Pakistan Meteorological Department

Monthly Drought Bulletin
For the Month of February 2024

Highlights

- **During the month of February 2024, Light to moderate rainfall events were reported across the country which give some relief to the few areas in Balochistan whereas, Sindh province received trace to zero rainfall during the month.**

- **Less to No Precipitation over most of the areas of Sindh and Cholistan region in Punjab province have raised the moisture stressed conditions in previously moisture stressed areas over there.**

- **During the month of March 2024, overall, a tendency for near normal rainfall is expected in most parts of the country. Day time temperatures are forecasted to remain slightly above normal nationwide.**

- **Mild Drought conditions may be observed in Nokkundi, Sibi, Dalbandin, Kharan, Turbat and Awaran. In Sindh, Johi, Dadu, Tharparkar, Umerkot, Sanghar, Chorr districts while Cholistan in Punjab Mild Drought conditions may be observed. Keeping in view the weather forecast for the month of March 2024, disaster management authorities are requested to plan DRM activities accordingly.**

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1. Weather Summary for the Month of February, 2024

The spatial distribution of rainfall is shown in Figure 1. During the month of February 2024, Light to moderate rainfall events reported across the country where as some areas of Sindh province received trace to zero rainfall during the month. The chief amounts of monthly rainfall recorded across Pakistan during February 2024 are shown in Table:1

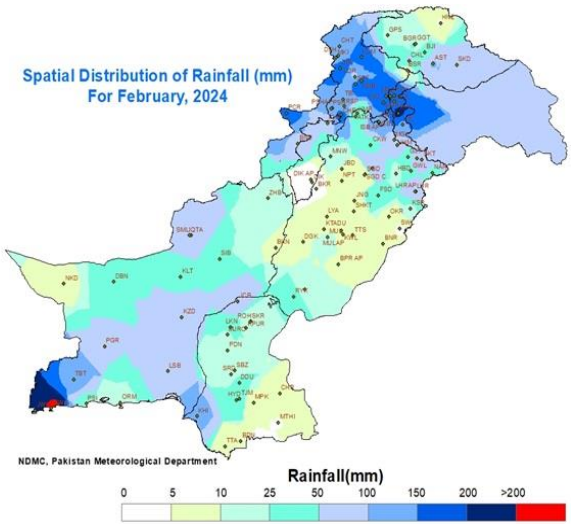


Figure 1: Spatial Distribution of rainfall

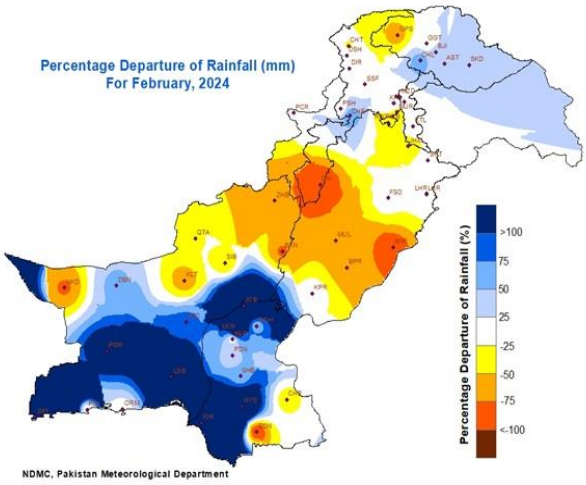


Figure 2: Percentage Departure of rainfall

Figure 2 depicts the percentage departure of rainfall from the normal. Below-normal rainfall was reported in Badin, Chorr in Sindh, Cholistan and isolated areas in KP, Balochistan, GB and Punjab province while rest of the areas got above normal rainfall as shown in blue colour.

Table-1: Chief Amount of Rainfall Recorded Across Pakistan During the Month of February, 2024

Sr.No.	Station	Rainfall(mm)	Sr.No.	Station	Rainfall(mm)
1	Gawadar	207.1	11	Cherat	122.0
2	Rawalakot	165.4	12	Malamjabba	115.0
3	Jiwani	158.0	13	Saidu Sharif	112.0
4	Muzaffarabad Airport	149.9	14	Kakul	109.0
5	Dir	142.0	15	Murree	104.6
6	Pattan	138.0	16	Kotli	87.6
7	Balakot	135.0	17	Turbat	75.3
8	Parachinar	127.0	18	Drosh	72.7
9	Kalam	123.0	19	Islamabad-Zeropoint	71.91
10	Gharri Dopatta	122.4	20	Mirkhani	67.01

2. Drought Situation Analysis

The spatial drought monitor map based on the output results from different drought monitoring indices and Pakistan Meteorological Department ground station data across Pakistan is represented in Figure. 3.

Mild Drought conditions may be observed in Nokkundi, Sibi, Kharan, Turbat and Awaran areas. In Sindh, Johi, Dadu, Tharparkar, Umerkot, Sanghar, Chorr districts while Cholistan in Punjab Mild Drought conditions may be observed.

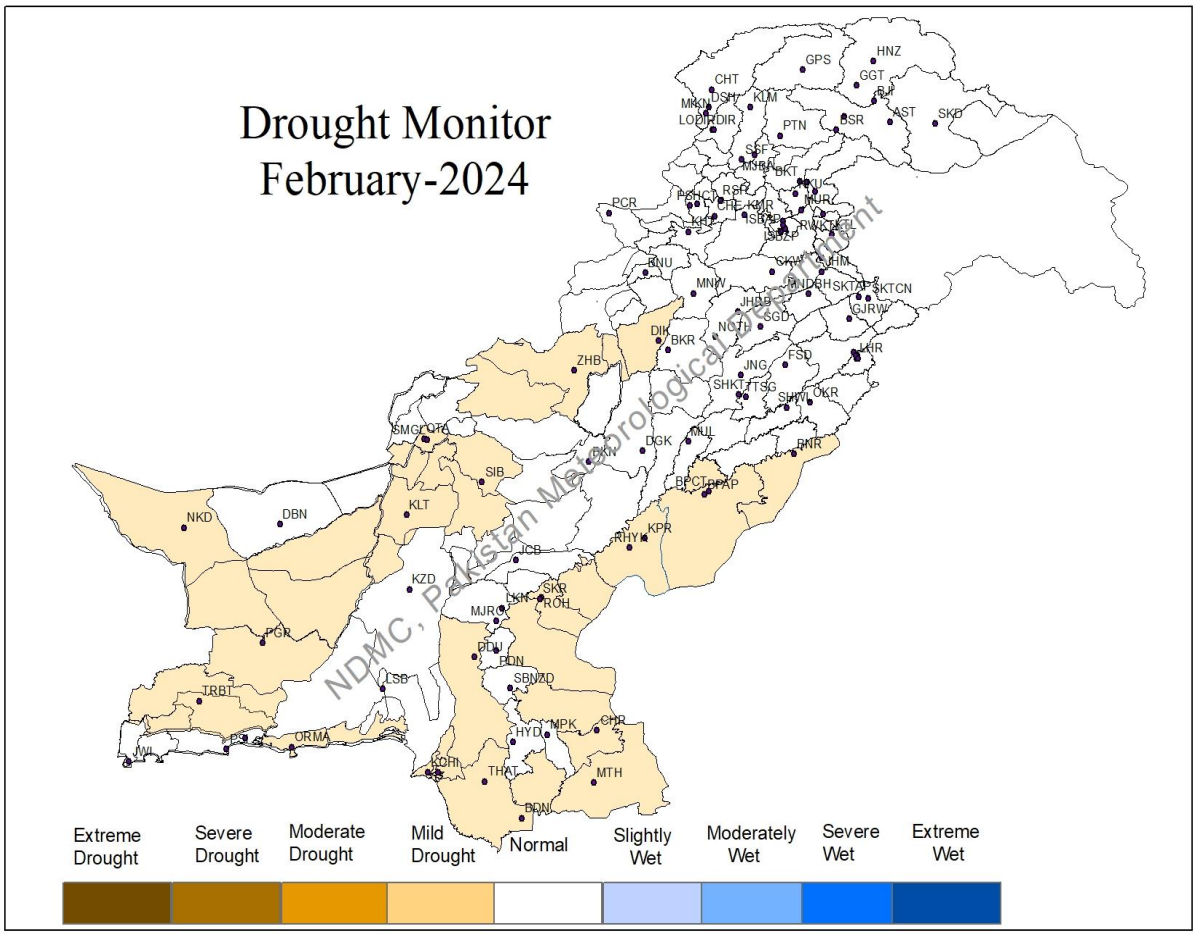
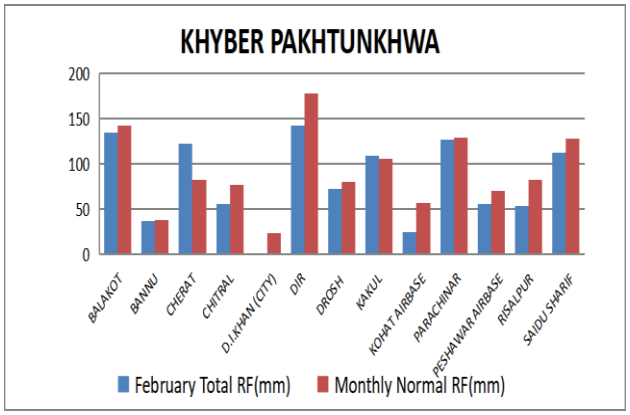
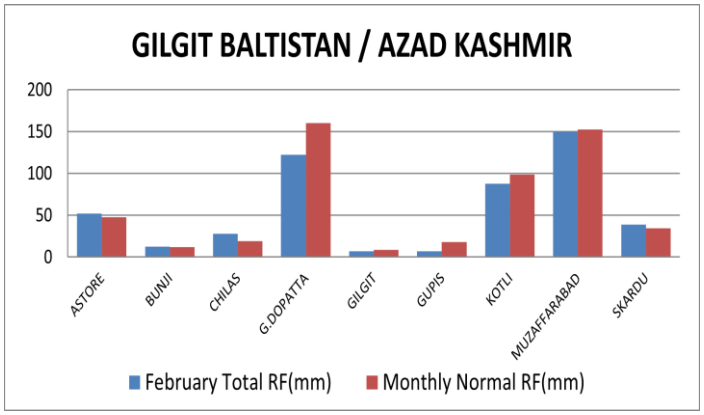
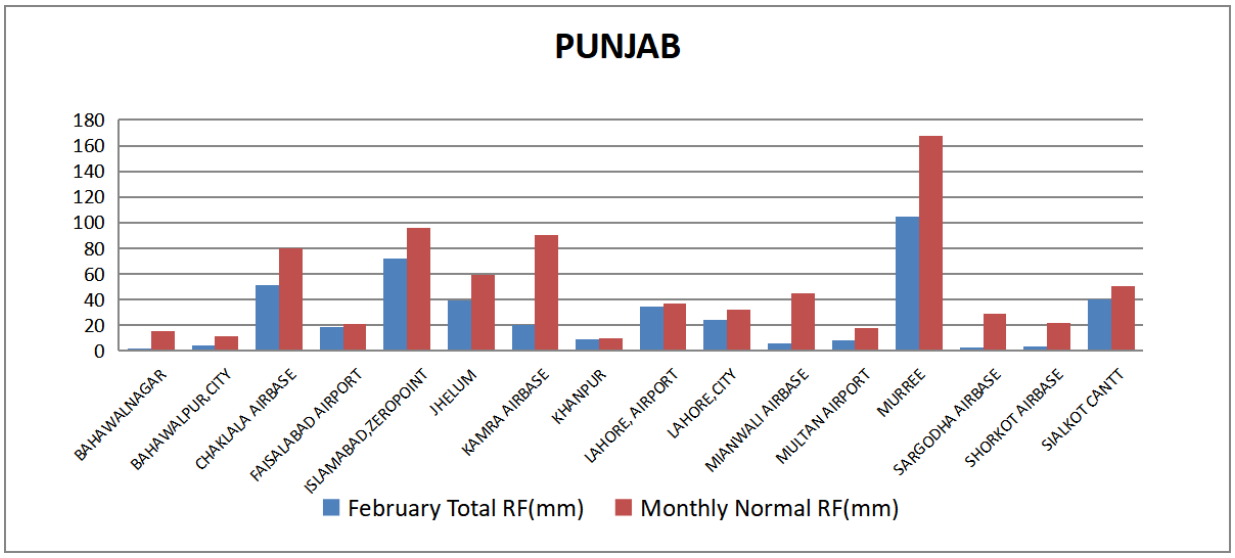


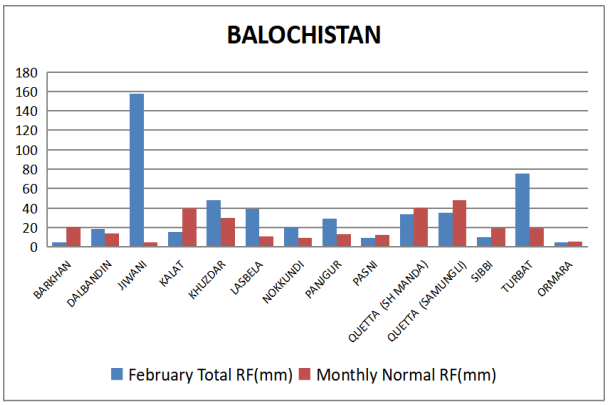
Figure 3: Drought Monitor of Pakistan

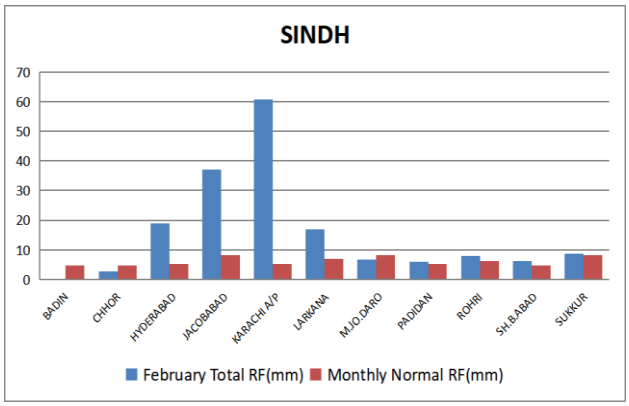
I. Monthly Normal to Actual Rainfall Comparison for February-2024











II. Normalized Difference Vegetation Index (NDVI)

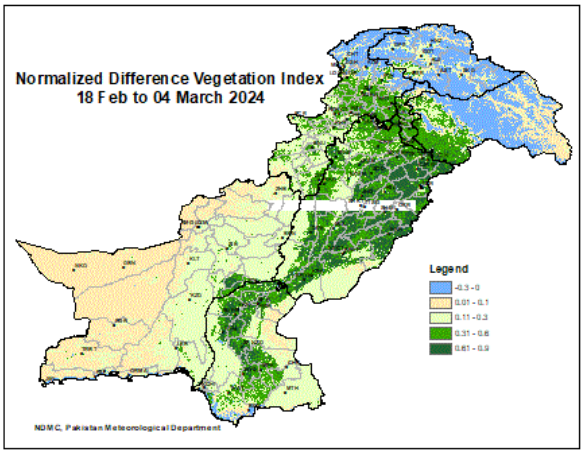


Figure 4: NDVI

Normalized Difference Vegetation Index values for February 2024 are shown in Fig.4. NDVI conditions in AJK, Punjab, Khyber Pakhtunkhwa, and along the Indus Belt are good, depicting the wide spread vegetation in fields good conditions due to good chlorophyll content stored in the plants and the vegetation cover.

III. Land Surface Temperature (LST)

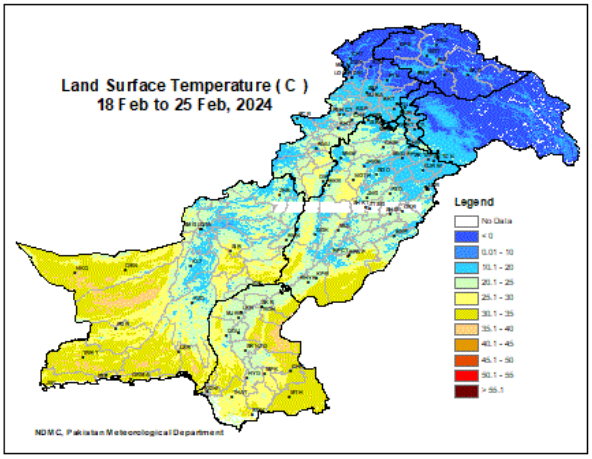


Figure 5: LST (°C)

Land Surface Temperatures (LST) for the period 18 to 25 February 2024 are represented in Fig. 5. In the central parts of the country, average daytime temperatures were below 25ºC while in lower parts of the country, the temperature was reported above 30ºC during the period.

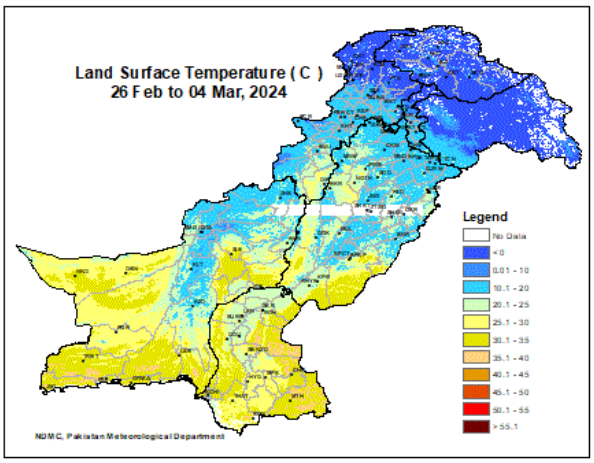


Figure 6: LST (°C)

Land Surface Temperatures during the period 26 February to 04 March 2024 are shown in Fig. 6. In some areas in the north parts of the country decrease in temperatures trend has been observed and in the south parts of country increase in temperature has been observed.

IV. Temperature Vegetation Dryness Index (TVDI)

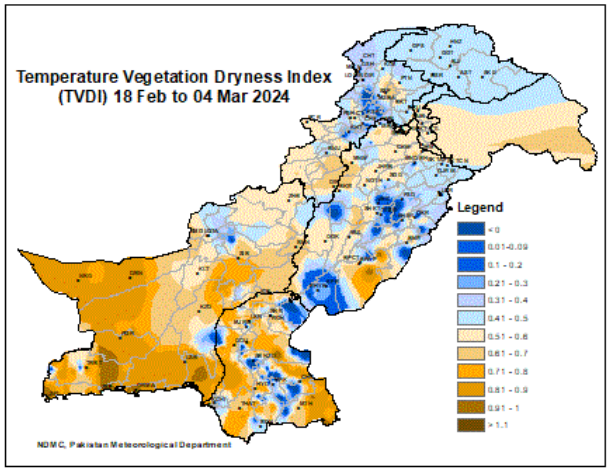
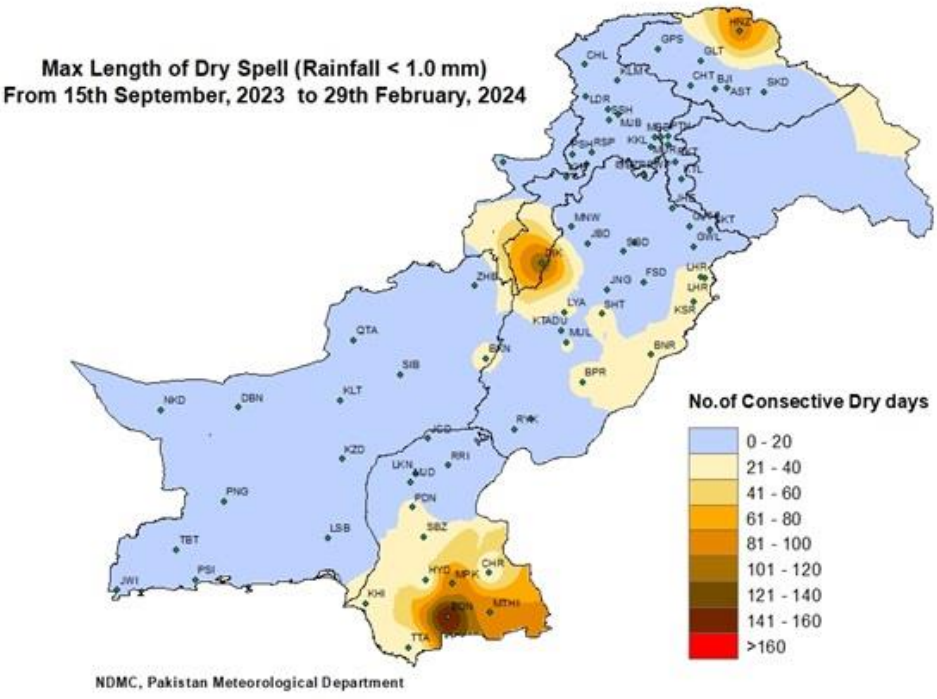


Figure 7: TVDI

Temperature Vegetation Dryness Index (TVDI) derived from MODIS products MOD13A2 (NDVI) and MOD11A2 (LST) is shown in Fig. 7, which indicates mild dry conditions are shown by the TVDI Index showing the start of dryness and less soil moisture conditions in the western Balochistan, coastal areas and some parts of Sindh and Punjab as well.

V. Length of Consecutive Dry Days:



3. Water Availability/Dams Flow Data:

In the month of February 2024, water inflow, outflow and levels of the Rawal, Khanpur, Tarbela and Mangla dams are shown in Figs. 8 & 9**.** The level at Tarbela, Mangla and Khanpur reservoirs has dropped while at other major reservoir Rawal no change observed.

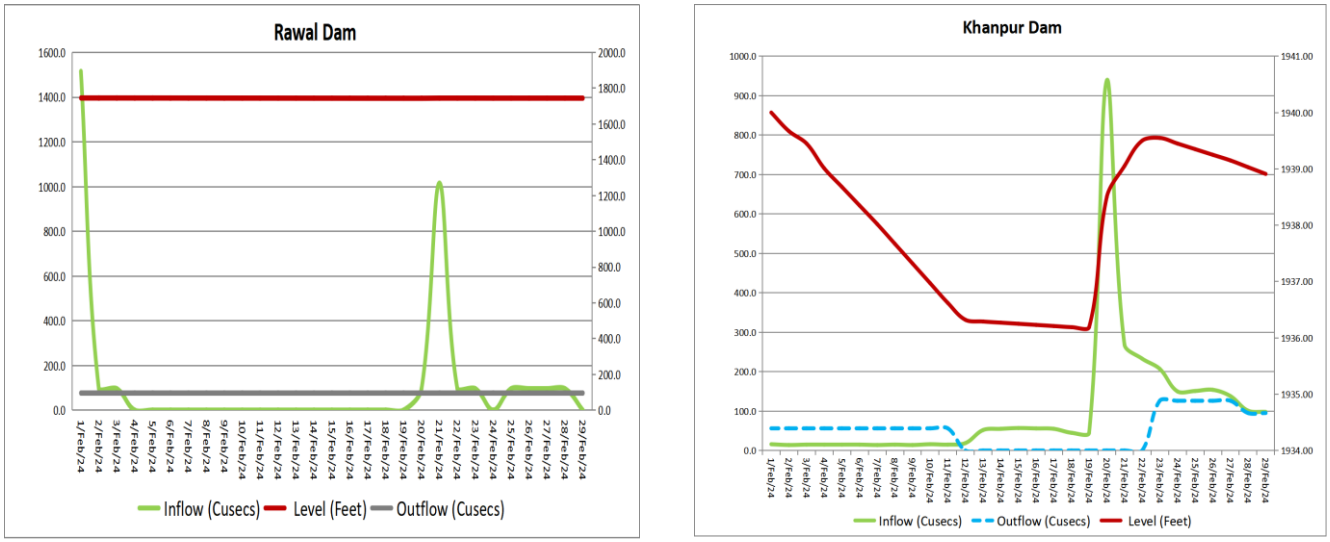


Figure 8: Water Inflow, Outflow and Level of Rawal and Khanpur Dam

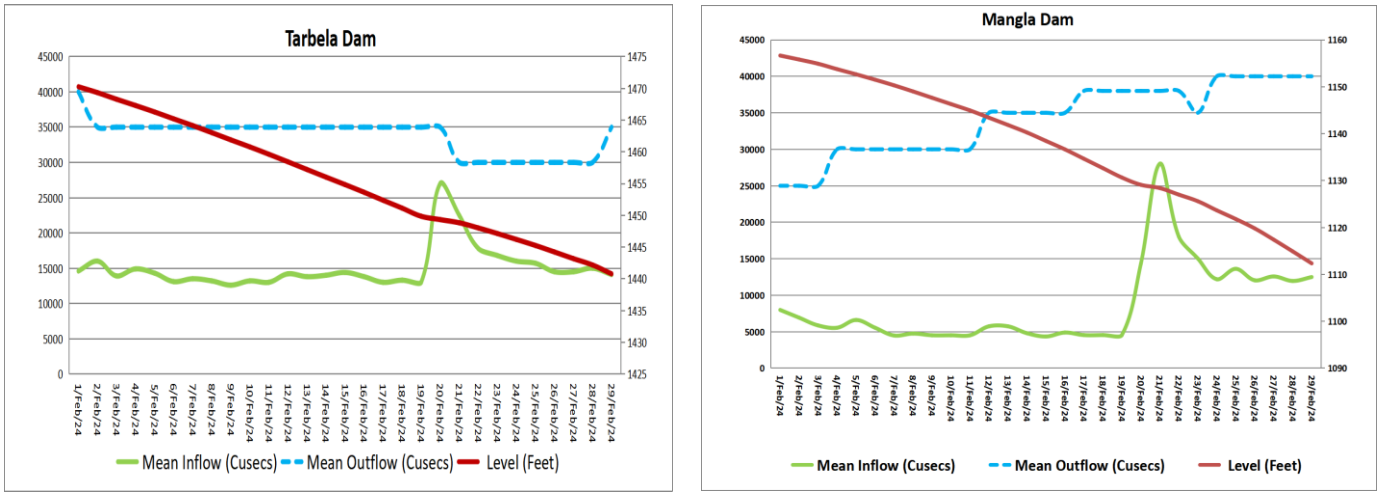


Figure 9: Water Inflow, Outflow and Level of Tarbela and Mangla Dam

4. Weather Outlook for March 2024

Overall a tendency for near normal rainfall is expected in most parts of the country. The northern half of the country comprising of Khyber Pakhtunkhwa, Kashmir and northern Punjab are expected to receive slightly above normal rainfall during the forecast month. Sindh, southern Punjab and most parts of Balochistan and Gilgit-Baltistan may get near normal rainfall during March. Temperatures are expected to remain above normal to above normal nationwide, with maximum departure over Gilgit Baltistan, Khyber Pakhtunkhwa, and Kashmir.

5. Drought Outlook for March 2024

Keeping in view the forecast for March 2024, drought-affected areas of Sindh, Balochistan and Punjab may not get enough relief as compared to the previous month.

All stakeholders are requested to make all efforts to save the water available across rain-fed areas of Sindh, Balochistan and Cholistan region in Punjab, especially in previously drought-affected areas and plan DRM activities accordingly.

6. Crop Condition:

The sowing of Rabi crops in Pakistan stretches from mid-September to end of February. Due to the above normal temperature, the Rabi crops including “wheat” may get ready for an earlier harvest especially in the lower half of the country. An increase in temperature would be supportive for an early onset of pollen season in major cities (e.g. Islamabad, Lahore).

Advice for Farmers:

I. Farmers may schedule the irrigation of crops as per requirement keeping in view the weather forecast of expected rains.

II. Those farmers who could not sow wheat in their field because of cotton crop, they are advised to go for the alternative e.g. sunflower.

III. Removing weeds from standing crops is very important as weeds utilize moisture and food which may be utilized by the crop. As a result, considerable loss in yield occurs every year.

IV. However operations against weeds should be started using weedicides or manually when the crop completely covers the field.

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