Weekly Dry Season Situation Report in the Lower Mekong River Basin
15-21 March 2022

Prepared by
The Regional Flood and Drought Management Centre
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Figures

Figure 1: Summary of weather conditions over the LMB. ................................................................. 7
Figure 2: Outlook of wet and dry conditions over the Asian countries by ASMC. ................... 8
Figure 3: No tropical storm risk observed on 21 March 2022....................................................... 8
Figure 4: Weekly total rainfall at key stations in the LMB.............................................................. 9
Figure 5: Weekly rainfall distribution over the LMB................................................................. 10
Figure 6: Key stations and model application for River Monitoring and Flood Forecasting. 11
Figure 7. Water level at the Jinghong hydrological station during 15 Oct 2021 to 21 Mar 2022................................................................. 11
Figure 8. Water levels at Chiang Saen in Thailand and Luang Prabang in Lao PDR. ............ 13
Figure 9. Water levels Nong Khai and Paksane in Thailand and Lao PDR. ......................... 14
Figure 10: Water levels at Nakhon Phanom and Pakse of Thailand and Lao PDR. .............. 14
Figure 11: Water levels at Stung Treng and Kratie on the Mekong River. ............................ 15
Figure 12: Seasonal change of inflows and outflows of Tonle Sap Lake. ......................... 16
Figure 13. The seasonal change in monthly flow volume of Tonle Sap Lake...................... 17
Figure 14: Weekly standardised precipitation index from Mar 13 to 19. ............................... 19
Figure 15: Weekly Index of Soil Water Fraction from Mar 13 to 19................................. 20
Figure 16: Weekly Combined Drought Index during Mar 13-19................................. 21
Figure 17: Accumulated rainfall forecast (24 hrs) of model GFS. .................................... 23
Figure 18. Daily average of monthly rainfall anomaly forecast from February to April 2022. ........................................................................................................... 25
Table

Table 1. The monthly change in the flow volume of Tonle Sap Lake. ........................................ 17

Table 2. Weekly River Monitoring Bulletin. ................................................................................. 26
Key Messages

Key messages for this weekly report are presented below.

Rainfall and its forecast

- Rainfall was observed from the upper to the lower parts of the Mekong Basin, from Luang Prabang in Lao PDR to Tan Chau and Chau Doc in Viet Nam, varying from 1.00 mm to 109.20 mm.
- There will be some rain for the next 7 days over the Mekong region from 22 to 28 March 2022 especially in the upper and the lower parts.

Water level and its forecast

- According to MRC’s observed water level (WL) at Jinghong station, the WL still significantly decreased about 1.54 m from 537.73 m to 536.19 m during the weekly monitoring period from 15 to 21 Mar 2022 (recorded on 7:00 am) and stayed about 0.22 m lower than its two-year average (2020-2021) value. The outflow at Jinghong station decreased from 2,618.76 m³/s to 1,471.52 m³/s from 15 to 21 March 2022.
- Along with the sudden decreased outflow from Jinghong upstream, water level (WL) of monitoring station at Chiang Saen in Thailand also decreased about 0.26 m and stayed 1.81 m higher than its long-term average (LTA), considered abnormal. Water level at Lao PDR’s Luang Prabang, however, increased about 0.22 m compared with last week and stayed 0.62 m higher than its historical maximum value. WLs at the monitoring stations at Chiang Khan, Vientiane and Nong Khai are currently higher than their historical maximum value, considered abnormal. Water levels at Paksane in Lao PDR was also up about 1.67 m higher than its LTA level and considered normal. WLs from Thailand’s Nakhon Phanom to Pakse in Lao PDR increased about 0.45 m, which rose higher than their LTA level. WLs from Cambodia’s Stung Treng to Kratie increased 0.40 m and stayed about 0.84 m and 1.57 m higher than their LTA value. From Kompong Cham to Neak Luong on the Mekong River, Koh Khel on the Bassac River WLs increased 0.25 m, and at Chaktomuk and Prekdam on the Tonle Sap River it increased about 0.10 m. WLs at these stations are currently staying close to their LTA. For the tidal stations at Viet Nam’s Tan Chau and Chau Doc, WLs fluctuated between their Maximum and Minimum levels due to daily tidal effects from the sea and considered as critical.
- The water volume of the Tonle Sap Lake up to 21 Mar 2022 was close to its LTA but higher than the levels in 2019, 2020 and 2021 during the report period, and considered as normal.
- Water levels at Tan Chau and Chau Doc remained fluctuating between their Minimum and Maximum values due to the tidal process.
- Over the next seven days, the water levels across the monitoring stations are expected to go up from Kompong Cham to Chaktomuk and Koh Khel in Cambodia (due to backwater affect during the dry season. Water levels at most of stations currently higher than their long-term average value, except some stations in the lower part remain lower.

Drought condition and its forecast
- Drought conditions of the LMB from 13 to 19 March 2022 were normal in most parts of the LMB, except some moderate soil moistures in the middle and southeastern parts due to absence of rain but it is quite normal during dry season. The region showed no significant threat.

- For the upcoming three months’ forecasts, the LMB is likely to receive ample amount of rainfall in April and May, while it receives below average rain in June 2022 from the middle to the lower parts. Based on the weather forecast, May is likely to be much wetter than normal year especially in the north and central parts 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 **15-21 March 2022**. 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
- 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

The weather outlook bulletins for three months (March April and May) and the weather maps issued by the Thai Meteorological Department (TMD) were used to verify weather conditions in the LMB.

Since the early of March 2022, the warm weather has come because the influentially high-pressure air mass areas prevail over the LMB with gradually decreasing water levels in both mainstream and tributaries. The data from the TMD predict that low pressure of air-mass will bring warm and wet weather conditions in the upper part and lower part of LMB. From March to May, it is the period of summer when the high-pressure air mass areas prevailing over the Mekong region bring some rainfalls for the transitional period between dry and wet seasons.

*Figure 1* presents the weather map of 21 March 2022, showing low pressure points dominating the upper part of the Mekong area, which will have rain for the next few days.

![Weather Map](image)

*Figure 1: Summary of weather conditions over the LMB.*

According to the ASEAN Specialised Meteorological Centre (ASMC), the highest probability of wet and warm conditions is predicted over the lower part of the Mekong region during the 3rd and 1st weeks of March and April 2022 respectively. Moreover, the Mekong region is likely dominated by warm conditions, which may bring warmer temperature in general to the lower part of the LMB. *Figure 2* shows the outlook of weather condition from 21 March to 3rd April 2022 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.

**Tropical depressions (TD), tropical storms (TS) and typhoons (TY)**

There was no tracking storm covering the LMB during 15-21 March 2022, meaning no movement of storm detected from the South Sea of Viet Nam, as displayed in Figure 3.

**Active system as of 21 March 2022 6:23 GMT**

Figure 3: No tropical storm risk observed on 21 March 2022.
Rainfall patterns over the LMB

This week from 15 to 21 March 2022, rainfall was observed over the upper to the lower parts of the Mekong Basin, from Luang Prabang in Lao PDR to Tan Chau and Chau Doc in Viet Nam, varying from 1.00 mm to 109.20 mm. The focused rainfall from 15 to 21 March, compared with last week rainfall occurred in the Mekong region is showed in Figure 4.

![Weekly total rainfall at key stations in the LMB.](image)

Figure 4: Weekly total rainfall at key stations in the LMB.

To verify area rainfall distribution, Figure 5 shows a map of the weekly accumulated rainfall based on the observed data provided by the MRC Member Countries – Cambodia, Lao PDR, Thailand, and Viet Nam – from 15 to 21 March 2022.

Small amount of rain this week is an indication of the end of the rainy season in the LMB.
Figure 5: Weekly rainfall distribution over the LMB.
3 Water Levels in the Lower Mekong River

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 6. The hydrograph for each key station is available from the MRC’s River Flood Forecasting: http://ffw.mrcmekong.org/overview.php. The weekly water levels and rainfall at each key station are summarised in Annex A.
According to MRC’s observed water level (WL) at Jinghong station, the WL still significantly decreased about 1.54 m from 537.73 m to 536.19 m during the weekly monitoring period from 15 to 21 Mar 2022 (recorded on 7:00 am) and stayed about 0.22 m lower than its two-year average (2020-2021) value. This sudden decreased WL will cause the river level at Chiang Saen, Thailand to drop 1 meter by noon on March 22, referred to the alert of Eyes on Earth (Mekong Dam Monitor).

The outflow at Jinghong station decreased from 2,618.76 m³/s to 1,471.52 m³/s from 8 to 14 March 2022. Figure 7 below presents water level that increased at the Jinghong hydrological station¹, indicating the trend of fluctuating water level up to 21 March 2021.

Along with the significant decreased outflow from Jinghong upstream, water level of monitoring station at Chiang Saen in Thailand also decreased about 0.26 m but still stayed 1.81 m higher than its long-term average (LTA), considered abnormal. However, water level at Lao PDR’s Luang Prabang increased about 0.22 m compared with last week and stayed 0.62 m higher than its historical maximum value. WLs at the monitoring stations at Chiang Khan and Vientiane remained about 0.06 m and 1.11 m higher than their historical maximum value, considered abnormal. Water levels at Nong Khai in Thailand was about 0.01 m higher than its maximum value, while at Paksane in Lao PDR was about 1.67 m higher than its LTA level and considered normal. WLs from Thailand’s Nakhon Phanom to Pakse in Lao PDR increased about 0.45 m, which rose higher than their LTA level. The current WL at Savannakhet in Lao PDR is also 0.56 m higher than its LTA level, which considered normal. WLs from Cambodia’s Stung Treng to Kratie increased 0.35 m and stayed about 0.84 m and 1.57 m higher than their LTA value. From Kompong Cham to Neak Luong on the Mekong River, Koh Khel on the Bassac River, increased 0.25 m, but at Chaktomuk and Prekdam on the Tonle Sap River it increased about 0.06 m. WLs at these stations are staying close to their LTA. For the tidal stations at Viet Nam’s Tan Chau and Chau Doc, WLs fluctuated between their Maximum and Minimum levels due to daily tidal effects from the sea and considered as critical.

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.
Based on hydrological phenomenon, the contribution of inflow water from the upstream of Lancang-Mekong in China to the Mekong mainstream is about 16% in total during the wet season from June to October and about 25% in total during the dry season from November to May. The whole inflow of water into the LMB is influenced by rainfall at the Mekong mainstream and its tributaries during the wet season.

**Chiang Saen and Luang Prabang**

Water level during Mar 15-21 at Thailand’s Chiang Saen decreased from 3.55 m to 3.29 m and still remained about 1.81 m higher than its Long-Term-Average (LTA), which was considered abnormal. When compared to last week, this week’s water level is lower.

Water level at the Luang Prabang station in Lao PDR was up about 0.22 m during the reporting period. Compared to last week, the figure shows that water level this week is still higher. The water level at this station was 0.62 m higher than its Maximum Value. The water levels at Chiang Saen and Luang Prabang are shown in Figure 8 below.

Being situated between the upstream (Nam Beng, Nam Ou, Nam Suong, and Nam Khan) and downstream (Xayaburi) hydropower dams, the Luang Prabang station has a unique characteristic as it is influenced by the operations of all its surrounding dams. **Thus, the water level at this station can possibly change very rapidly during the early dry season.**

![Figure 8. Water levels at Chiang Saen in Thailand and Luang Prabang in Lao PDR.](image)

**Chiang Khan, Vientiane-Nong Khai and Paksane**

The water level at Chiang Khan in Thailand (downstream of the Xayaburi dam) significantly increased about 0.72 m during the reporting week. It went up to about 0.06 m higher than its Maximum value, which considered abnormal. Moreover, water level downstream at Vientiane in Lao PDR also significantly increased from 3.10 m to 3.77 m and rose about 1.11 m higher than its Maximum level during Mar 15-21, which considered abnormal. At Nong Khai station in Thailand, the water level was also significantly up during the reporting period. It increased from 2.55 m to 3.32 m moving higher than its maximum value about 0.01 m. At Paksane in Lao PDR, water levels increased about 0.70 m from 3.48 m to 4.18 m. **The current water level at Paksane in Lao PDR is about 1.67 m higher than its LTA level, which considered abnormal.** The recently increased water levels from Chiang Khan to Nong Khai and Paksane
were obviously fluctuating due to hydropower operation and water released from upstream. The water levels at Vientiane and Paksane are shown in Figure 9 below.

Figure 9. Water levels Nong Khai and Paksane in Thailand and Lao PDR.

Nakhon Phanom to Pakse

Water levels from Nakhon Phanom in Thailand to Pakse in Lao PDR increased about 0.45 m, during the reporting period. Water levels at these stations went up to above their LTA level. The current WL at Savannakhet in Lao PDR is also higher than its LTA level, which considered normal. Figure 10 shows the water levels at Nakhon Phanom and Pakse stations.

Figure 10: Water levels at Nakhon Phanom and Pakse of Thailand and Lao PDR.

Stung Treng to Kompong Cham/Phnom Penh to Koh Khel/Neak Luong

With some contributed inflow from the upstream part of the Mekong River and the 3S river (Sekong, Se San, and Sre Pok), the water levels from Stung Treng and Kratie to Kompong Cham in Cambodia were increasing during 15-21 March 2022. This week water level from Stung Treng to Kratie increased about 0.22 m and 0.50 m, respectively. The current water levels at Stung Treng and Kratie are staying about 0.84 m and 1.57 m higher than their LTA value, respectively. Water level at Kompong Cham was about 0.38 m higher than its LTA.

This week, the water levels at Stung Treng and Kratie were still higher than their LTA, which considered normal (as showed in Figure 11).
At Chaktomuk on the Bassac River, due to some rainfall and inflows from upstream catchment, the water level was up about 0.06 m and stayed 0.02 m lower than its LTA value; while at Koh Khel, water level increased about 0.25 m and about 0.22 m higher than its LTA value. The water level at Prek Kdam on the Tonle Sap Lake increased about 0.09 m and was about 0.05 m higher than its LTA value. The water level at the Tonle Sap Lake (observed at Kompong Luong) was similar to Prek Kdam station’s water level. The recently increased water level was due to some rainfall and inflow contributed from upstream of the Tonle Sap Lake area during the reporting period. The water level at the Tonle Sap Lake (observed at Kompong Luong) followed the same trend of Prek Kdam station’s water level. Water levels at these stations were staying close to their LTA level, which still considered normal.

**Tidal stations at Tan Chau and Chau Doc**

This week, the water levels from 15 to 21 March 2022 at Viet Nam’s Tan Chau and Chau Doc were fluctuating between their Minimum and Maximum values due to daily tidal effects from the sea. The fluctuation was between 0.52 m and 0.72 m. The current water levels at Tan Chau and Chau Doc were lower than their LTA level, which considered critical.

**The Tonle Sap Flow**

At the end of the wet season, when water levels along the Mekong River subside, the outflows of the Tonle Sap Lake return into the Mekong River and then to the Delta. This phenomenon normally takes place from end of September to October. Based on flow observation at Prek Kdam, the outflow of the Tonle Sap Lake was taking place since 10 October 2021.  

**Figure 12** shows the seasonal changes of the inflow/reverse flow and the outflow of the TSL at Prek Kdam in comparison with the flows of 2019 and 2020, and their LTA level (1997-2020). Up to March 21 of this reporting period, it was observed that the main outflow to Tonle Sap Lake slightly increased due to some rainfall and inflows from upstream. This increased outflow of Tonle Sap Lake was most likely caused by inflows and some rainfall from the catchment area. Up to present, the outflow from the Tonle Sap Lake condition in 2022 is higher than 2019, 2020 and 2021 outflow conditions. However, the outflow of 2022 is staying close with its LTA (1997-2020). For next week, some rainfall is forecasted for the Tonle Sap
Thus, the outflow into the Tonle Sap Lake is likely continuing to slightly increase from the current level.

**Figure 13** shows seasonal changes in monthly flow volumes up to 21 March 2022 for the Lake compared with the volumes in 2019, 2020, 2021 and their LTA, and the fluctuation levels (1997–2021). It shows that up to March 21, the water volume of the Tonle Sap Lake was close to its LTA and higher than 2019, 2020, 2021 during the same period. The figure is displayed in **Table 1**, which indicates that the Tonle Sap Lake has been affected by water levels from the Mekong River, the tributaries, and rainfall in the surrounding sub-catchments and considered normal.

This demonstrates the influence of the relationships between the reverse and out flows, water levels of the Mekong River, inflows from tributaries, and the flow direction in the complex hydraulic environment of the Tonle Sap Lake during the wet and dry seasons. The data show that about half of the annual inflow volume into the Tonle Sap Lake has originated from the Mekong mainstream. Thus, flow alterations in the mainstream could have direct impact on the Tonle Sap Lake water levels and on its hydrology.

![Inflow and Outflow of the Tonle Sap Lake](image)

**Figure 12**: Seasonal change of inflows and outflows of Tonle Sap Lake.
Figure 13. The seasonal change in monthly flow volume of Tonle Sap Lake.

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

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Critical situation, compared with historical Min values
Normal condition, compared with LTA (Long term average)
Low volume situation, compared with LTA values

Unit: Million Cubic Meter (1 MCM = 0.001 Km³)
4  Flash Flood in the Lower Mekong Basin

During March 15-21, the LMB was affected by three main weather factors. These include (i) the heat-pressure cell covered the upper with the moderate high-pressure area from China extended its ridge to cover the upper part almost the entire week, (ii) the weak southerly and south-easterly wind prevailed over the upper part during the middle and late week, and (iii) the south-easterly wind prevailed over the Gulf of Thailand.

These conditions brought the upper northern and north-eastern parts cool weather in the morning for almost the entire week. While during the daytime, hot weather occurred in nearly the whole areas of upper part almost the whole week with very hot weather in some areas in the northern part during the weekend. Shower rain occurred in some areas of the LMB last weekend.

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

Weekly drought monitoring from 13 to 19 March 2022

Drought monitoring data for 2022 are available from Sunday to Saturday every week; thus, the reporting period is normally delayed by two days 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 March 13 to 19, as shown in Figure 11, were relatively wet in the north and south and normal in the middle area of the region. Weekly SPI map shows that the LMB received from average to above average rainfall in most parts of the region.

![Drought Monitoring Map](image)

Figure 14: Weekly standardised precipitation index from Mar 13 to 19.
• **Weekly Index of Soil Water Fraction (ISWF)**

ISWF shows that from Mar 13 to 19, as displayed in Figure 12, the LMB was very wet in the upper part and moderately dry in the central and south-eastern areas. It shows that the upper part was receiving more rain than the central and lower parts during the monitoring week. The conditions were not preferable for crop growing. However, this does not mean the region were facing any serious agricultural drought as it is a normal phenomenon that the LMB receives very little or no rain during dry season.

**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.

![Drought Forecasting and Early Warning for the Lower Mekong Basin](image)

Figure 15: Weekly Index of Soil Water Fraction from Mar 13 to 19.

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

With a better condition, the combined drought indicator, as displayed in Figure 13, reveals that during March 13-19 the LMB was at normal condition in most parts of the region. Moderate and severe droughts in the previous weeks disappeared due to some rain caused by low pressures.
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](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 Weather and rainfall forecast

Based on the analysis of the synoptic meteorological information and result from the Global Forecast System (GFS) Model, in the coming week, two main factors might affect the LMB. They include (i) high pressure from China in the upper part and (ii) the prevailing weak Southwest Monsoon from the Gulf of Thailand to the lower part of the LMB.

During March 22-28, in general, small rainfall (5-20 mm/24h) or no rain may occur in some areas of the LMB. However, on March 24 and March 28, moderate rainfall (20-50 mm/24h) may occur in some areas in the upper and middle parts of the LMB.

Figure 14 shows accumulated rainfall forecast (24hrs) of the GFS model during March 22-28.
Figure 17: Accumulated rainfall forecast (24 hrs) of model GFS.

6.2 Water level forecast

Chiang Saen and Luang Prabang

Based on March 21’s weekly river monitoring bulletin, the weekly forecast water level at Chiang Saen in Thailand is expected to decrease about 0.70 m in the next seven days. The trend of water level at these stations will continue staying higher than its LTA. Rainfall is forecasted in the area in the next seven days.

For Luang Prabang in Lao PDR, the water level is likely to decrease about 1.14 m in the next seven days. The current water level is higher than its maximum value. Rainfall is forecasted in the area in the next seven days.

Chiang Khan, Vientiane-Nong Khai and Paksane

Water level at Chiang Khan station in Thailand is forecasted to go down about 0.95 m for the next seven days. From Vientiane in Lao PDR and Nong Khai in Thailand, WLs will decrease
about 0.80 m in the next seven days. At Paksane in Lao PDR, water level will decrease about 0.50 m due to less inflow from the upper catchments and hydropower dam operation. Rainfall is forecasted in this area in the next seven days. The water levels at Nong Khai and Paksane will remain higher than their LTA level.

**Nakhon Phanom to Pakse**

Water levels from Nakhon Phanom to Mukdahan in Thailand will increase between 0.20 m in the next seven days. The water levels from Khong Chiam in Thailand to Pakse in Lao PDR will increase about 0.20 m. Water levels at these stations will remain higher than their LTA level. Next week rainfall is forecasted in the area.

**Stung Treng to Kompong Cham/Phnom Penh to Koh Khel/Neak Luong**

From Stung Treng to Kratie on the Mekong River in Cambodia, the water levels will go up about 0.35 m over the next seven days. WLs from Kompong Cham to downstream at Neak Luong will be up about 0.35 m. Rainfall is forecasted for the area between Stung Treng and Kompong Cham during next week.

The water levels of the Tonle Sap Lake at Prek Kdam and Phnom Penh Port as well as at Phnom Penh’s Chaktomuk on the Bassac River will increase about 0.20 m over the next seven days.

Water levels at most of the stations will continue to stay close to their LTA value, particularly in the lower part of the region from the Bassac at Phnom Penh’s Chaktomuk to Koh Khel as well as from Tonle Sap at Prek Kdam to Phnom Penh Port, including the Tonle Sap Lake. Rainfall is forecasted for the low-lying area of Cambodia next week.

**Tidal stations at Tan Chau and Chau Doc**

For Viet Nam’s Tan Chau on the Mekong River and Chau Doc on the Bassac River, water levels will be moving up and down in between their Minimum and Maximum values following daily tidal effects from the sea.

Table 3 shows the weekly River Monitoring Bulletin issued on March 21. Results of the started weekly river monitoring bulletin are also available at [http://ffw.mrcmekong.org/bulletin_wet.php](http://ffw.mrcmekong.org/bulletin_wet.php).

### 6.3 Flash Flood Information

Flash flood events are not likely to happen in the LMB. 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](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](http://ffw.mrcmekong.org/ffg.php).

### 6.4 Drought forecast
There are several climate-prediction models with different scenarios on the upcoming months until March 2022. The MRC’s DFEWS adopts an ensemble model called the North America Multi-Model Ensemble (NMME), which averages all scenarios.

The global scale of rainfall prediction is used to see how the rain distribution looks like for the coming months. Figure 15 shows the ensemble mean of daily average precipitation (mm/day) each month from February to April 2022 produced by the NMME.

![Figure 18. Daily average of monthly rainfall anomaly forecast from February to April 2022.](image)

The ensemble prediction model based on the initial conditions in March 2022 reveals that the LMB is likely to receive ample amount of rainfall in April and May, while it receives below average rain in June 2022 from the middle to the lower parts. Based on the weather forecast, May is likely to be much wetter than normal year especially in the north and central parts of the LMB.

The 2021 dry season is relatively wetter than that of 2020 and the monsoon rain in 2022 might come on time or even earlier than normal year.
Table 2. Weekly River Monitoring Bulletin.

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<th>Min water level against zero gauge (m)</th>
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REMARKS:
- not available.
* reference stations without forecast.
nr: no rain.

River Flood Forecaster

KHEM Sothea

NOTE: Discharge at Luang Prabang may be influenced by hydropower operations (at both upstream and downstream). For more info, please refer to this link:

Date: 21 March 2022
Forecast period from: 22 March to 28 March 2022
7 Summary and Possible Implications

7.1 Rainfall and its forecast

This week, rainfall was observed in the upper and lower parts of the Mekong region from Lunag Prabang in Lao PDR to Tan Chau and Chau Doc in Viet Nam, varied from 1.00 mm to 109.20 mm. Compared with last week’s amount, the rainfall this week focussed in Kompong Cham area with the highest quantity in the LMB.

Based on the forecasted rainfall from satellite using GFS data, rainfall is likely to take place in the areas from the upper part of the Mekong region including the 3S area and Mekong Delta of Viet Nam during March 22-28, varying from 0.10 mm to 60.00 mm. This indicates that the wet and warm weather has started over the LMB.

7.2 Water level and its forecast

According to MRC’s observed water level (WL) at Jinghong station, the WL still significantly decreased about 1.54 m from 537.73 m to 536.19 m during the weekly monitoring period from 15 to 21 Mar 2022 (recorded on 7:00 am) and stayed about 0.22 m lower than its two-year average (2020-2021) value. The outflow at Jinghong station decreased from 2,618.76 m³/s to 1,471.52 m³/s from 8 to 14 March 2022.

Water levels in the lower part of the monitoring locations in the LMB during this reporting week were significantly increasing from Chiang Khan to Paksane. At Chiang Khan, and Vientiane/Nong Khai, water levels were higher than their maximum value. The current water levels at Vientiane are about 1.11 m higher than their maximum level. The water levels from Nakhon Phanom in Thailand to Pakse in Lao PDR were increasing and staying higher than their LTA value, considered normal. In Cambodia, water levels at Stung Treng, Kratie and Kompong Cham were higher than their LTA value. Water levels at Neak Luong, Bassac at Phnom Penh, and Prek Kdam in Cambodia are staying close to their LTA level. The high level in some specific stations was due to inflows from abnormal inflow from upstream and some rainfall in the region from 1 to 21 March 2022. Generally, this week’s water levels were relatively higher than those of last week from the upper, middle and the lower parts in the LMB.

Water levels at most of the station along the Mekong mainstream from Chiang Saen to Kompong Cham stations were higher than their LTA level, except those at some stations such as Chaktomuk and Neak Luong were lower than their LTA level.

The flow volume of the Tonle Sap Lake was lower than its LTA. From next week, the flow is expected to continue slightly increasing due to some rainfall forecasted in the inflow catchments of the Tonle Sap Lake.

From Stung Treng to Kompong Cham water levels will go up and from Chaktomuk in Phnom Penh the water levels will also slightly increase. The water levels – at Neak Luong on the Mekong River, from Prek Kdam to Phnom Penh Port on the Tonle Sap, and Koh Khel on the Bassac – are forecasted to continue staying close to their LTA level.
The situation in Tan Chau on the Mekong River and Chau Doc on the Bassac River is expected to remain fluctuating. The current fluctuation of water level is in between their Minimum and Maximum levels, which considered very critical.

Since the fourth week of October 2021, water levels across most monitoring stations in the LMB have significantly dropped to the level lower than their LTA (from upper to lower stretches within the LMB). For a more complete preliminary analysis of the hydrological conditions in the LMB over July–December 2020, November 2020 to May 2021 and June to October 2021 see this Situation Report.

The contribution to the Mekong River’s flow from the UMB in China (Yunnan component) is about 16% by the time the river discharges through the Mekong Delta into the Sea. By far the major contribution comes from the two major ‘left-bank’ (Eastern) tributaries between Vientiane – Nakhon Phanom and Pakse – Stung Treng, which together contribute more than 40% of the flows.

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

Drought conditions of the LMB from 13 to 19 March 2022 were normal in most parts of the LMB except some moderate soil moistures in the middle and southeastern parts due to absence of rain but it is quite normal during dry season. The region showed no significant threat.

For the upcoming three months’ forecasts, the LMB is likely to receive ample amount of rainfall in April and May, while it receives below average rain in June 2022 from the middle to the lower parts. Based on the weather forecast, May is likely to be much wetter than normal year especially in the north and central parts of the LMB.
Annex A: Tables for weekly updated water levels and rainfall at the Key Stations

Table A1: Weekly observed water levels

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<th>Chiang Khan</th>
<th>Vientiane</th>
<th>Nongkhai</th>
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Table A2: Weekly observed rainfall

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