Mekong River Commission

Weekly Dry Season Situation Report in the Lower Mekong River Basin

03 - 09 December 2024

Prepared by
The Regional Flood and Drought Management Centre
10 December 2024

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Key Messages

Key messages for this weekly report are presented below.

Rainfall monitoring and forecast

- In the period of 03 - 09 December 2024, there has been light to moderate rainfall has been observed over the LMB.
- During 10 - 16 December 2024, the accumulated rainfall over the entire Lower Mekong Basin is distributed with light to moderate rain particularly during 12 – 16 December.

Water level monitoring and forecast

- At 22 key monitoring stations along the Mekong mainstream from 03 – 09 December 2024, water levels are below the long-term averages (LTAs) except for water level at Luang Prabang station. However, the 6 monitoring stations remain in normal condition with respect to the flow threshold (PMFM Thresholds). 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 10 – 16 December 2024, the water levels at the upper stretch (Chiang Saen to Nongkhai) of the mainstream are expected to be decreasing, while from Paksane to Savannakhet station, they are forecasted to be increasing. However, from Khong Chiam downward, it is expected to drop. 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 03 - 09 December 2024, the LMB is experiencing normal conditions, except for some areas in the Mekong Delta, Cambodia, and the 3S Basin. The monitored drought is caused primarily by meteorological indicator.
  During 10 - 16 December 2024, the LMB is likely at normal conditions, except some areas in the upper and central part of Lao PRD, and Cambodia.
- The next three-month from January to March 2025, the forecast indicates that no significant drought conditions are expected across the entire LMB in January. However, in February the Cambodia is anticipated to experience moderate to severe drought conditions. And in March, the northeastern part of Thailand is expected to have moderate to extremely drought conditions.

1 Introduction

This Weekly Dry Season Situation Report presents a preliminary analysis of the weekly hydrological situation in the Lower Mekong River Basin (LMB) for **03 - 09 December 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 weak high-pressure system affected the upper and the central part of the Lower Mekong Basin. Light to moderate rain is expected over the region during this period

Figure 1 presents mean sea level pressure over the region. It is forecasted that the Lower Mekong Basin will be influenced by the rather strong high-pressure system from 10 - 16 December. Therefore, in the upcoming seven days, over the Lower Mekong Basin are expected to experience light to moderate rainfall particularly during 12 – 16 December.

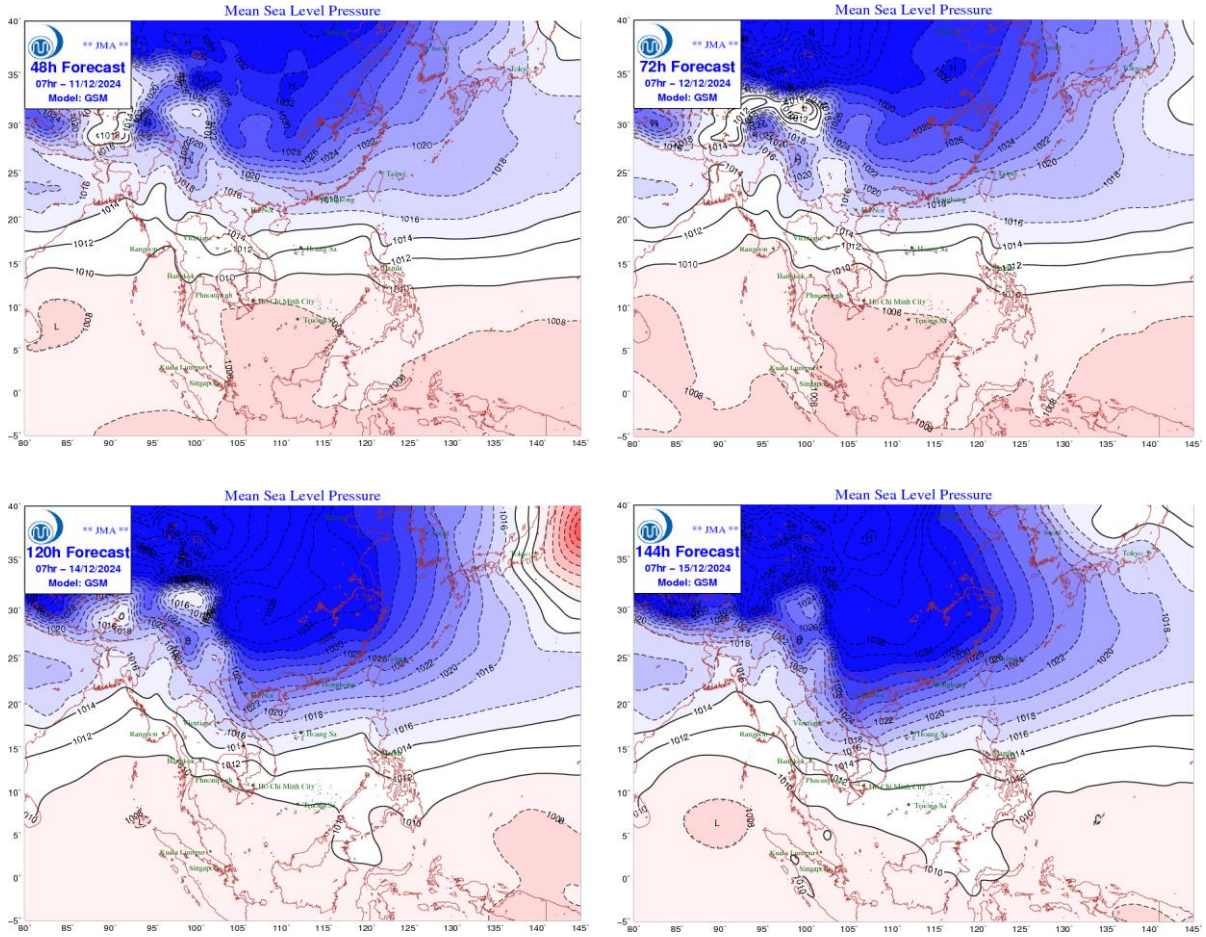


Figure 1: Weather conditions over the LMB

According to the ASEAN Specialised Meteorological Centre (ASMC, http://asmc.asean.org/home/), the subseasonal weather outlook (25 November – 08 December 2024) indicates that the LMB is not neither in wetter nor dry conditions. Moreover, the warmer conditions are predicted to occur at the downstream part of LMB, particularly the southwestern Cambodia and the Mekong Delta. **Figure 2** shows the outlook of weather condition from 25 November to 02 December 2024 in Southeast Asia based on results from the NCEP model (National Centres for Environmental Prediction).

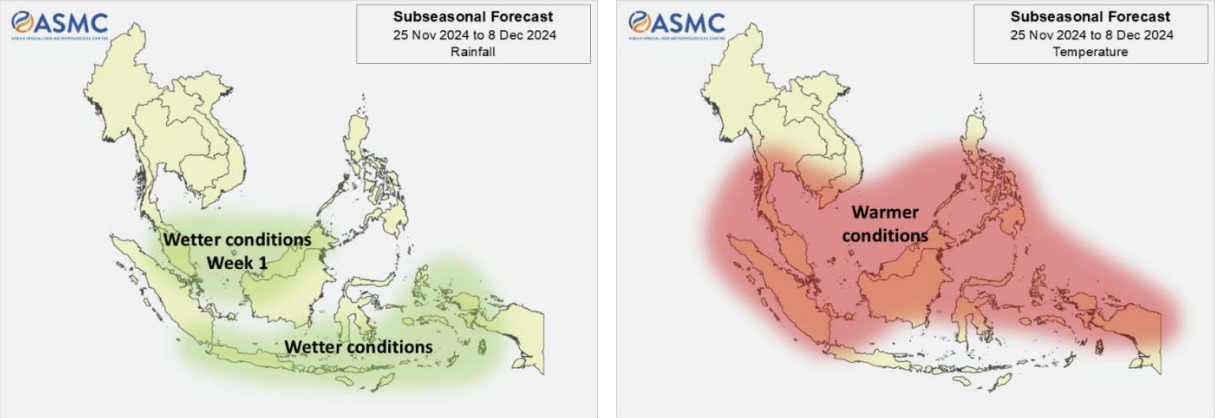


Figure 2: Outlook of wet and dry conditions over the Asian countries by ASMC.

Based on the tropical storm risk (TS) (https://www.jma.go.jp/jma/jma-eng/jma-center/rsmc-hp-pub-eg/RSMC_HP.htm), there is no NW pacific system as of 09 December 2024 as displayed in **Figure 3.**

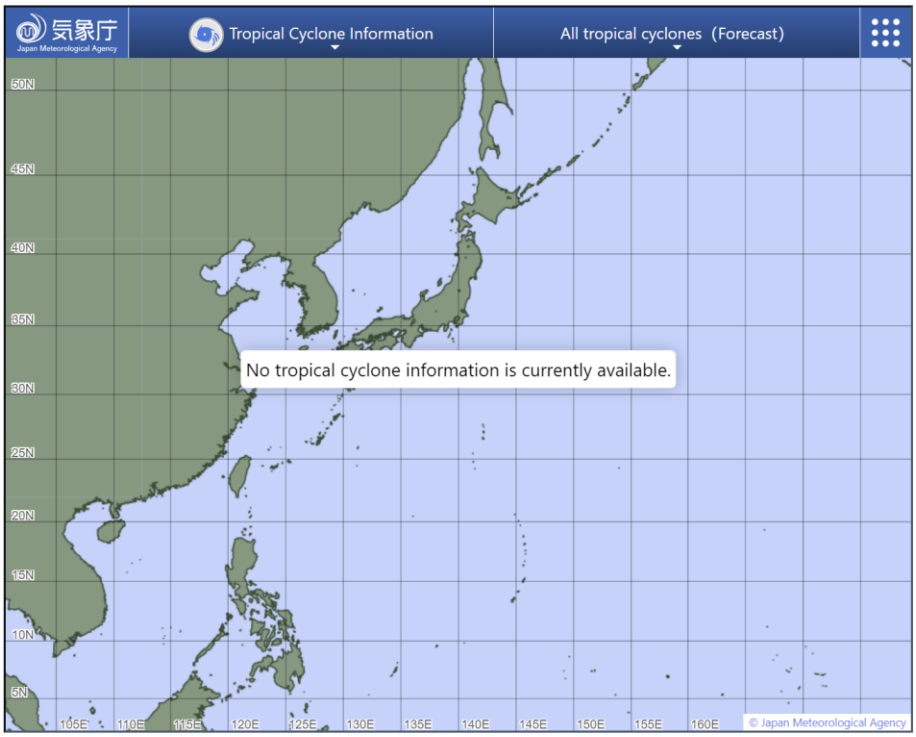


Figure 3: One tropical storm risk observed on 09 December 2024

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 03 - 09 December 2024 (**Figure 4**). The light to moderate rainfall has been only observed over the LMB.

Figure 4: Weekly rainfall distribution over the LMB during 03 – 09 Dec 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 03 – 09 December 2024, the observed water level (WL) at Jinghong hydrological station[1], was almost constant and ranges between 535.23 m and 535.83 m, which are corresponding to the outflow between 829.00 m^3/s to 1,240.00 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 2.43 m to 3.24 m. At the same period, the water level in Luang Prabang station also slightly is stable compared to the previous week. In addition, the water level at Chiang Khan station has been decreasing from 5.32 m to 5.16 m.

During the same period, the water levels observed at upper parts of the basin from Vientiane to Savannakhet stations have been slightly decreasing. At Vientiane, Nong Khai, Paksane, Nakhon Phanom, Thakhek, Mukdahan, and Savannakhet, the water levels have slightly increased from3.03 m to 2.88 m, 2.42 m to 2.03 m, 3.40 m to 3.08 m, 2.49 m to 2.06 m, 3.74 m to 3.26 m, 2.80 m to 2.27 m, and 1.16 m to 0.75 m, respectively. However, water levels at Khong Chiam and Pakse stations have dropped from 3.34 m to 2.67 m, and 2.18 m to 1.66 m, , respectively. Moving down to the floodplain area at Stung Treng, Kratie, Kampong Cham, Phnom Penh (Bassac), Phnom Penh Port, Koh Khel, and Prek Kdam, water levels have also decreased from 3.39 m to 3.09 m, 9.86 m to 8.39 m, 4.45 m to 3.88 m, 3.67 m to 3.35 m, 2.72 m to 2.42 m, 3.56 m to 3.23 m, 2.70 m to 2.70 m, and 3.88 m to 3.35 m, respectively.

Similar to the previous week, the water levels from 03 to 09 December 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 between1.74 m and 1.20 m, while at the Chau Doc station, they ranged from 1.88 m and 1.24 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.

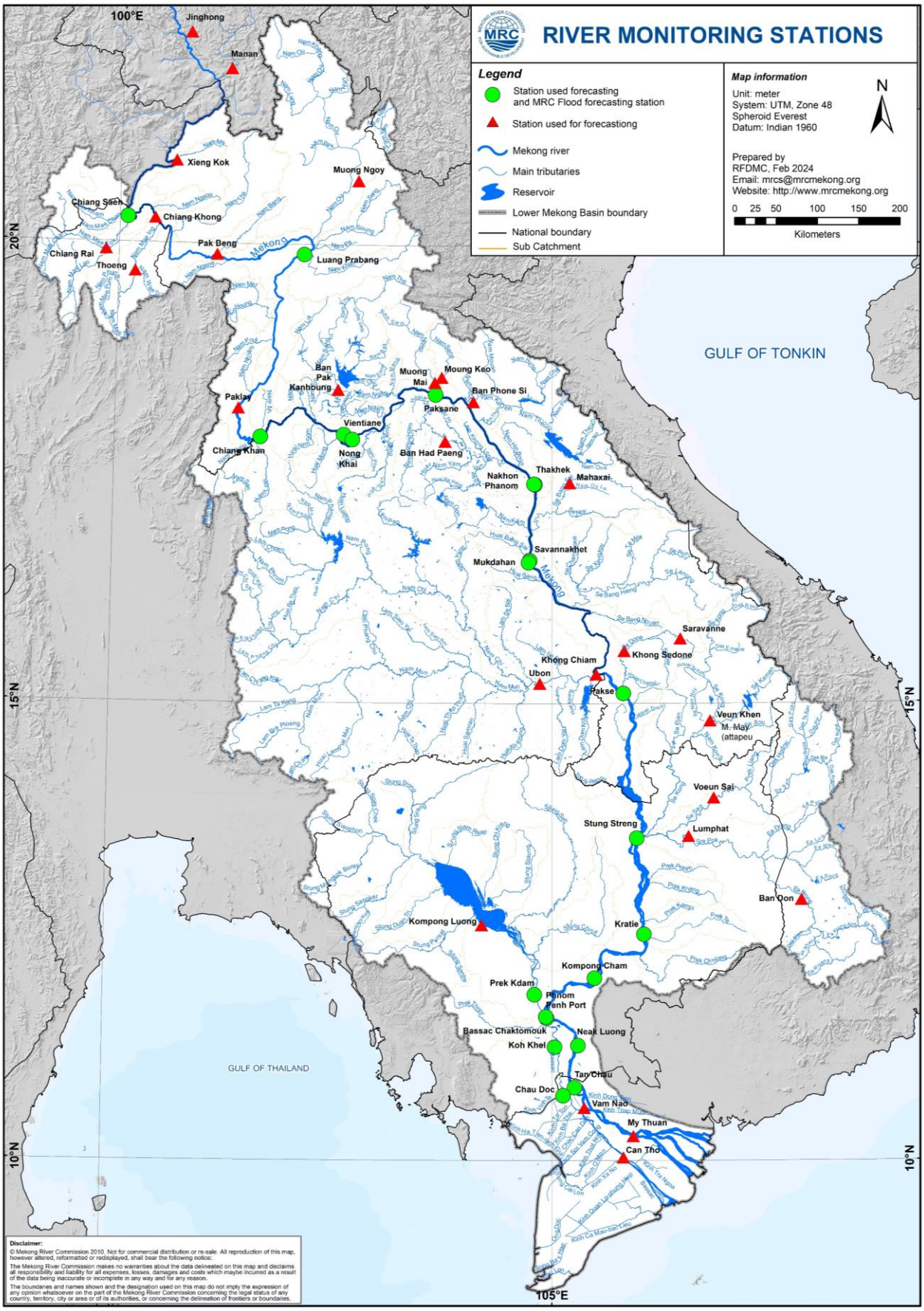


Figure 5: The key stations along LMB for river flood forecasting

The water levels in key monitoring stations on 09 December 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**.

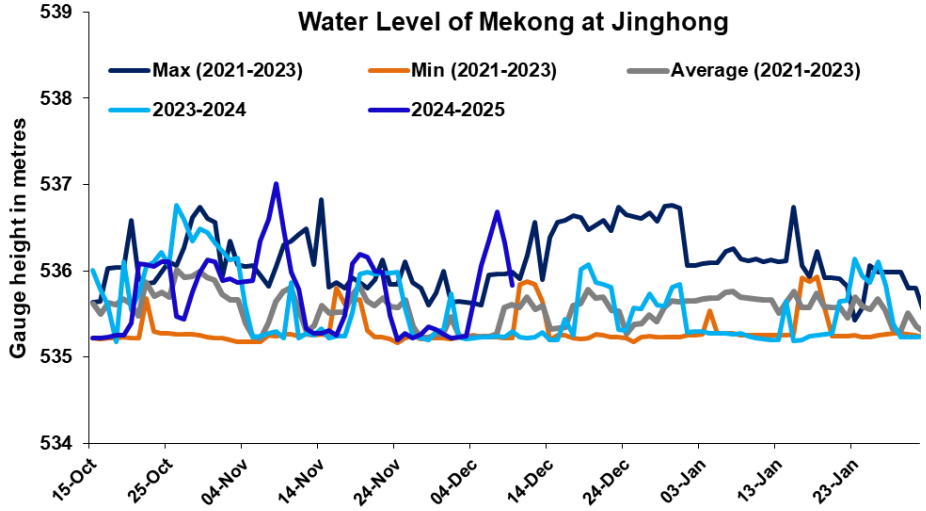


Figure 6. Water level at the Jinghong hydrological station up to 09 December 2024.

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 09 October 2024.

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 09 December 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 02 December 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 1**. The mean monthly water volume of the Tonle Sap Lake in November

2024 is lower than its LTA (about 82.29 %), 2022 and 2023 but higher than that in 2019, 2020, and 2021 during the same period **(Figure 8 and Table 1)**.

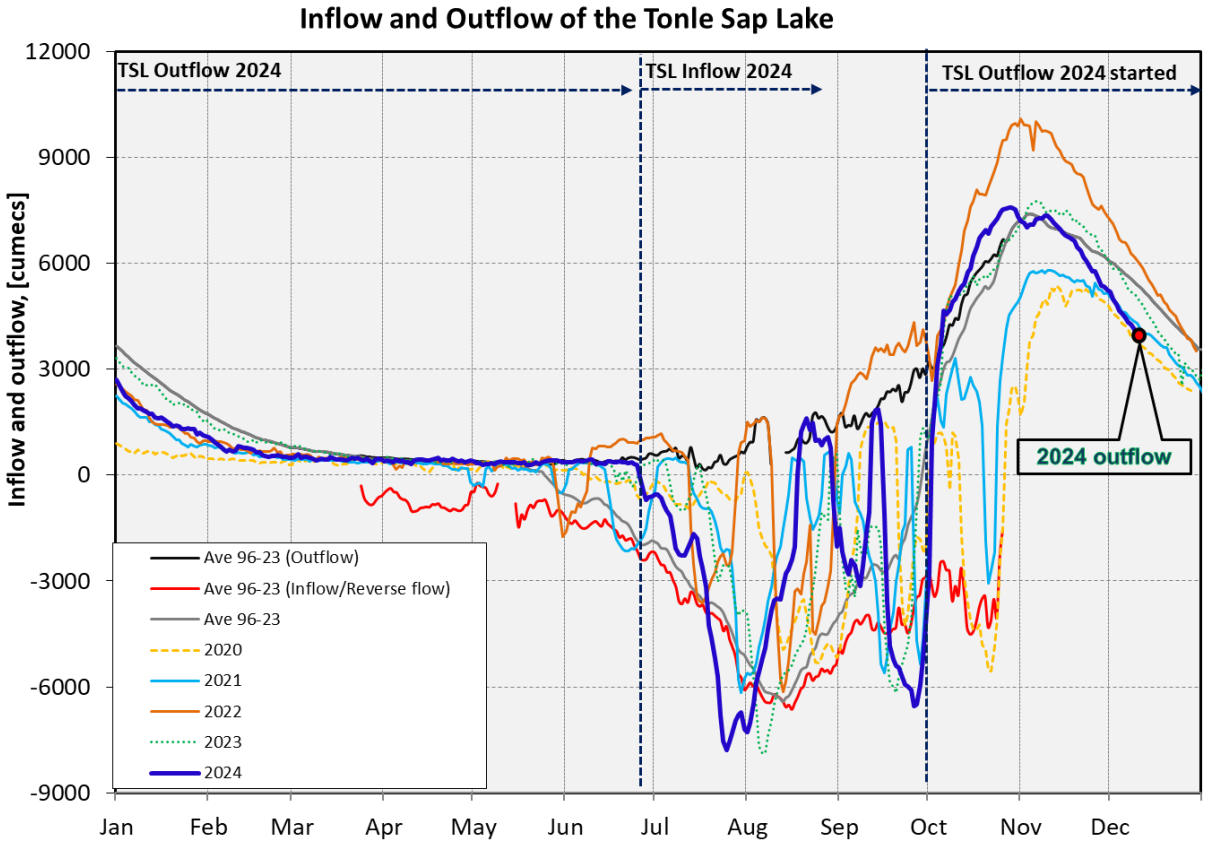


Figure 7: Seasonal change of inflows and outflows of Tonle Sap Lake.

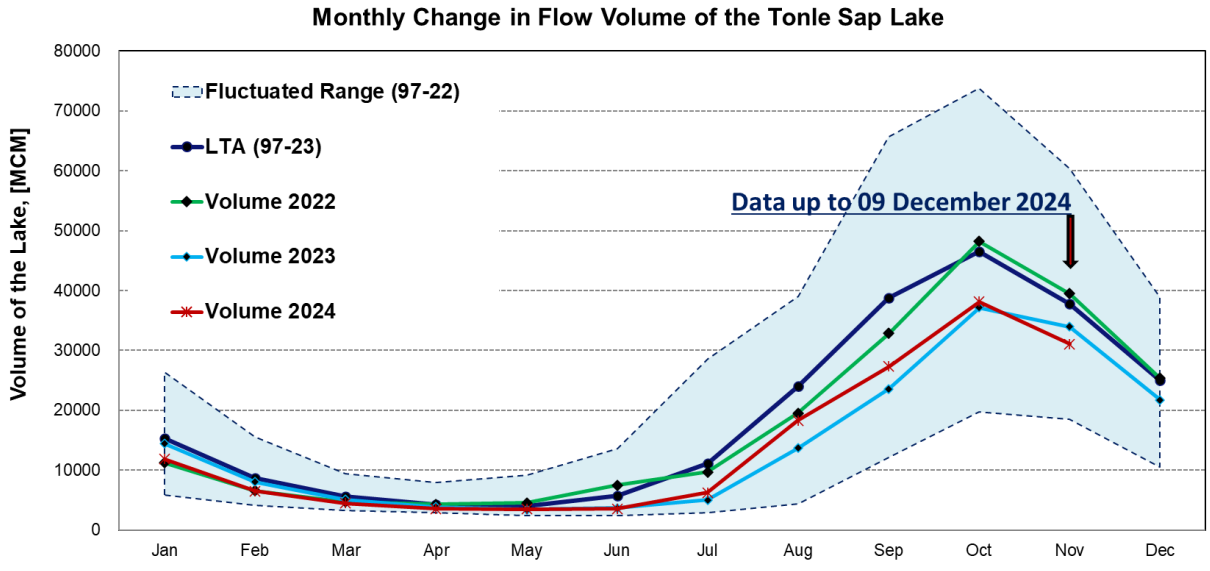


Figure 8. The seasonal change in monthly flow volume of Tonle Sap Lake.

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	3586.07	62.92
Jul	11188.79	28599.56	2925.86	4001.99	2925.86	5346.73	9703.79	5062.21	6247.29	55.84
Aug	24070.98	39015.12	4433.46	7622.71	5941.07	10547.80	19554.70	13694.57	18304.81	76.05
Sep	38787.47	65632.35	12105.31	24194.19	12105.31	16382.34	32860.34	23550.60	27310.26	70.41
Oct	46562.09	73757.23	19705.50	30358.38	20799.13	27318.21	48199.12	37141.40	38139.87	81.91
Nov	37739.30	60367.33	18534.61	19112.65	27546.80	28982.93	39452.53	33929.52	31056.48	82.29
Dec	25009.52	38888.95	10563.49	10577.29	18251.65	20170.76	25346.65	21757.70	22782.21	91.09
	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 09 December 2024.

4. Flash Flood in the Lower Mekong Basin

During the weekly monitoring period from 03 - 09 December, the LMB received light to moderate rain in some areas.

According to the MRC-Flash Flood Guidance System (MRC-FFGS) and analysis, flash flood events were not detected during the reporting period over the LMB.

5. Drought Monitoring in the Lower Mekong Basin

5.2. Weekly drought monitoring from 03 - 09 December 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 03 - 09 December 2024, as shown in **Figure 9**, the LMB was facing normal conditions, except for some areas in the Mekong Delta, Cambodia, and the 3S Basin.

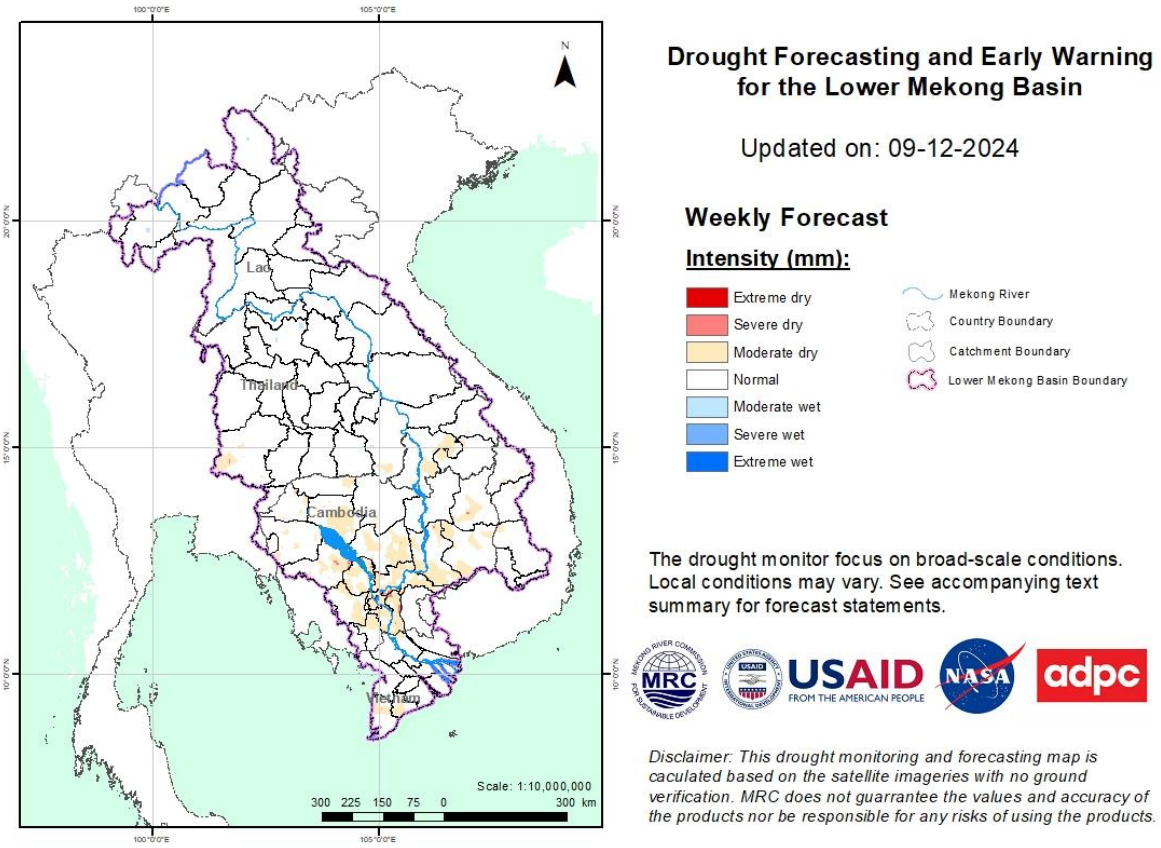


Figure 9: Weekly standardized precipitation index from 03 - 09 December.

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

Soil moisture conditions from 03 - 09 December 2024, as displayed in **Figure 10**, the LMB was facing a moderate to severe condition over the region.

Note: The index of soil water fraction presents the current soil water fraction conditions compared with normal month; therefore, it normally shows extremely dry during dry season which is completely different from SPI that is standardized to its specific month of the years. However, this does not mean that the areas are threatened by agricultural drought as generally during transition period of wet and dry seasons and dry season only the irrigated areas are used for agricultural plantation.

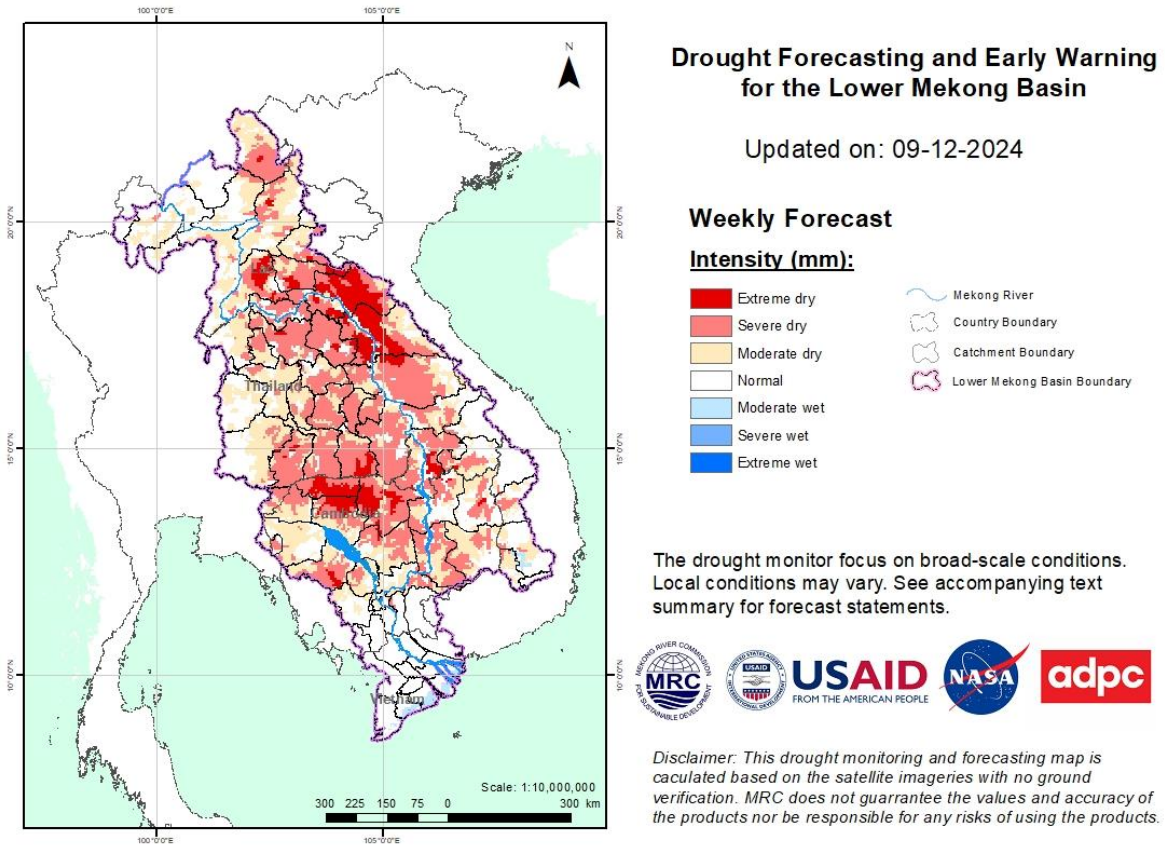


Figure 10: Weekly Index of Soil Water Fraction from 03 - 09 December.

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

The combined drought indicator, **Figure 11**, shows that the central and lower part of the LMB experienced moderate to severe drought. However, some areas in Cambodia (Otdar Meanchey, Preah Vihear), Lao PDR (Borikhamxai, Khammouan, and Champasack) experienced extreme drought.

The impacted areas are listed below:

Number	Country	Province	Mderate	Severe	Extreme	Exceptional	Number	Country	Province	Mderate	Severe	Extreme	Exceptional	Number	Country	Province	Mderate	Severe	Extreme	Exceptional
1	Cambodia	Battamabang					24	Lao PDR	Oudomxai					47	Thailand	Udon Thani				
2	Cambodia	Banteay Meanchey					25	Lao PDR	Loungprabang					48	Thailand	Sakon Nakhon				
3	Cambodia	Kampong Cham		S			26	Lao PDR	Xayaburi					49	Thailand	Bueng Kan				
4	Cambodia	Pursat		S			27	Lao PDR	Xiengkhouang					50	Thailand	Nakhon Phanom		S		
5	Cambodia	Kampong Chhnang		S			28	Lao PDR	Vientiane		S			51	Thailand	Kalasin				
6	Cambodia	Otdar Meanchey		S	S		29	Lao PDR	Vientiane Capital					52	Thailand	Mukdahan				
7	Cambodia	Preah Vihear		S	S		30	Lao PDR	Xaisomboun		S			53	Thailand	Roi Et				
8	Cambodia	Kampong Thom		S			31	Lao PDR	Borikhamxai		S	S		54	Thailand	Yasothon				
9	Cambodia	Kratie		S			32	Lao PDR	Khammouan		S			55	Thailand	Amnat Charoen				
10	Cambodia	Mondulkiri		S			33	Lao PDR	Savanakhet					56	Thailand	Ubon Ratchathani		S		
11	Cambodia	Ratanakiri					34	Lao PDR	Salavan					57	Thailand	Si Sa Ket		S		
12	Cambodia	Tbong Khmum					35	Lao PDR	Xekong					58	Thailand	Surin				
13	Cambodia	Prey Veng		S			36	Lao PDR	Attapu		S			59	Thailand	Buri Ram				
14	Cambodia	Kampot					37	Lao PDR	Champasack		S			60	Thailand	Nakhon Ratchasima		S		
15	Cambodia	Takeo					38	Thailand	Chiang Mai					61	Viet Nam	Kon Tum				
16	Cambodia	Svai Rieng		S			39	Thailand	Chiang Rai					62	Viet Nam	Gia Lai				
17	Cambodia	Stung Treng		S			40	Thailand	Payao					63	Viet Nam	Dak Nong				
18	Cambodia	Kampong Speu					41	Thailand	Loei					64	Viet Nam	Dak Lak		S		
19	Cambodia	Kandal					42	Thailand	Nong Bua Lam Phu					65	Viet Nam	Dong Thap				
20	Cambodia	Siem Reap		S	S		43	Thailand	Khon Kaen					66	Viet Nam	Tien Giang				
21	Lao PDR	Bokeo					44	Thailand	Nong Khai		S			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						Moderate		Severe			
															Extreme		Exceptional			

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

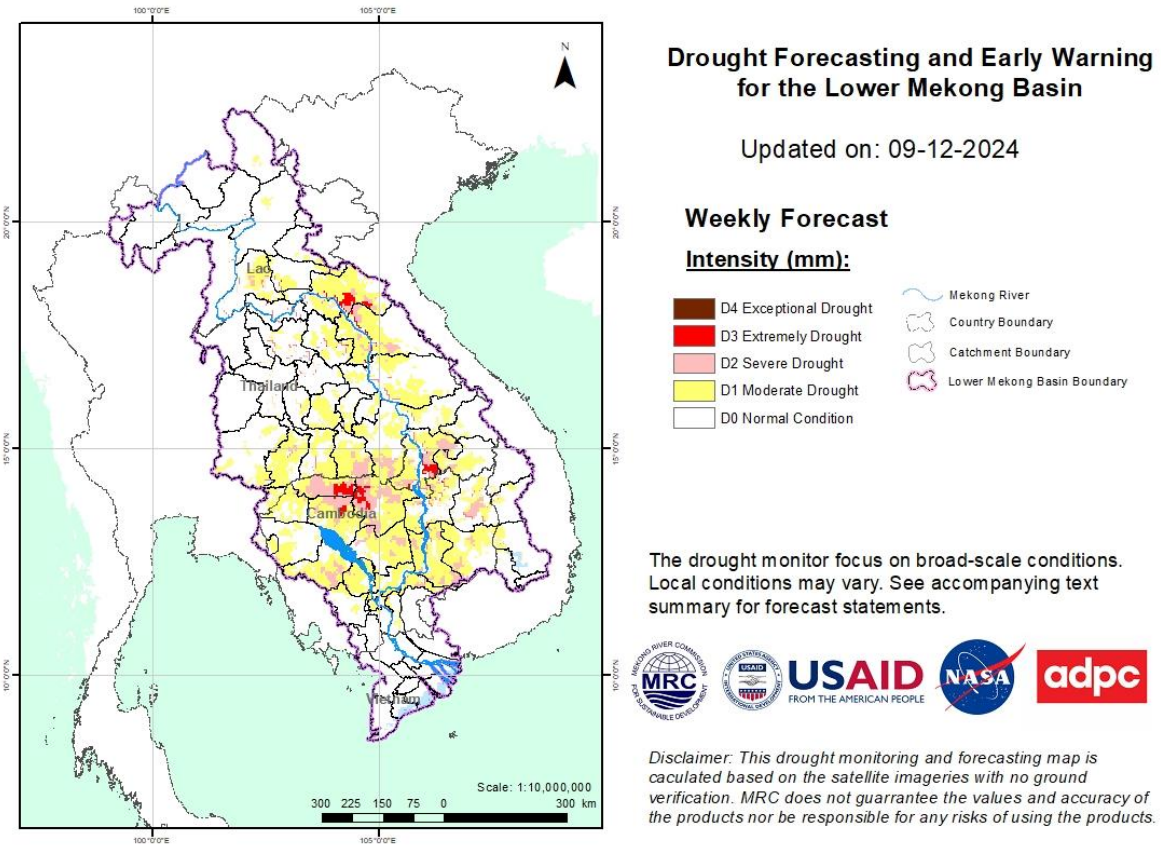


Figure 11: Weekly Combined Drought Index from 03 - 09 December.

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 10 - 16 December 2024, the accumulated rainfall over the entire Lower Mekong Basin is distributed with light to moderate rain based on CHIRPS-GFS (**Figure 12**).

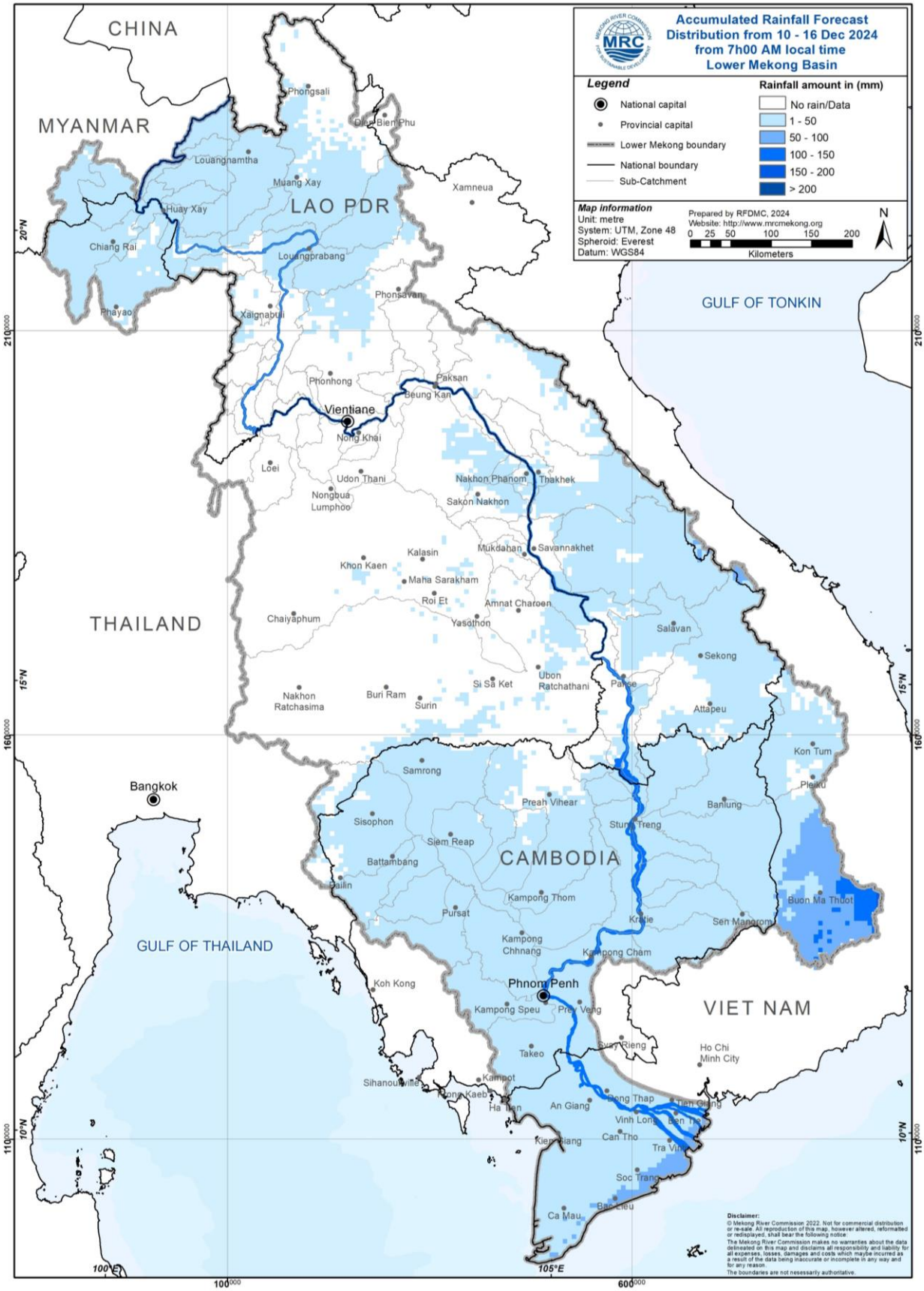


Figure 12: Accumulated rainfall forecast from CHIRP-GFS (10 – 16 December 2024)

6.2 Water level forecast

In Chiang Saen monitoring station, the water level is expected to be fluctuated over the forecasting period of 10 - 16 December 2024. However, it will slightly increase from 3.24 m to 2.34 m. The water level in Luang Prabang stations affected by backwater is likely slightly decreasing from 9.58 m to 9.38 m.

Along the Mekong mainstream, the water levels at upper stations are expected to be also decreasing including Chiang Khan, Vientiane and Nongkhai stations with values of -0.05 m, -0.20 m, -0.22 m, respectively. From Paksane to Savannakhet station, water levels are expected to rise. At Paksane, Nakhon Phanom, Thakhek, Mukdahan, and Savannakhet, the water levels are likely dropping approximately 0.13 m, 0.10 m, 0.10 m, 0.10 m, and 0.10 m, respectively.

Moving down at Khong Chiam, Pakse, Stung Streng, Kratie, Kompong Cham, Phnom Penh Port, Phnom Penh (Bassac), Phnom Penh Port, Koh Khel, Neak Luong, and Prek Kdam stations, water levels will slightly drop of approximately -0.29 m, -0.22 m, -0.19 m, -0.50 m, 0.59 m, -0.50 m, -0.51, -0.38 m, -0.34 m, and -0.49 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 1.20 m and 1.27 m and 1.24 m to 1.28 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 10 to 16 December 2024.

The weekly River Monitoring Bulletin and forecasting issued on 09 December 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

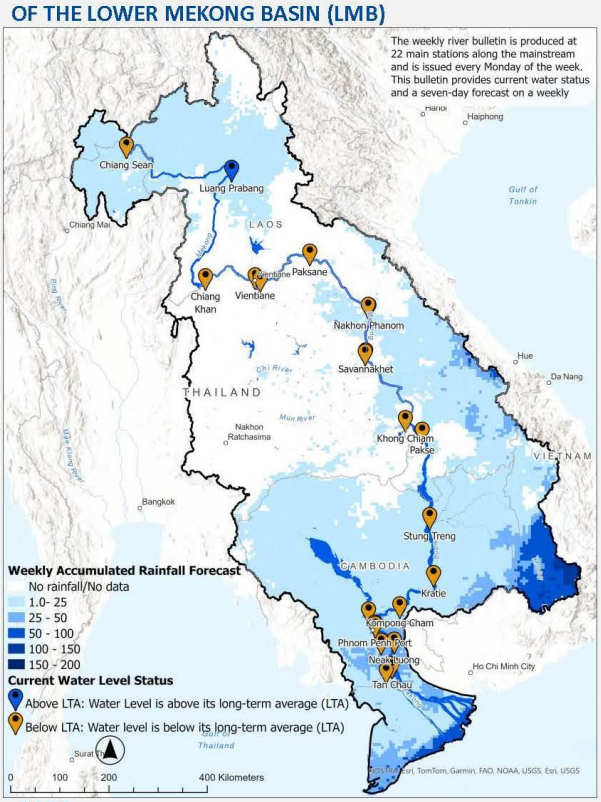
Table 2. Weekly River Monitoring Bulletin.

MEKONG RIVER MONITORING AND FORECASTING BULLETIN

Monitoring on 09 December 2024 and weekly forecasting from 10 to 16 December 2024

Highlights: *Today's water levels at most of stations are below their LTA except for Chiang Saen and Luang Prabang Stations. The water levels from Paksane to Savannakhet station are expected to be increasing, while decreasing from Khong Chiam downward.*

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



CURRENT WATER LEVEL STATUS

Monitoring Station	Rainfall (mm)	Zero gauge amsl (m)	Water level against zero gauge (m)		Current Status	Flow Threshold (PMFM*6A)
	08-Dec		08-Dec	09-Dec		
Jinghong	0.0	-	536.32	535.83		
Chiang Saen	0.0	357.110	3.04	3.24	Above LTA	Normal
Luang Prabang**	0.0	267.195	9.56	9.58	Above LTA	-
Chiang Khan	0.0	194.118	5.17	5.16	Below LTA	-
Vientiane	0.0	158.040	2.96	2.88	Below LTA	Normal
Nongkhai	0.0	153.648	2.10	2.03	Below LTA	-
Paksane	0.0	142.125	3.14	3.08	Below LTA	-
Nakhon Phanom	0.0	130.961	1.97	2.06	Below LTA	-
Thakhek	0.0	129.629	3.24	3.26	Below LTA	-
Mukdahan	0.0	124.219	2.25	2.27	Below LTA	-
Savannakhet	0.0	125.410	0.74	0.75	Below LTA	-
Khong Chiam	0.0	89.030	2.76	2.67	Below LTA	Normal
Pakse	0.0	86.490	1.74	1.66	Below LTA	Normal
Stung Treng	0.0	36.790	3.14	3.09	Below LTA	Normal
Kratie	0.0	-1.080	8.52	8.39	Below LTA	Normal
Kompong Cham	0.0	-0.930	4.00	3.88	Below LTA	-
Phnom Penh (Bassac)	0.0	-1.020	3.43	3.35	Below LTA	-
Phnom Penh Port	nr	0.000	2.46	2.42	Below LTA	-
Koh Khel	0.0	-1.000	3.26	3.23	Below LTA	-
Neak Luong	0.0	-0.330	2.62	2.70	Below LTA	-
Prek Kdam	0.0	0.080	3.46	3.35	Below LTA	-
Tan Chau	0.0	0.000	1.18	1.20	Below LTA	-
Chau Doc	nr	0.000	1.23	1.24	Below LTA	-

** Procedures for Maintenance of Flows on the Mainstream*

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

WEEKLY WATER LEVEL FORECAST

Forecasting Station	Forecasted Water Levels (m)							Status	Trend
	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec	15-Dec	16-Dec		
Jinghong	-	-	-	-	-	-	-	-	-
Chiang Saen	3.29	3.05	2.68	2.33	2.15	2.17	2.34	Below LTA	Decreasing
Luang Prabang	9.62	9.69	9.68	9.56	9.45	9.40	9.38	Above LTA	Decreasing
Chiang Khan	5.30	5.43	5.56	5.71	5.61	5.38	5.21	Below LTA	Decreasing
Vientiane	2.72	2.73	2.77	2.86	2.95	2.85	2.68	Below LTA	Decreasing
Nongkhai	1.88	1.87	1.93	2.01	2.13	2.00	1.81	Below LTA	Decreasing
Paksane	3.12	3.04	3.07	3.14	3.24	3.37	3.21	Below LTA	Increasing
Nakhon Phanom	2.06	2.07	2.03	2.05	2.08	2.13	2.16	Below LTA	Increasing
Thakhek	3.24	3.26	3.22	3.24	3.27	3.33	3.36	Below LTA	Increasing
Mukdahan	2.26	2.26	2.24	2.23	2.26	2.30	2.37	Below LTA	Increasing
Savannakhet	0.76	0.78	0.75	0.74	0.76	0.80	0.85	Below LTA	Increasing
Khong Chiam	2.49	2.38	2.36	2.32	2.32	2.34	2.38	Below LTA	Decreasing
Pakse	1.57	1.45	1.44	1.41	1.39	1.41	1.44	Below LTA	Decreasing
Stung Treng	3.04	2.99	2.94	2.93	2.91	2.90	2.90	Below LTA	Decreasing
Kratie	8.29	8.20	8.12	8.03	7.98	7.93	7.89	Below LTA	Decreasing
Kompong Cham	3.76	3.66	3.57	3.48	3.40	3.34	3.29	Below LTA	Decreasing
Phnom Penh (Bassac)	3.26	3.18	3.11	3.04	2.97	2.91	2.85	Below LTA	Decreasing
Phnom Penh Port	2.32	2.24	2.17	2.10	2.03	1.97	1.91	Below LTA	Decreasing
Koh Khel	3.17	3.11	3.05	3.00	2.95	2.90	2.85	Below LTA	Decreasing
Neak Luong	2.62	2.57	2.52	2.48	2.44	2.40	2.36	Below LTA	Decreasing
Prek Kdam	3.28	3.20	3.13	3.06	2.99	2.92	2.86	Below LTA	Decreasing
Tan Chau	1.20	1.24	1.28	1.32	1.32	1.30	1.27	Below LTA	-
Chau Doc	1.27	1.33	1.36	1.38	1.37	1.34	1.28	Below LTA	-

NOTES

- In the next 7 days, particularly during 12-16 December, light to moderate rain is likely to occur in some areas in the lower parts of the Lower Mekong Basin (LMB) including some parts of the 3S Basin and the Mekong Delta.
- Today's water level at all stations except for Luang Prabang station is below their long-term averages (LTAs).
- Water levels at central stations (Paksane to Savannakhet) along the Mekong mainstream are forecasted to be **slightly increasing**, while decreasing from Khong Chiam station downward. The 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 LTAs except for Luang Prabang station.

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E: floodforecast@mrcmekong.org | T: +855 23 425 353

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

Flash flood events are not likely to happen in the LMB next week. However, local heavy rain in a short period of time might still be possible with unexpected short flash floods. During the dry season if extreme weather occurs, the information on flash flood guidance for the next one, three, and six hours is updated at http://ffw.mrcmekong.org/ffg.php.

Further detailed information on Flash Flood Information Warning, 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) for the seasonal outlook of rainfall.

Figure 13 below shows the monthly forecasts of combined drought indicator from January to March 2025 over the LMB area.

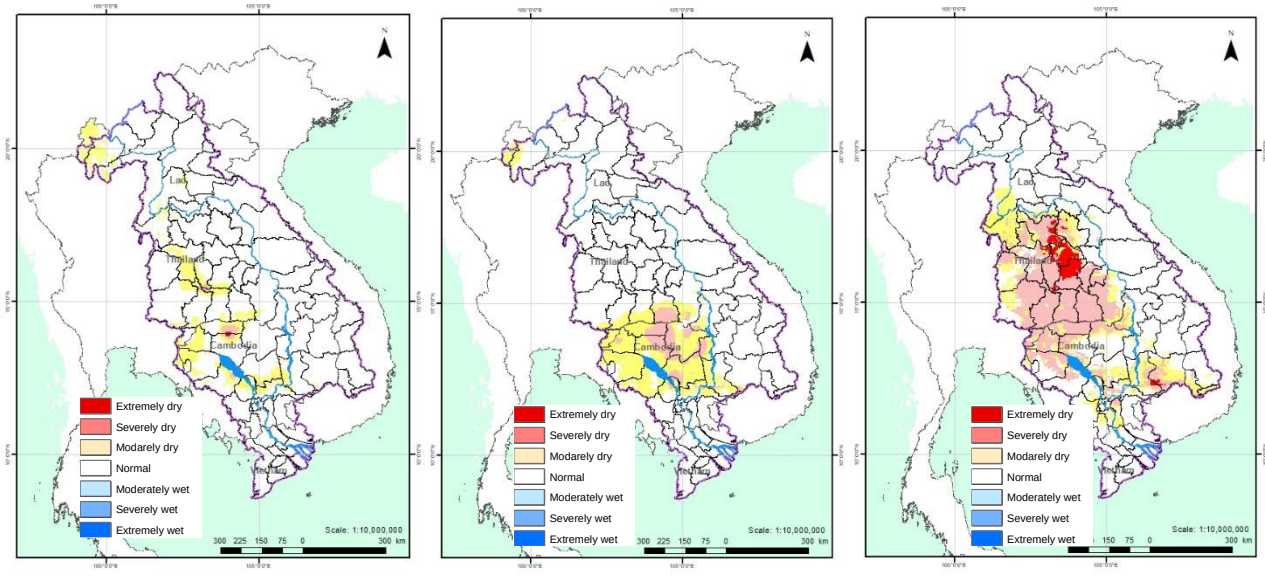


Figure 13. Monthly forecasts of combined drought indicator for a) January, b) February and c) March 2025.

Figure 13 illustrates the monthly drought forecast for the upcoming three months using the Combined Drought Indicator (CDI). The forecast indicates that no significant drought conditions are expected across the entire LMB in January. However, in February the Cambodia is anticipated to experience moderate to severe drought conditions. And in March, the northeastern part of Thailand is expected to have moderate to extremely drought conditions.

7 Summary and Possible Implications

7.1. Rainfall and its forecast

In the period of 03 - 09 December 2024, there has been light to moderate rainfall has been observed over the LMB.

During 10 – 16 December 2024, the accumulated rainfall over the entire Lower Mekong Basin is distributed with light to moderate rain particularly during 12 – 16 December.

7.2. Water level and its forecast

At 22 key monitoring stations along the Mekong mainstream from 03 – 09 December 2024, water levels are below the long-term averages (LTAs) except for water level at Luang Prabang station. However, the 6 monitoring stations remain in normal condition with respect to the flow threshold (PMFM Thresholds). 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 10 – 16 December 2024, the water levels at the upper stretch (Chiang Saen to Nongkhai) of the mainstream are expected to be decreasing, while from Paksane to Savannakhet station, they are forecasted to be increasing. However, from Khong Chiam downward, it is expected to drop. 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 section 6.1, major flash floods are not likely to happen in the LMB.

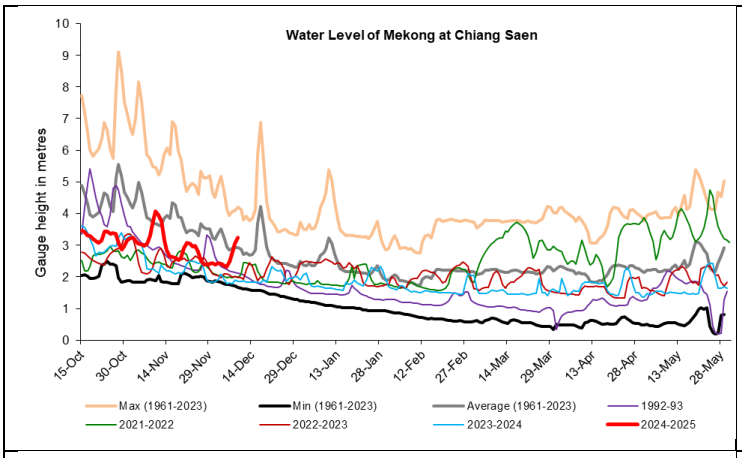
7.4. Drought condition and its forecast

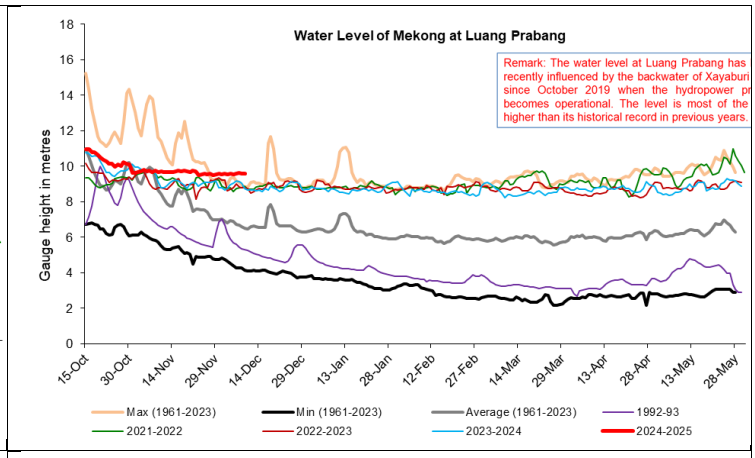
During 03 - 09 December 2024, the LMB is experiencing normal conditions, except for some areas in the Mekong Delta, Cambodia, and the 3S Basin. The monitored drought is caused primarily by meteorological indicator.

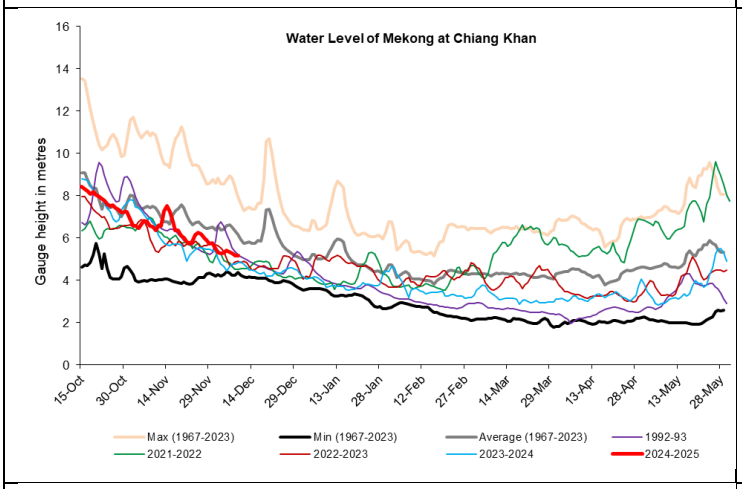
During 10 – 16 December 2024, the LMB is likely at normal conditions, except some areas in the upper and central part of Lao PDR, and Cambodia.

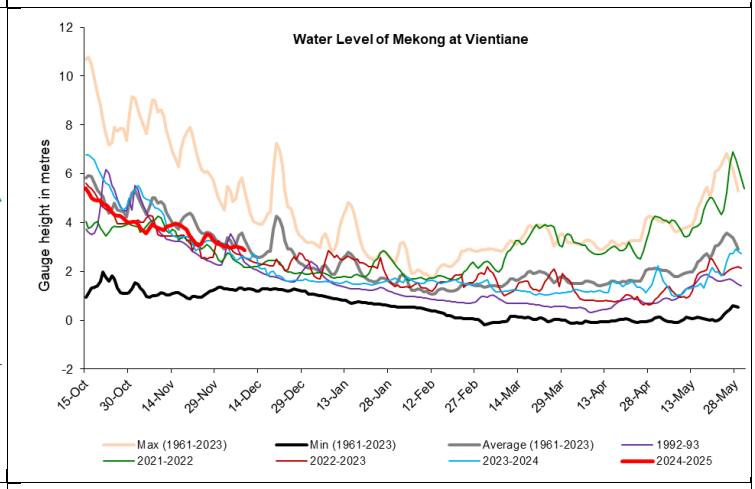
Int he next three-month from January to March 2025, the forecast indicates that no significant drought conditions are expected across the entire LMB in January. However, in February the Cambodia is anticipated to experience moderate to severe drought conditions. And in March, the northeastern part of Thailand is expected to have moderate to extremely drought conditions.

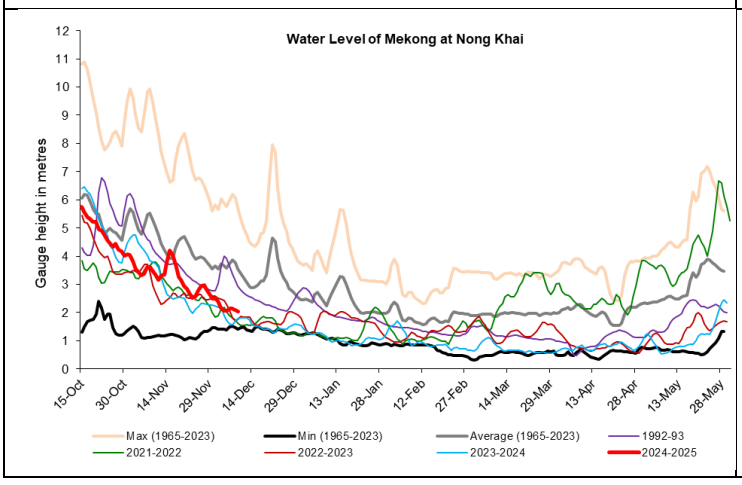
Annex A: Weekly water level monitoring at 22 key stations

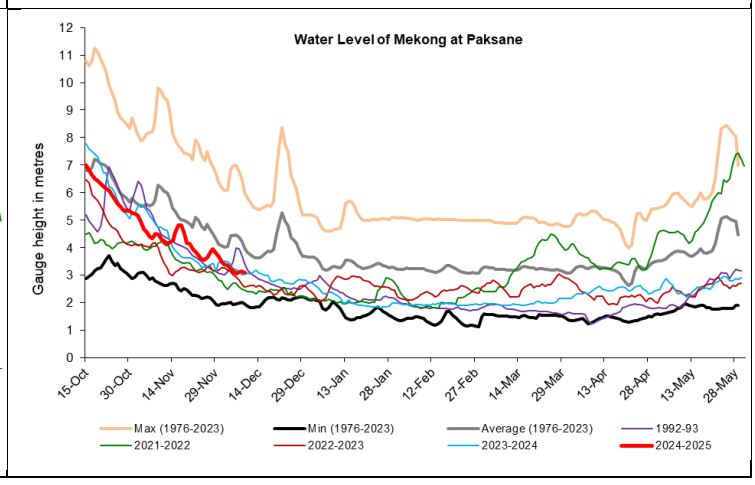


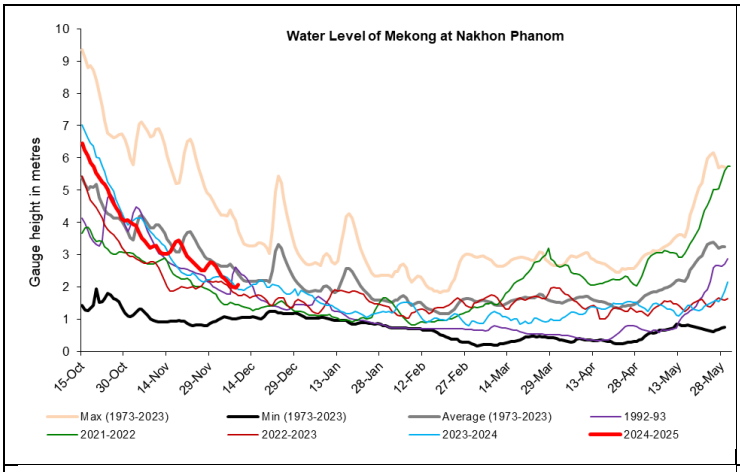


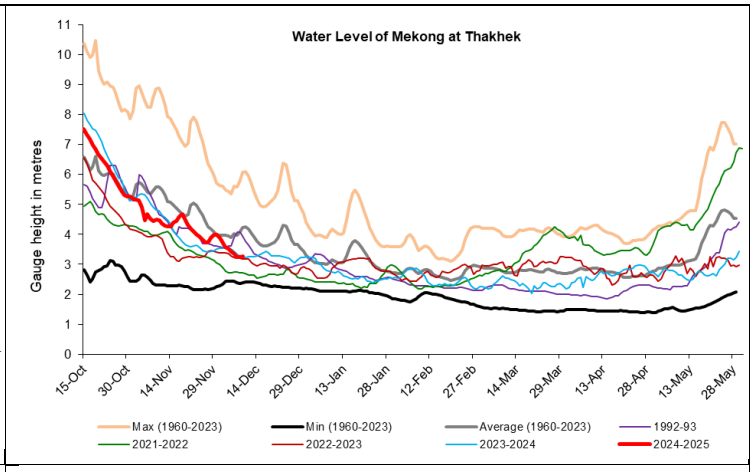


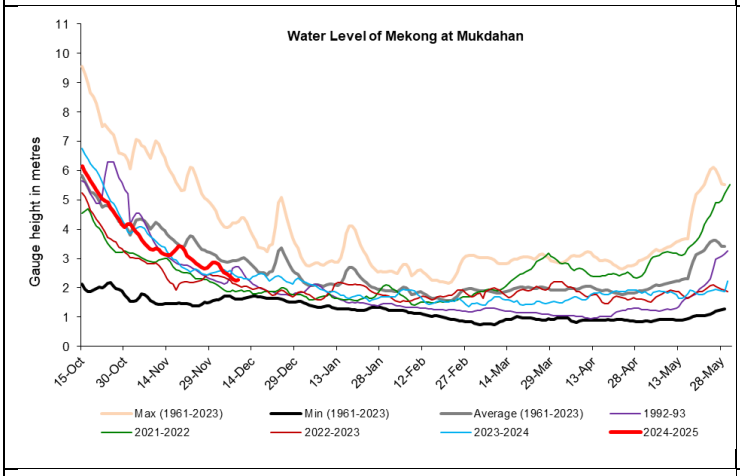


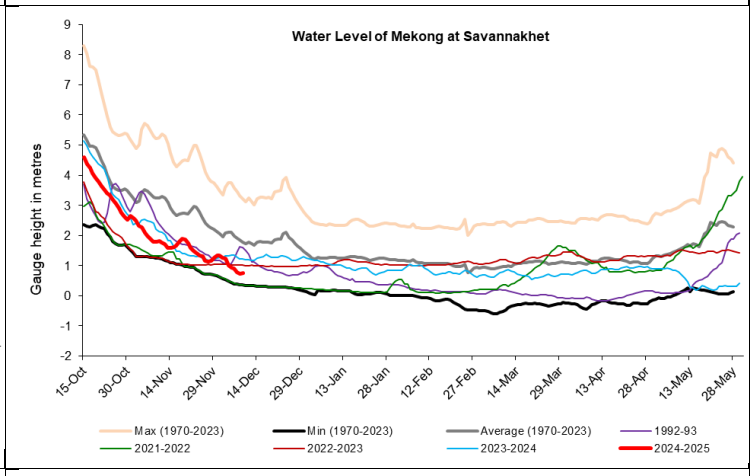


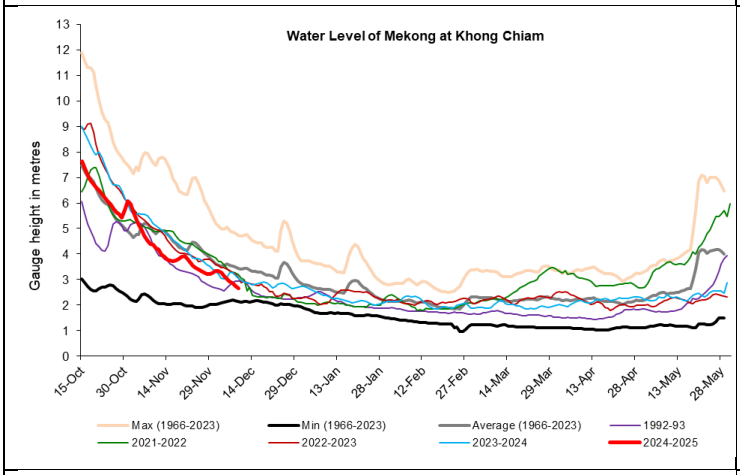


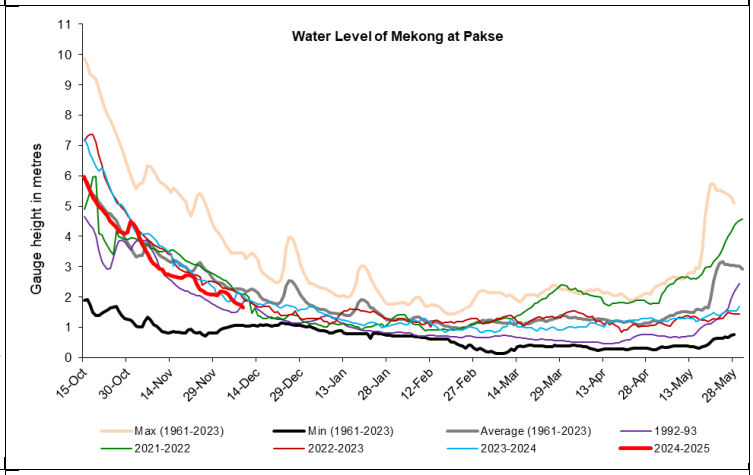

Water Level of Mekong at Nakhon Phanom
Gauge height in metres
Max (1973-2023)
Min (1973-2023)
Average (1973-2023)
1992-93
2021-2022
2022-2023
2023-2024
2024-2025

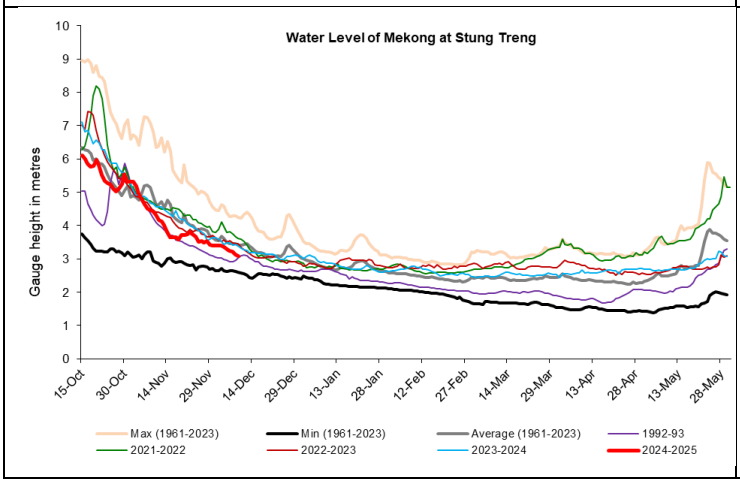

Water Level of Mekong at Thakhek
Gauge height in metres
Max (1960-2023)
Min (1960-2023)
Average (1960-2023)
1992-93
2021-2022
2022-2023
2023-2024
2024-2025

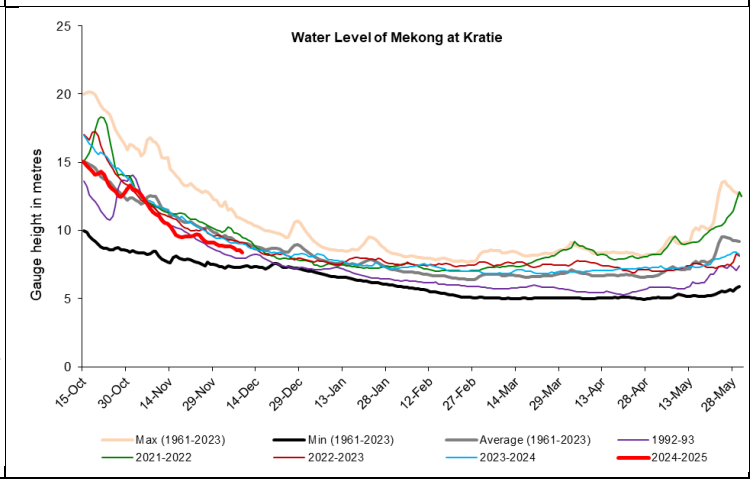

Water Level of Mekong at Mukdahan
Gauge height in metres
Max (1961-2023)
Min (1961-2023)
Average (1961-2023)
1992-93
2021-2022
2022-2023
2023-2024
2024-2025

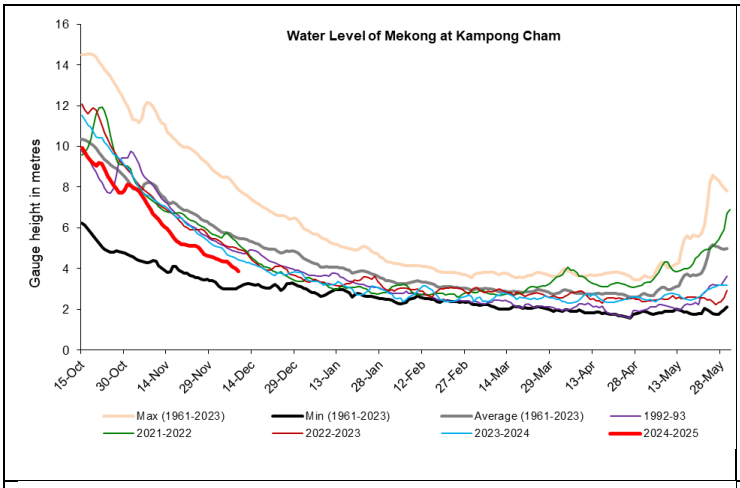

Water Level of Mekong at Savannakhet
Gauge height in metres
Max (1970-2023)
Min (1970-2023)
Average (1970-2023)
1992-93
2021-2022
2022-2023
2023-2024
2024-2025

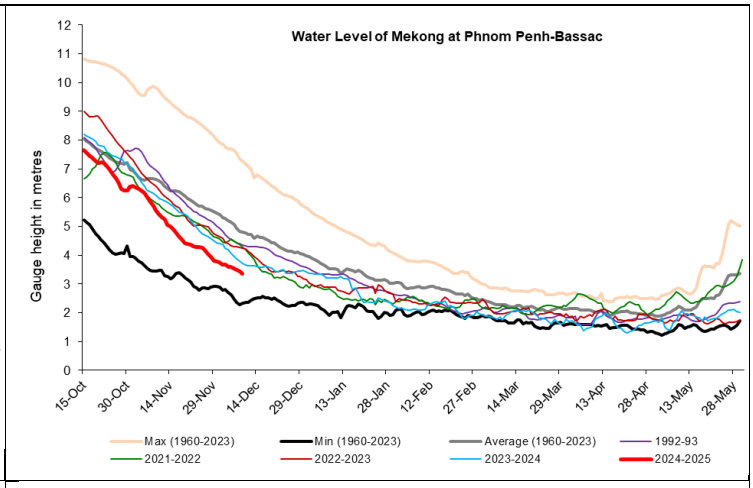

Water Level of Mekong at Khong Chiam
Gauge height in metres
Max (1966-2023)
Min (1966-2023)
Average (1966-2023)
1992-93
2021-2022
2022-2023
2023-2024
2024-2025

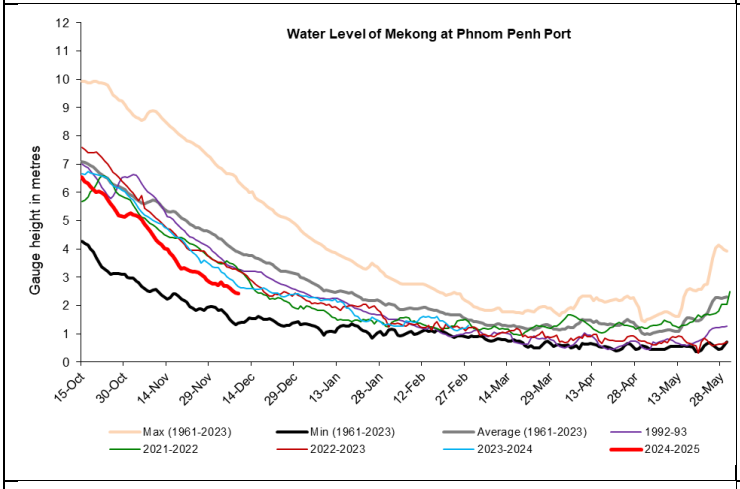

Water Level of Mekong at Pakse
Gauge height in metres
Max (1961-2023)
Min (1961-2023)
Average (1961-2023)
1992-93
2021-2022
2022-2023
2023-2024
2024-2025

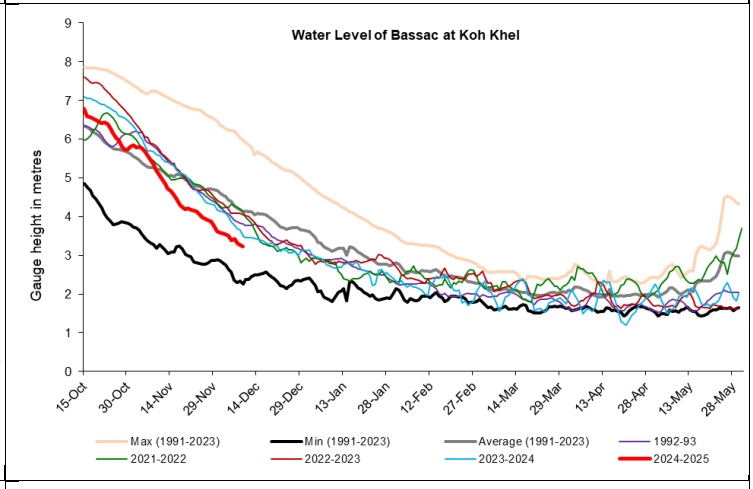

Water Level of Mekong at Stung Treng
Gauge height in metres
Max (1961-2023)
Min (1961-2023)
Average (1961-2023)
1992-93
2021-2022
2022-2023
2023-2024
2024-2025

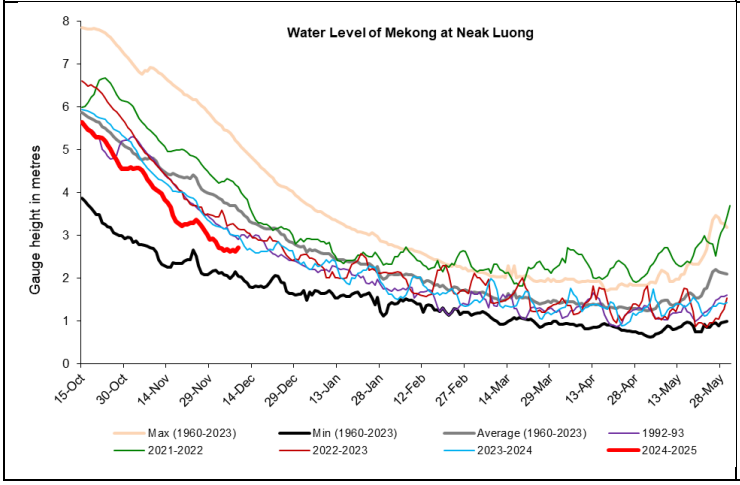

Water Level of Mekong at Kratie
Gauge height in metres
Max (1961-2023)
Min (1961-2023)
Average (1961-2023)
1992-93
2021-2022
2022-2023
2023-2024
2024-2025

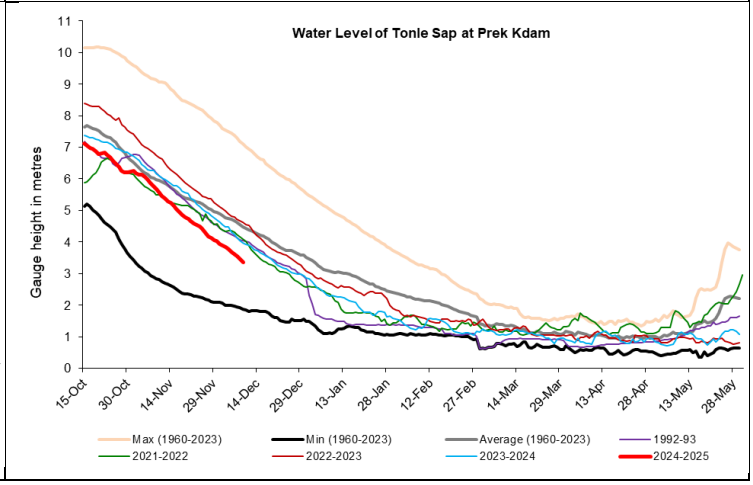

Water Level of Mekong at Kampong Cham
Gauge height in metres
Max (1961-2023)
Min (1961-2023)
Average (1961-2023)
1992-93
2021-2022
2022-2023
2023-2024
2024-2025

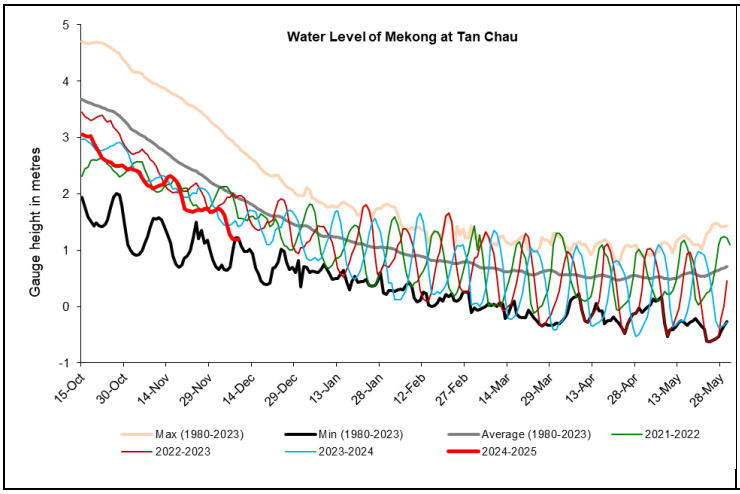

Water Level of Mekong at Phnom Penh-Bassac
Gauge height in metres
Max (1960-2023)
Min (1960-2023)
Average (1960-2023)
1992-93
2021-2022
2022-2023
2023-2024
2024-2025

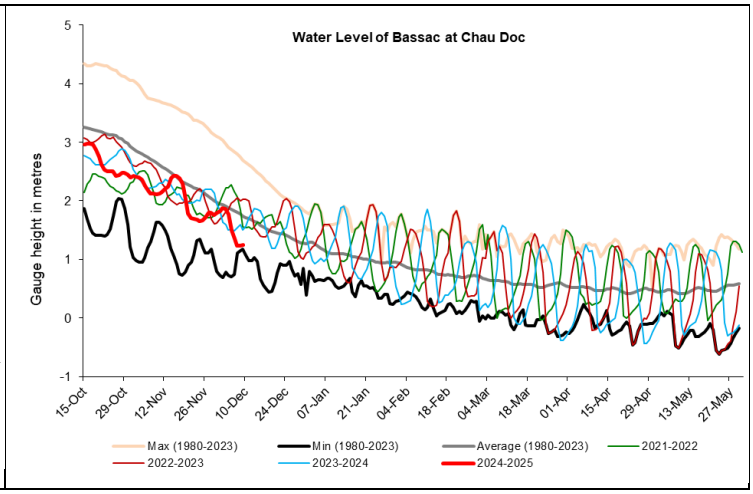

Water Level of Mekong at Phnom Penh Port
Gauge height in metres
Max (1961-2023)
Min (1961-2023)
Average (1961-2023)
1992-93
2021-2022
2022-2023
2023-2024
2024-2025


Water Level of Bassac at Koh Khel
Gauge height in metres
Max (1991-2023)
Min (1991-2023)
Average (1991-2023)
1992-93
2021-2022
2022-2023
2023-2024
2024-2025


Water Level of Mekong at Neak Luong
Gauge height in metres
Max (1960-2023)
Min (1960-2023)
Average (1960-2023)
1992-93
2021-2022
2022-2023
2023-2024
2024-2025


Water Level of Tonle Sap at Prek Kdam
Gauge height in metres
Max (1960-2023)
Min (1960-2023)
Average (1960-2023)
1992-93
2021-2022
2022-2023
2023-2024
2024-2025


Water Level of Mekong at Tan Chau
Gauge height in metres
5
4
3
2
1
0
-1
15-Oct
30-Oct
14-Nov
29-Nov
14-Dec
29-Dec
13-Jan
28-Jan
12-Feb
27-Feb
14-Mar
29-Mar
13-Apr
28-Apr
13-May
28-May
Max (1980-2023)
Min (1980-2023)
Average (1980-2023)
2021-2022
2022-2023
2023-2024
2024-2025


Water Level of Bassac at Chau Doc
Gauge height in metres
5
4
3
2
1
0
-1
15-Oct
29-Oct
12-Nov
26-Nov
10-Dec
24-Dec
07-Jan
21-Jan
04-Feb
18-Feb
04-Mar
18-Mar
01-Apr
15-Apr
29-Apr
13-May
27-May
Max (1980-2023)
Min (1980-2023)
Average (1980-2023)
2021-2022
2022-2023
2023-2024
2024-2025

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
03-12-2024	535.24	2.42	9.54	5.28	3.01	2.18	3.35	2.33	3.57	2.64	1.23	3.28	2.16	3.39	8.83	4.40	3.66	2.81	3.55	2.69	3.83	1.70	1.86
04-12-2024	535.65	2.37	9.58	5.30	2.95	2.06	3.24	2.29	3.52	2.53	1.01	3.14	2.08	3.35	8.85	4.36	3.59	2.70	3.50	2.64	3.76	1.63	1.77
05-12-2024	536.06	2.32	9.54	5.40	2.98	2.06	3.13	2.19	3.42	2.47	0.94	3.02	1.92	3.29	8.81	4.34	3.58	2.68	3.38	2.66	3.69	1.42	1.50
06-12-2024	536.34	2.49	9.58	5.36	3.03	2.15	3.05	2.08	3.33	2.39	0.90	2.93	1.84	3.25	8.69	4.22	3.54	2.62	3.42	2.62	3.62	1.28	1.35
07-12-2024	536.68	2.80	9.60	5.29	2.99	2.13	3.10	2.00	3.24	2.30	0.78	2.86	1.78	3.23	8.57	4.10	3.49	2.52	3.30	2.65	3.55	1.20	1.23
08-12-2024	536.32	3.04	9.56	5.17	2.96	2.10	3.14	1.97	3.24	2.25	0.74	2.76	1.74	3.14	8.52	4.00	3.43	2.46	3.26	2.62	3.46	1.18	1.23
09-12-2024	535.83	3.24	9.58	5.16	2.88	2.03	3.08	2.06	3.26	2.27	0.75	2.67	1.66	3.09	8.39	3.88	3.35	2.42	3.23	2.70	3.35	1.20	1.24

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
03-12-2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
04-12-2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0.2	0.2
05-12-2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	6.3	10.1
06-12-2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	10
07-12-2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0.6	0
08-12-2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
09-12-2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	7.1	20.3

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