Mekong River Commission

Weekly Dry Season Situation Report in the Lower Mekong River Basin

20 – 26 February 2024

Prepared by
The Regional Flood and Drought Management Centre
27 February 2024

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Key Messages

Key messages for this weekly report are presented below.

Rainfall monitoring and forecast

- In the period of 20 – 26 February 2024, there was no significant rainfall recorded at the key stations along the Mekong River.
- The Lower Mekong Basin will be influenced by a low-pressure system from 27 – 28 February and 4 – 5 March while the high-pressure system push from China will extend to the upper part from 1 – 3 March. There will be light rainfall in some areas in the upper part for the next seven days in the Mekong region.

Water level monitoring and forecast

- At 22 key monitoring stations along the Mekong mainstream from 20 – 26 February 2024, water levels are below the long-term averages (LTAs) except for water level at Luang Prabang, Khong Chiam, Stung Treng, Kratie, Tan Chau and Chau Doc monitoring stations. However, the 9 monitoring stations remain in normal condition with respect to the flow threshold (PMFM for Observed Water Level). 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 27 February – 04 March 2024, the water level at 22 key stations is expected to slightly increase at the upper stretches of the Lower Mekong River Basin from Chiang Saen to Thakhek stations. However, moving down to downstream starting from Mukdahan to Chau Doc, the water level will drop. The water levels at almost all stations are predicted to be below their LTAs except for Luang Prabang, Chiang Khan, Vientiane, Stung Treng, and Kratie stations.

Drought condition and forecast

- During 20–26 February, the LMB was facing from moderate to extreme drought from the middle to the lower part. Central Laos, lower region of Thailand and northern area of Cambodia were the driest areas during the monitoring week.
- The next three-month forecast of rainfall indicates that below average rainfall is predicted for southern part of the LMB during March 2024 covering mainly south-eastern Cambodia and Viet Nam; similar prediction goes for April plus a bit less than average rainfall in some area of Thailand in the central area; while during May the forecast indicates below average rainfall over the northern part covering Laos and some areas of Thailand and the 3S area of the southern region of the LMB.

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 **20** – **26 February 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. 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_wet.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 last week, the upper and center of the Mekong region will be influenced by a high-pressure system push from China during 20 – 25 February, some areas of the lower part of the LMB experienced light rainfall.

Figure 1 presents the weather map indicating no high- or low-pressure cells active in the South Sea of Viet Nam and the LMB. It is forecasted that the Lower Mekong Basin will be influenced by a low-pressure system from 27 – 28 February and 4 – 5 March while the high-pressure system push from China will extend to the upper part from 1 – 3 March.

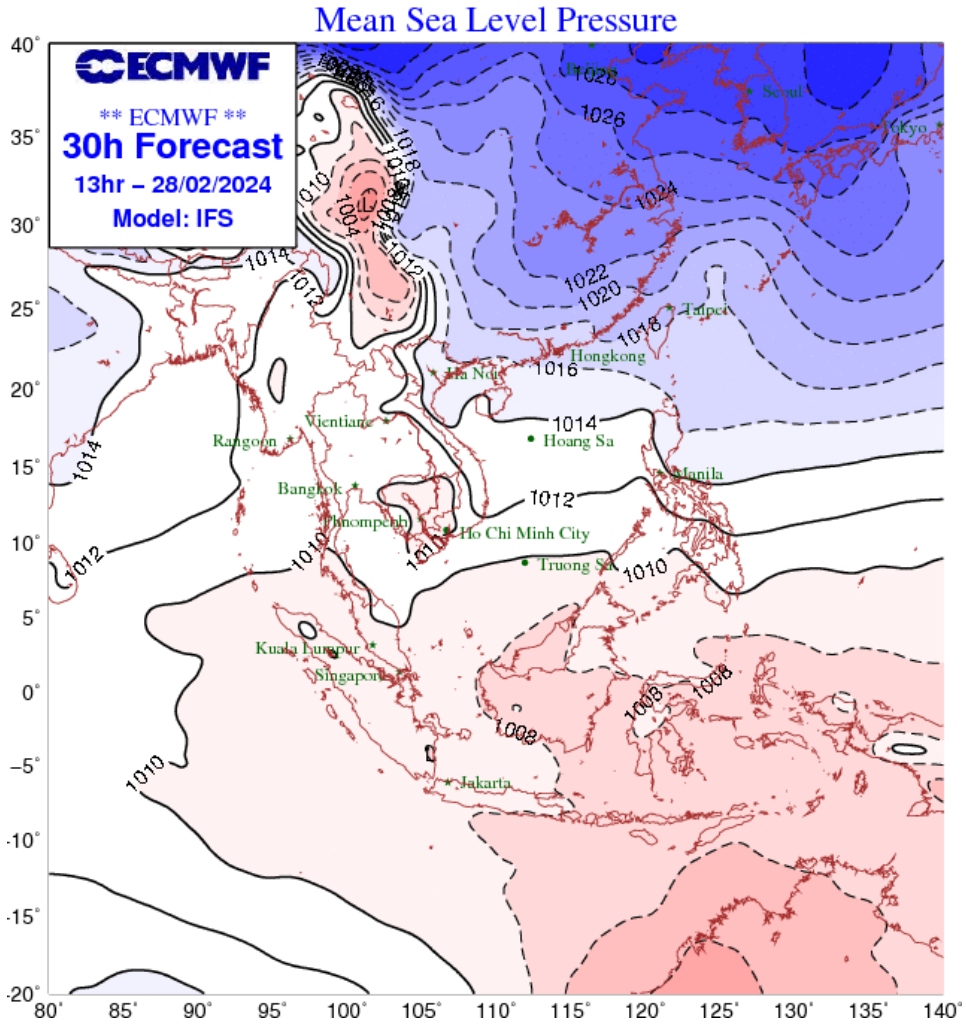


Figure 1: Weather conditions over the LMB

According to the ASEAN Specialised Meteorological Centre (ASMC, http://asmc.asean.org/home/), the subseasonal weather outlook (19 February – 03 March 2024) indicates that the drier condition is predicted to occur in the Lower Mekong Basin (LMB), particularly the lower part (Cambodia and Viet Nam). Moreover, warmer conditions will be also observed at the lower part of LMB, particularly Cambodia and Viet Nam. **Figure 2** shows the outlook of weather condition from 19 February to 03 March 2024 in Southeast Asia based on results from the NCEP model (National Centres for Environmental Prediction).

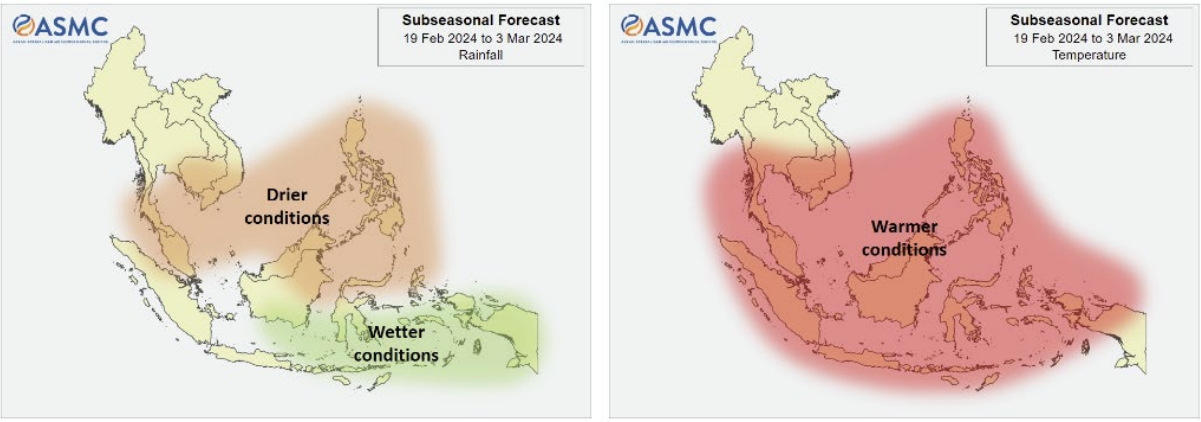


Figure 2: Outlook of wet and dry conditions over the Asian countries by ASMC.

Based on the tropical storm risk (TS) (https://www.tropicalstormrisk.com/), there is no active NW pacific system as of 26 February 2024 as displayed in **Figure 3.**

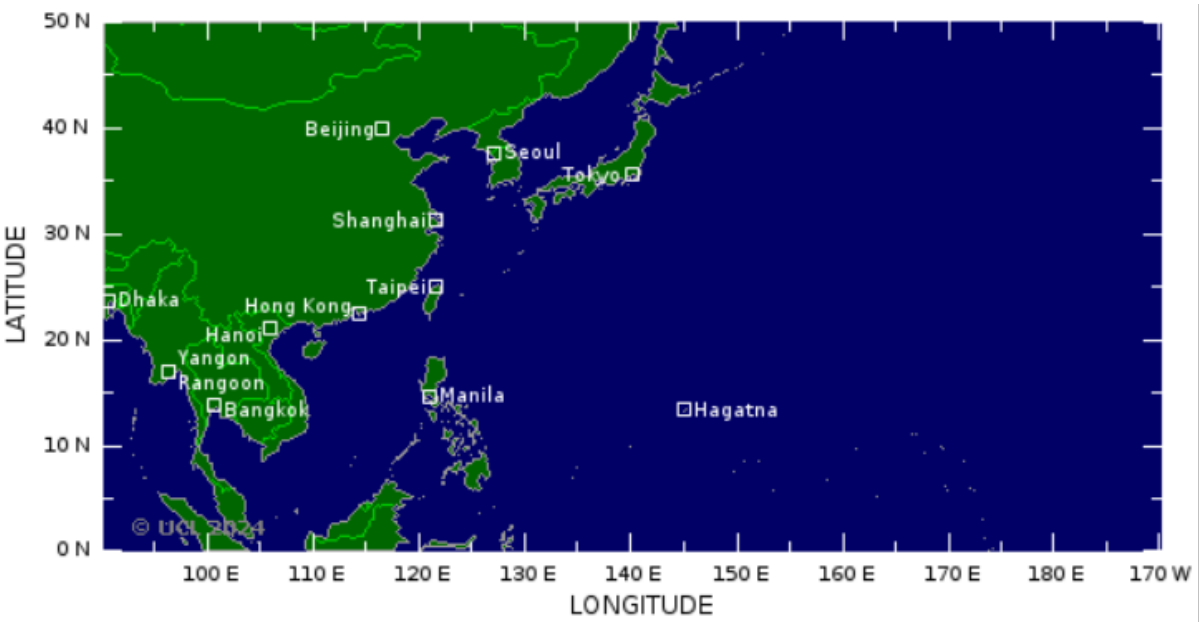


Figure 3: No tropical storm risk observed on 26 February 2024

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 20 to 26 February 2024 (**Figure 4**). Over the entire basin, the rainfall has been observed to be between no rain to relatively low. However, slight rainfall occurrence has been found in the eastern part of the basin, particularly in Lao PDR and Viet Nam.

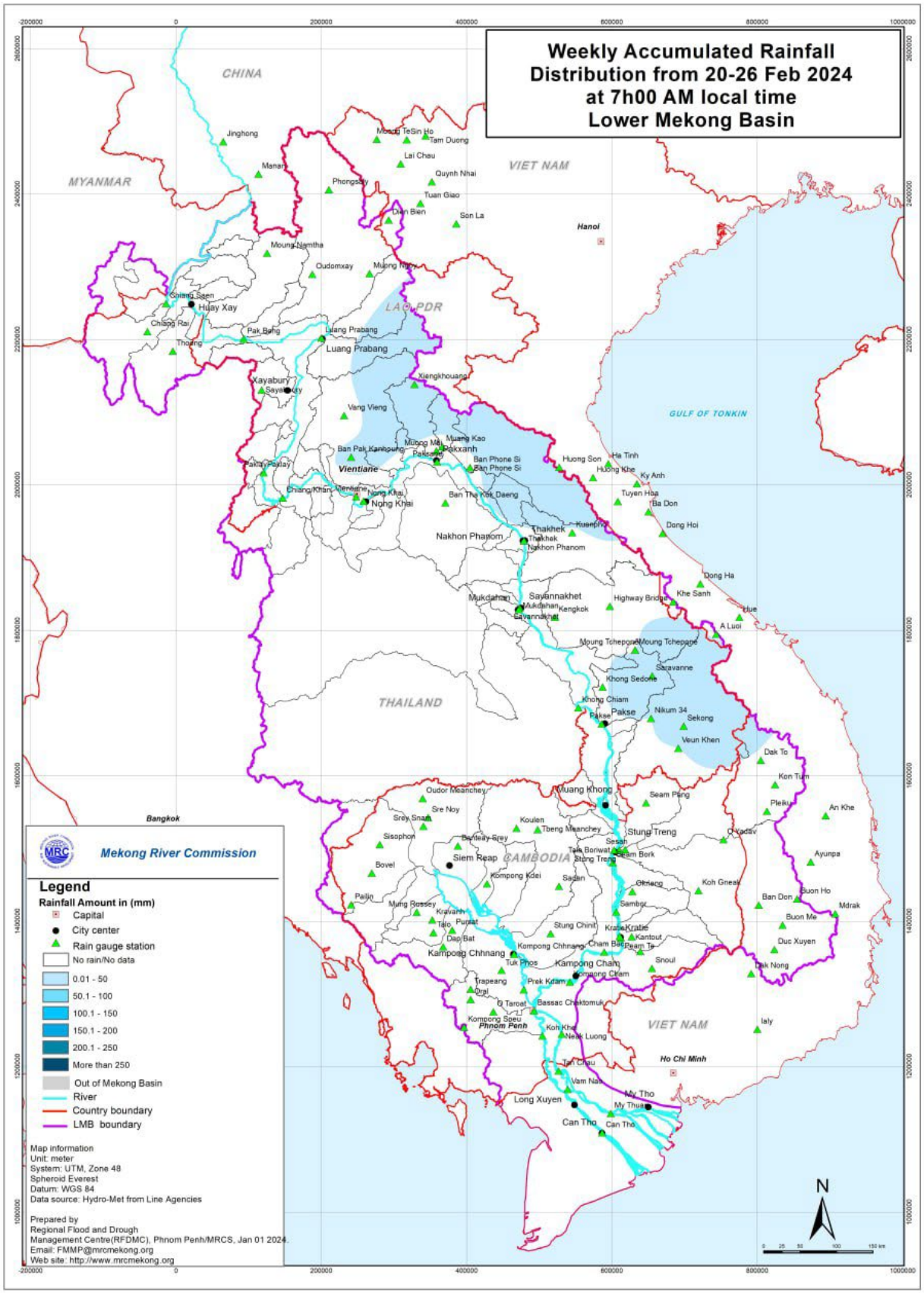


Figure 4: Weekly rainfall distribution over the LMB during 20 – 26 February 2024

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 20 – 26 February 2024, the observed water level (WL) at Jinghong hydrological station[1], was almost constant and ranges between 535.24 m and 536.08 m, which are corresponding to the outflow between 833.00 m^3/s to 1,430.00 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 1.50 m to 1.45 m with a decreasing trend. At the same period, the water level in Luang Prabang station also slightly decreased with an approximate value of 0.18 m as compared to the previous week.

During the same period, the water levels observed in Chiang Khan, Vientiane, Nong Khai, Paksane, and Nakhon Phanom stations were slightly decreasing with values ranging from 3.25 m to 3.24 m, 1.66 m to 1.40 m, 0.88 m to 0.70 m, 1.93 m to 1.92 m, and 0.96 m to 0.93 m, respectively. In contrast, the water level at Thakhek, Mukdahan, Savannakhet, Khong Chiam, Pakse, Stung Treng, Kratie, and Kampong cham stations has a slightly decreasing trend ranging from 2.28 m to 2.30 m, 1.51 m to 1.53 m, 0.75 m to 0.75 m, 1.93 m to 2.05 m, 0.95 m to 1.0 m, 2.54 m to 2.57 m, 6.98 m to 7.0 m, 2.4 m to 2.62 m, respectively as compared to the previous week.

Further downstream, water levels at Phnom Penh Port, Koh Khel, Neak Luong, Prek Kdam has slightly decreased and varied in ranges of 1.37-1.20 m, 2.1-1.76 m, 1.64-1.35m, and 1.18-1.09m, respectively.

Similar to the previous week, the water levels from 20 to 26 February 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 0.49 m to 1.28 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.

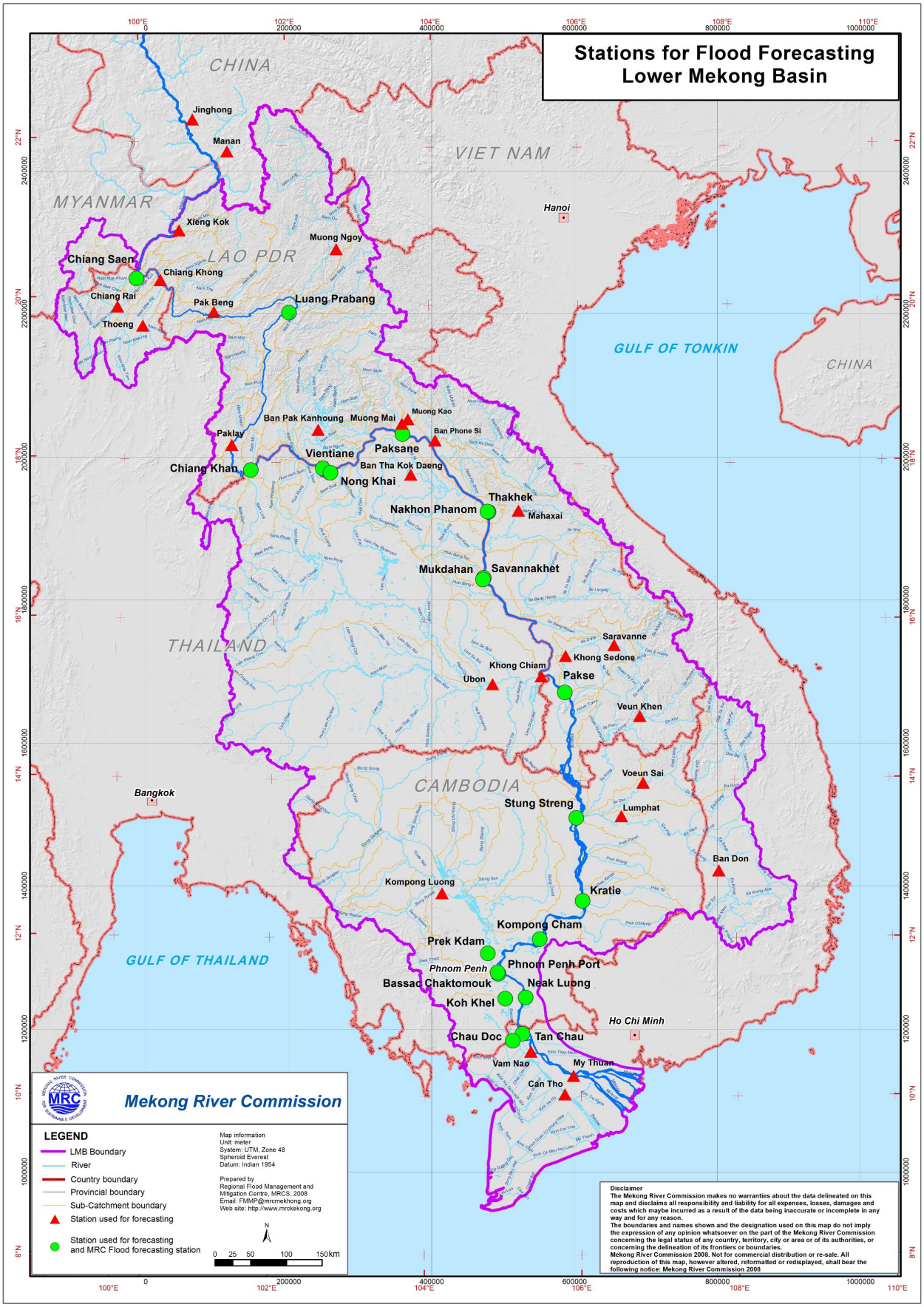


Figure 5: The key stations along LMB for river flood forecasting

It should be noted that the water levels in all key monitoring stations on 26 February 2024 are below their long-term averages (LTAs) except for the Luang Prabang, Khong Chiam, Stung Treng, Kratie, Tan Chau and Chau Doc monitoring stations. 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**.

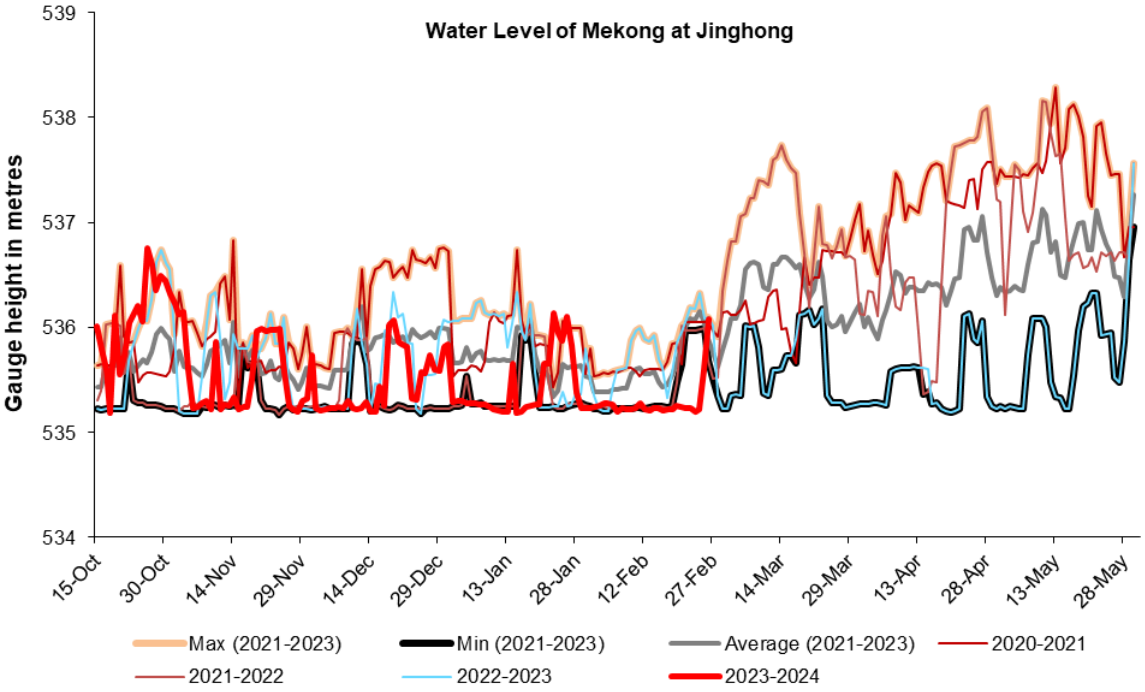


Figure 6. Water level at the Jinghong hydrological station up to 26 February 2024.

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 26 February 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 26 February 2024 for the Tonle Sap Lake 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 January 2024 is lower than its LTA (about 77.17 %) and 2023 but higher than that in 2019, 2020, 2021 and 2022 during the same period **(Figure 8 and Table 1)**. However, with updated data until 26 February 2024, the water volume of Tonle Sap Lake is approximately 76.15% of its LTA.

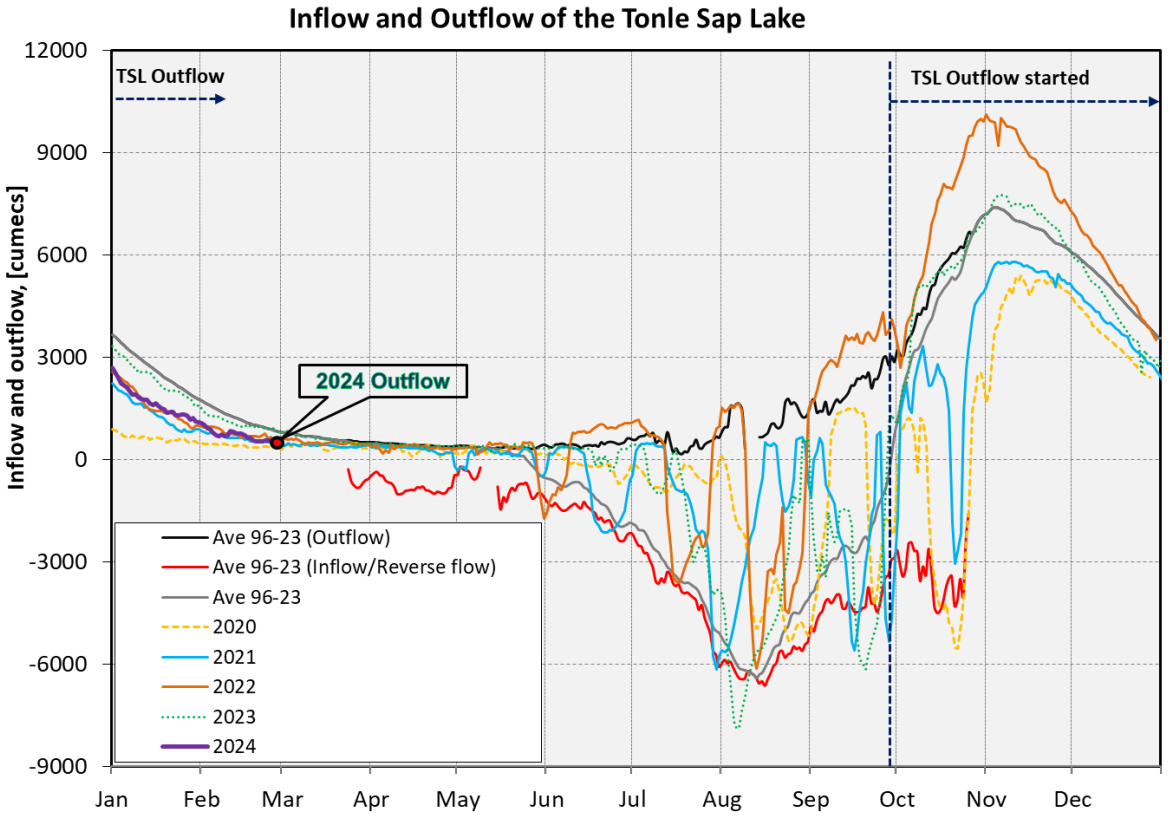


Figure 7: Seasonal change of inflows and outflows of Tonle Sap Lake.

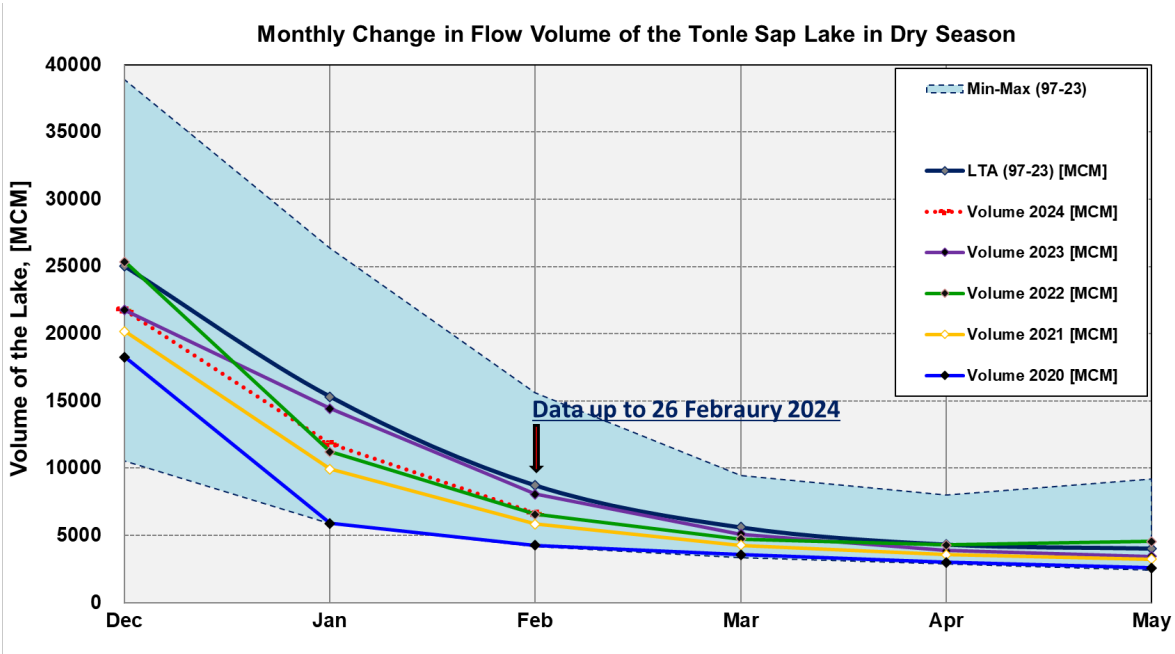


Figure 8. The seasonal change in monthly flow volume of Tonle Sap Lake.

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	6642.78	76.15
Mar	5602.68	9438.24	3347.07	4354.62	3553.99	4264.88	4736.52	5080.64		
Apr	4327.36	8009.14	2866.91	3667.47	2992.61	3556.68	4288.31	3884.16		
May	4027.82	9176.93	2417.81	3266.43	2594.92	3240.78	4556.83	3438.66		
Jun	5699.50	13635.01	2468.70	3517.06	2641.88	3798.29	7489.04	3689.97		
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 26 February 2024.

4. Flash Flood in the Lower Mekong Basin

During the weekly monitoring period from 20 - 26 February, the LMB received no rain to light 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 Feb 20 to 26

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 drought conditions of the LMB from 20 to 26 February, as shown in **Figure 9**, were normal in all parts of the region. The conditions were similar to those of last week from Feb 13 to 19.

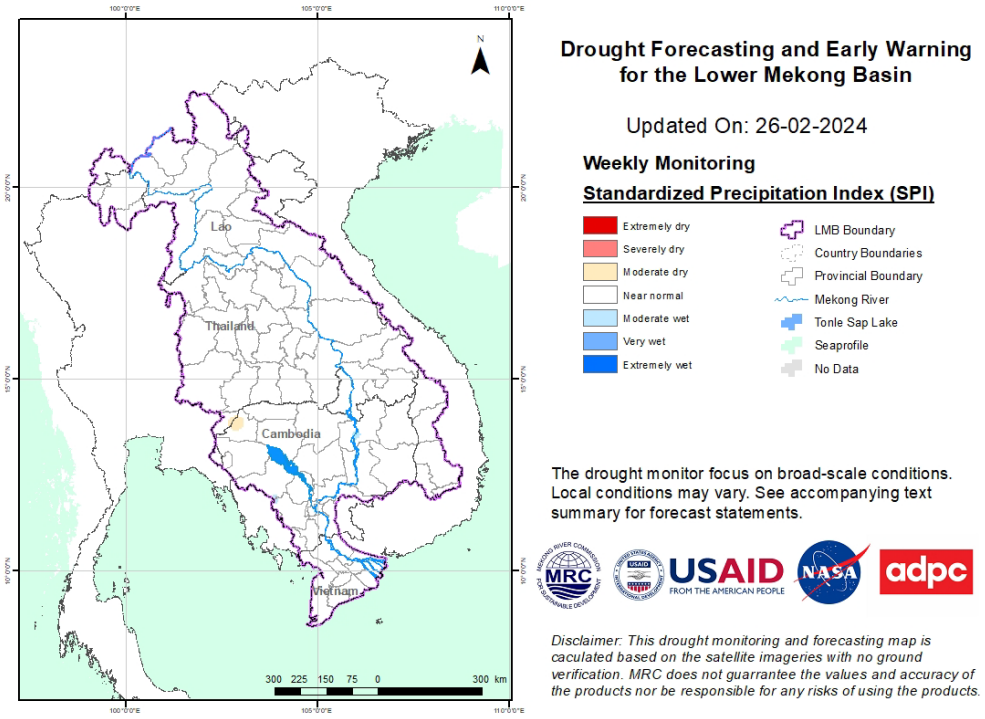


Figure 9: Weekly standardised precipitation index from 20 to 26 February.

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

Soil moisture conditions from 20 to 26 February, as displayed in **Figure 10**, were severely dry from the north to the south due to absence of rainfall. The conditions were similar to those of the previous week.

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.

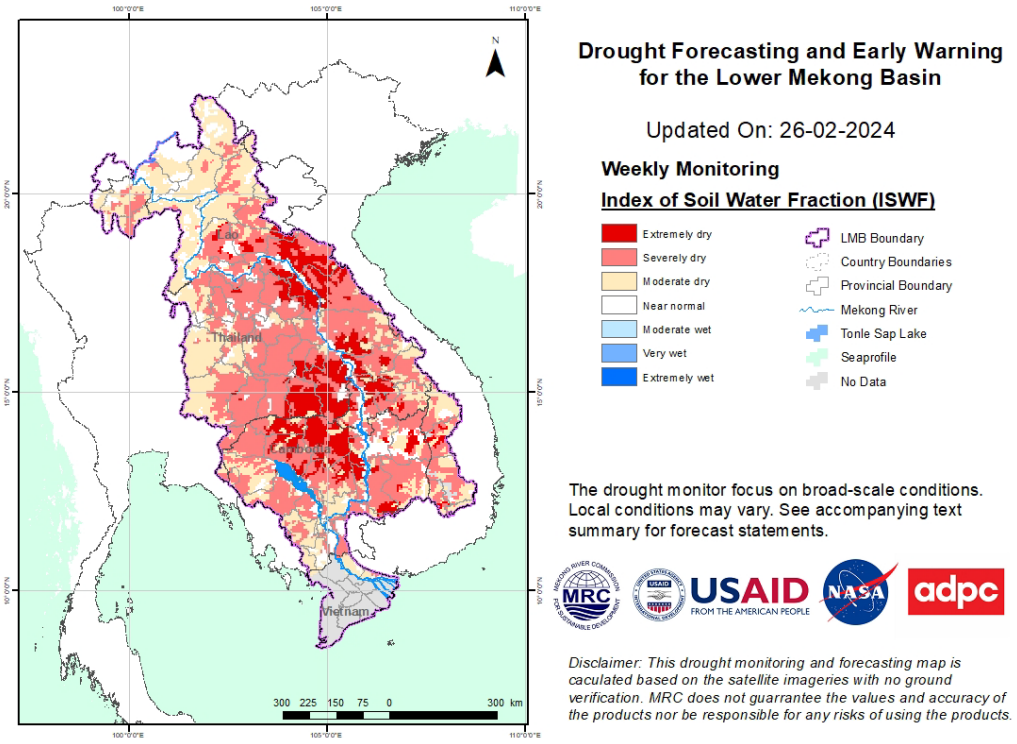


Figure 10: Weekly Index of Soil Water Fraction from 20 to 26 February.

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

With the dry conditions of soil moisture, the combined drought indicator (displayed in **Figure 11** reveals that during 20-26 February 2023, the LMB was facing from moderate to extreme drought from the middle to the lower part. Central Laos, lower region of Thailand and northern area of Cambodia were the driest areas during the monitoring week. The impacted areas are listed below:

Province	Mderate	Severe	Extreme	Exceptiona	Number	Country	Province	Mderate	Severe	Extreme	xceptiona	Number	Country	Province	Mderate	Severe	Extreme	xceptiona
Battamabang					24	Lao PDR	Oudomxai					47	Thailand	Udon Thani				
Banteay Meanchey					25	Lao PDR	Loungprabang					48	Thailand	Sakon Nakhon				
Pailin					26	Lao PDR	Xayaburi					49	Thailand	Bueng Kan				
Pursat					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				
Kampot					37	Lao PDR	Champasack					60	Thailand	Nakhon Ratchasima				
Takeo					38	Thailand	Chiang Mai					61	Viet Nam	Kon Tum				
Svai Rieng					39	Thailand	Chiang Rai					62	Viet Nam	Gia Lai				
Stung Treng					40	Thailand	Payao					63	Viet Nam	Dak Nong				
Kampong Speu					41	Thailand	Loei					64	Viet Nam	Dak Lak				
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		

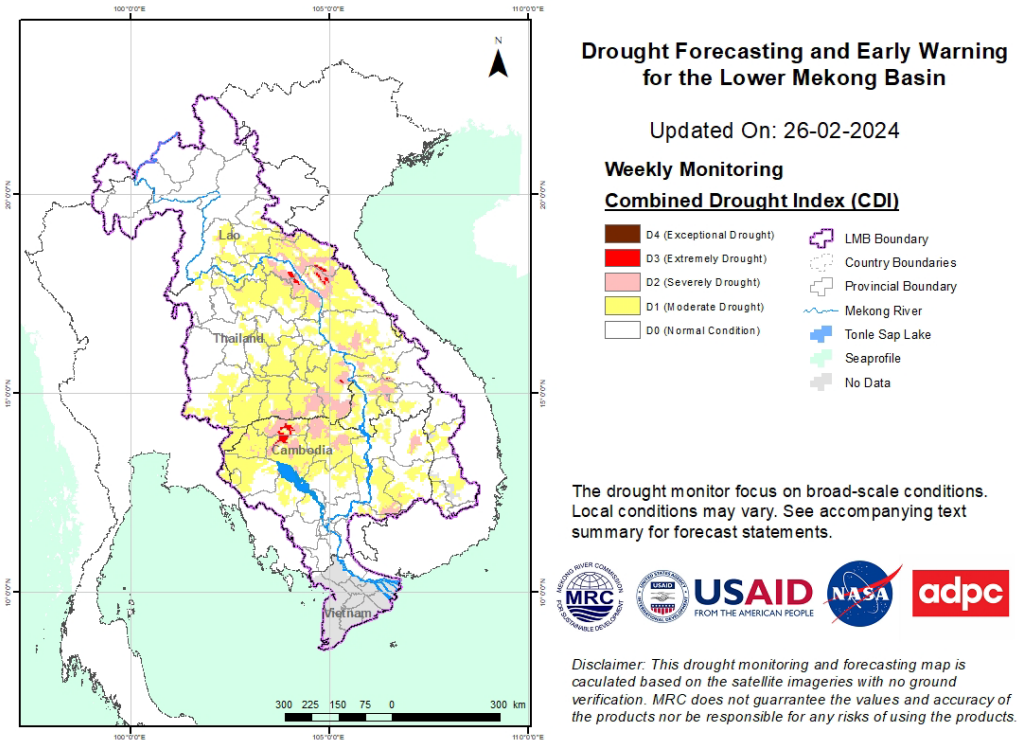


Figure 11: Weekly Combined Drought Index from Feb 20 to 26.

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 27 February – 11 March 2024, the accumulated rainfall over the Lower Mekong Basin is distributed with no rain to light rain based on the result from CHIRPS-GFS (**Figure 12**). The light rain can be observed in the western part of the Lower Mekong Basin, particularly in Thailand and norther-western Cambodia.

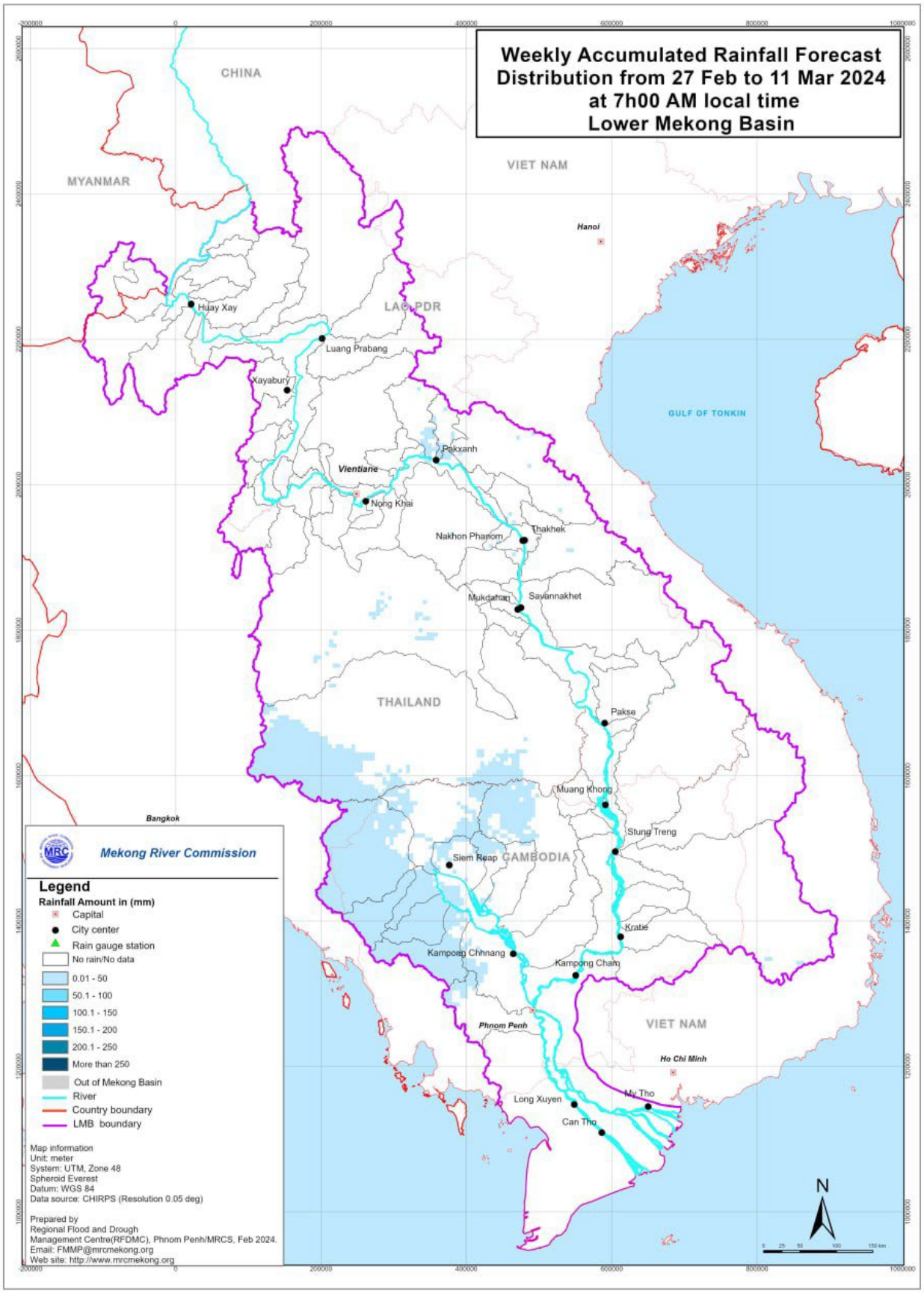


Figure 12: Accumulated rainfall forecast from CHIRP-GFS (27 February - 11 March 2024)

6.2 Water level forecast

In Chiang Saen monitoring station, the water level is expected to be fluctuated over the forecasting period of 27 February – 04 March 2024. However, it will increase from 1.45 m to 1.65 m. The water level in Luang Prabang stations affected by backwater is likely slightly decreasing from 8.44 to 8.53 m.

It is observed that the remain stations along the Mekong mainstream, the water levels are predicted to have increasing trends for the next 7 days at the upper stretch of the Lower Mekong Basin from Chiang Khan to Thakhek. At Chiang Khan, Vientiane, Nong Khai, Paksane, Nakhon Phanom, Thakhek stations, the water levels are expected to increase with ranges of 2.23-3.47m, 1.38-1.76m, 0.68-1.02m, 1.90-2.25m, 0.90-0.98m and 2.27-2.37m, respectively.

Moving down to the monitoring stations from Mukdahan to Prek Kdam, the water levels are predicted to have slightly dropped at all stations. At Mukdahan, Sanvannakhet, Khong Chiam, Pakse, Stung Treng, Kratie, Kompong Cham, Phnom Penh (Bassac), Phnom Penh Port, Koh Khel, Neak Luong, and Prek Kdam stations, the water level will decrease of approximately 0.13 m, 0.12 m, 015 m, 0.15 m, 0.08 m, 0.07 m, 0.03 m, 0.05 m, 0.05 m, 0.06, and 0.04 m, respectively.

For the Tan Chau station on the Mekong River and Chau Doc station on the Bassac River, water levels will decrease approximately 0.66 m and 0.74 m, respectively, following daily tidal effects from the sea.

The weekly River Monitoring Bulletin and forecasting issued on 26 February 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 Bulletin

Mekong River Commission Secretariat (MRCS)
Regional Flood and Drought Management Centre (RFDMC)
P.O. Box 623 #576, National Road #2, Chak Angre Krom, Meanchey, Phnom Penh, Cambodia
Tel: (855-23) 425353, Fax: (855-23) 425363, Email: floodforecast@mrcmekong.org

Forecast period from: 27 February to 04 March 2024

Date: 26 February 2024

LOCATION	Country	Observed Rainfall (mm)	Zero gauge above M.S.L (m)	Min water level against zero gauge (m)	Observed W. level against zero gauge (m)		Forecasted Water Levels (m)						
		25-Feb			25-Feb	26-Feb	27-Feb	28-Feb	29-Feb	01-Mar	02-Mar	03-Mar	04-Mar
Jinhong		0.0	-	-	535.60	536.08							
Chiang Saen		0.0	357.110	0.00	1.46	1.45	1.46	1.67	1.98	1.97	1.96	1.72	1.65
Luang Prabang		0.0	267.195	2.53	8.36	8.44	8.47	8.52	8.60	8.65	8.65	8.60	8.53
Chiang Khan		0.0	194.118	1.91	3.24	3.24	3.23	3.23	3.24	3.43	3.68	3.66	3.47
Vientiane		0.0	158.040	-0.28	1.46	1.40	1.38	1.37	1.37	1.38	1.58	1.79	1.76
Nongkhai		0.0	153.648	0.33	0.72	0.70	0.68	0.67	0.66	0.68	0.86	1.06	1.02
Paksane		0.0	142.125	0.10	1.92	1.92	1.90	1.88	1.86	1.85	1.88	2.04	2.25
Nakhon Phanom		0.0	130.961	0.18	1.06	0.93	0.90	0.87	0.84	0.82	0.80	0.82	0.98
Thakhek		0.0	129.629	1.38	2.46	2.30	2.27	2.24	2.22	2.20	2.17	2.20	2.37
Mukdahan		0.0	124.219	0.72	1.62	1.53	1.50	1.48	1.46	1.43	1.40	1.37	1.40
Savannakhet		0.0	125.410	-0.65	0.82	0.75	0.72	0.70	0.67	0.64	0.61	0.59	0.63
Khong Chiam		0.0	89.030	1.02	2.03	2.05	2.05	2.03	2.01	1.99	1.96	1.93	1.90
Pakse		0.0	86.490	0.03	1.00	1.00	0.99	0.97	0.95	0.93	0.90	0.87	0.85
Stung Treng		0.0	36.790	0.32	2.56	2.57	2.57	2.56	2.55	2.54	2.53	2.50	2.49
Kratie		0.0	-1.080	3.06	7.00	7.00	7.01	7.01	7.00	6.99	6.97	6.95	6.93
Kompong Cham		0.0	-0.930	0.65	2.55	2.62	2.67	2.69	2.69	2.68	2.67	2.66	2.65
Phnom Penh (Bassac)		0.0	-1.020	1.58	1.87	1.92	1.91	1.93	1.92	1.90	1.89	1.88	1.87
Phnom Penh Port		nr	0.000	0.14	1.16	1.20	1.19	1.21	1.20	1.18	1.17	1.16	1.15
Koh Khel		0.0	-1.000	1.52	1.70	1.76	1.76	1.75	1.75	1.74	1.72	1.71	1.70
Neak Luong		0.0	-0.330	0.81	1.39	1.35	1.37	1.40	1.42	1.42	1.41	1.40	1.39
Prek Kdam		0.0	0.080	0.58	1.13	1.09	1.11	1.11	1.09	1.07	1.06	1.05	1.04
Tan Chau		0.0	0.000	-0.37	1.07	1.09	0.97	0.80	0.62	0.51	0.46	0.44	0.43
Chau Doc		nr	0.000	-0.60	1.30	1.28	1.16	0.98	0.76	0.63	0.57	0.55	0.54

REMARKS:

-: not available.
*: reference stations without forecast.
nr: no rain.

River Flood Forecaster

NOTE: Discharge at Luang Prabang may be influenced by hydropower operations (at both upstream and downstream).
For more info, please refer to this link:
http://www.mrcmekong.org/; http://ffw.mrcmekong.org/bulletin_wet.php; http://ffw.mrcmekong.org/reportflood.php

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) that predicts average rainfall in daily average for the next coming three months.

Figure 13 below shows the average daily rainfall forecast for March, April and May 2024 over the LMB area.

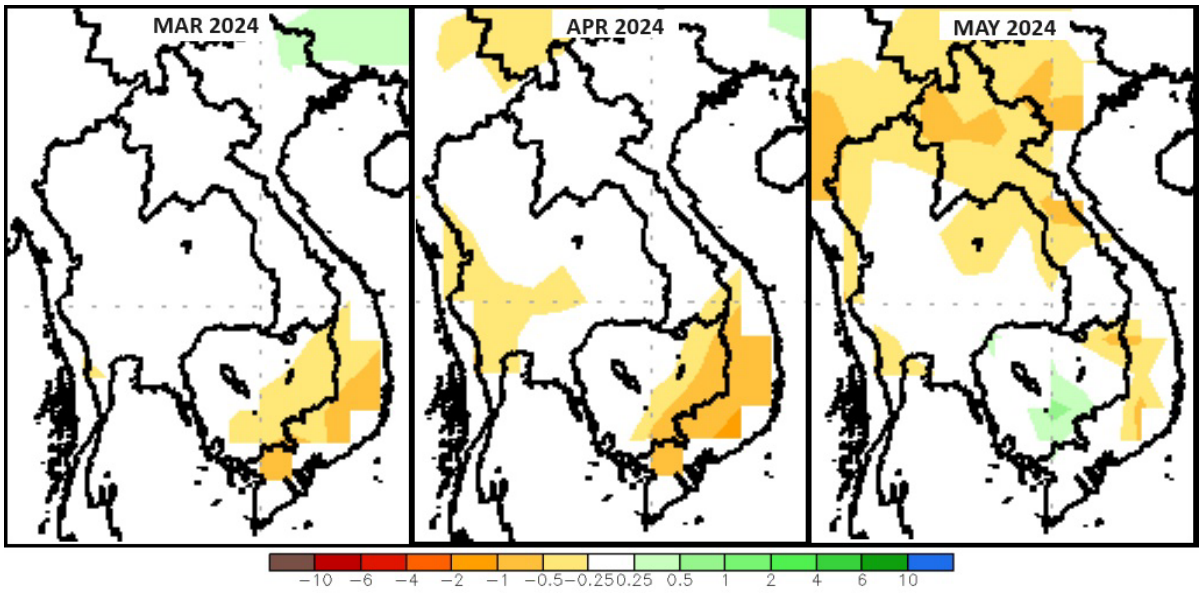


Figure 13. Monthly forecast of rainfall from NMME for March, April, and May 2024.

Figure 13 indicates that below average rainfall is predicted for southern part of the LMB during March 2024 covering mainly south-eastern Cambodia and Viet Nam; similar prediction goes for April plus a bit less than average rainfall in some area of Thailand in the central area; while during May the forecast indicates below average rainfall over the northern part covering Laos and some areas of Thailand and the 3S area of the southern region of the LMB.

7 Summary and Possible Implications

7.1 Rainfall and its forecast

In the period of 20 – 26 February 2024, there was no significant rainfall recorded at the key stations along the Mekong River.

The Lower Mekong Basin will be influenced by a low-pressure system from 27 – 28 February and 4 – 5 March while the high-pressure system push from China will extend to the upper part from 1 – 3 March. There will be light rainfall in some areas in the upper part for the next seven days in the Mekong region.

7.2 Water level and its forecast

At 22 key monitoring stations along the Mekong mainstream from 20 – 26 February 2024, water levels are below the long-term averages (LTAs) except for water level at Luang Prabang, Khong Chiam, Stung Treng, Kratie, Tan Chau and Chau Doc monitoring stations. However, the 9 monitoring stations remain in normal condition with respect to the flow threshold (PMFM for Observed Water Level). 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 27 February – 04 March 2024, the water level at 22 key stations is expected to slightly increase at the upper stretches of the Lower Mekong River Basin from Chiang Saen to Thakhek stations. However, moving down to downstream starting from Mukdahan to Chau Doc, the water level will drop. The water levels at almost all stations are predicted to be below their LTAs except for Luang Prabang, Chiang Khan, Vientiane, Stung Treng, and Kratie stations.

7.3 Flash flood and its trends

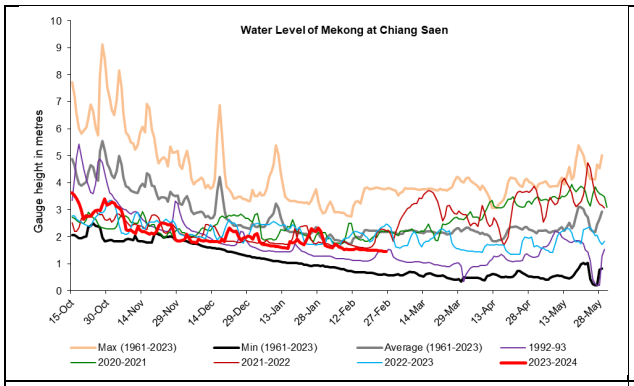
With the predicted of rainfall for the coming week as mentioned earlier in section 6.1, major flash floods are not likely to happen in the LMB.

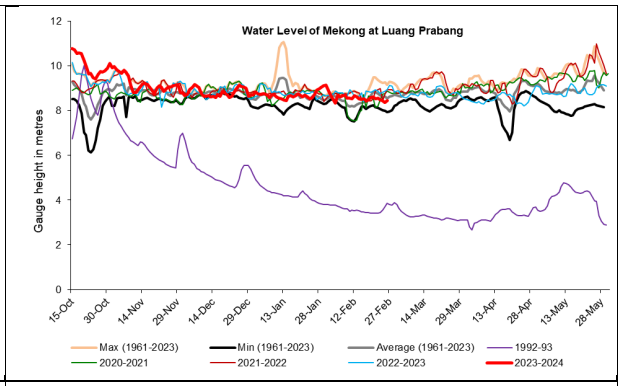
7.4 Drought condition and its forecast

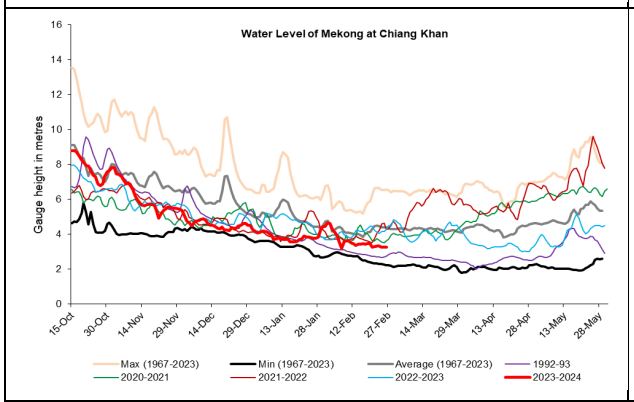
During 20-26 February, the LMB was facing from moderate to extreme drought from the middle to the lower part. Central Laos, lower region of Thailand and northern area of Cambodia were the driest areas during the monitoring week.

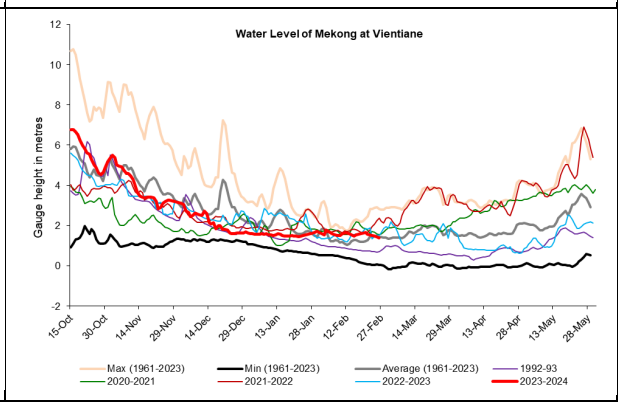
The next three-month forecast of rainfall indicates that below average rainfall is predicted for southern part of the LMB during March 2024 covering mainly south-eastern Cambodia and Viet Nam; similar prediction goes for April plus a bit less than average rainfall in some area of Thailand in the central area; while during May the forecast indicates below average rainfall over the northern part covering Laos and some areas of Thailand and the 3S area of the southern region of the LMB.

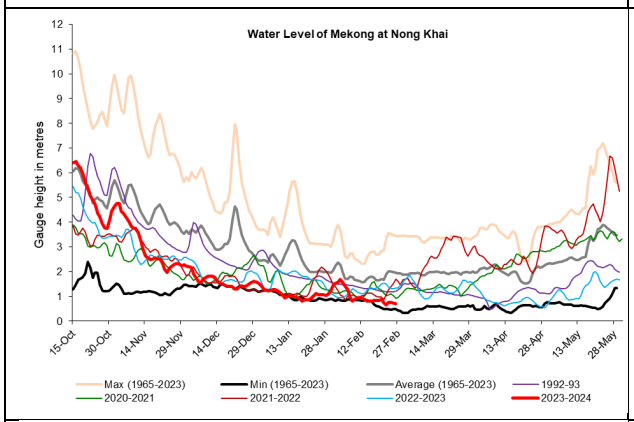
Annex A: Weekly water level monitoring at the 22 key stations

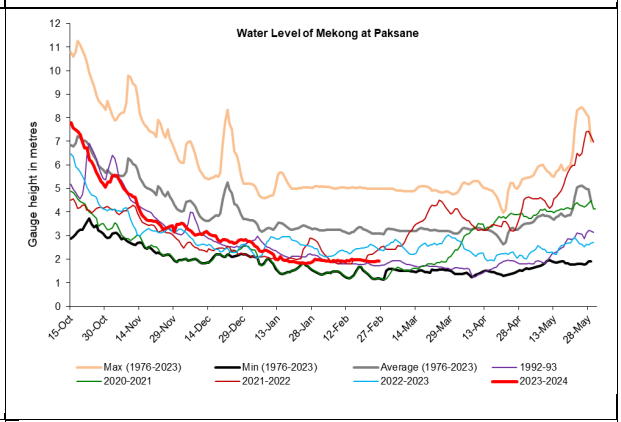


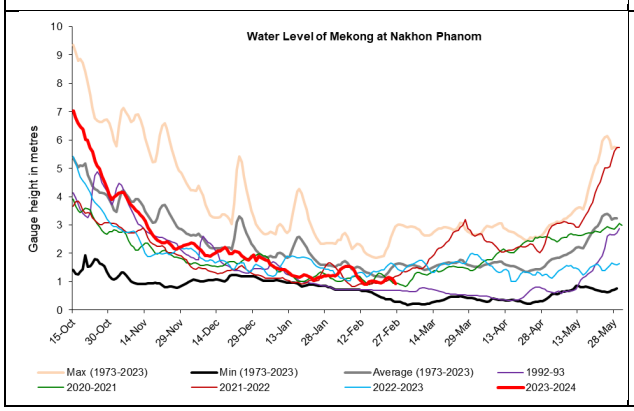


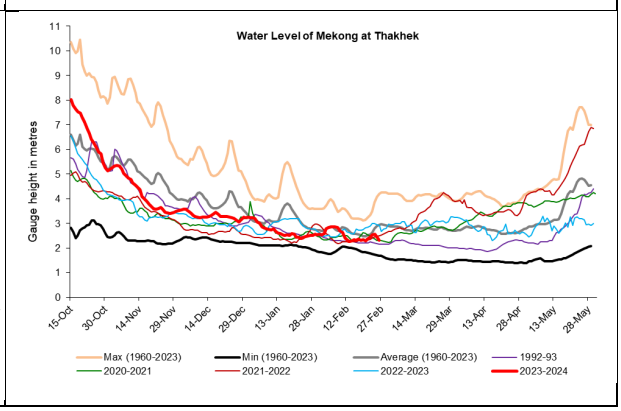


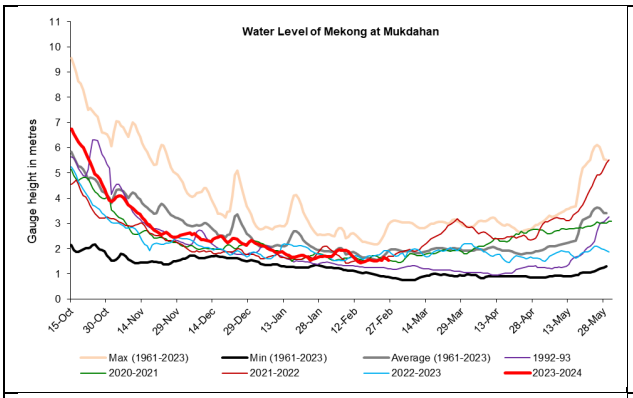


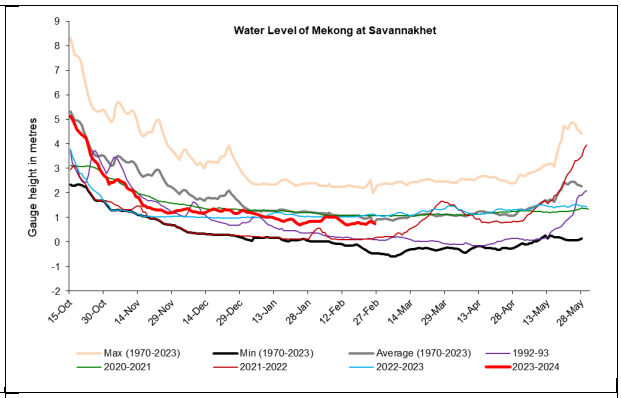


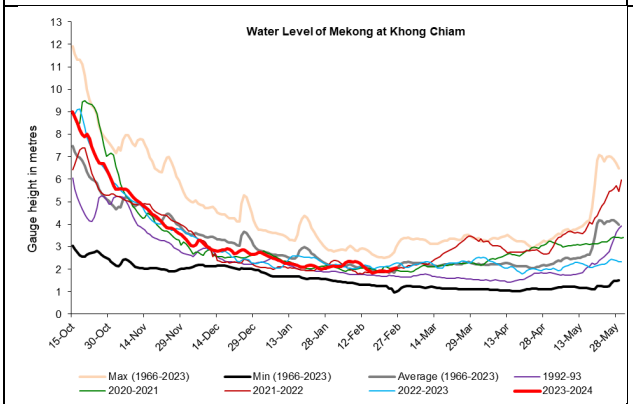


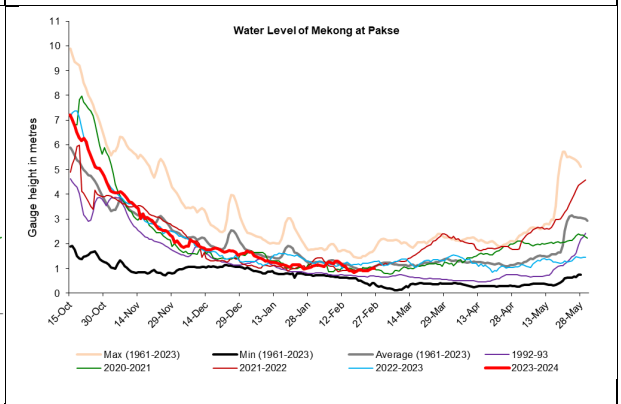


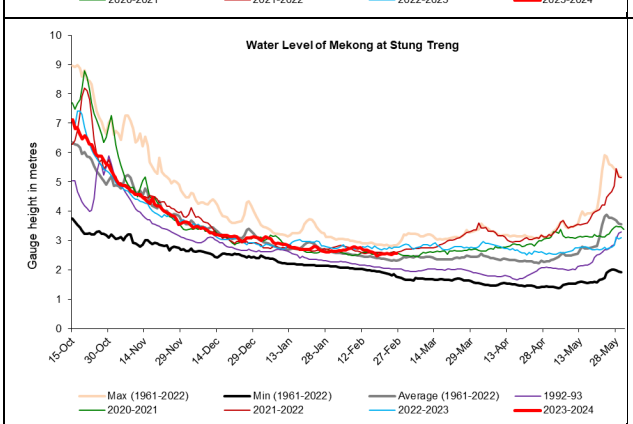


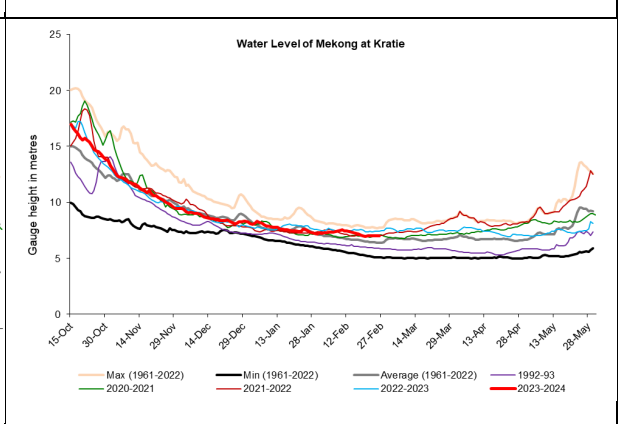

Water Level of Mekong at Mukdahan
Gauge height in metres
Max (1961-2023)
Min (1961-2023)
Average (1961-2023)
1992-93
2020-2021
2021-2022
2022-2023
2023-2024

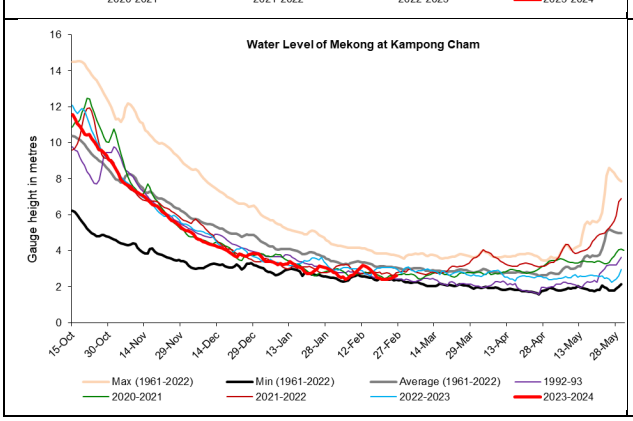

Water Level of Mekong at Savannakhet
Gauge height in metres
Max (1970-2023)
Min (1970-2023)
Average (1970-2023)
1992-93
2020-2021
2021-2022
2022-2023
2023-2024

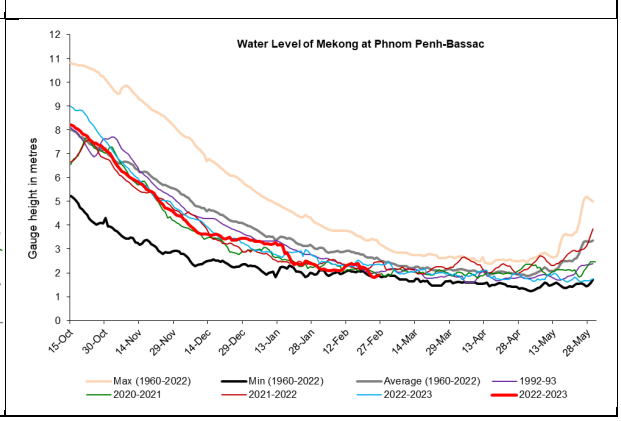

Water Level of Mekong at Khong Chiam
Gauge height in metres
Max (1966-2023)
Min (1966-2023)
Average (1966-2023)
1992-93
2020-2021
2021-2022
2022-2023
2023-2024

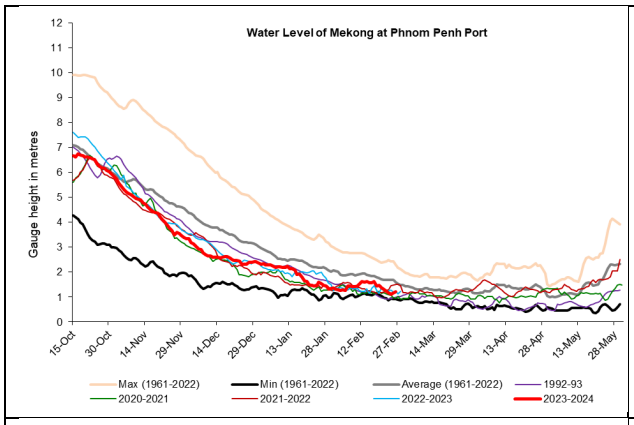

Water Level of Mekong at Pakse
Gauge height in metres
Max (1961-2023)
Min (1961-2023)
Average (1961-2023)
1992-93
2020-2021
2021-2022
2022-2023
2023-2024

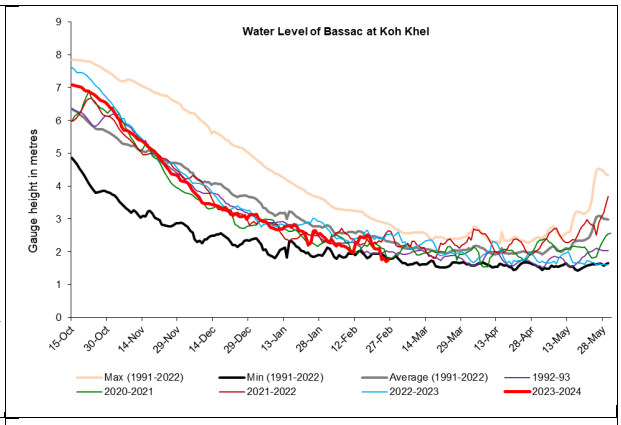

Water Level of Mekong at Stung Treng
Gauge height in metres
Max (1961-2022)
Min (1961-2022)
Average (1961-2022)
1992-93
2020-2021
2021-2022
2022-2023
2023-2024

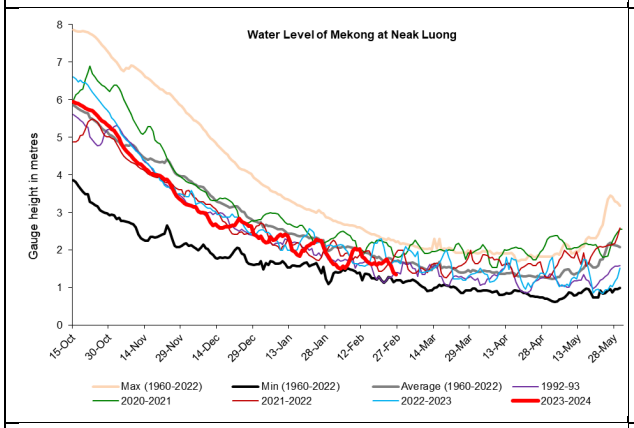

Water Level of Mekong at Kratie
Gauge height in metres
Max (1961-2022)
Min (1961-2022)
Average (1961-2022)
1992-93
2020-2021
2021-2022
2022-2023
2023-2024

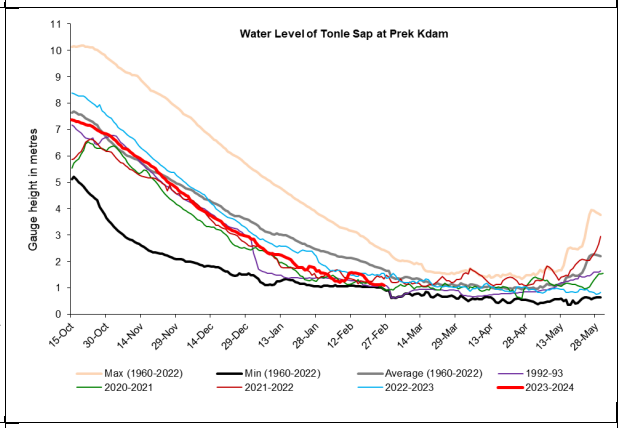

Water Level of Mekong at Kampong Cham
Gauge height in metres
Max (1961-2022)
Min (1961-2022)
Average (1961-2022)
1992-93
2020-2021
2021-2022
2022-2023
2023-2024

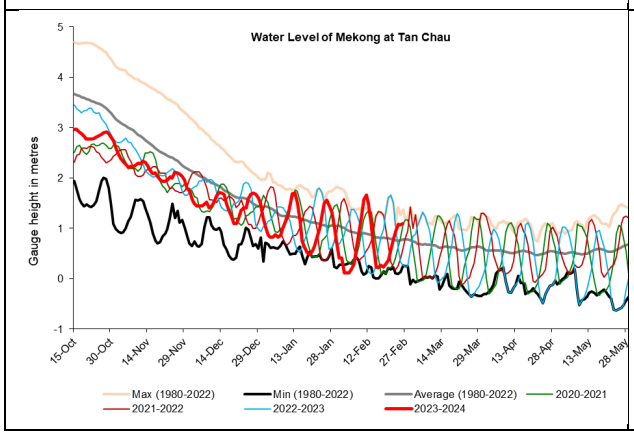

Water Level of Mekong at Phnom Penh-Bassac
Gauge height in metres
Max (1960-2022)
Min (1960-2022)
Average (1960-2022)
1992-93
2020-2021
2021-2022
2022-2023
2022-2023

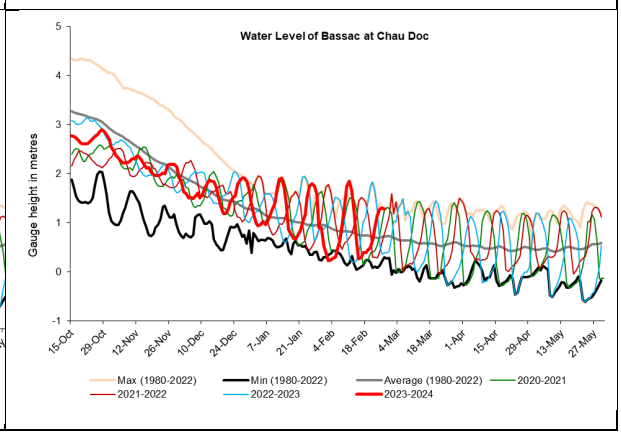

Water Level of Mekong at Phnom Penh Port
Gauge height in metres
Max (1961-2022)
Min (1961-2022)
Average (1961-2022)
1992-93
2020-2021
2021-2022
2022-2023
2023-2024


Water Level of Bassac at Koh Khel
Gauge height in metres
Max (1991-2022)
Min (1991-2022)
Average (1991-2022)
1992-93
2020-2021
2021-2022
2022-2023
2023-2024


Water Level of Mekong at Neak Luong
Gauge height in metres
Max (1960-2022)
Min (1960-2022)
Average (1960-2022)
1992-93
2020-2021
2021-2022
2022-2023
2023-2024


Water Level of Tonle Sap at Prek Kdam
Gauge height in metres
Max (1960-2022)
Min (1960-2022)
Average (1960-2022)
1992-93
2020-2021
2021-2022
2022-2023
2023-2024


Water Level of Mekong at Tan Chau
Gauge height in metres
Max (1980-2022)
Min (1980-2022)
Average (1980-2022)
2020-2021
2021-2022
2022-2023
2023-2024


Water Level of Bassac at Chau Doc
Gauge height in metres
Max (1980-2022)
Min (1980-2022)
Average (1980-2022)
2020-2021
2021-2022
2022-2023
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
20-02-2024	535.24	1.50	8.62	3.25	1.66	0.88	1.93	0.96	2.28	1.51	0.75	1.93	0.95	2.54	6.98	2.40	2.19	1.37	2.10	1.64	1.18	0.37	0.49
21-02-2024	535.23	1.50	8.52	3.27	1.57	0.77	1.91	1.00	2.36	1.50	0.74	1.91	0.90	2.54	7.00	2.40	2.10	1.30	2.08	1.69	1.15	0.54	0.65
22-02-2024	535.23	1.49	8.56	3.32	1.53	0.66	1.90	1.11	2.43	1.56	0.72	1.89	0.90	2.56	7.01	2.40	1.95	1.22	2.10	1.75	1.12	0.76	0.95
23-02-2024	535.20	1.48	8.46	3.32	1.50	0.75	1.90	1.16	2.54	1.53	0.78	1.91	0.91	2.54	7.02	2.42	1.84	1.15	1.76	1.67	1.11	0.94	1.14
24-02-2024	535.22	1.47	8.44	3.25	1.48	0.76	1.90	1.14	2.56	1.65	0.83	2.00	0.96	2.52	7.02	2.47	1.80	1.10	1.82	1.59	1.12	1.08	1.27
25-02-2024	535.60	1.46	8.36	3.24	1.46	0.72	1.92	1.06	2.46	1.62	0.82	2.03	1.00	2.56	7.00	2.55	1.87	1.16	1.70	1.39	1.13	1.07	1.30
26-02-2024	536.08	1.45	8.44	3.24	1.40	0.70	1.92	0.93	2.30	1.53	0.75	2.05	1.00	2.57	7.00	2.62	1.92	1.20	1.76	1.35	1.09	1.09	1.28

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
20-02-2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
21-02-2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
22-02-2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
23-02-2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
24-02-2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
25-02-2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
26-02-2024	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	0.0	0.0

Mekong River Commission Secretariat

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