

Monthly Drought Bulletin For the Month of January 2024

Highlights

- During the month of January 2024, Light to moderate rainfall events were reported in the country where as some of the areas in Balochistan, Sindh, Punjab and KP received trace to zero rainfall during the month.
- Less to No Precipitation over some of the areas of Balochistan, Sindh and Cholistan region in Punjab province have raised the moisture stressed conditions in previously moisture stressed areas over there.
- During the month of February 2024, overall near normal rainfall is expected in most parts of the country. Temperatures are forecasted to remain slightly above normal nationwide.
- Moderate Drought conditions may observed in Nokundi, Jiwani, Gawadar, Ormara, Bolan, Sibbi while Mild Drought conditions may observed in Kharan, Kech, Turbat, Killa Saifullah, Quetta, Zhob districts and coastal areas of Balochistan. In Sindh, Dadu, Tharparkar, Umerkot, Sanghar, Khairpur, Ghotki, Thatta, Badin, Sajawal and Karachi districts while cholistan in Punjab Mild Drought conditions may be observed.
- Keeping in view the weather forecast for the month of January 2024, disaster management authorities are requested to plan DRM activities accordingly.

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Table of Contents

S.No.	Contents	Page #
1	Weather Summary for the month of January, 2024	3
2	Drought Situation Analysis	4
I	Monthly Normal to Actual Rainfall Comparison	5
II	Normalized Difference Vegetation Index (NDVI)	6
III	Land Surface Temperature (LST)	6
IV	Temperature Vegetation Index (TVDI)	7
V	Length of Consecutive Dry Days	7
3	Water availability/ Dams flow data	8
4	Weather Outlook for February, 2024	9
5	Drought Outlook for February, 2024	9
6	Crop Condition	9
7	Advice for Farmers	10

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1. Weather Summary for the Month of January, 2024

The spatial distribution of rainfall is shown in Figure 1. During the month of January 2024, Light to moderate rainfall events reported in the country where as isolated parts of Khyber Pakhtunkhwa, Balochistan and most areas of Sindh and Punjab province received trace to zero rainfall during the month. The chief amounts of monthly rainfall recorded across Pakistan during January 2024 are shown in Table:1

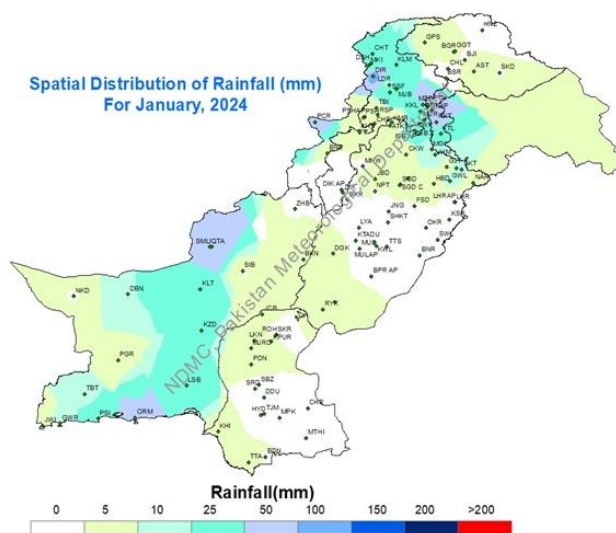


Figure 1: Spatial Distribution of rainfall

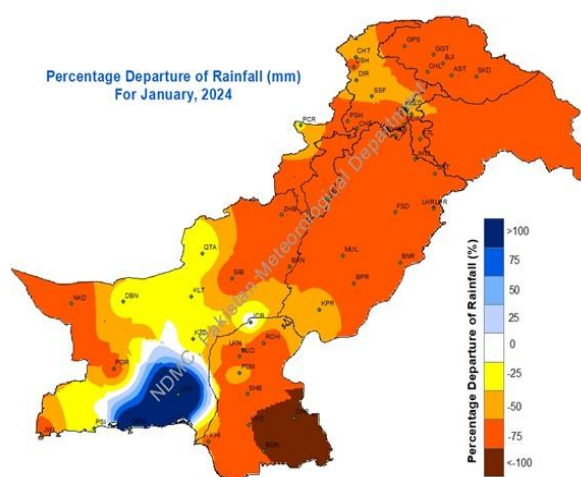


Figure 2: Percentage Departure of rainfall

Figure 2 depicts the percentage departure of rainfall from the normal. Below-normal rainfall was reported in Gilgit Baltistan, AJK Sindh, Balochistan Khyber Paktunkhawa, Punjab province except Ormara and Lebella areas in Balochistan.

Table-1: Chief amount of rainfall recorded across Pakistan during the month of January, 2024					
Sr.No.	Station	Rainfall(mm)	Sr.No.	Station	Rainfall(mm)
1	DIR	58	11	MALAMJABBA	23
2	PATTAN	45	12	KALAM	22.8
3	MUZAFFARABAD CITY	44.3	13	KALAT	21
4	MUZAFFARABAD AIRPORT	40.6	14	SAIDU SHARIF	20
5	PARACHINAR	35	15	BALAKOT	19
6	RAWALAKOT	32.52	16	LASBELA	19
7	QUETTA (SAMUNGLI)	31.01	17	CHAKLALA AIRBASE	17.05
8	ORMARA	30	18	PASNI	17
9	G.DOPATTA	28	19	MURREE	13.5
10	QUETTA (SH MANDA)	23.2	20	CHITRAL	12.4

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.

Moderate Drought conditions may be observed in Nokundi, Jiwani, Gawadar, Ormara, Bolan, Sibbi while Mild Drought conditions may be observed in Kharan, Kech, Turbat, Killa Saifullah, Quetta, Zhob districts and coastal areas of Balochistan. In Sindh, Dadu, Tharparkar, Umerkot, Sanghar, Khairpur, Ghotki, Thatta, Badin, Sajawal and Karachi districts while cholistan in Punjab Mild Drought conditions may be observed.

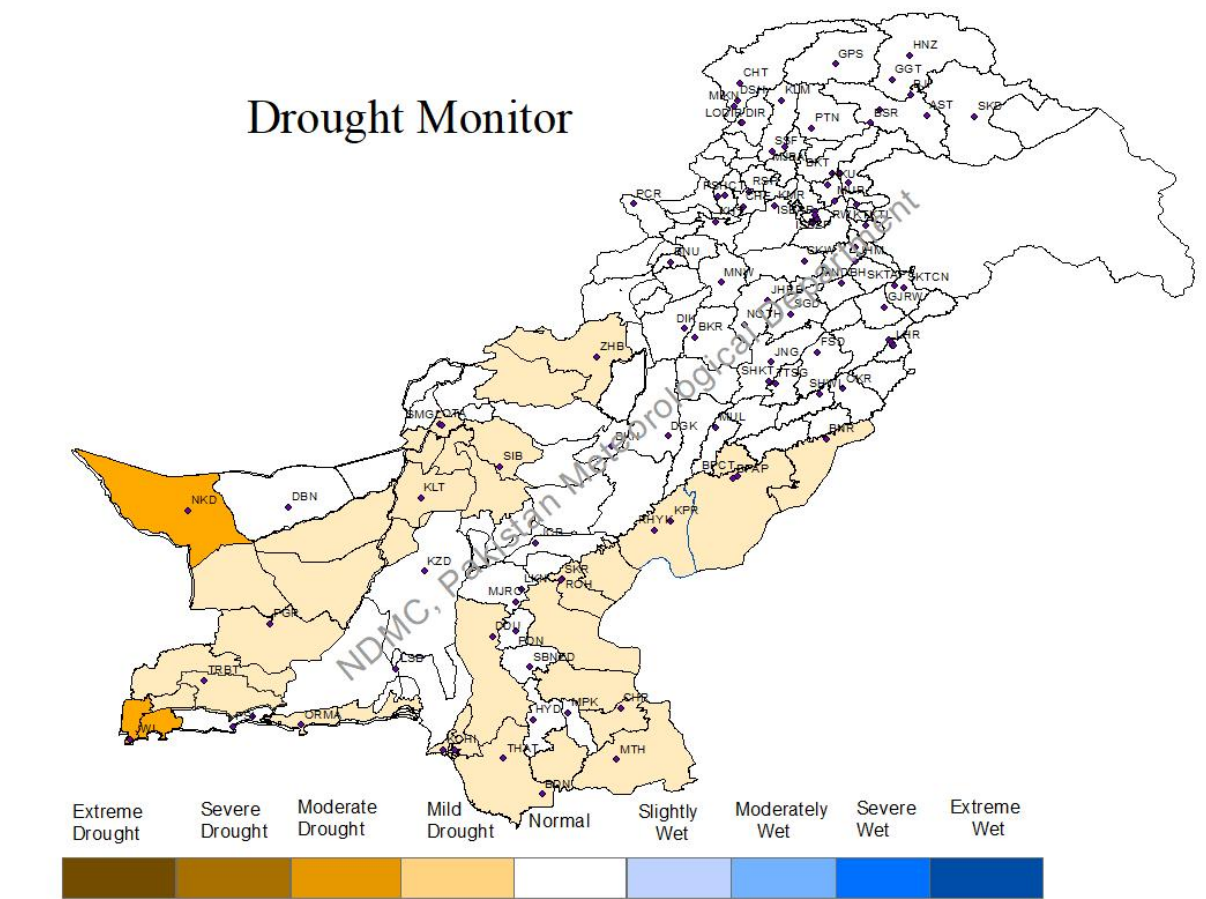
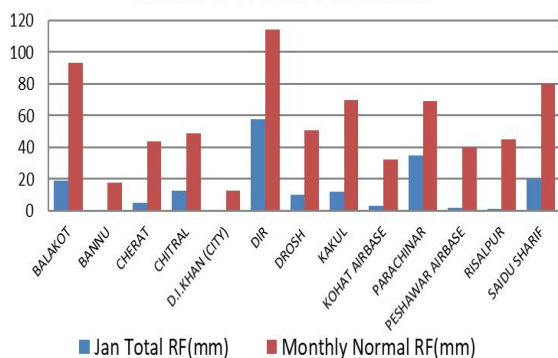


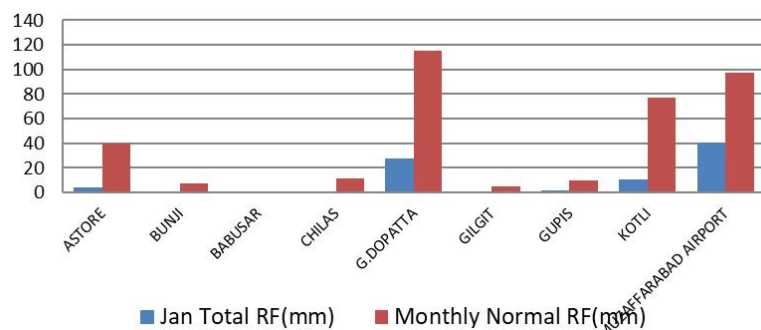
Figure 3: Drought Monitor of Pakistan

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

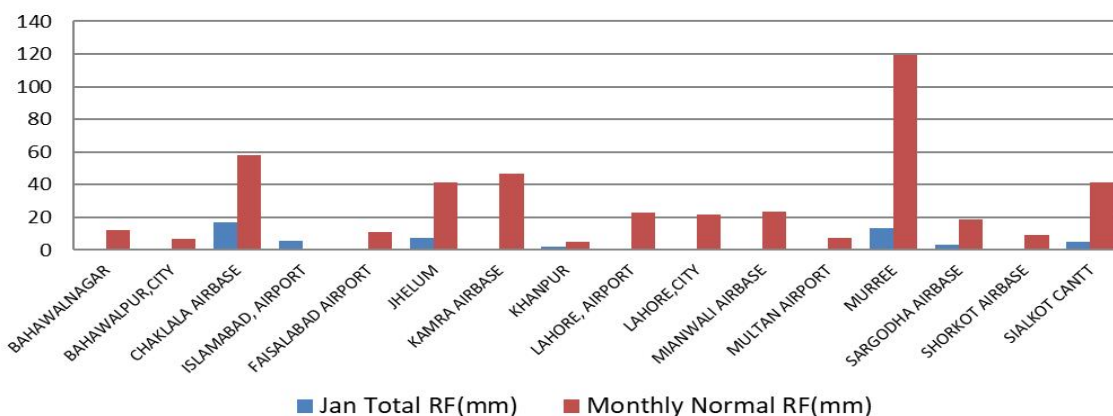
KHYBER PAKHTUNKHWA



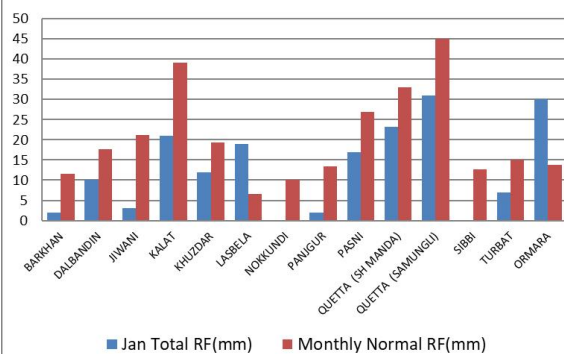
GILGIT BALTISTAN / AZAD KASHMIR



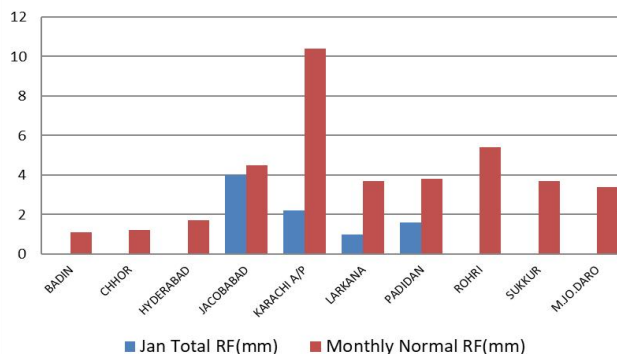
PUNJAB



BALOCHISTAN



SINDH



II. Normalized Difference Vegetation Index (NDVI)

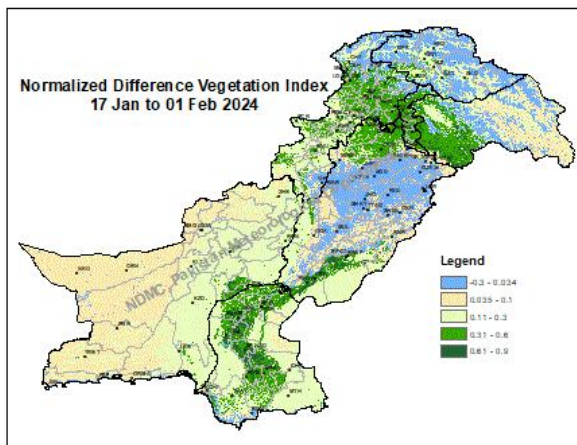


Figure 4: NDVI

Normalized Difference Vegetation Index values for January 2024 are shown in Fig.4. NDVI conditions in AJK, Punjab, Khyber Pakhtunkhwa, and along the Indus belt, depicting the wide spread vegetation in fields conditions of chlorophyll content stored in the plants and the vegetation cover in water stress areas are not good.

III. Land Surface Temperature (LST)

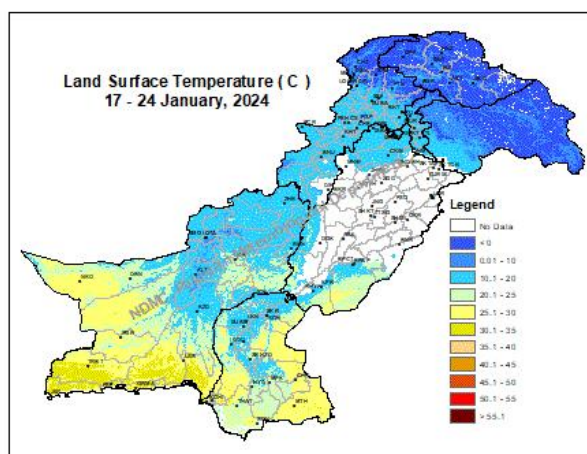


Figure 5: LST (°C)

Land Surface Temperatures (LST) for the period 17 to 24 January 2024 are represented in Fig. 5. In the central parts of the country, average daytime temperatures were below 20°C while in some lower parts of the country, the temperature was reported above 25°C during the period.

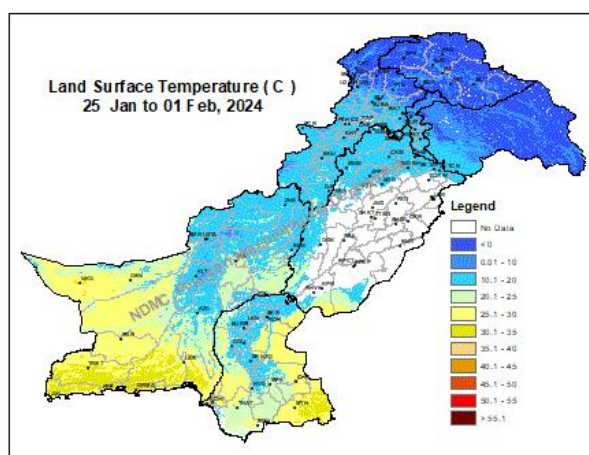


Figure 6: LST (°C)

Land Surface Temperatures during the period 25 Jan to 01 Feb are shown in Fig. 6. In some areas in the north parts of the country decrease in temperatures trend has been observed and also in the south parts of country decrease in temperature has also been observed.

IV. Temperature Vegetation Dryness Index (TVDI)

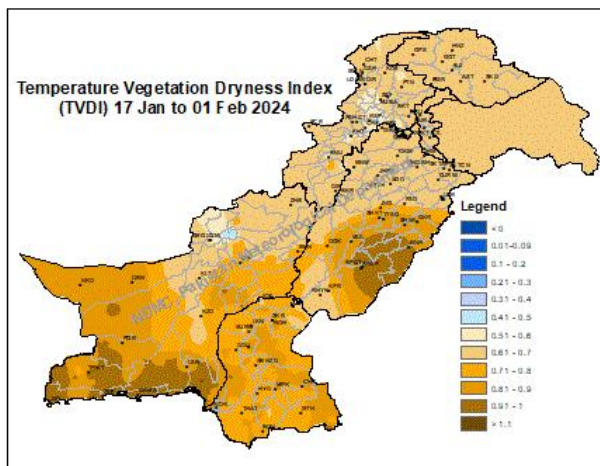
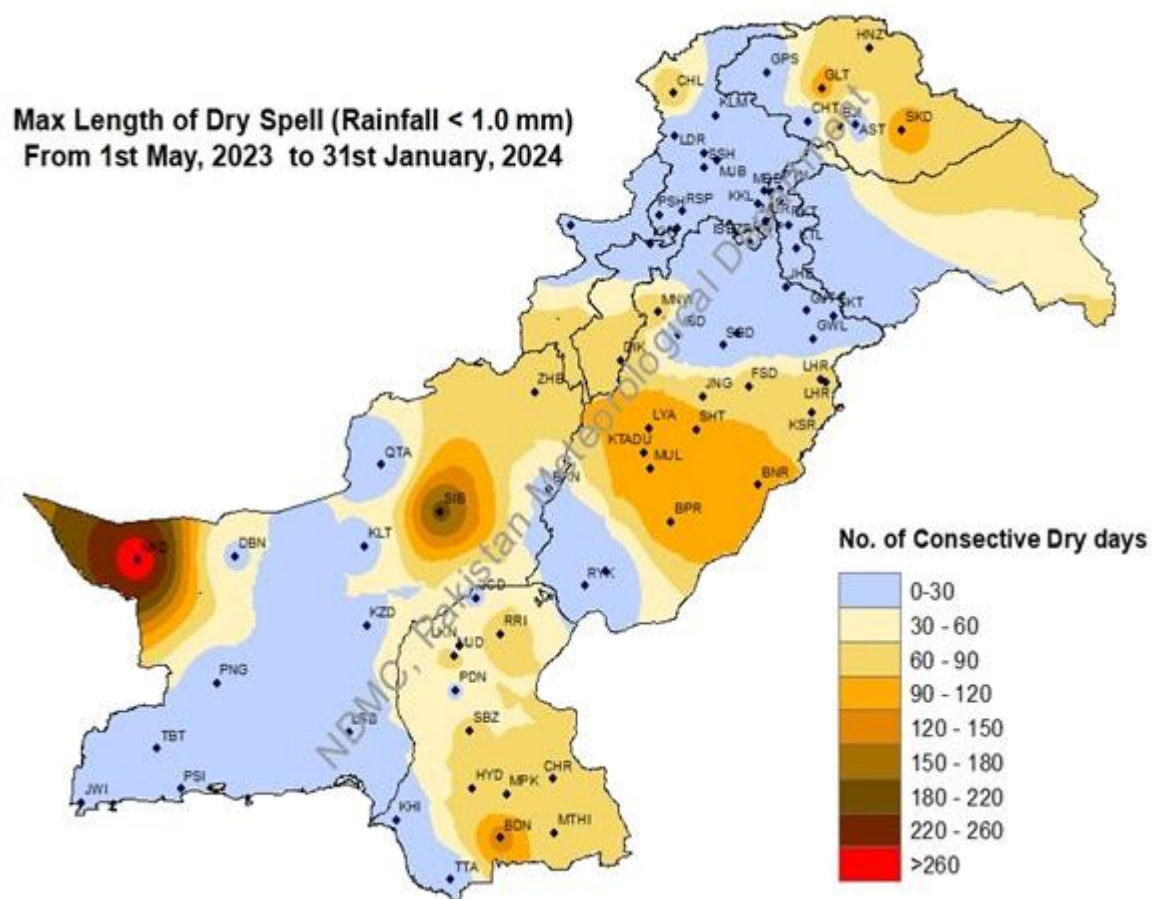


Figure 7: TVDI

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

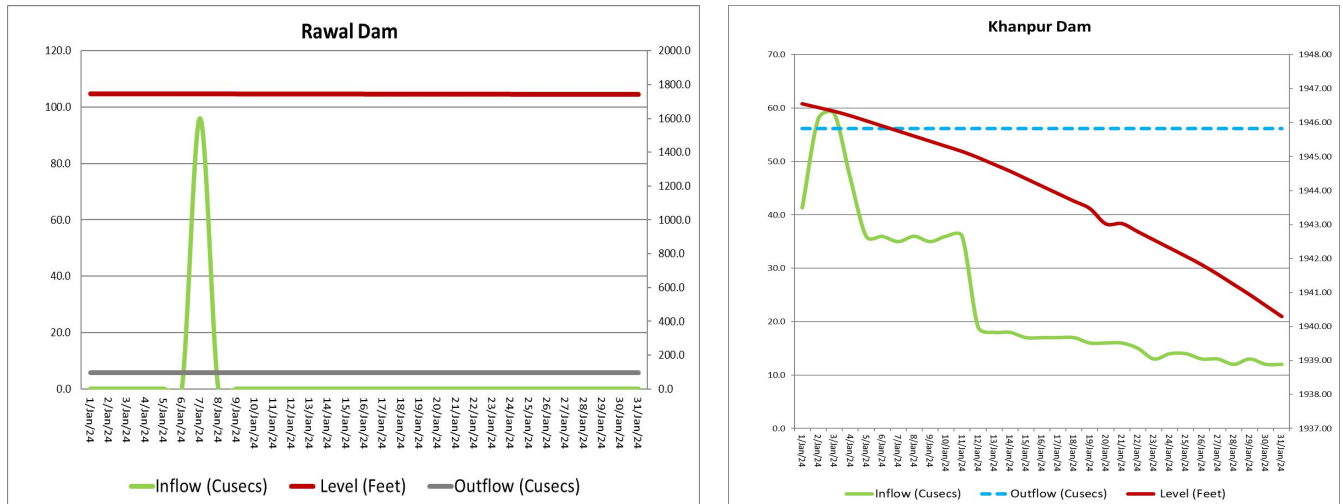


Figure 8: Water inflow, outflow and level of Rawal and Khanpur Dams

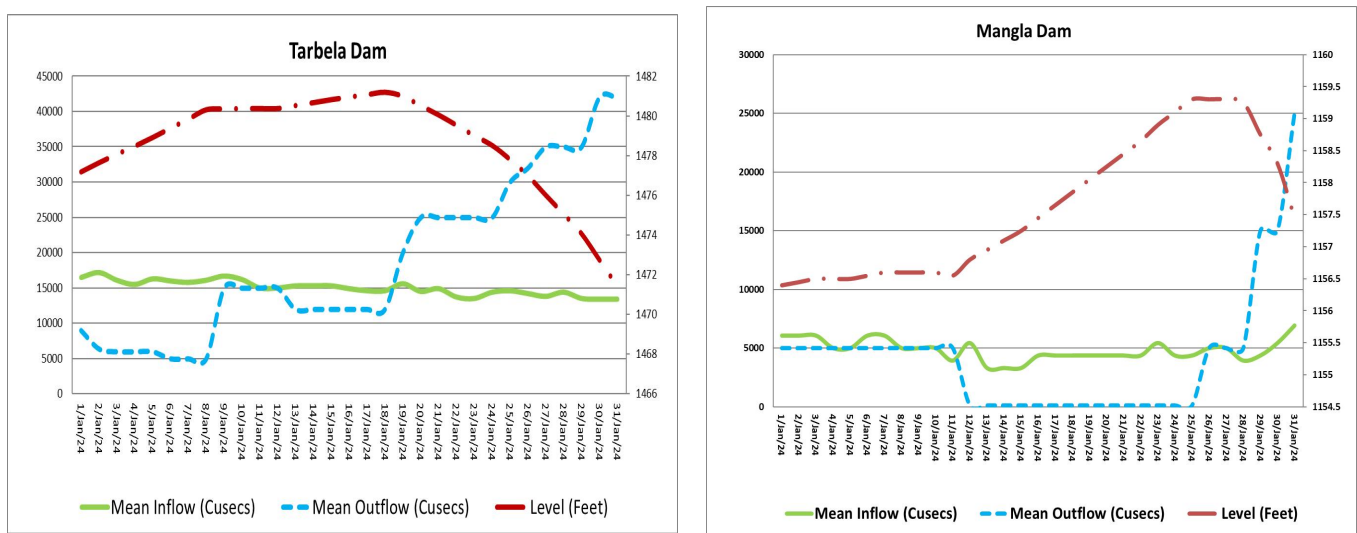


Figure 9: Water inflow, outflow and level of Tarbela and Mangla Dams

4. Weather Outlook for February, 2024

Overall near normal rainfall is expected in most parts of the country. Mainly dry conditions are expected over the country for the forecasted month. Warmer daytime temperatures and colder nighttime temperature are expected in Upper Khyber Pakhtunkhwa, Gilgit-Baltistan, adjoining areas of Kashmir and Potohar region. A moderate amount of water would be available for standing crops and vegetables having positive impact on Rabi crops. Farmers in Barani areas may plan scheduled watering. Seasonal illnesses may prevail due to dry spell.

5. Drought Outlook for February, 2024

Keeping in view the forecast for February 2024, drought-affected areas of Sindh, Balochistan and Punjab Province 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 January. The growth of rabi crops especially wheat is satisfactory. Sowing of Lentil crop has completed and recent rains may improve the crop early growth. No serious pest/insect attack has been reported so far. The sowing of gram crop has completed. Harvesting/crushing of sugarcane crop is in full swing.

Advice for Farmers:

- I. In the rain-fed plains of Balochistan and Potohar plateau, the farmers have to show an efficient rain water harvest skill by completely rooting out the weeds, competing their crops for food and water.
- II. Farmers of rain-fed areas, obtaining crop water through tube wells are advised to schedule the irrigation according to the expected weather mentioned above during the decade.
- III. Removing weeds from standing crops is very important as weeds utilize moisture, which may be utilized by the crop. However weedicides or manually should be used against weeds and removed all type of weeds from the standing crops.

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