



Mekong River Commission

Weekly Dry Season Situation Report in the Lower Mekong River Basin

23 – 29 April 2024

Prepared by
The Regional Flood and Drought Management Centre
30 April 2024

The MRC is funded by contributions from its Member Countries and Development Partners, including Australia, Belgium, the European Union, Finland, France, Germany, Japan, Luxembourg, the Netherlands, Sweden, Switzerland, the United States and the World Bank.

Copyright © Mekong River Commission, 2024

First published (2020)

Some rights reserved.

This work is the product of the Mekong River Commission Secretariat. While all efforts are made to present accurate information, the Secretariat does not guarantee the accuracy of the data included in this work. The boundaries, colours, denomination, and other information shown on any map in this work do not imply any judgement on the part of the MRC concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

Nothing herein shall constitute or be considered to be a limitation upon or waiver of the privileges and immunities of the MRC, all of which are specifically reserved.

This publication may be reproduced in whole or in part and in any form for educational or non-profit purposes without special permission from the copyright holder, provided acknowledgement of the source is made and notification is sent to the MRC. The MRC would appreciate receiving a copy of any publication that uses this publication as a source. This publication cannot be used for sale or for any other commercial purpose whatsoever without permission in writing from the MRC.

Title: Weekly dry season situation report in the Lower Mekong River Basin for 23 – 29 April 2024.

ISSN: 1728-3248

Keywords: Monitoring/forecasting/weather/the Mekong/the Tonle Sap Lake

For bibliographic purposes, this volume may be cited as:

Mekong River Commission. (2024). *Weekly dry season situation report in the Lower Mekong River Basin for 23 – 29 April 2024*. Vientiane: MRC Secretariat.

Information on MRC publications and digital products can be found at
<http://www.mrcmekong.org/publications/>

All queries on rights and licenses should be addressed to:

Mekong River Commission

Documentation and Learning Centre

184 Fa Ngoum Road, Unit 18, Ban Sithane Neua, Sikhottabong District, Vientiane 01000, Lao PDR

Telephone: +856-21 263 263 | E-mail: mrcs@mrcmekong.org | www.mrcmekong.org

Content

| | |
|---|-----|
| Content | i |
| List of Figures | ii |
| List of Tables..... | iii |
| Key Messages | iv |
| 1 Introduction..... | 1 |
| 2 General Weather Patterns..... | 2 |
| 3. Rainfall and Water Level Monitoring..... | 3 |
| 3.1. <i>Rainfall monitoring</i> | 3 |
| 3.2. <i>Water level monitoring</i> | 5 |
| 4. Flash Flood in the Lower Mekong Basin | 9 |
| 5. Drought Monitoring in the Lower Mekong Basin | 9 |
| 5.2. <i>Weekly drought monitoring from April 23 to 29</i> | 9 |
| 6 Weather and Water Level Forecast and Flash Flood information..... | 12 |
| 6.1 <i>Rainfall forecast</i> | 12 |
| 6.2 <i>Water level forecast</i> | 14 |
| 6.3 <i>Flash Flood Information</i> | 16 |
| 6.4 <i>Drought forecast</i> | 16 |
| 7 Summary and Possible Implications | 17 |
| 7.1. <i>Rainfall and its forecast</i> | 17 |
| 7.2. <i>Water level and its forecast</i> | 17 |
| 7.3. <i>Flash flood and its trends</i> | 17 |
| 7.4. <i>Drought condition and its forecast</i> | 17 |
| Annex A: Weekly water level monitoring at the 22 key stations | 22 |
| Annex B: Tables for weekly updated water levels and rainfall at the Key Stations..... | 25 |

List of Figures

| | |
|--|----|
| Figure 1: Weather conditions over the LMB..... | 2 |
| Figure 2: Outlook of wet and dry conditions over the Asian countries by ASMC..... | 3 |
| Figure 3: No tropical storm risk observed on 29 April 2024 | 3 |
| Figure 4: Weekly rainfall distribution over the LMB during 23 – 29 April 2024 | 4 |
| Figure 5: The key stations along LMB for river flood forecasting..... | 6 |
| Figure 6. Water level at the Jinghong hydrological station up to 29 April 2024. | 7 |
| Figure 7: Seasonal change of inflows and outflows of Tonle Sap Lake. | 8 |
| Figure 8. The seasonal change in monthly flow volume of Tonle Sap Lake. | 8 |
| Figure 9: Weekly standardised precipitation index from Apr 23 to 29. | 10 |
| Figure 10: Weekly Index of Soil Water Fraction from April 23 to 29..... | 11 |
| Figure 11: Weekly Combined Drought Index from April 23-29..... | 12 |
| Figure 12: Accumulated rainfall forecast from CHIRP-GFS (30 April – 06 May 2024) | 13 |
| Figure 13. Monthly forecast of rainfall from NMME for April, May and June 2024..... | 16 |

List of Tables

| | |
|--|----|
| Table 1. The monthly change in the flow volume of Tonle Sap Lake. | 9 |
| Table 2. Weekly River Monitoring Bulletin. | 15 |

Key Messages

Key messages for this weekly report are presented below.

Rainfall monitoring and forecast

- In the period of 23 – 29 April 2024, there has been light rainfall in some areas in the northern and southern parts of Lao PDR; the central highland of Viet Nam. The remaining areas in the Lower Mekong Basin have not received any rainfall.
- From 30 April to 06 May 2024, most parts of the Lower Mekong Basin are expected to experience little to no rainfall, with total expected rainfall ranging from 0 to 10 mm.

Water level monitoring and forecast

- At 22 key monitoring stations along the Mekong mainstream from 23 – 29 April 2024, water levels are below the long-term averages (LTAs) except for water level at Luang Prabang, Nakhon Phanom, Thakhek, Mukdahan, Khong Chiam, Pakse, Stung Treng, Kratie, and Kampong Cham monitoring stations. 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 30 April – 06 May 2024, Water levels are forecasted to be decreasing at stations from upper part at Chiang Saen to Nong Khai and increasing from Paksane to Kampong Cham stations. Moving down to lower part from Phnom Penh (Bassac) to Prek Kdam, water level will be slightly drop except for Prek Kdam. 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, Khong Chiam, Pakse, Stung Treng, Kratie, Tan Chau and Chau Doc stations.

Drought condition and forecast

- During 23-29 April 2024, the LMB was facing from moderate to exceptional drought mainly in the middle and southern parts. Northern Cambodia was the most extreme drought area of the region.
- The next three-month forecast of rainfall indicates that much below average rainfall is predicted for the whole LMB area during the upcoming April and May. While June is forecasted to be relatively wet over the northern and southern parts. Moderate and severe meteorological drought is likely taking place in the eastern region covering mainly some area of Thailand and southern Lao PDR.

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 **23 – 29 April 2024**. The trend and outlook for water levels are also presented.

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

The report covers the following topics that are updated weekly:

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

Mekong River water levels are updated daily and can be accessed from:

<http://ffw.mrcmekong.org/bulletin.php>.

Drought monitoring and forecasting information is available at:

<http://droughtforecast.mrcmekong.org>

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

2 General Weather Patterns

During the last week, the Lower Mekong Basin influenced by the heat low-pressure. There has been light rainfall in some areas in the northern and southern parts of Lao PDR; the central highland of Viet Nam. The remaining areas in the Lower Mekong Basin have not received any 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 heat low-pressure system from 30 April to 06 May. In the upcoming seven days, most parts of the Lower Mekong Basin are expected to experience little to no rainfall, with total expected rainfall ranging from 0 to 10 mm.

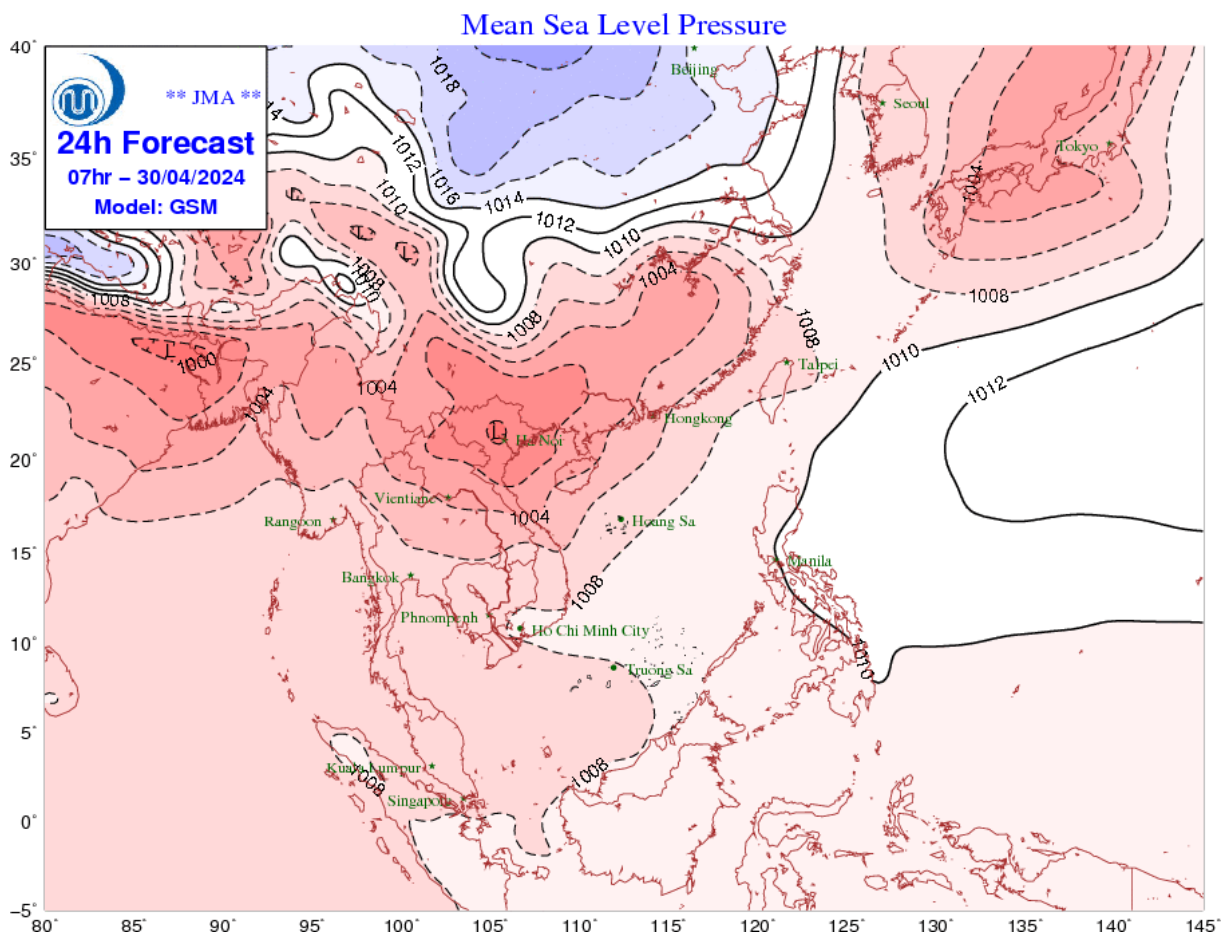


Figure 1: Weather conditions over the LMB

According to the ASEAN Specialised Meteorological Centre (ASMC, <http://asmc.asean.org/home/>), the subseasonal weather outlook (29 April – 12 May 2024) indicates that the drier condition is predicted to occur almost entire LMB, particularly in Thailand, and Cambodia. Moreover, the warmer conditions are predicted to occur in the entire LMB. **Figure 2** shows the outlook of weather condition from 29 April to 12 May 2024 in Southeast Asia based on results from the NCEP model (National Centres for Environmental Prediction).

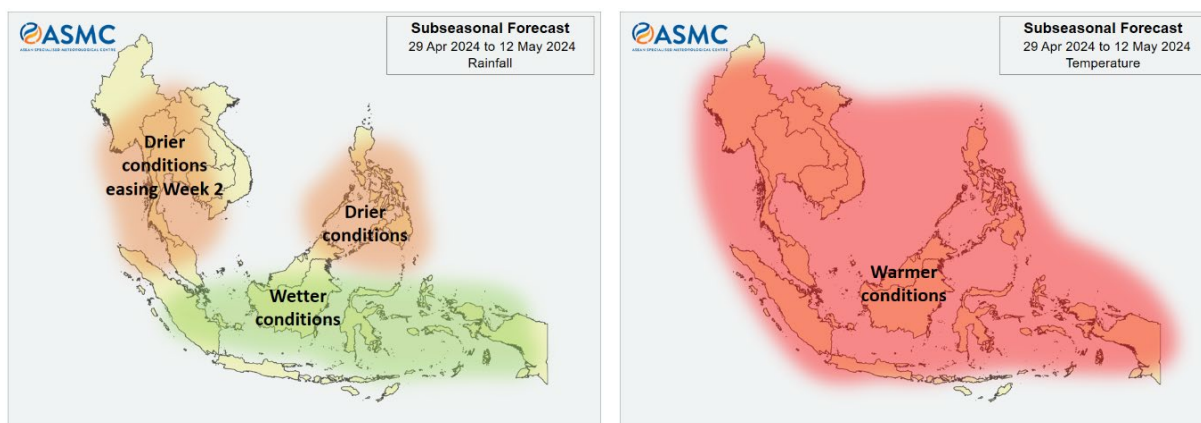


Figure 2: Outlook of wet and dry conditions over the Asian countries by ASMC.

Based on the tropical storm risk (TS) (<https://www.tropicalstormrisk.com/>), there is no active NW pacific system as of 29 April 2024 as displayed in **Figure 3**.

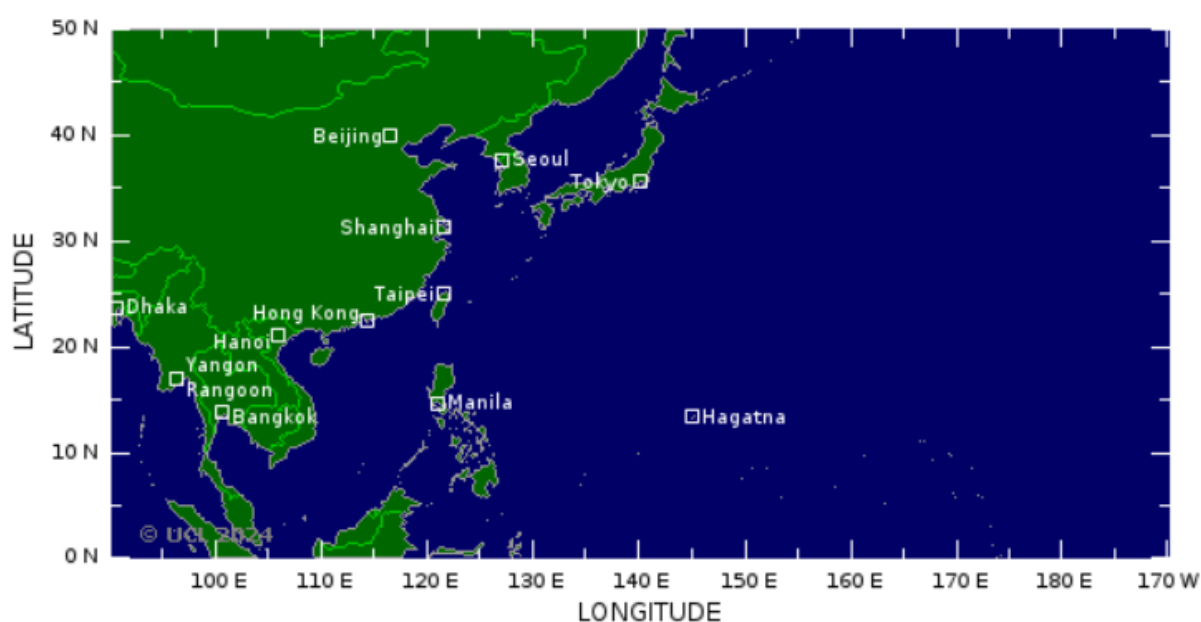


Figure 3: No tropical storm risk observed on 29 April 2024

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 23 to 29 April 2024 (**Figure 4**). The light to moderate rainfall has been only observed in the central part of the LMB including central part of Lao PDR, eastern part of Thailand, and 3S basins.

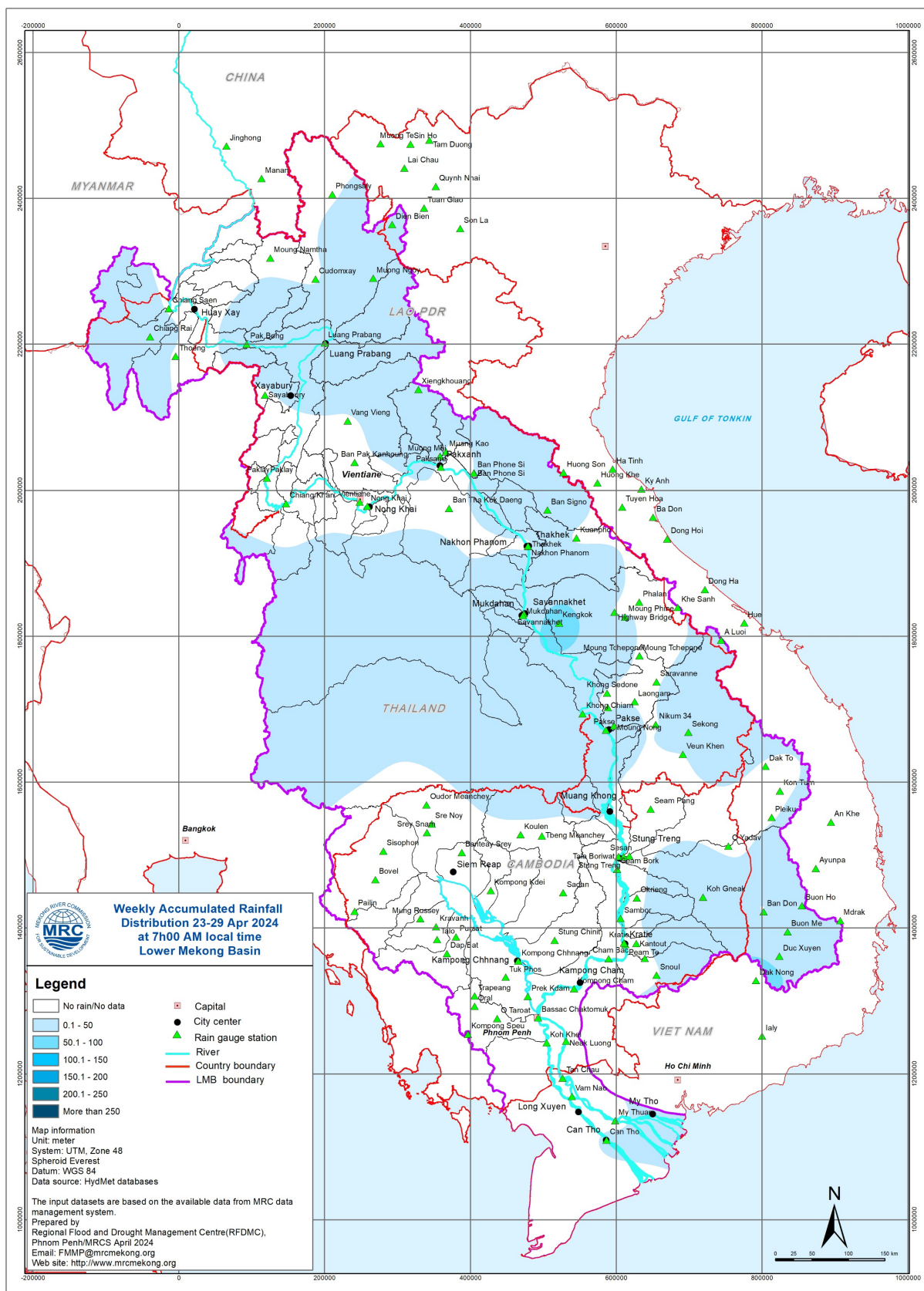


Figure 4: Weekly rainfall distribution over the LMB during 23 – 29 April 2024

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 23 – 29 April 2024, the observed water level (WL) at Jinghong hydrological station¹, was almost constant and ranges between 535.62 m and 535.25 m, which are corresponding to the outflow between 1,090.00 m³/s to 840.00 m³/s (recorded on 7:00 am), respectively (**Figure 6**). The water level in Chiang Saen station also indicated a slight fluctuation ranging from 1.41 m to 1.50 m. At the same period, the water level in Luang Prabang station also slightly increased with an approximate value of 0.22 m from 8.74 m to 8.96 m as compared to the previous week.

During the same period, the water levels observed at upper parts of the basin from Chiang Khan to Nakhon Phanom stations, water levels have been slightly decreasing. At Chiang Khan, Vientiane, Nongkhai, and Paksane, stations were slightly decreasing with values ranging from 3.47 m to 3.29 m, 1.49 m to 1.28 m, 0.88 m to 0.69 m, and 2.44 m to 2.33 m, respectively. However, water levels at Nakhon Phanom, Thakhek, Mukdahan, Khong Chiam, Pakse, Stung Treng, Kratie, and Kampong Cham, slightly increased with values ranging from 1.47 m to 1.51 m, 2.85 m to 2.86 m, 0.97 m to 0.98 m, 2.24 m to 2.33 m, 1.22 m to 1.30 m, 2.64 m to 2.68 m, 7.19 m to 7.26 m, and 2.38 m to 2.62 m, respectively. Moreover, in floodplain areas, water levels at Phnom Penh (Bassac), Phnom Penh Port, Koh Khel, Prek Kdam, also slightly increased ranging from 1.3 m to 1.65 m, 0.3 m to 0.55 m, 1.2 m to 1.9 m, 0.79 m to 0.93 m, respectively. However, only water level at Neak Luong slight dropped from 1.25 m to 1.12 m.

Similar to the previous week, the water levels from 23 to 29 April 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 0.82 m and -0.53 m, while at the Chau Doc station, they ranged from 1.01 m to -0.44 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>.

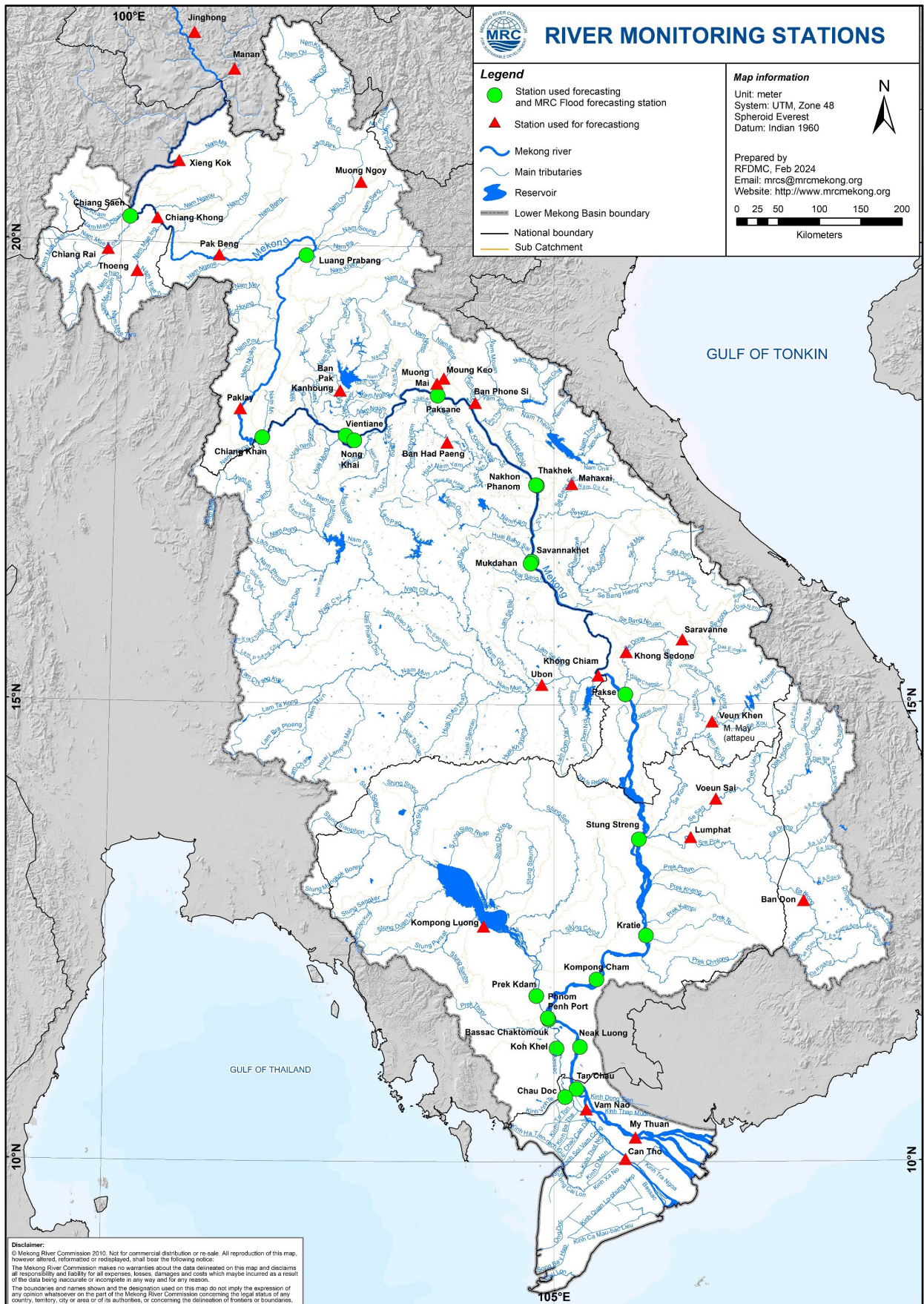


Figure 5: The key stations along LMB for river flood forecasting

The water levels in key monitoring stations on 29 April 2024 are below their long-term averages (LTAs) except for the Luang Prabang, Nakhon Phanom, Thakhek, Mukdahan, Khong Chiam, Pakse, Stung Treng, Kratie, and Kampong Cham stations. 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**.

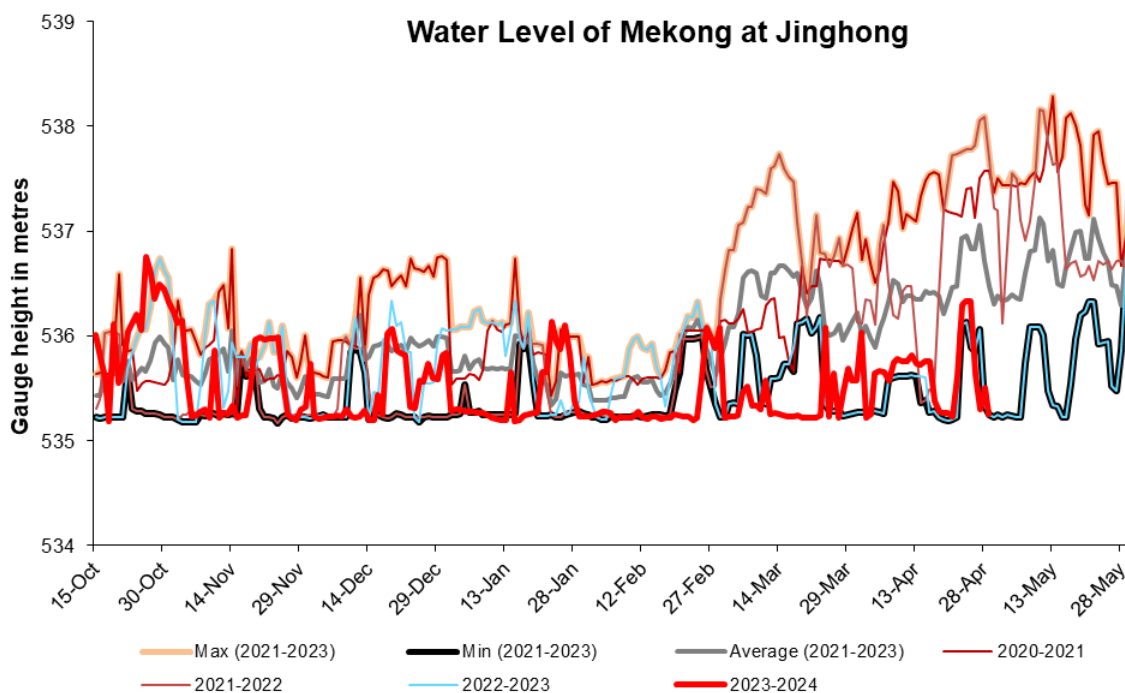


Figure 6. Water level at the Jinghong hydrological station up to 29 April 2024.

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 29 April 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 29 April 2024 for the TSL compared with that in 2020, 2021, 2022, 2023 and their LTAs, and the fluctuation levels (1997–2023) are presented in **Table 8**. The mean monthly water volume of the Tonle Sap Lake in April 2024 is lower than its LTA (about 82.47 %), 2023 and 2022 but higher than that in 2019, 2020, and 2021 during the same period (**Figure 8 and Table 1**).

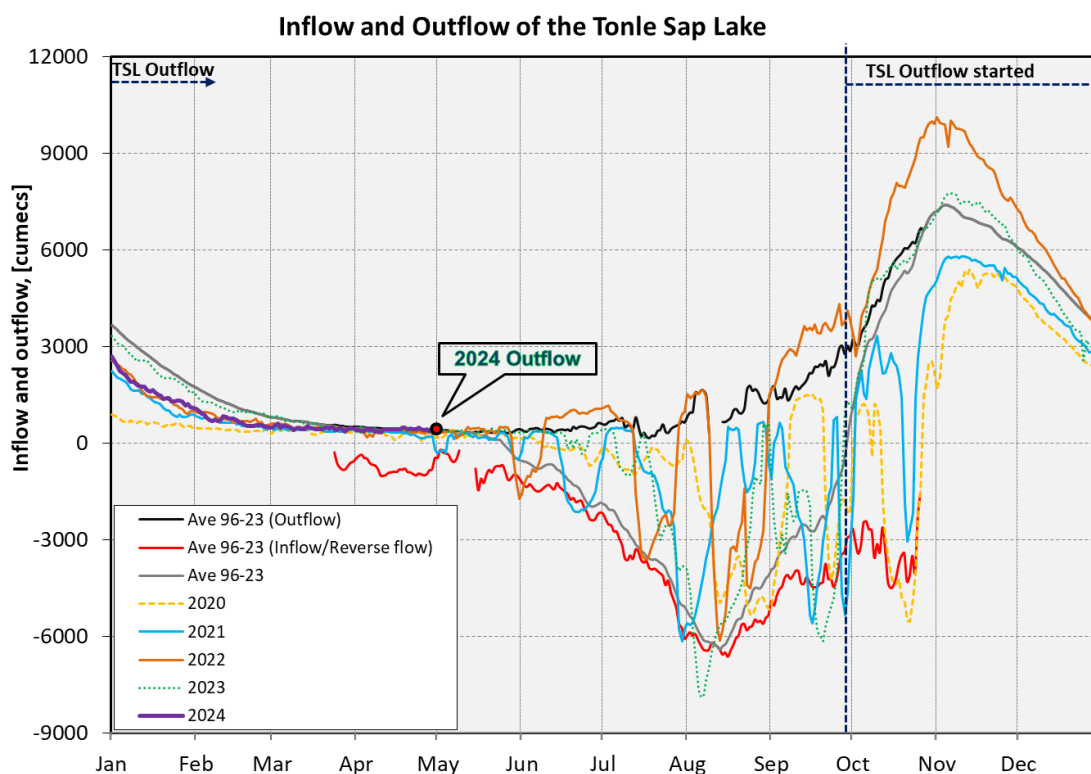


Figure 7: Seasonal change of inflows and outflows of Tonle Sap Lake.

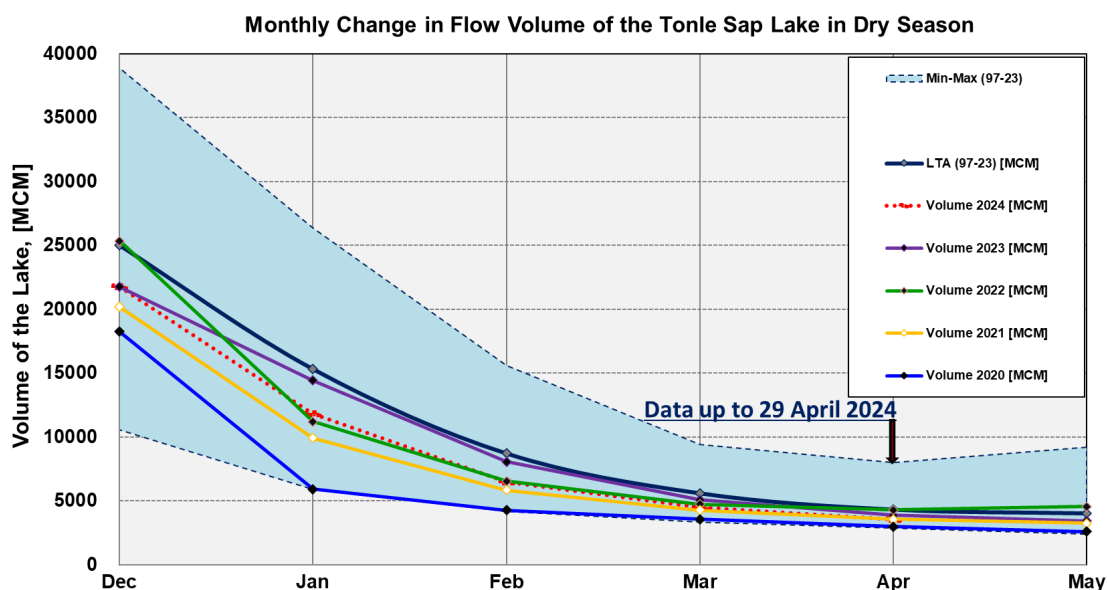


Figure 8. The seasonal change in monthly flow volume of Tonle Sap Lake.

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

| Month | LTA (97-22) [MCM] | Max Volume [MCM] | Min Volume [MCM] | Volume 2019 [MCM] | Volume 2020 [MCM] | Volume 2021 [MCM] | Volume 2022 [MCM] | Volume 2023 [MCM] | Volume 2024 [MCM] | Volume in 2024 [%], compared with its LTA |
|---|--|------------------------|------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|--|
| Jan | 15322.86 | 26357.53 | 5906.80 | 10285.31 | 5906.80 | 9923.80 | 11214.32 | 14422.11 | 11824.86 | 77.17 |
| Feb | 8723.39 | 15596.22 | 4198.60 | 6019.30 | 4264.19 | 5832.97 | 6558.79 | 8069.29 | 6505.88 | 74.58 |
| Mar | 5602.68 | 9438.24 | 3347.07 | 4354.62 | 3553.99 | 4264.88 | 4736.52 | 5080.64 | 4488.23 | 80.11 |
| Apr | 4327.36 | 8009.14 | 2866.91 | 3667.47 | 2992.61 | 3556.68 | 4288.31 | 3884.16 | 3568.63 | 82.47 |
| 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 until 29 April 2024.

4. Flash Flood in the Lower Mekong Basin

During the weekly monitoring period from 23 - 29 April, the LMB received 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 April 23 to 29

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 23 to 29 April 2024, as shown in **Figure 9**, were mainly severely and extremely dry over the middle and southern parts stretching from Borikhamxay, Bueng Kan, Udon Thani and Loei, down to the Mekong Delta of Viet Nam.

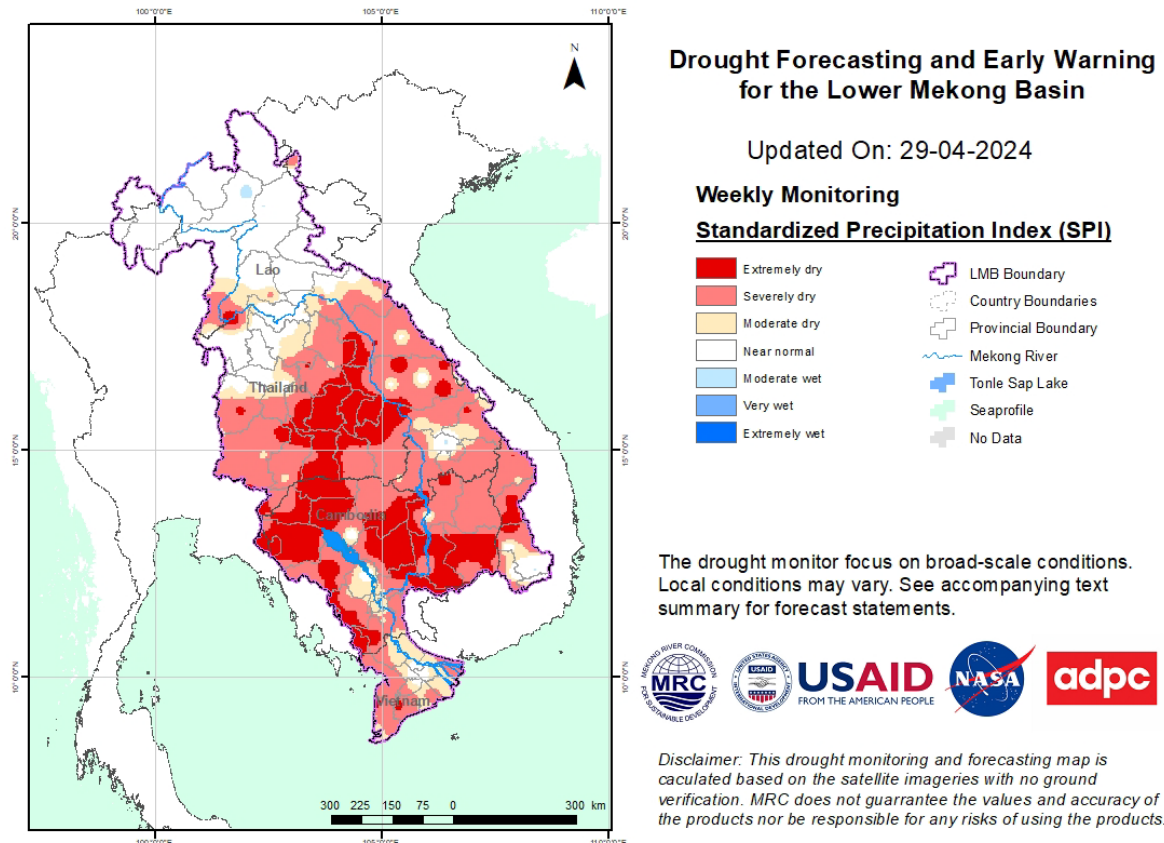


Figure 9: Weekly standardised precipitation index from Apr 23 to 29.

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

Soil moisture conditions from April 23 to 29, as displayed in **Figure 10**, were severely dry mainly in the south due to absence of rainfall. The conditions were much better than 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.

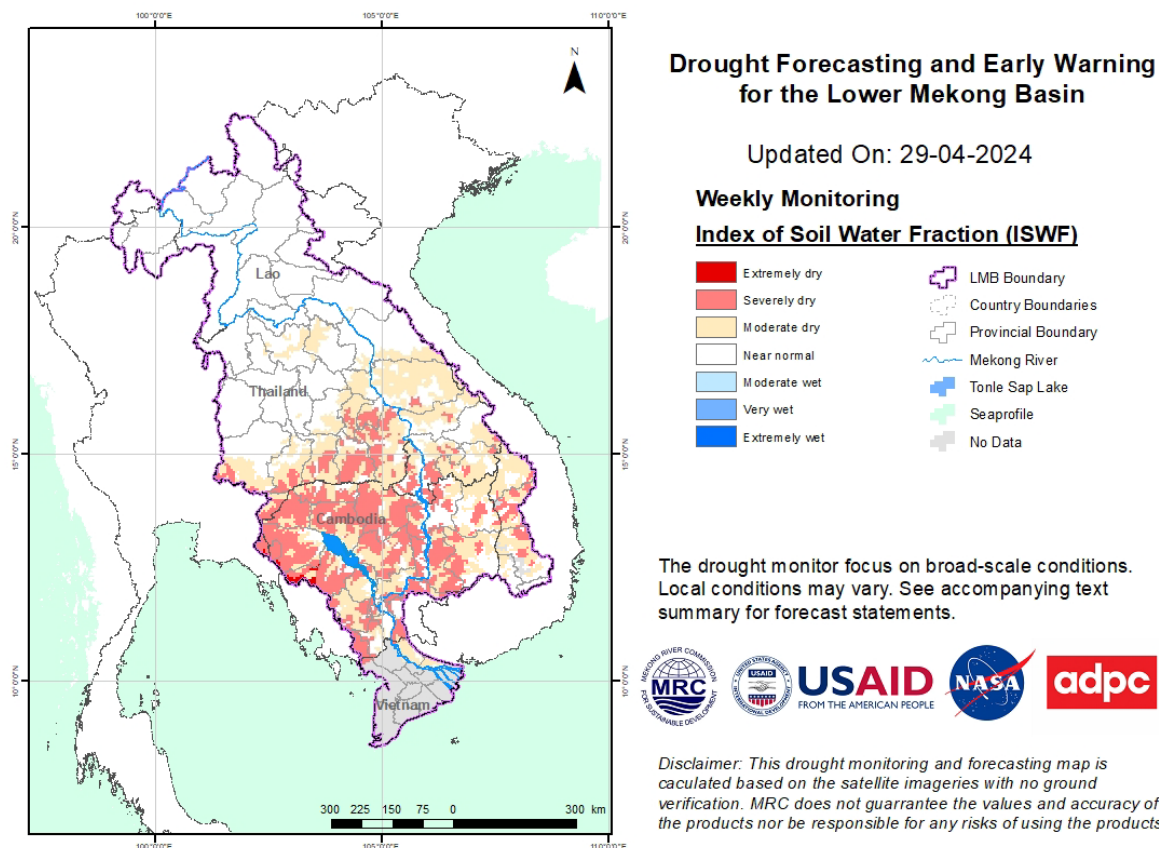


Figure 10: Weekly Index of Soil Water Fraction from April 23 to 29.

- Weekly Combined Drought Index (CDI)**

With the dry conditions of soil moisture, the combined drought indicator (displayed in **Figure 11** reveals that during 23-29 April 2024, the LMB was facing from moderate to exceptional drought mainly in the middle and southern parts. Northern Cambodia was the most extreme drought area of the region.

The impacted areas are listed below:

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

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

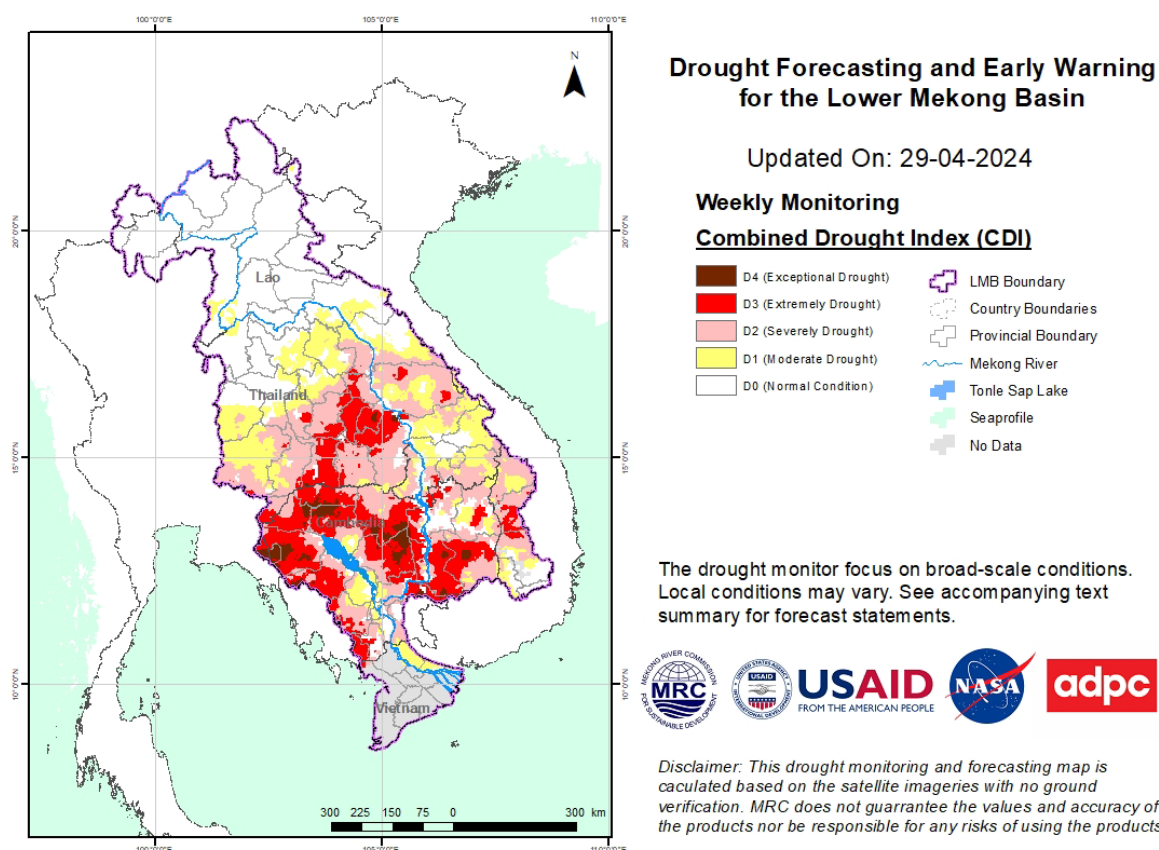


Figure 11: Weekly Combined Drought Index from April 23-29.

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 30 April to 06 May 2024, the accumulated rainfall over the entire Lower Mekong Basin is distributed with no rain to light rain based on CHIRPS-GFS (**Figure 12**) with total expected rainfall ranging from 0 to 10 mm.

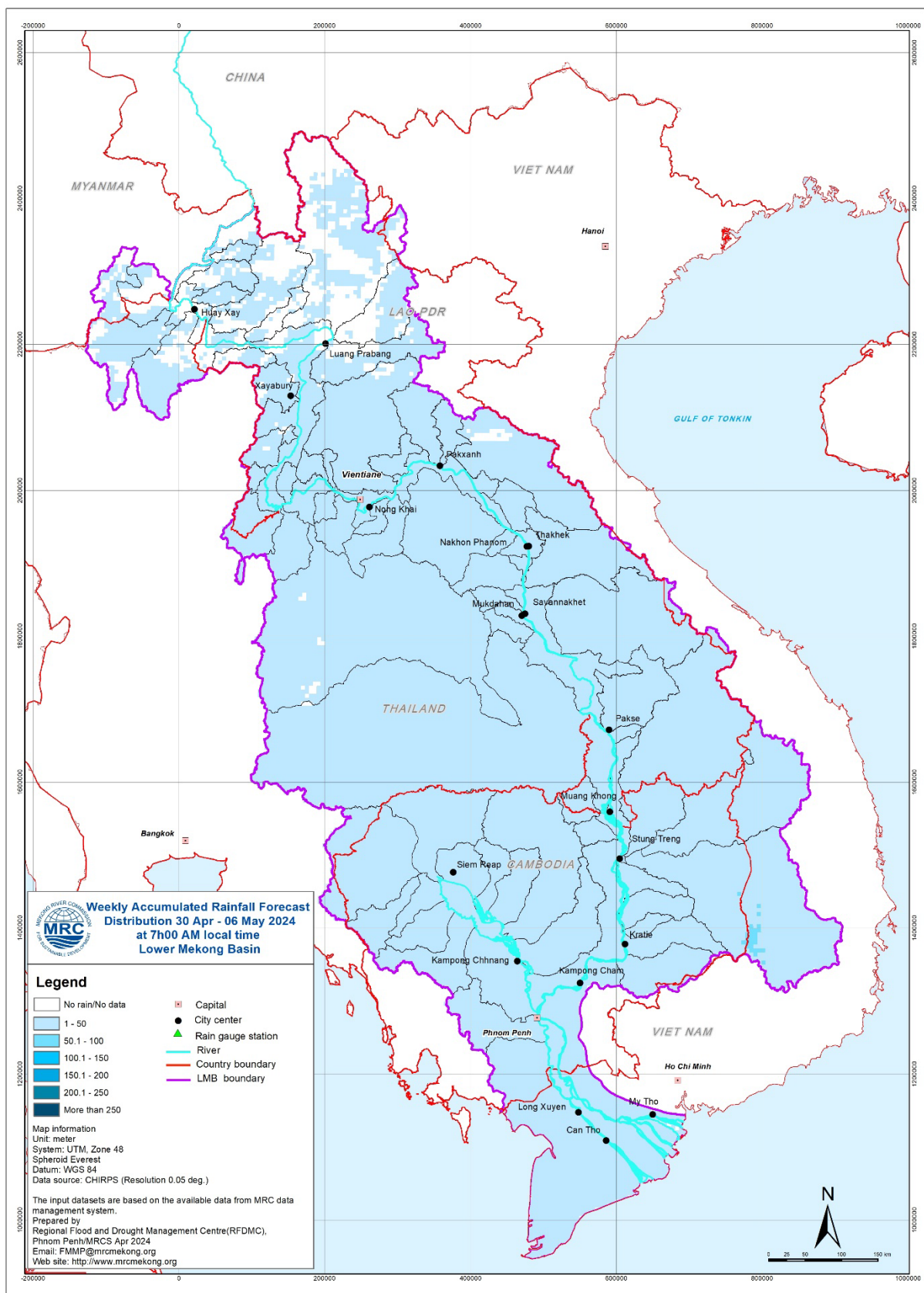


Figure 12: Accumulated rainfall forecast from CHIRP-GFS (30 April – 06 May 2024)

6.2 Water level forecast

In Chiang Saen monitoring station, the water level is expected to be fluctuated over the forecasting period of 29 April– 06 May 2024. However, it will slightly decrease from 1.50 m to 1.36 m. The water level in Luang Prabang stations affected by backwater is likely slightly decreasing from 8.96 m to 8.48 m.

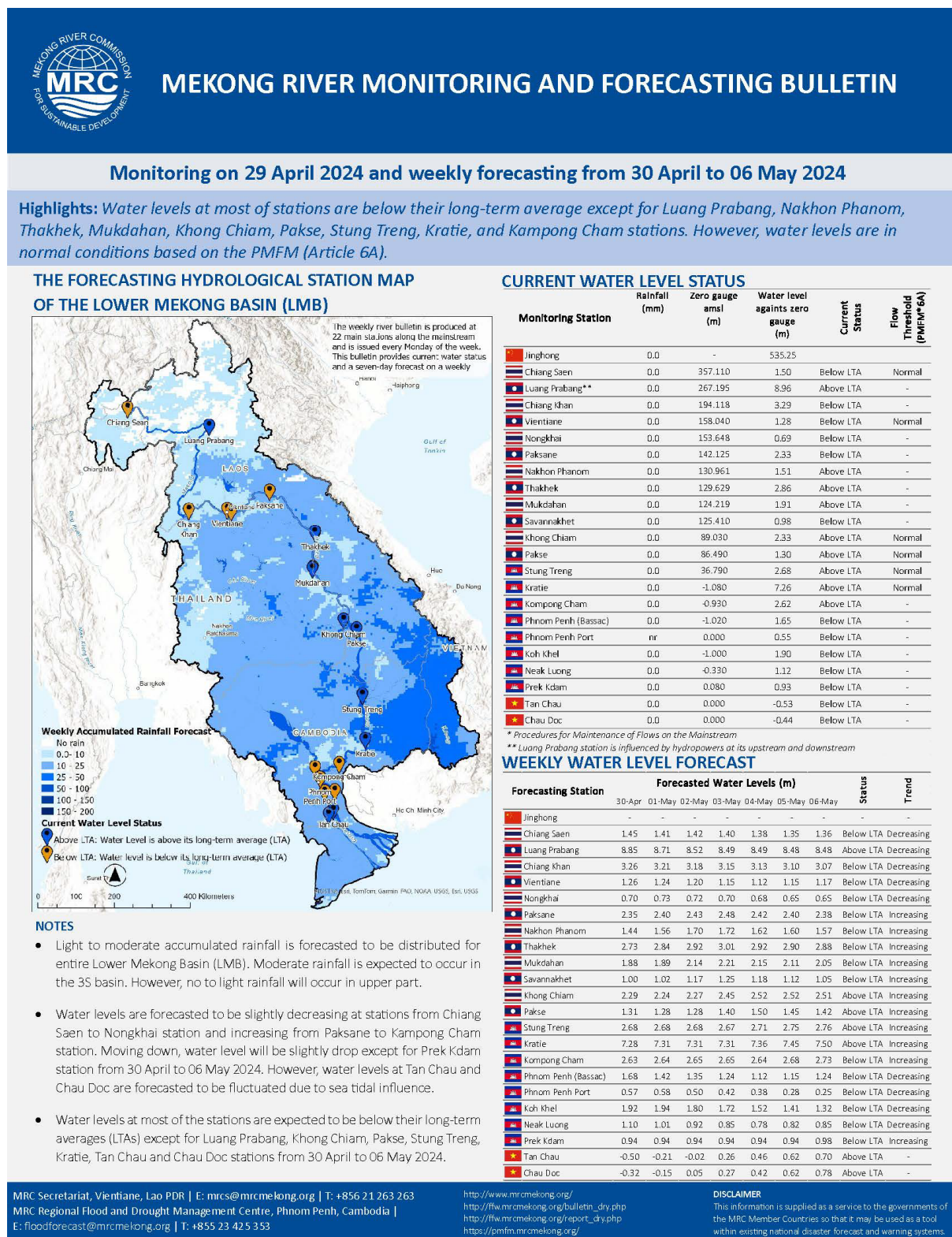
Along the Mekong mainstream, the water levels at upper stretch at Chiang Khan, Vientiane, and Nongkhai, water levels will slightly drop of approximately 0.11 m, 0.22 m, and 0.11 m, respectively. Moreover, water levels at Paksane, Nakhon Phanom, Thakhek, Mukdahan, Savannakhet, Khong Chiam, Pakse, Stung Treng, Kratie and Kampong Cham stations, water levels will slightly rise of approximately 0.05 m, 0.06 m, 0.02 m, 0.14 m, 0.07, 0.18 m 0.12 m, and 0.08 m, 0.24 m, 0.11 m, respectively. However, moving down to Phnom Penh (Bassac), Phnom Penh Port, Koh Khel, and Neak Luong, water levels are predicted to be decreasing approximately 0.41 m, 0.30 m, 0.58 m, and 0.27 m, respectively. Only water level at Prek Kdam will slightly rise of approximately 0.05 m.

For the Tan Chau station on the Mekong River and Chau Doc station on the Bassac River, water levels will be fluctuating approximately ranging from -0.50 to -0.70 m and -0.32 to -0.78 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, Khong Chiam, Pakse, Stung Treng, Kratie, Tan Chau and Chau Doc stations from 29 April to 06 May 2024.

The weekly River Monitoring Bulletin and forecasting issued on 29 April 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.



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 April, May, and June 2024 over the LMB area.

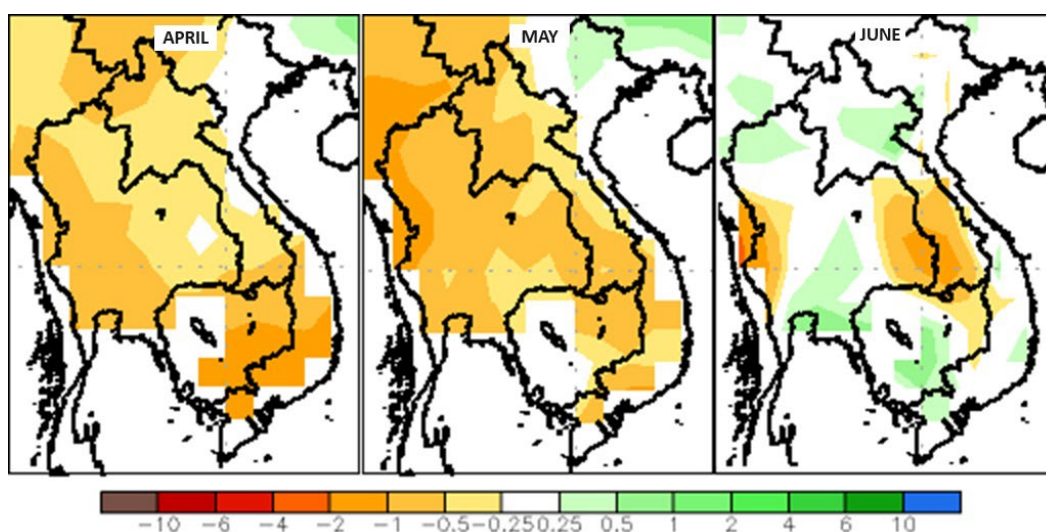


Figure 13. Monthly forecast of rainfall from NMME for April, May and June 2024.

Figure 13 indicates that much below average rainfall is predicted for the whole LMB area during the upcoming April and May. While June is forecasted to be relatively wet over the northern and southern parts. Moderate and severe meteorological drought is likely taking place in the eastern region covering mainly some area of Thailand and southern Lao PDR.

7 Summary and Possible Implications

7.1. Rainfall and its forecast

In the period of 23 – 29 April 2024, there has been light rainfall in some areas in the northern and southern parts of Lao PDR; the central highland of Viet Nam. The remaining areas in the Lower Mekong Basin have not received any rainfall.

From 30 April to 06 May 2024, no to light rainfall is forecasted to be sparsely distributed over the region with total expected rainfall ranging from 0 to 10 mm.

7.2. Water level and its forecast

At 22 key monitoring stations along the Mekong mainstream from 23 – 29 April 2024, water levels are below the long-term averages (LTAs) except for water level at Luang Prabang, Nakhon Phanom, Thakhek, Mukdahan, Khong Chiam, Pakse, Stung Treng, Kratie, and Kampong Cham monitoring stations. 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 30 April – 06 May 2024, Water levels are forecasted to be decreasing at stations from upper part at Chiang Saen to Nong Khai and increasing from Paksane to Kampong Cham stations. Moving down to lower part from Phnom Penh (Bassac) to Prek Kdam, water level will be slightly drop except for Prek Kdam. 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, Khong Chiam, Pakse, Stung Treng, Kratie, Tan Chau and Chau Doc 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.

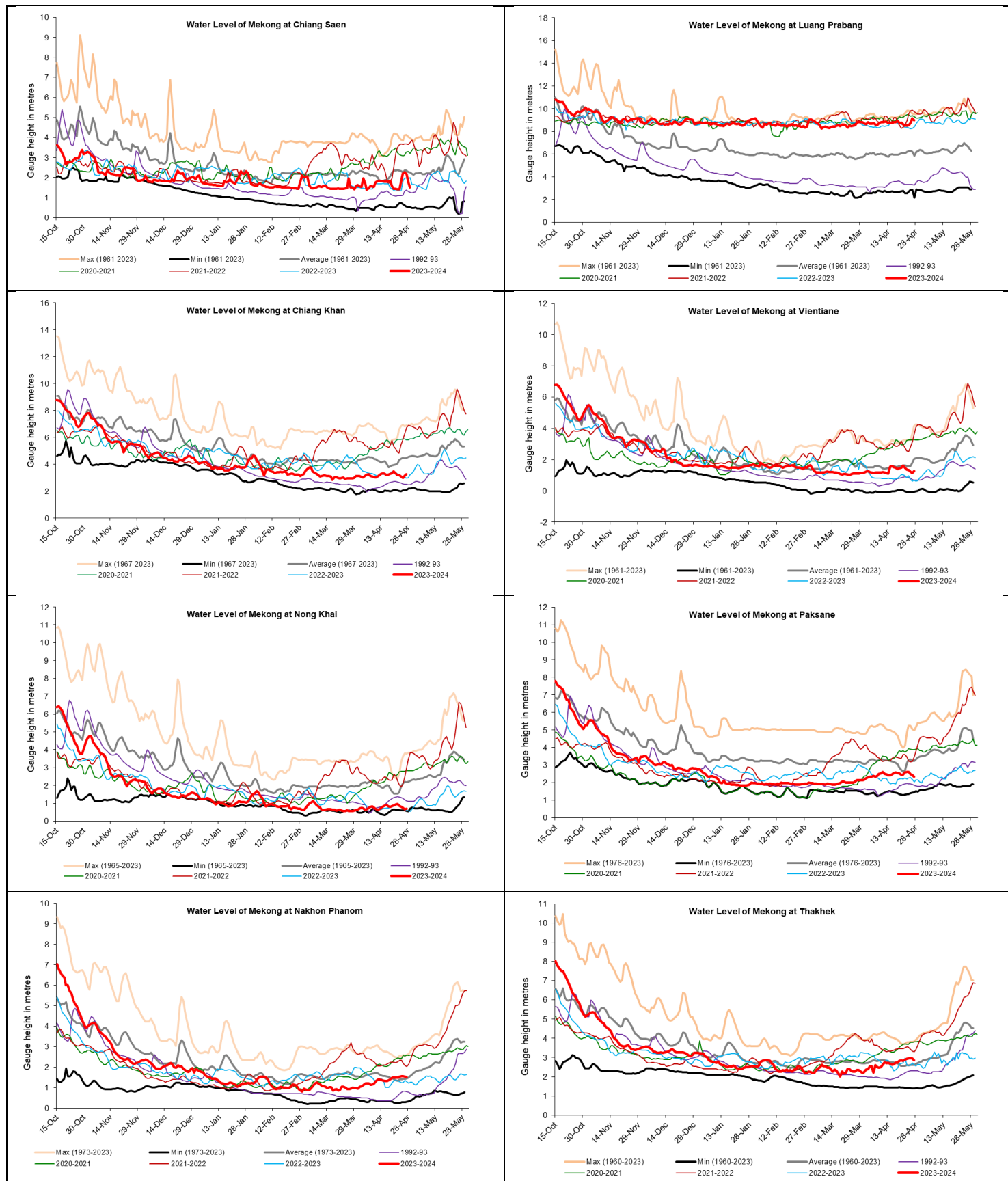
7.4. Drought condition and its forecast

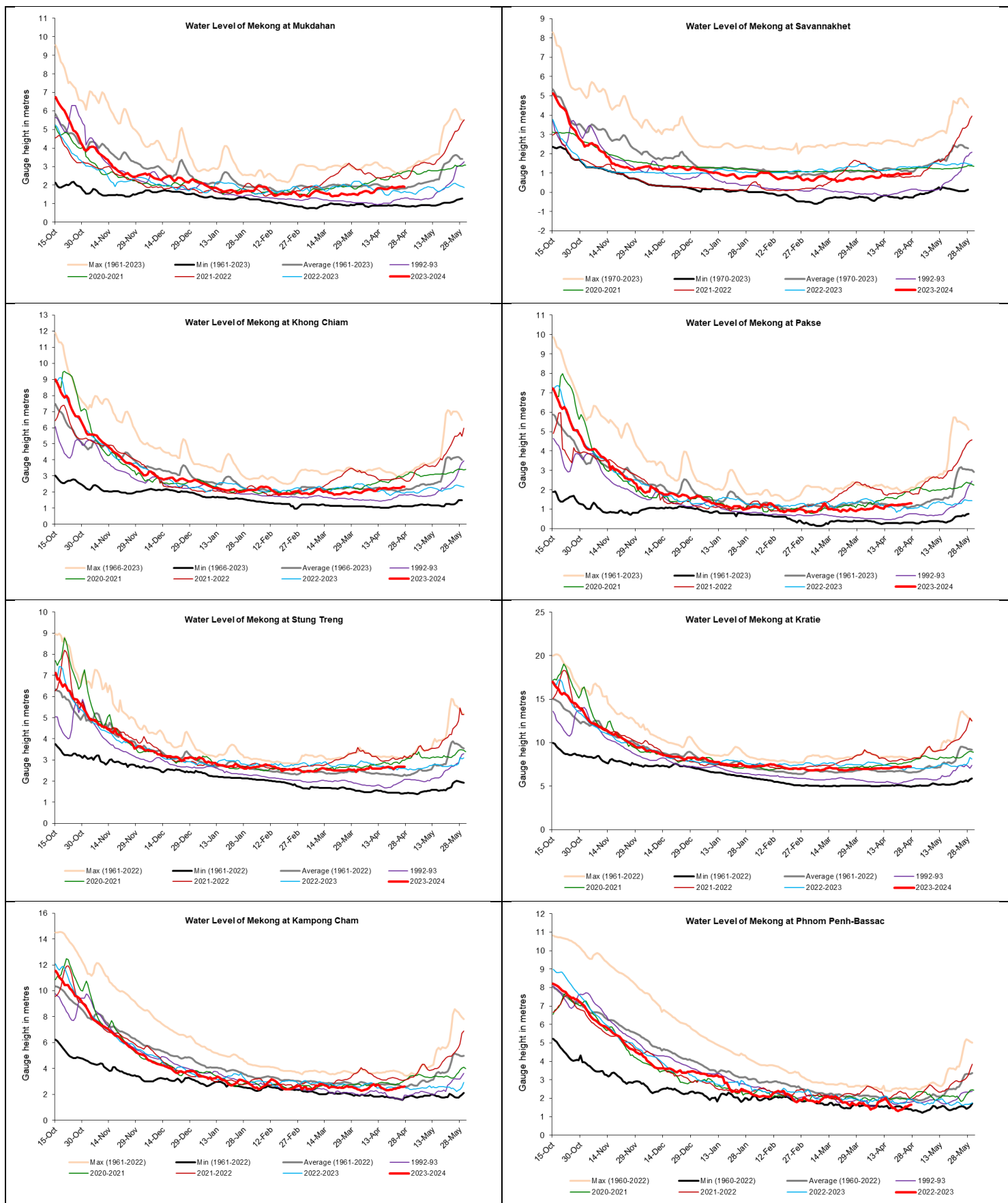
During 23-29 April 2024, the LMB was facing from moderate to exceptional drought mainly in the middle and southern parts. Northern Cambodia was the most extreme drought area of the region.

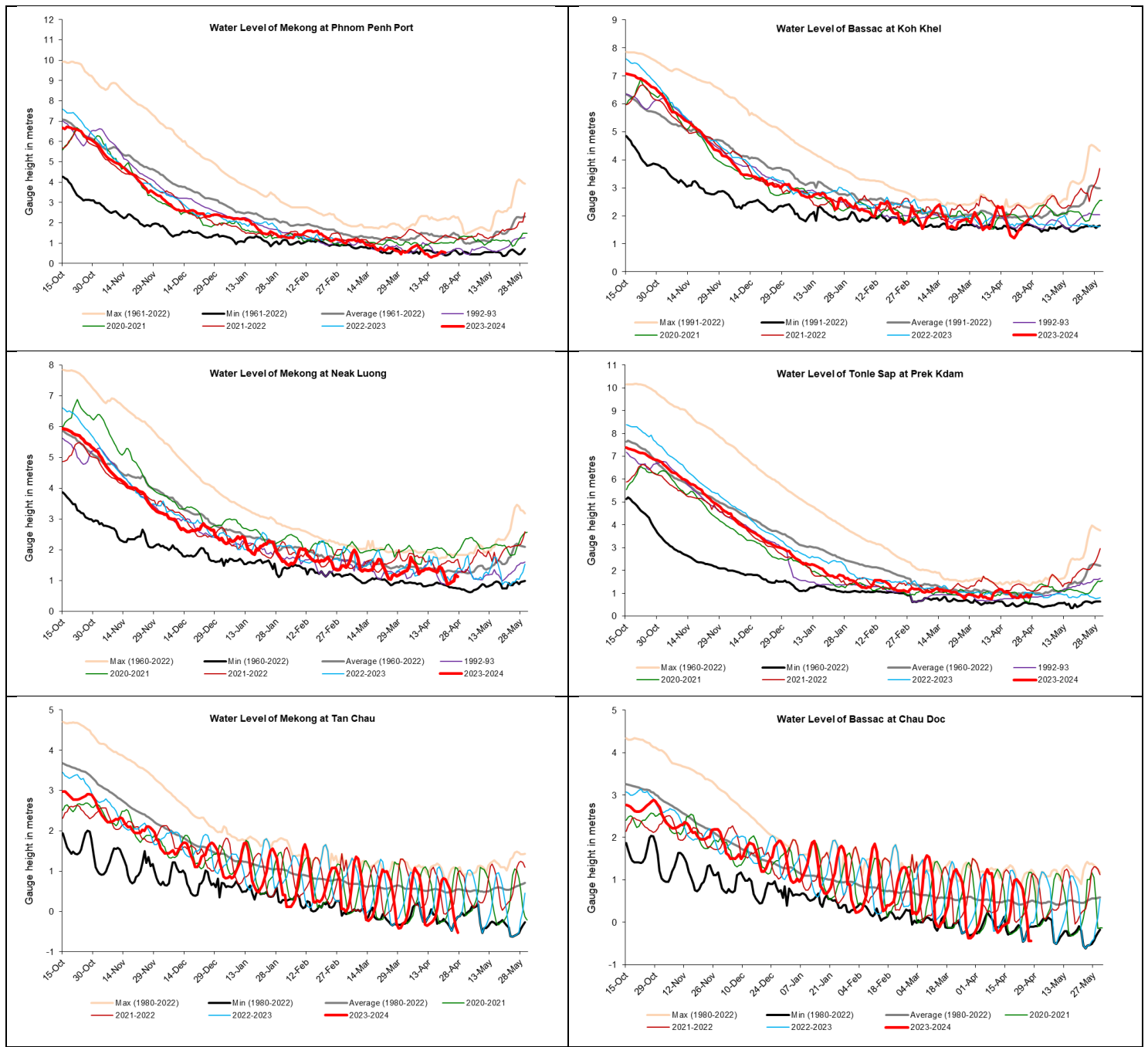
The next three-month forecast of rainfall indicates that much below average rainfall is predicted for the whole LMB area during the upcoming April and May. While June is forecasted to be relatively wet over the northern and southern parts. Moderate and severe

meteorological drought is likely taking place in the eastern region covering mainly some area of Thailand and southern Lao PDR.

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







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

Table A1: Weekly observed water levels

| 2024 | Jinghong | Chiang Saen | Luang Prabang | Chiang Khan | Vientiane | Nongkhai | Paksane | Nakhon Phanom | Thakhek | Mukdahan | Savannakhet | Khong Chiam | Pakse | Stung Treng | Kratie | Kompong Cham | Phnom Penh (Bassac) | Phnom Penh Port | Koh Khel | Neak Luong | Prek Kdam | Tan Chau | Chau Doc |
|------------|----------|-------------|---------------|-------------|-----------|----------|---------|---------------|---------|----------|-------------|-------------|-------|-------------|--------|--------------|---------------------|-----------------|----------|------------|-----------|----------|----------|
| 23-04-2024 | 536.30 | 1.42 | 8.62 | 3.36 | 1.61 | 0.93 | 2.45 | 1.48 | 2.83 | 1.87 | 0.93 | 2.28 | 1.22 | 2.56 | 7.17 | 2.42 | 1.36 | 0.35 | 1.33 | 1.04 | 0.79 | 0.79 | 0.95 |
| 24-04-2024 | 536.33 | 1.74 | 8.52 | 3.22 | 1.50 | 0.96 | 2.58 | 1.48 | 2.87 | 1.86 | 0.93 | 2.26 | 1.24 | 2.66 | 7.17 | 2.44 | 1.39 | 0.39 | 1.48 | 0.88 | 0.93 | 0.68 | 0.89 |
| 25-04-2024 | 536.33 | 2.19 | 8.50 | 3.20 | 1.36 | 0.86 | 2.60 | 1.52 | 2.94 | 1.88 | 0.95 | 2.26 | 1.24 | 2.68 | 7.20 | 2.50 | 1.46 | 0.42 | 1.52 | 0.90 | 0.83 | 0.56 | 0.78 |
| 26-04-2024 | 535.63 | 2.28 | 8.56 | 3.10 | 1.34 | 0.80 | 2.62 | 1.55 | 2.96 | 1.91 | 0.96 | 2.25 | 1.25 | 2.68 | 7.22 | 2.50 | 1.56 | 0.52 | 1.68 | 0.95 | 0.86 | 0.31 | 0.41 |
| 27-04-2024 | 535.30 | 2.17 | 8.74 | 3.00 | 1.24 | 0.74 | 2.48 | 1.55 | 2.96 | 1.92 | 0.96 | 2.28 | 1.28 | 2.68 | 7.25 | 2.60 | 1.55 | 0.60 | 1.74 | 0.98 | 0.94 | -0.07 | 0.03 |
| 28-04-2024 | 535.50 | 1.75 | 9.14 | 3.14 | 1.14 | 0.66 | 2.44 | 1.52 | 2.95 | 1.93 | 0.95 | 2.33 | 1.29 | 2.68 | 7.26 | 2.60 | 1.64 | 0.57 | 1.82 | 1.17 | 0.83 | -0.38 | -0.44 |
| 29-04-2024 | 535.25 | 1.50 | 8.96 | 3.29 | 1.28 | 0.69 | 2.33 | 1.51 | 2.86 | 1.91 | 0.98 | 2.33 | 1.30 | 2.68 | 7.26 | 2.62 | 1.65 | 0.55 | 1.90 | 1.12 | 0.93 | -0.53 | -0.44 |

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 |
|------------|----------|-------------|---------------|-------------|-----------|----------|---------|---------------|---------|----------|-------------|-------------|-------|-------------|--------|--------------|---------------------|-----------------|----------|------------|-----------|----------|----------|
| 23-04-2024 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 |
| 24-04-2024 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 |
| 25-04-2024 | 0 | 13.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 |
| 26-04-2024 | 0 | 0 | 14.2 | 0 | 0 | 0 | 0 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 |
| 27-04-2024 | 0 | 0 | 2.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.8 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 |
| 28-04-2024 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 |
| 29-04-2024 | 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 | 17.9 | 16.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



Mekong River Commission Secretariat

P. O. Box 6101, 184 Fa Ngoum Road, Unit 18 Ban Sithane Neua, Sikhottabong District, Vientiane 01000, Lao PDR
Tel: +856 21 263 263. Fax: +856 21 263 264 www.mrcmekong.org
© Mekong River Commission 2024