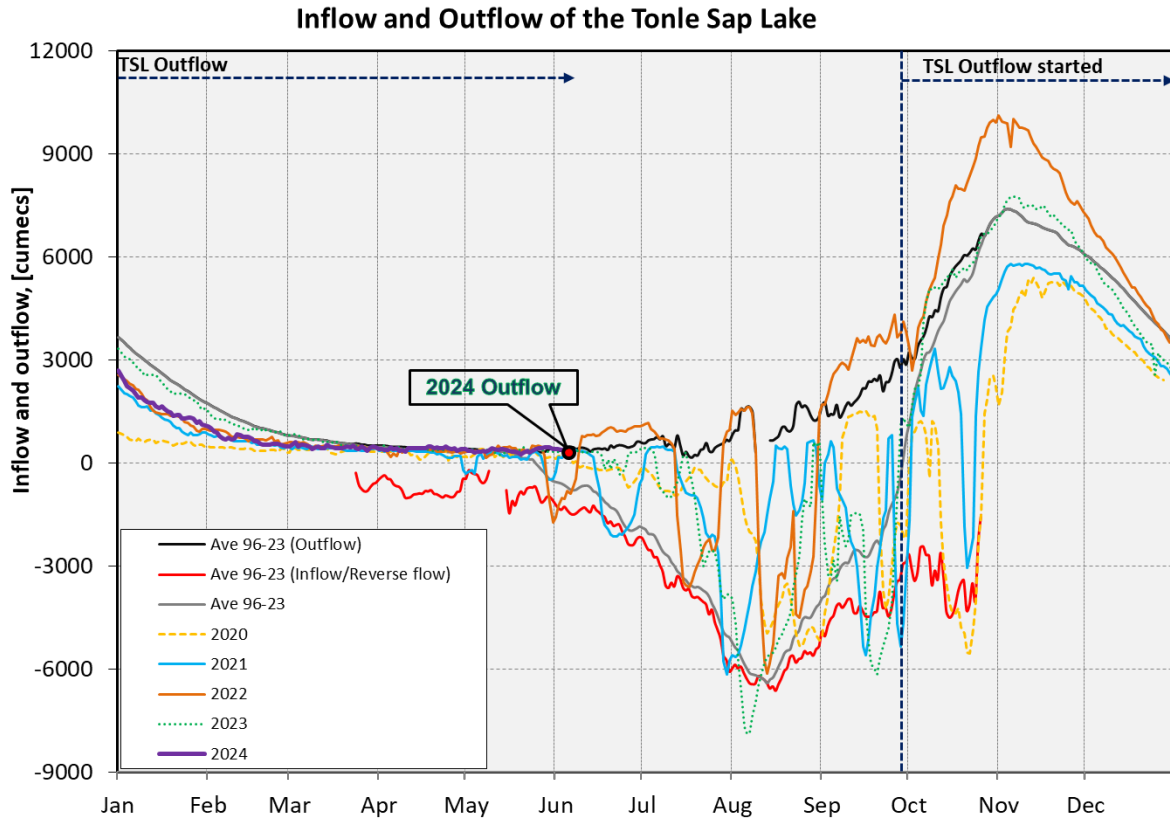


Figure 7: Seasonal change of inflows and outflows of Tonle Sap Lake.

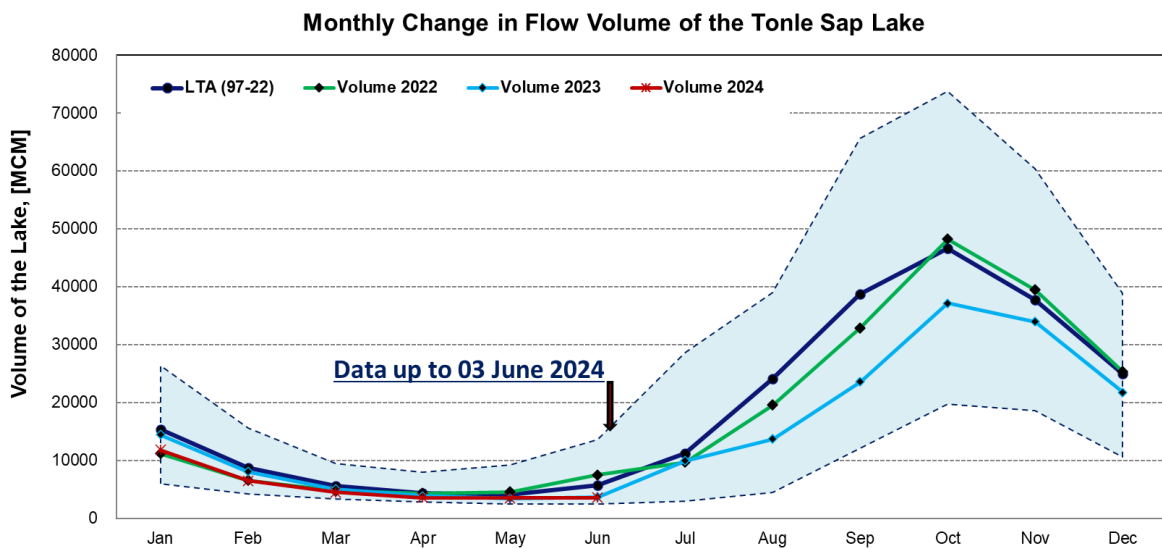


Figure 8. The seasonal change in monthly flow volume of Tonle Sap Lake.

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	3550.76	62.30
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 until 03 June 2024.

4. Flash Flood in the Lower Mekong Basin

During the weekly monitoring period from 28 May–03 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 and Cambodia during the reporting period as shown in [Figure 14](#) and [Table 2](#).

Table 2. Detected low-risk flash flood in the LMB on 03 June

FLASH FLOOD GUIDANCE IN CAMBODIA								
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 Veang	Low	Ratana Kiri	Ta Veang	Low	Ratana Kiri	Ta Veang	Low
Ratana Kiri	Koun Mom	Low	Ratana Kiri	Koun Mom	Low	Ratana Kiri	Koun Mom	Low
Ratana Kiri	Ou Ya Dav	Low	Ratana Kiri	Lumphat	Low			
Ratana Kiri	Lumphat	Low						
Mondul Kiri	Pechr Chenda	Low						
Kampong Cham	Chamkaar Leu	Low						
Kampong Cham	Prey Chhor	Low						

FLASH FLOOD GUIDANCE IN LAO PDR								
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
Phongsaly	Samphanh	Low	Khammuane	Mahaxay	Low	Khammuane	Mahaxay	Low
Phongsaly	May	Low	Khammuane	Xaybouath	Low	Khammuane	Xaybouath	Low
Bolikhamxay	Thaphabat	Low						
Vientiane	Phonhong	Low						
Vientiane Municipality	Sangthong	Low						
Khammuane	Mahaxay	Low						
Khammuane	Xaybouath	Low						

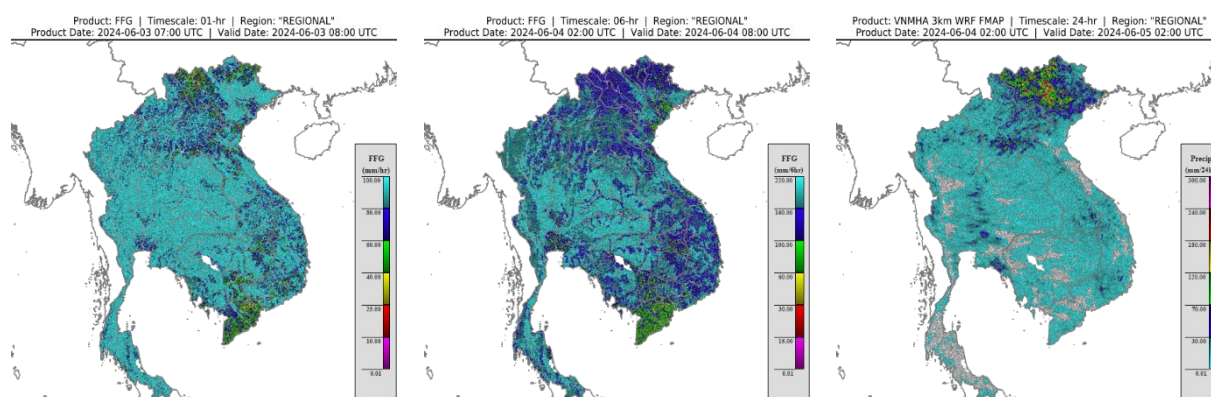


Figure 9. Flash Flood Guidance for the next 1-hr, 3-hr and 6-hr on 03 June

5. Drought Monitoring in the Lower Mekong Basin

5.2. Weekly drought monitoring from 28 May to 3 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)**

Meteorological indicator shows that from 28 May to 3 June 2024, as shown in Figure 9, the LMB was facing some meteorological drought over the central and lower parts. Severe meteorological drought was taking place in Takeo, Prey Veng, Kampong Cham, Kampong Chhnang, Kampong Thom, Siem Reap, Savannakhet, Xayaburi, Salavan, Attapu, Loei, Kalasin, Sakon Nakhon, Nakhon Phanom, Mukdahan, and Ubon Ratchathani.

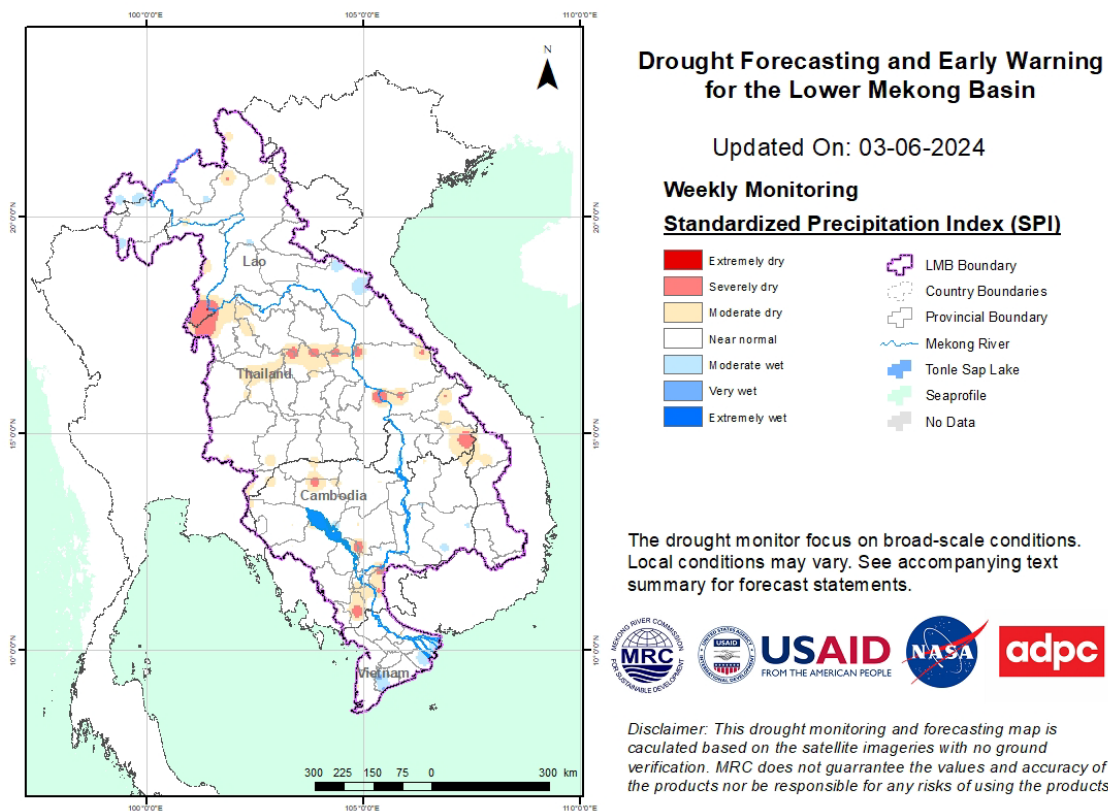
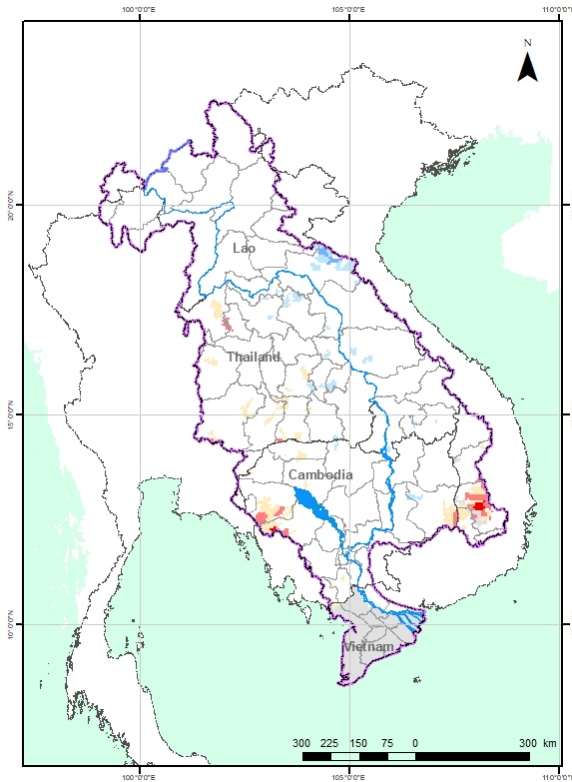


Figure 10: Weekly standardized precipitation index from May 28 to June 3.

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

Some severe agricultural droughts, as displayed in **Figure 10**, were taking place in Battambang, Pursat, Mondulkiri, and Dak Lak during the monitoring week from 28 May to 3 June. Other places were normal.



Drought Forecasting and Early Warning for the Lower Mekong Basin

Updated On: 03-06-2024

Weekly Monitoring

Index of Soil Water Fraction (ISWF)

- Extremely dry
- Severely dry
- Moderate dry
- Near normal
- Moderate wet
- Very wet
- Extremely wet
- LMB Boundary
- Country Boundaries
- Provincial Boundary
- Mekong River
- Tonle Sap Lake
- Seaprofile
- No Data

The drought monitor focus on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.



Disclaimer: This drought monitoring and forecasting map is calculated based on the satellite imageries with no ground verification. MRC does not guarantee the values and accuracy of the products nor be responsible for any risks of using the products.

Figure 11: Weekly Index of Soil Water Fraction from May 28 to June 3.

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

The combined drought indicator, **Figure 11**, shows that the LMB was normal in most parts of the region during the monitoring week. Some moderate drought was detected in small areas of the Member Countries but not significant. Severe drought was detected in Cambodia’s Pursat and Viet Nam’s Dak Lak but in a small area only.

The impacted areas are listed below:

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

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

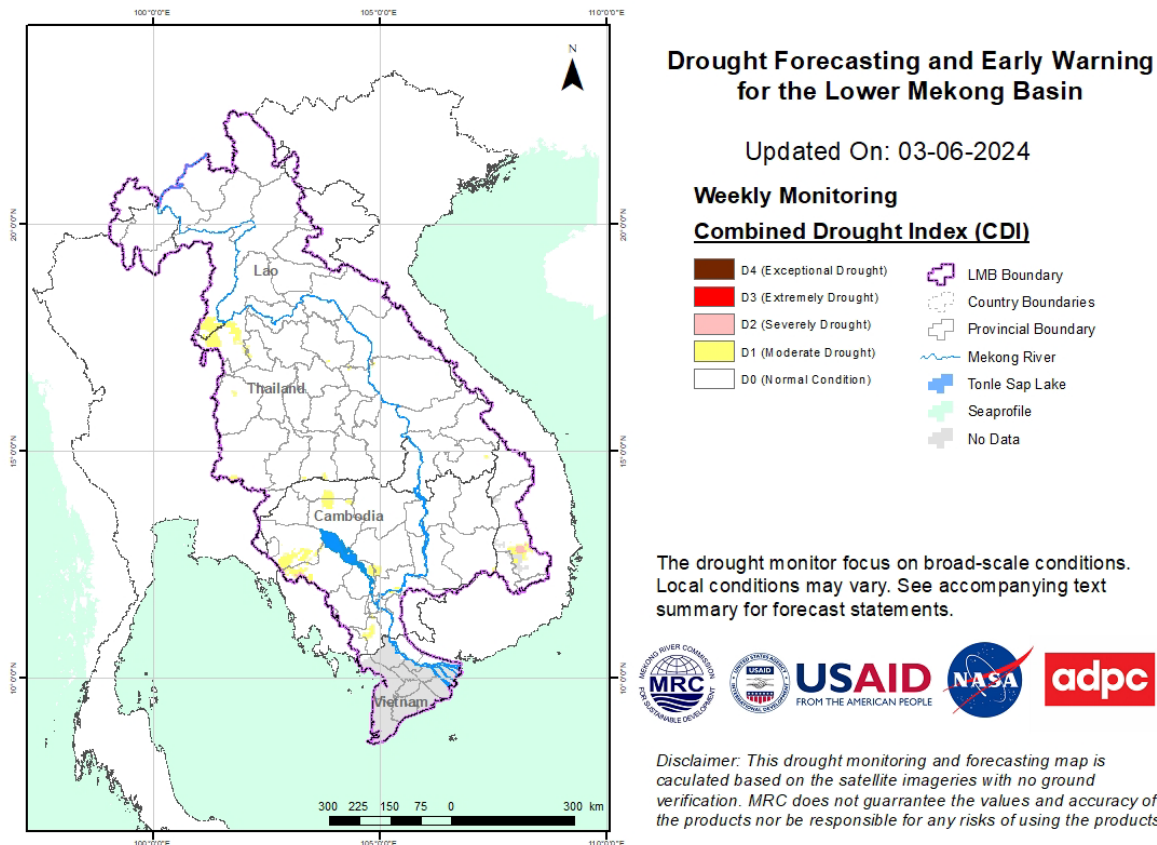


Figure 12: Weekly Combined Drought Index from May 28 to June 3.

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 04-10 June 2024, the accumulated rainfall over the entire Lower Mekong Basin is distributed with light to heavy rain based on CHIRPS-GFS (**Figure 12**). The heavy rainfall will be expected to occur in the upper and centre part of Lao PDR, the 3S Basins, and the western part of Cambodia.

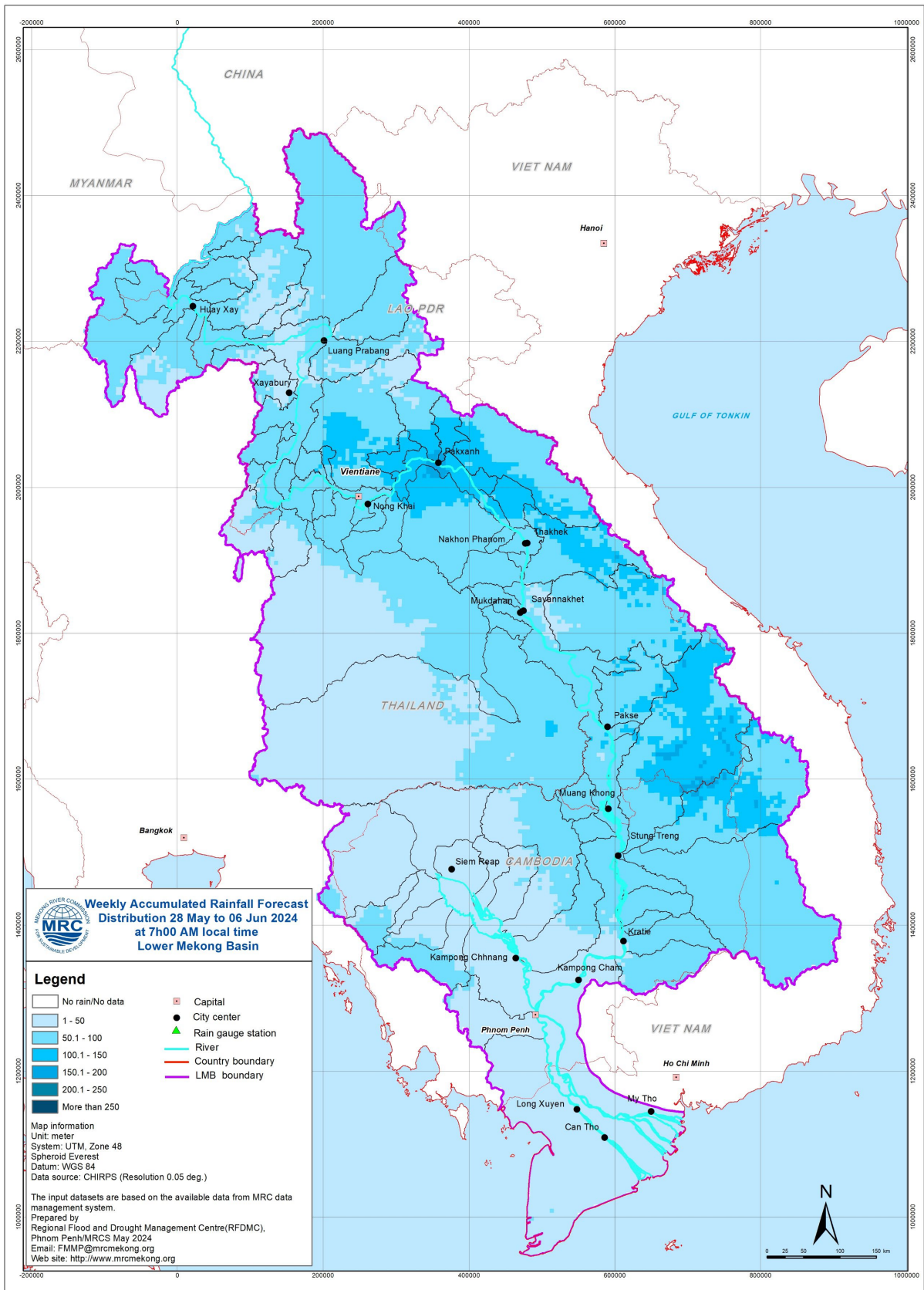


Figure 13: Accumulated rainfall forecast from CHIRP-GFS (28 May – 03 June 2024)

6.2 Water level forecast

In Chiang Saen monitoring station, the water level is expected to be fluctuated over the forecasting period of 04 – 09 June 2024. However, it will slightly increase from 1.64 m to 1.86 m. The water level in Luang Prabang stations affected by backwater is likely slightly increasing from 8.60 m to 9.06 m.

Along the Mekong mainstream, the water levels at all stations will slightly increase. At Chiang Khan, Vientiane, Nongkhai, Paksane, Nakhon Phanom, Thakhek, Mukdahan, Savannakhet, Kong Chiam, Pakse, Stung Treng, Kratie, Kampong Cham, Phnom Penh Bassac, Phnom Penh Port, Koh Khel, Neak Luong, and Prek Kdam, water levels will slightly rise of approximately 0.26 m, 0.01 m, 0.38 m, 0.34 m, 0.36 m, 0.34 m, 0.33 m, 0.11 m, 0.29 m, 0.34 m, 0.32 m, 0.25 m, 0.12 m, 0.10 m, 0.06 m, 0.26 m, 0.13 m, 0.12 m, 0.06 m, and 0.16 m, respectively.

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 1.12 to 0.02 m and 1.32 to 0.21 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, Vientiane, Tan Chau and Chau Doc stations from 04 to 06 June 2024.

The weekly River Monitoring Bulletin and forecasting issued on 03 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 04 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)

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

5-day Accumulated Rainfall Forecast

- No rainfall/No data
- 1.0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200

Current Water Level Status

- Normal: Normal water level.
- Alarm: Water level ranges between alarm and flood levels.
- Flood: Water level exceed flood level.

Scale: 0, 100, 200, 400 Kilometers

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 K DAM (PMFM*6B)

Monitoring thresholds for Article 6B for accumulated reverse flows at Prek Kdam

Accumulated reverse flow volume at Prek Kdam

Flow volumes on 02 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

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.

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http://fw.mrcmekong.org/bulletin_dry.php

http://fw.mrcmekong.org/report_dry.php

<https://pmfm.mrcmekong.org/>

DISCLAIMER

This information is supplied as a service to the governments of the MRC Member Countries so that it may be used as a tool within existing national disaster forecast and warning systems.

Forecasting from 05 to 09 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)	Alarm Level (m)	Flood Level (m)	Observed Water Level against zero gauge (m)		Forecasted Water 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)	
					03-Jun	04-Jun	05-Jun	06-Jun	07-Jun	08-Jun	09-Jun					
Jinghong	22.0	-	-	-	535.25	↑ 535.51	-	-	-	-	-	-	-	-	-	-
Chiang Saen	71.2	357.110	11.50	12.80	1.86	→ 1.89	→ 1.95	→ 1.98	→ 2.01	↑ 2.12	→ 2.15	↑ 0.26	0.26	9.35	10.65	
Luang Prabang	0.0	267.195	17.50	18.00	8.56	↑ 9.08	↓ 8.68	↑ 8.82	↑ 9.01	→ 9.01	→ 9.09	→ 0.01	0.40	8.41	8.91	
Chiang Khan	1.3	194.118	14.50	16.00	4.50	↓ 4.10	→ 4.18	↓ 4.15	→ 4.22	↑ 4.35	↑ 4.48	↑ 0.38	0.38	10.02	11.52	
Vientiane	11.0	158.040	11.50	12.50	2.28	↓ 2.21	↓ 2.17	→ 2.23	↑ 2.35	↑ 2.51	→ 2.55	↑ 0.34	0.34	8.95	9.95	
Nongkhai	35.4	153.648	11.40	12.20	1.88	↓ 1.76	→ 1.77	↑ 1.89	→ 1.95	→ 2.05	→ 2.12	↑ 0.36	0.36	9.28	10.08	
Paksane	8.2	142.125	13.50	14.50	2.93	↓ 2.90	↑ 3.03	↓ 2.93	↑ 3.05	→ 3.12	→ 3.24	↑ 0.34	0.34	10.26	11.26	
Nakhon Phanom	39.1	130.961	11.50	12.00	2.57	↓ 2.52	→ 2.58	→ 2.62	→ 2.70	↑ 2.82	→ 2.85	↑ 0.33	0.33	8.65	9.15	
Thakhek	34.1	129.629	13.00	14.00	3.78	↓ 3.74	↓ 3.71	→ 3.77	↓ 3.75	↓ 3.81	→ 3.85	↑ 0.11	0.11	9.15	10.15	
Mukdahan	0.0	124.219	12.00	12.50	2.83	→ 2.85	↓ 2.81	↑ 3.06	→ 3.12	→ 3.15	→ 3.14	↑ 0.29	0.30	8.85	9.35	
Savannakhet	2.8	125.410	12.00	13.00	1.31	↓ 1.28	→ 1.35	→ 1.43	→ 1.48	→ 1.57	→ 1.62	↑ 0.34	0.34	10.38	11.38	
Khong Chiam	0.0	89.030	13.50	14.50	3.21	↑ 3.33	↓ 3.24	↑ 3.38	↑ 3.52	→ 3.60	→ 3.65	↑ 0.32	0.32	9.85	10.85	
Pakse	0.0	86.490	11.00	12.00	2.12	↑ 2.20	↓ 2.09	↑ 2.17	↑ 2.33	↑ 2.42	→ 2.45	↑ 0.25	0.25	8.55	9.55	
Stung Treng	0.0	36.790	10.70	12.00	3.23	→ 3.26	↑ 3.33	↓ 3.31	↓ 3.28	→ 3.32	→ 3.38	↑ 0.12	0.12	7.32	8.62	
Kratie	0.0	-1.080	22.00	23.00	8.50	↓ 8.41	↑ 8.54	↑ 8.60	↓ 8.59	↓ 8.55	↓ 8.51	↑ 0.10	0.19	13.40	14.40	
Kompong Cham	0.0	-0.930	15.20	16.20	3.18	↑ 3.22	↓ 3.21	↑ 3.30	↑ 3.33	↓ 3.30	↓ 3.28	↑ 0.06	0.11	11.87	12.87	
Phnom Penh (Bassac)	0.0	-1.020	10.50	12.00	1.91	↓ 1.79	↑ 1.92	→ 1.94	↑ 1.97	↑ 2.00	↑ 2.05	↑ 0.26	0.26	8.45	9.95	
Phnom Penh Port	nr	0.000	9.50	11.00	0.90	↓ 0.80	↑ 0.85	↑ 0.94	→ 0.95	↑ 0.98	↓ 0.93	↑ 0.13	0.18	8.52	10.02	
Koh Khel	0.0	-1.000	7.90	8.40	2.10	↓ 2.00	↓ 1.95	↑ 2.12	↑ 2.21	↓ 2.20	↓ 2.12	↑ 0.12	0.21	5.69	6.19	
Neak Luong	0.0	-0.330	7.50	8.00	1.84	↓ 1.72	↑ 1.77	↓ 1.60	→ 1.60	↑ 1.70	↑ 1.78	↑ 0.06	0.12	5.72	6.22	
Prek Kdam	0.0	0.080	9.50	10.00	1.04	↓ 1.02	↑ 1.05	↑ 1.08	↑ 1.11	↓ 1.10	↑ 1.18	↑ 0.16	0.16	8.32	8.82	
Tan Chau	nr	0.000	3.50	4.50	0.74	↑ 1.09	↑ 1.12	↓ 1.01	↓ 0.85	↓ 0.34	↓ 0.02	↓ -1.07	-1.07	2.38	3.38	
Chau Doc	11.0	0.000	3.00	4.00	0.92	↑ 1.27	↑ 1.32	↓ 1.26	↓ 1.12	↓ 0.51	↓ 0.21	↓ -1.06	-1.06	1.68	2.68	

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

- Light to moderate accumulated rainfall is forecasted to be distributed for entire Lower Mekong Basin (LMB). Moderate rainfall is mostly expected to occur in upper parts of LMB covering areas (Chiang Khan, Vientiane, Paksane, and Thakhek) and upper part of 35 Basins during 05 - 09 June 2024. However, heavy rainfall will be expected to occur in Paksane area during 5-6 June 2024.
- Water levels at almost stations are forecasted to be slightly increasing from Chiang Saen to Prek kdam from 05 to 09 June 2024. However, water levels at Tan Chau and Chau Doc are forecasted to be fluctuated due to sea tidal influence.
- Water levels at most of the stations are expected to be below their long-term averages (LTAs) except for Luang Prabang station from 04 to 08 June 2024.

6.3 Flash Flood Information

With light to heavy rainfall for next 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.

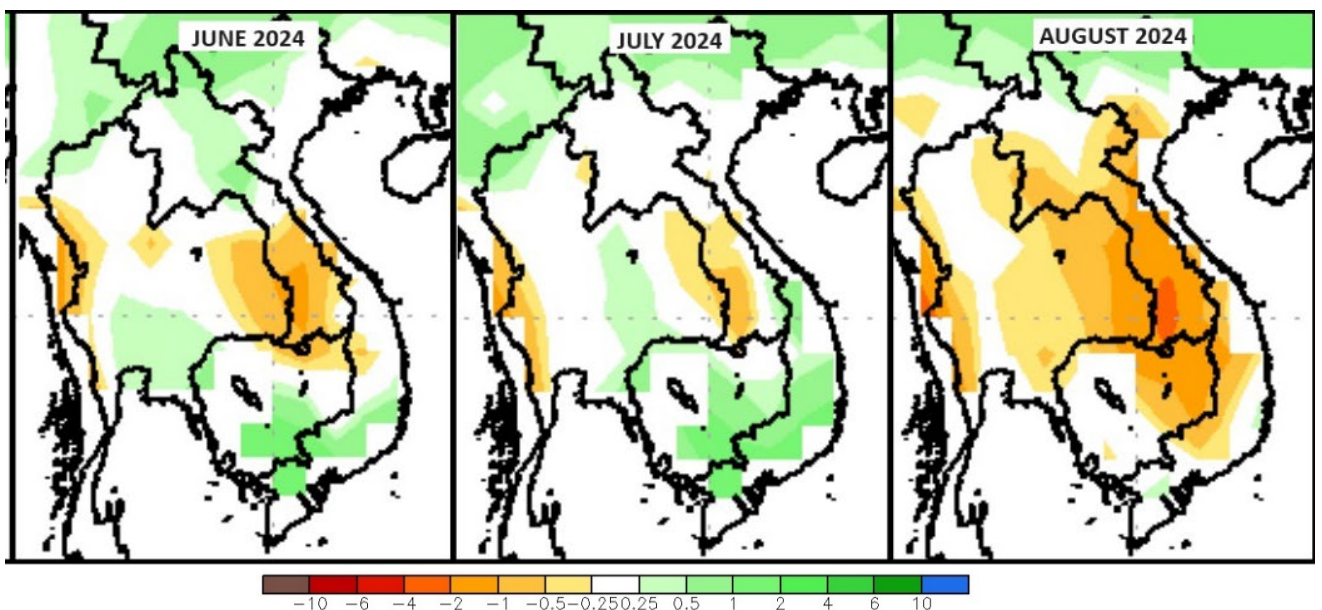


Figure 14. Monthly forecast of rainfall from NMME for June, July, and August 2024.

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 28 May – 03 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, Paksane, Nakhon Phanon, Okrieng...

During 04 - 10 June 2024, the accumulated rainfall over the entire Lower Mekong Basin is distributed with light to heavy rain. However, from 05 to 06 June, the upper part of Laos, and the 3S area can expect heavy rainfall; and from 09 – 10 June, the upper part of Laos, the 3S area, and the western part of Cambodia can expect heavy rainfall.

7.2. Water level and its forecast

At 22 key monitoring stations along the Mekong mainstream from 28 May – 03 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 04 – 09 June 2024, Water levels are forecasted to be slightly increasing at all stations. 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

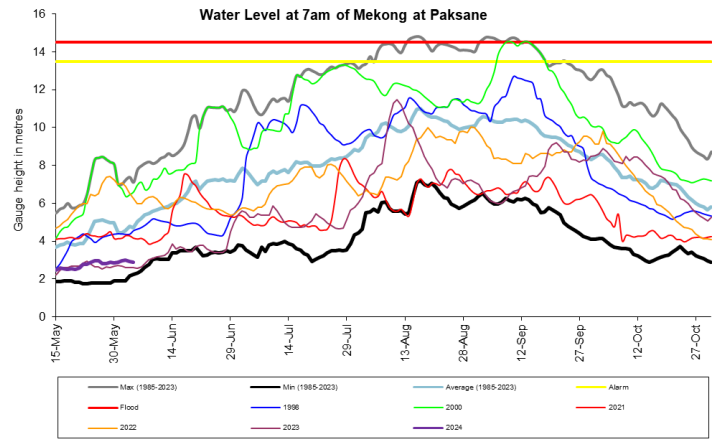
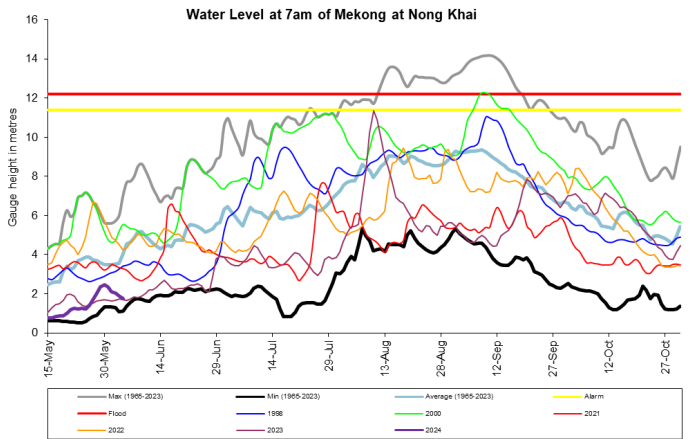
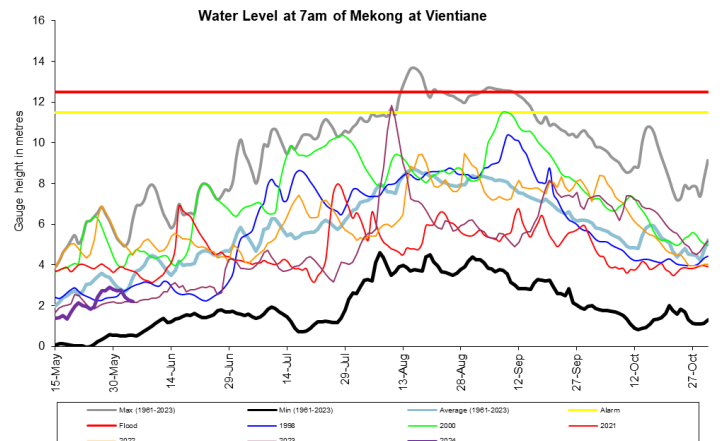
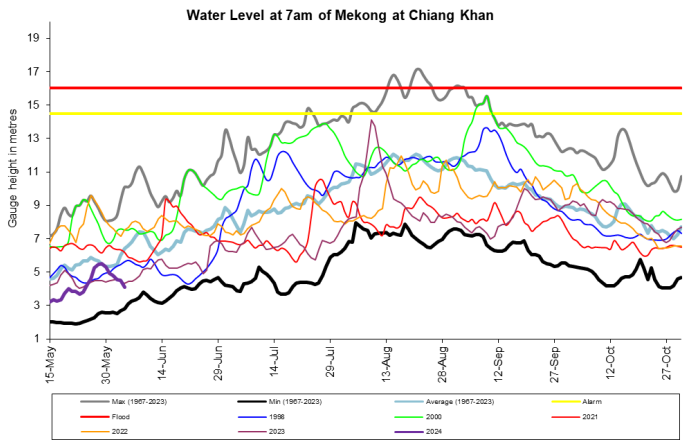
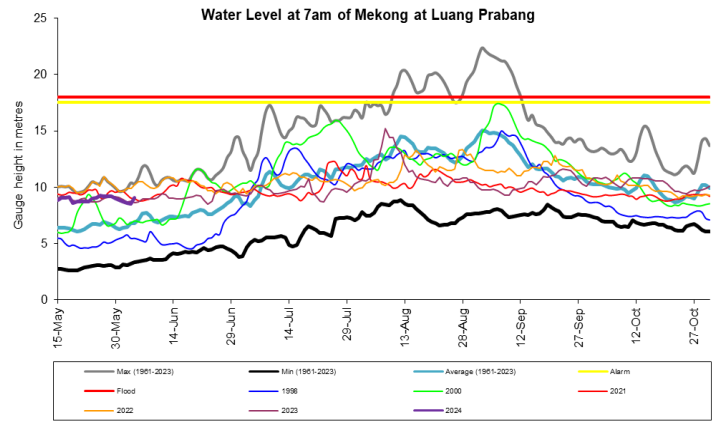
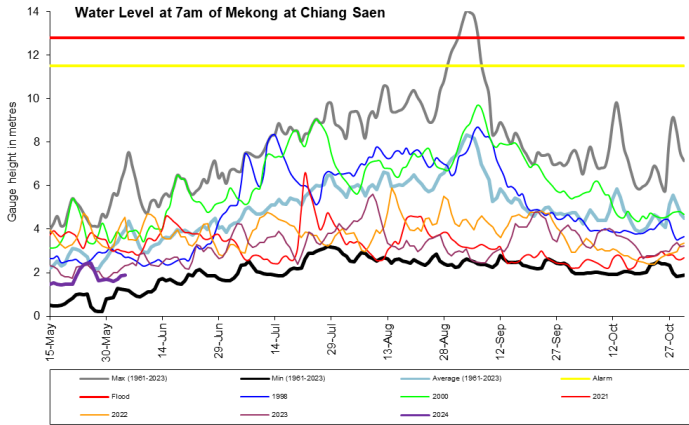
With the predicted of rainfall for the coming week as mentioned earlier in part 2, the flash flood guidance at a low level will likely be detected in some areas of the LMB.

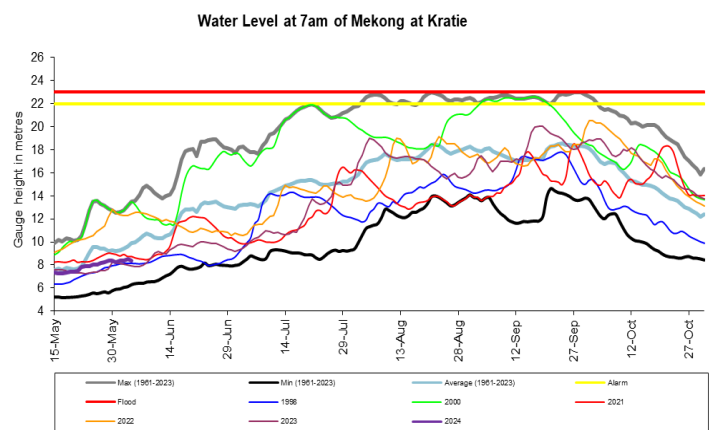
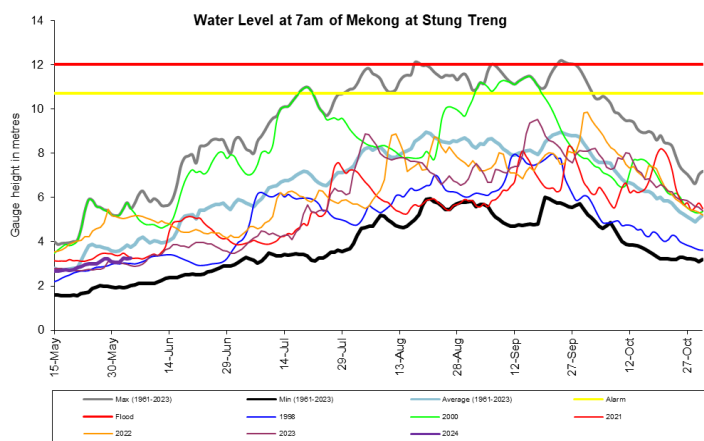
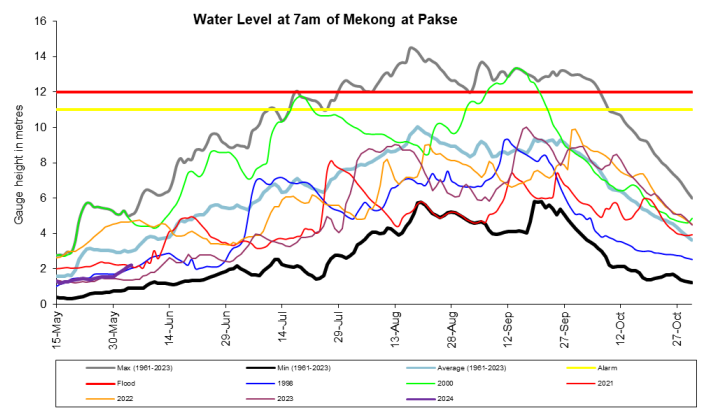
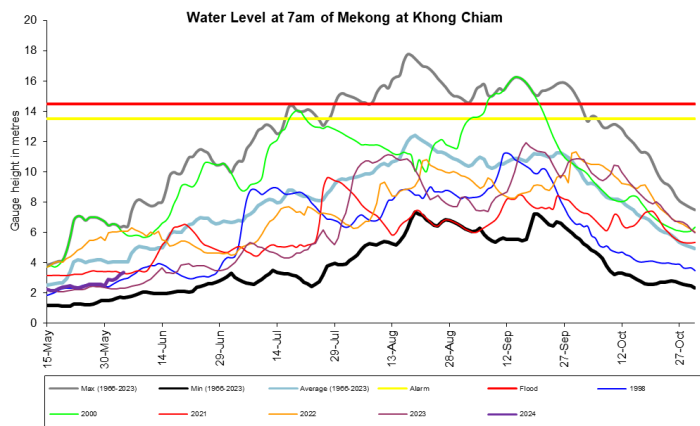
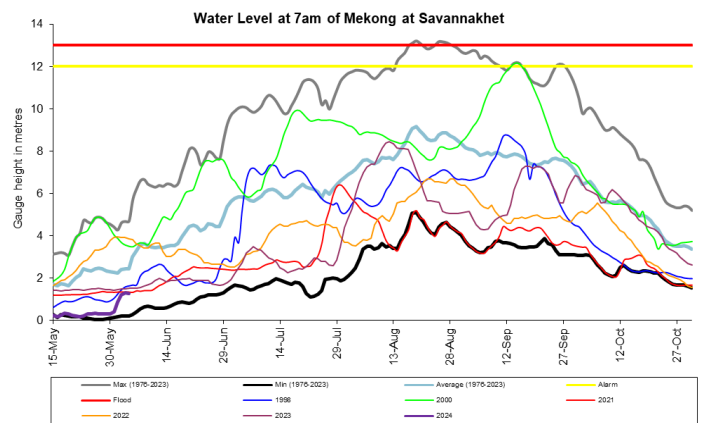
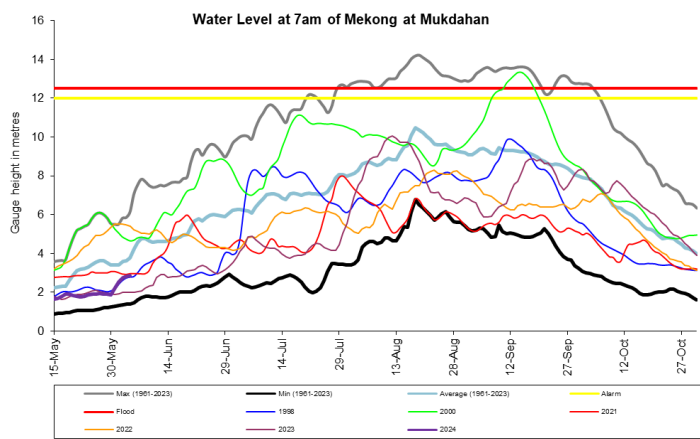
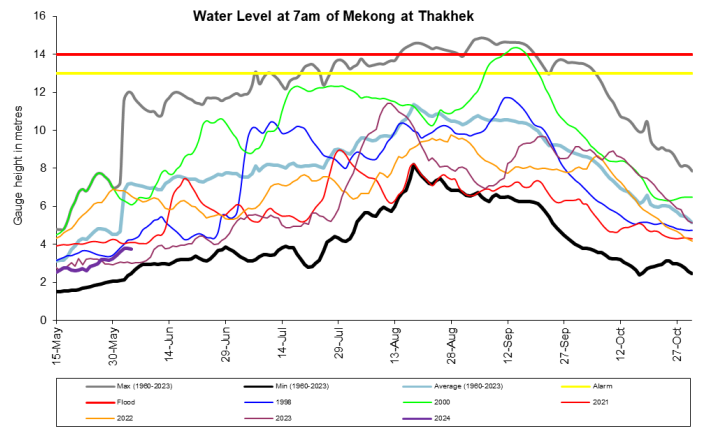
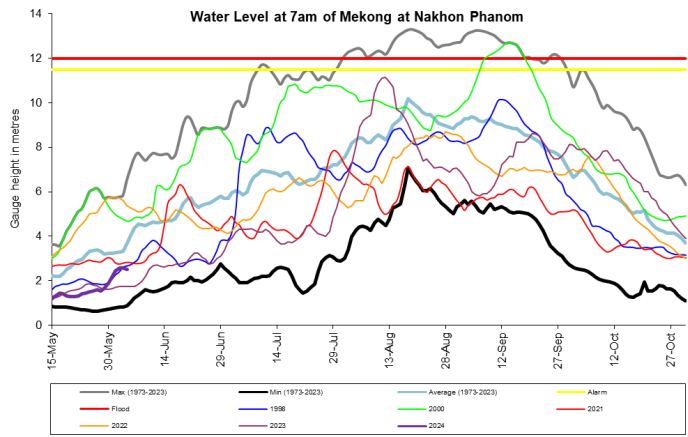
7.4. Drought condition and its forecast

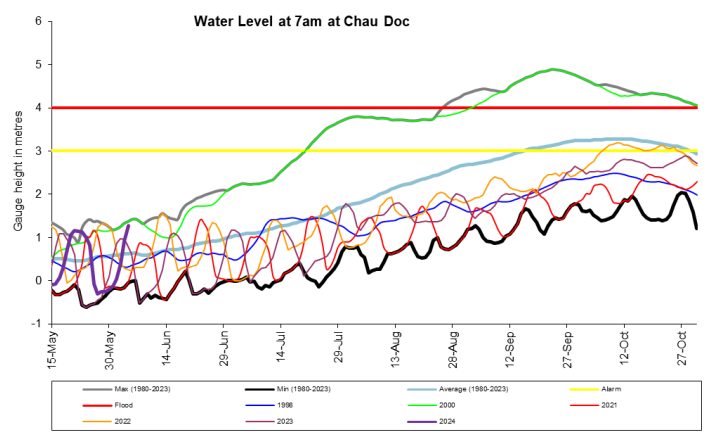
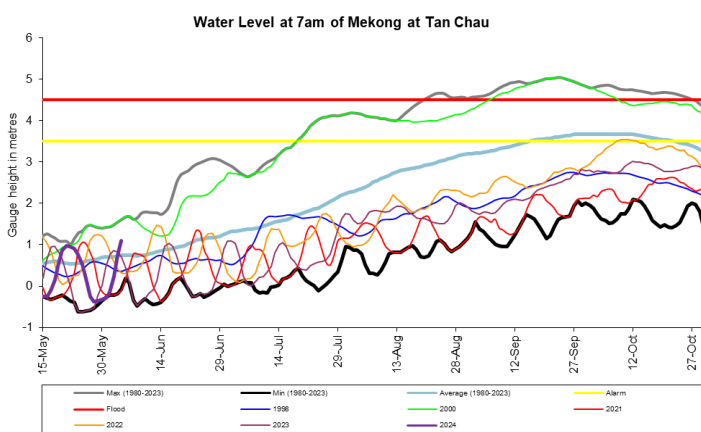
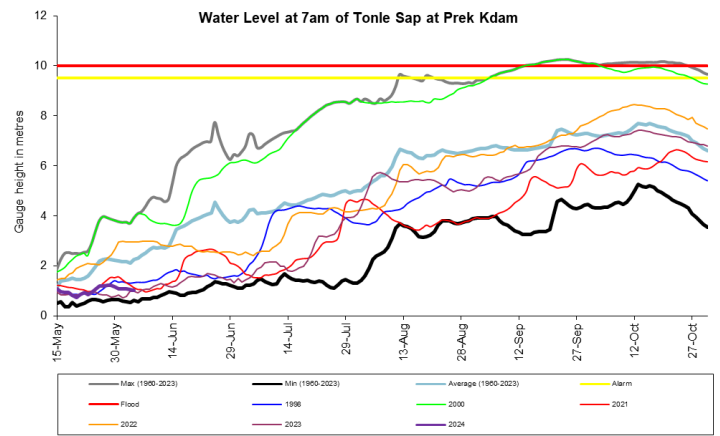
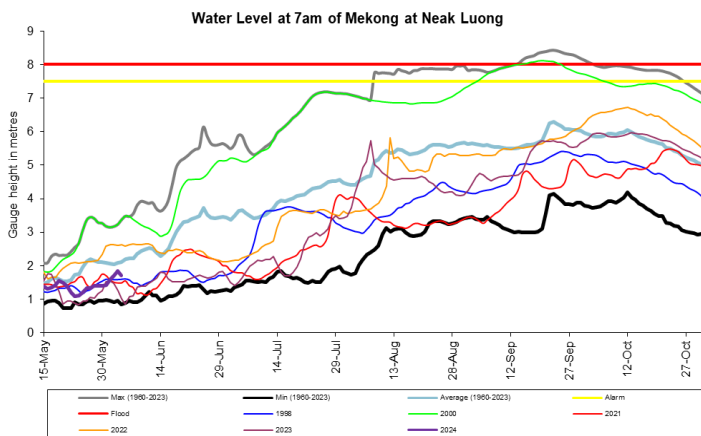
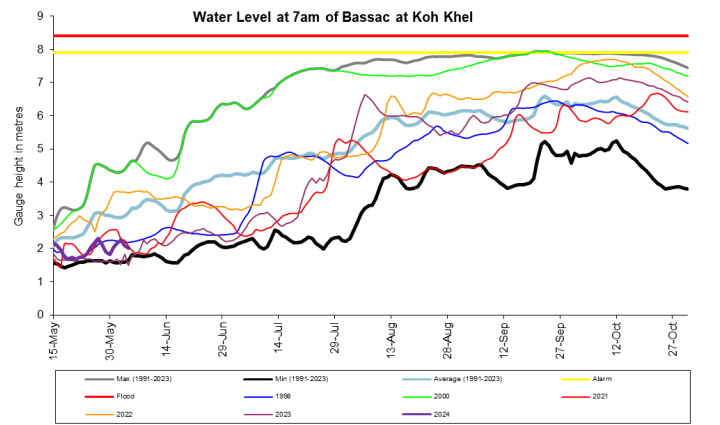
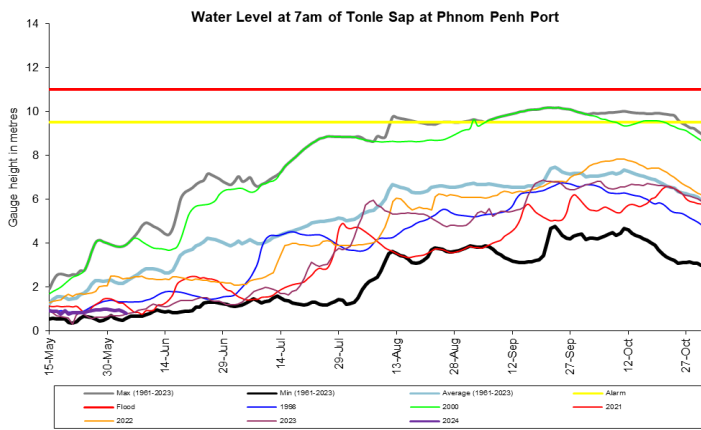
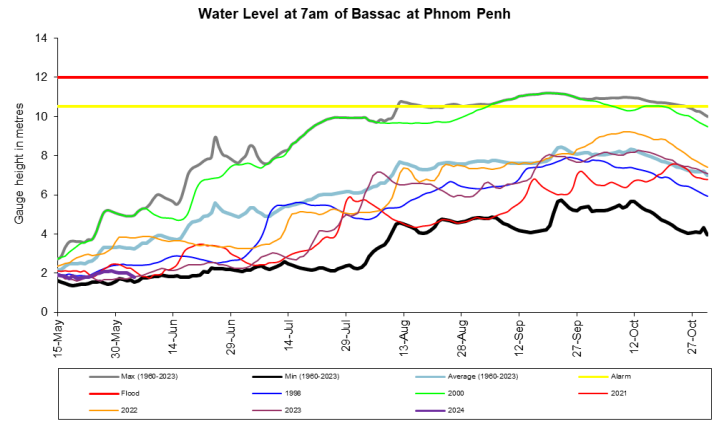
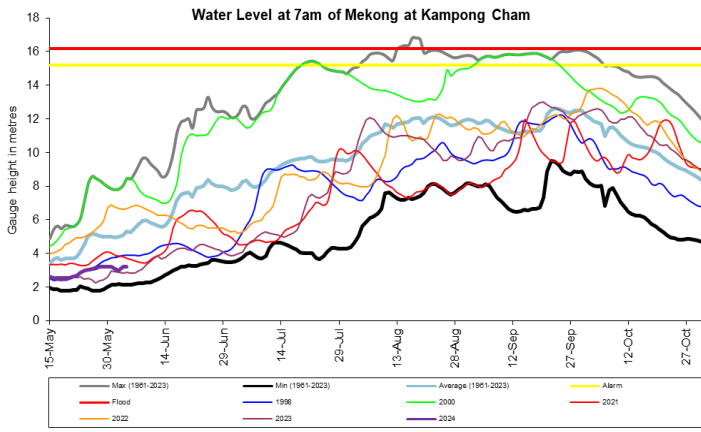
During 28 May-3 June 2024, the LMB was normal in most parts of the region during the monitoring week. Some moderate drought was detected in small areas of the Member Countries but not significant. Severe drought was detected in Cambodia's Pursat and Viet Nam's Dak Lak but in a small area only.

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







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
05/28/2024	535.28	1.64	9.22	5.46	2.72	2.05	2.80	1.55	3.20	1.92	0.30	2.56	1.54	3.23	8.23	3.18	2.10	0.96	2.12	1.40	1.22	-0.37	-0.26
05/29/2024	535.27	1.65	9.18	5.49	2.90	2.35	2.87	1.67	3.15	1.90	0.31	2.55	1.53	3.22	8.40	3.20	2.11	0.98	1.90	1.40	1.22	-0.36	-0.25
05/30/2024	535.24	1.68	9.00	5.30	2.81	2.45	2.85	1.88	3.22	1.88	0.30	2.48	1.54	3.09	8.39	3.20	2.03	0.98	1.82	1.39	1.17	-0.33	-0.20
05/31/2024	535.25	1.65	8.88	4.91	2.73	2.34	2.90	2.15	3.42	2.22	0.40	2.87	1.68	3.08	8.23	3.18	2.02	0.96	2.02	1.42	1.07	-0.28	-0.12
06/01/2024	535.38	1.61	8.72	4.79	2.76	2.12	2.96	2.45	3.60	2.52	0.88	2.83	1.80	3.06	8.37	3.06	2.00	0.94	2.16	1.58	1.08	-0.14	0.04
06/02/2024	535.25	1.71	8.60	4.55	2.43	2.02	3.01	2.57	3.78	2.74	1.22	2.92	1.96	3.25	8.35	2.96	2.02	0.97	2.25	1.70	1.07	0.23	0.40
06/03/2024	535.25	1.86	8.56	4.50	2.28	1.88	2.93	2.57	3.78	2.83	1.31	3.21	2.12	3.23	8.50	3.18	1.91	0.90	2.10	1.84	1.04	0.74	0.92

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
05/28/2024	8.5	0	0	0	0	0	0	0.1	3.6	0	0	0	0	3	0	30	17.2		14.4	0	9.3	0	10
05/29/2024	0.5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0		0	0	0	0.4	0
05/30/2024	7	11.5	0	0	0.7	0	0	3	0	0	0	0	0	1.5	10.7	0	0.4		0	0	8.2	0	19
05/31/2024	0	0	0	0	0	0	0.2	98.5	80.6	0	6.3	126.4	0	0	12.3	25	0		9	3.9	30.3	0	0.4
06/01/2024	37.5	26.8	17.2	0	0	0	20	33.8	49	9.1	7.2	4.5	0	4.5	1.3	3.5	3.3		13	3.3	28.2	0	0
06/02/2024	27	28.3	0	0.9	12	13.8	64.3	32.4	32	21.6	50.4	29.5	16	20	0	1.5	0		0	0	0	0	0
06/03/2024	2.5	3	0	2.9	11.9	6.6	45	0.7	0.8	0	0	25.2	1.2	0	0	0	0		0	0	0	0	0
Sum	83.0	69.6	17.2	0.0	24.6	0.0	0.0	168.5	166.0	30.7	63.9	185.6	17.2	30.0	24.3	60.0	20.9		36.4	7.2	76.0	0.4	29.4



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