

OCTOBER 2022

Highlights

- During the month of October 2022, rainfall received across Pakistan is shown in Fig. 1. Below normal rainfall reported from most of the places in Pakistan, while Rawalpindi, Sialkot in Punjab, Cherat, Kakul in KP, Kotli, Muzaffarabad & Garhi Dupatta in AJK received above normal rainfall. The Chief amounts of monthly rainfall recorded across Pakistan are shown in Table:1
- Precipitation over most of the drought-prone areas of Sindh and Balochistan was below normal but due to good rain in preceding months moisture conditions became normal.
- The month of November is normally a dry month and generally receive less rainfall, Northern parts of Punjab and Khyber Paktunkhawa may receive some precipitation due to westerly troughs passing across the area. Nights will be cooler than October.
- Drought conditions has been minimized or terminated over Balochistan and Sindh. Keeping in view the November forecast, disaster management authorities are requested to plan DRM activities accordingly.

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1. Weather Summary for the month of October, 2022

During the month of October 2022, rainfall received across Pakistan is shown in Fig.1. Normal to below normal rainfall reported from most of the places in the country. The Chief amounts of monthly rainfall recorded across Pakistan during October 2022 are shown in Table:1

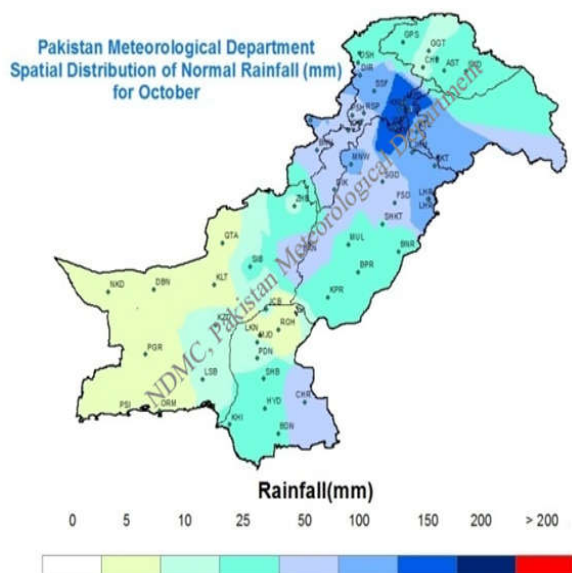


Fig. 1: Rainfall distribution for the month of October 2022

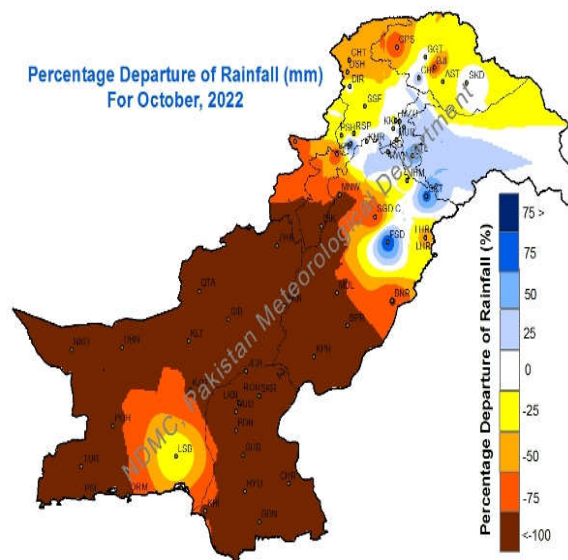


Fig. 2: Percentage Departure of Rainfall for the month of October-2022

Fig. 2 depicts the percentage departure of rainfall from the normal. Below normal rainfall reported from most of the places in the country, while Rawalpindi, Sialkot in Punjab, Cherat, Kakul in KP, Kotli, Muzaffarabad & Garhi Dupatta in AJK received above normal rainfall.

S. No.	Stations	Rainfall (mm)	S. No.	Stations	Rainfall (mm)
1	Attock	118.6	11	Kotli	40.0
2	Dir (Lower)	116.0	12	Kalam	39.8
3	Buner	71.0	13	Bandi Abbaspur (AJK)	37.7
4	Pattan	58.0	14	Sialkot Cantt	34.8
5	Dhulli	55.2	15	Cherat	33.0
6	Murree	50.0	16	Gujranwala	30.0
7	Kakul	50.0	17	Chattar Kalas (AJK)	29.9
8	Islamabad (Said Pur)	49.0	18	Malam Jabba	29.0
9	Muzaffarabad City	47.0	19	Mangla	27.6
10	Garhi Dupatta	44.5	20	Hajira (AJK)	25.8

2. Drought Situation Analysis

Spatial drought monitor map is shown in Fig. 3, based on the analysis of outputs obtained from different drought monitoring indices like Standardized Precipitation Index (SPI), Temperature Vegetation Dryness Index (TVDI), Normalized Difference Vegetation Index (NDVI), Land Surface Temperature (LST), Length of Dry Spell, Monthly Rainfall and Temperature Climatology of the area and on-ground information.

In Southern Balochistan, dry conditions are observed around Taftan area of Nokundi while rest of the country showing normal conditions.

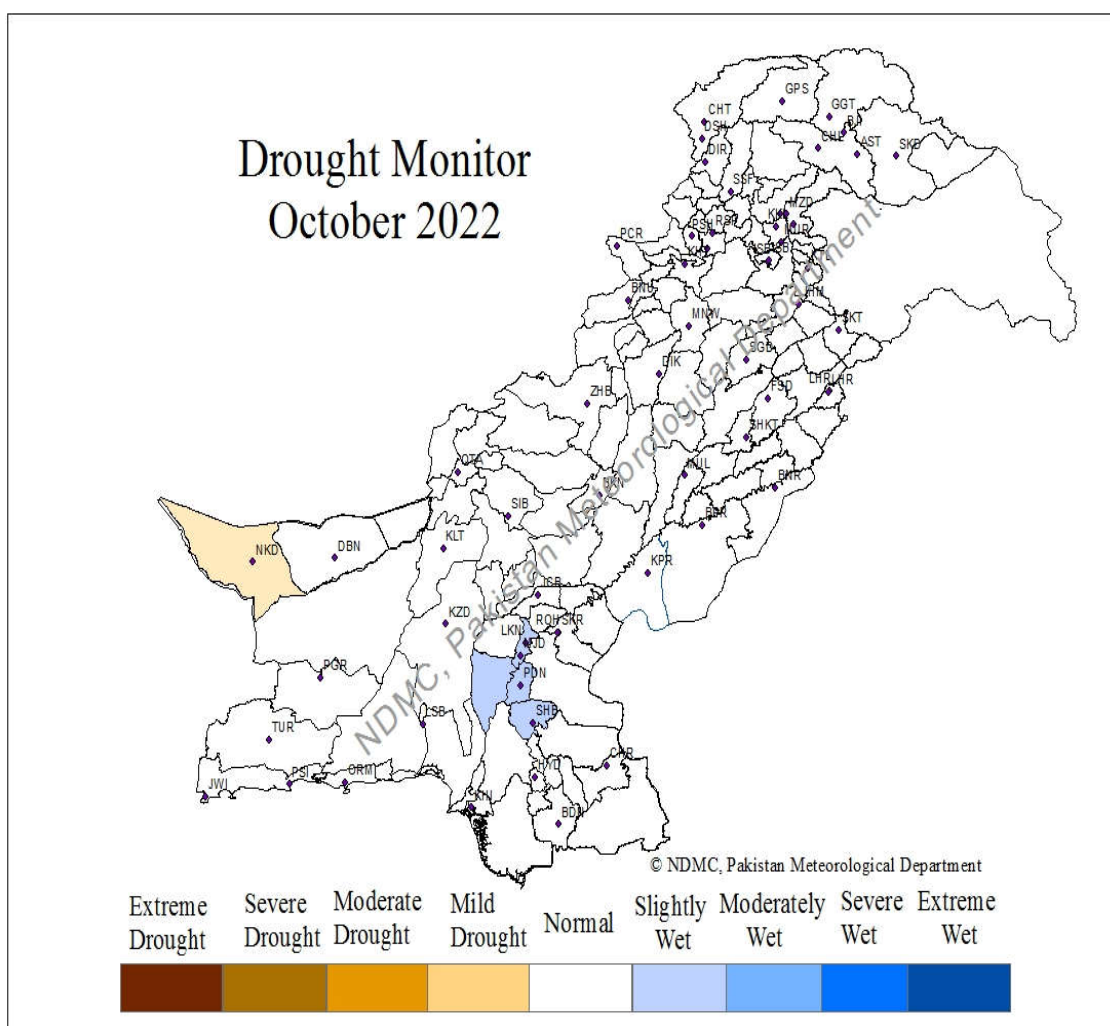
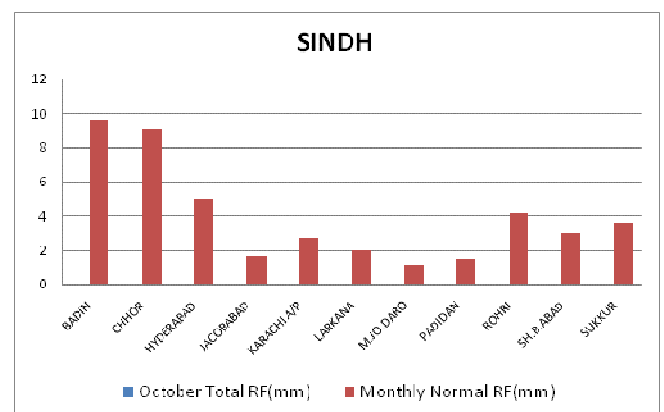
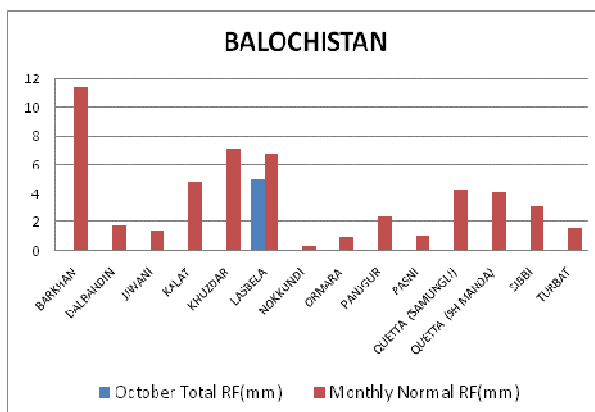
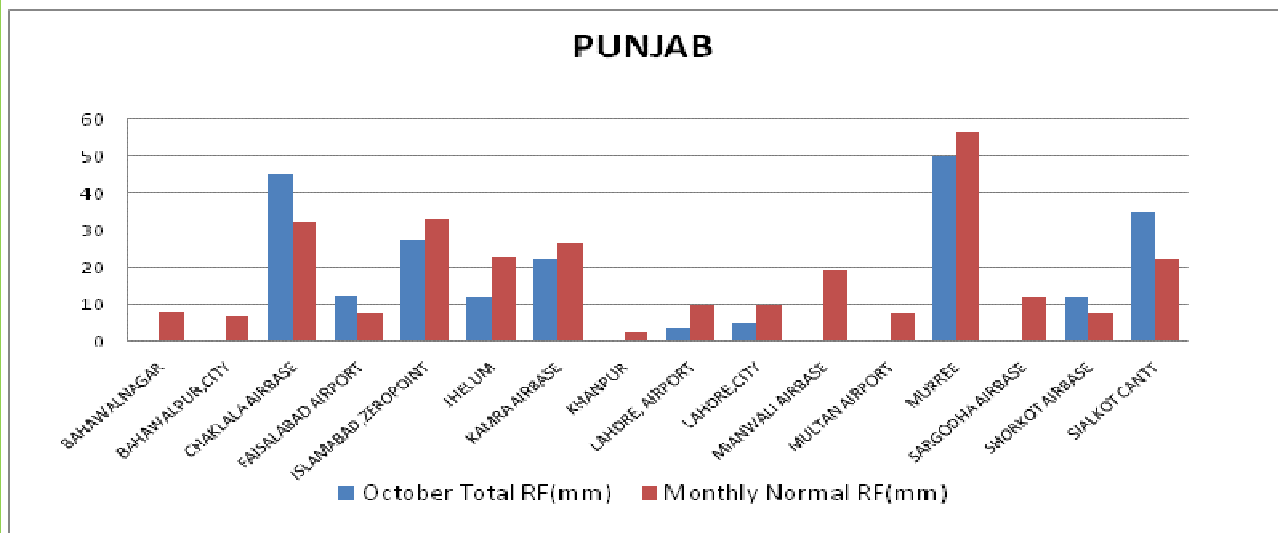
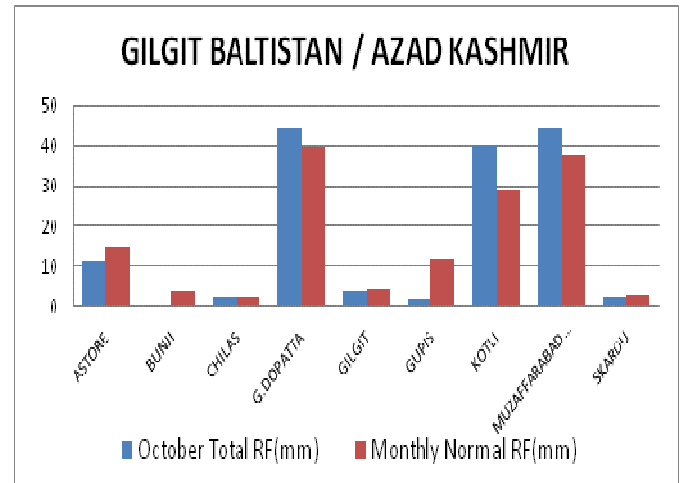
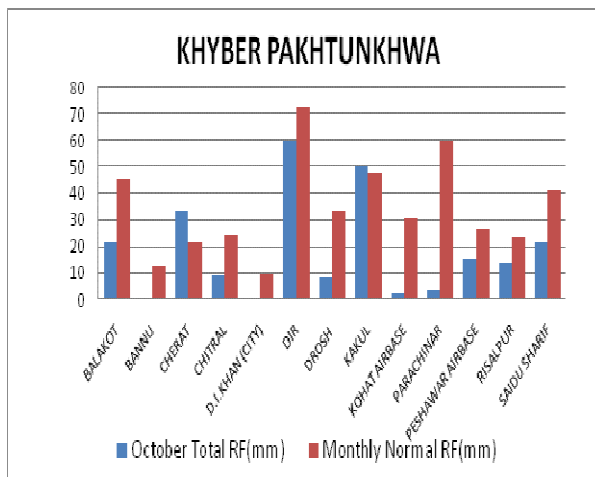


Fig. 3: Analysis of Drought conditions in Pakistan

I. Monthly Actual to Normal Rainfall Comparison for October-2022



II. Normalized Difference Vegetation Index (NDVI)

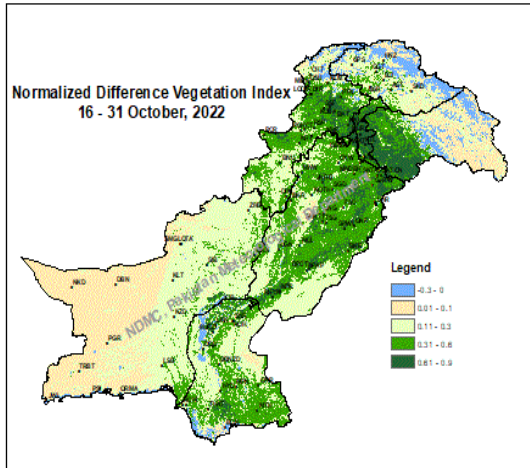


Fig. 4: NDVI during 16-31 October, 2022

Normalized Difference Vegetation Index values for October 2022 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 Temperatures (LST)

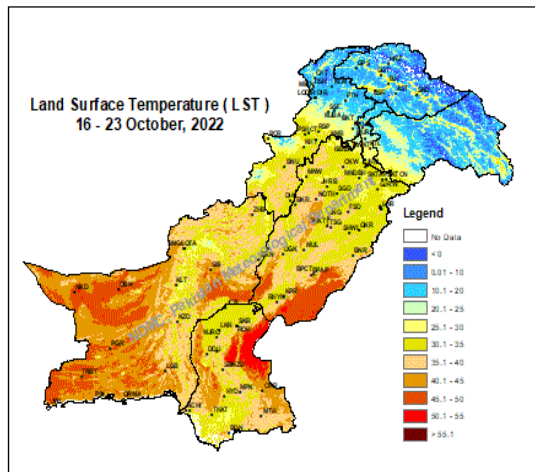


Fig. 5: LST ($^{\circ}$ C) during 16-23 October, 2022

Land Surface Temperatures (LST) for the period 16–23 October 2022 are represented in Fig. 5. In the central parts of the country, average daytime temperatures remained between 20° C to 30° C while in lower parts of the country, the temperature reported above 30° C during the period.

Land Surface Temperatures during the period 24–31 October are shown in Fig. 6. Decrease in temperatures has been observed in most parts of the country especially in Punjab and southern Balochistan as compared to the previous week.

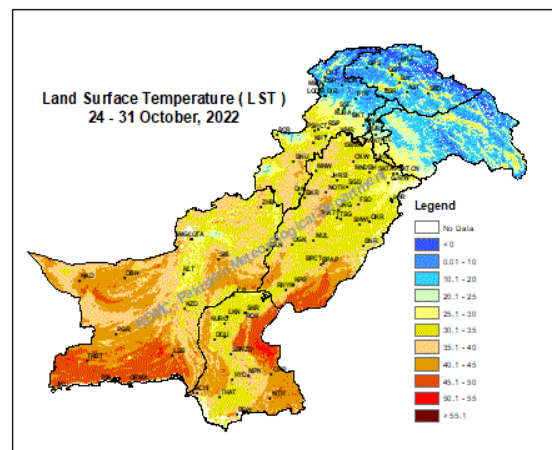


Fig. 6: LST ($^{\circ}$ C) during 24-31 October, 2022

IV. Temperature Vegetation Dryness Index (TVDI)

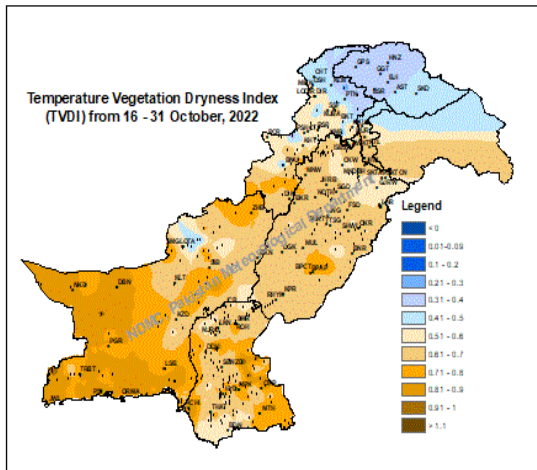
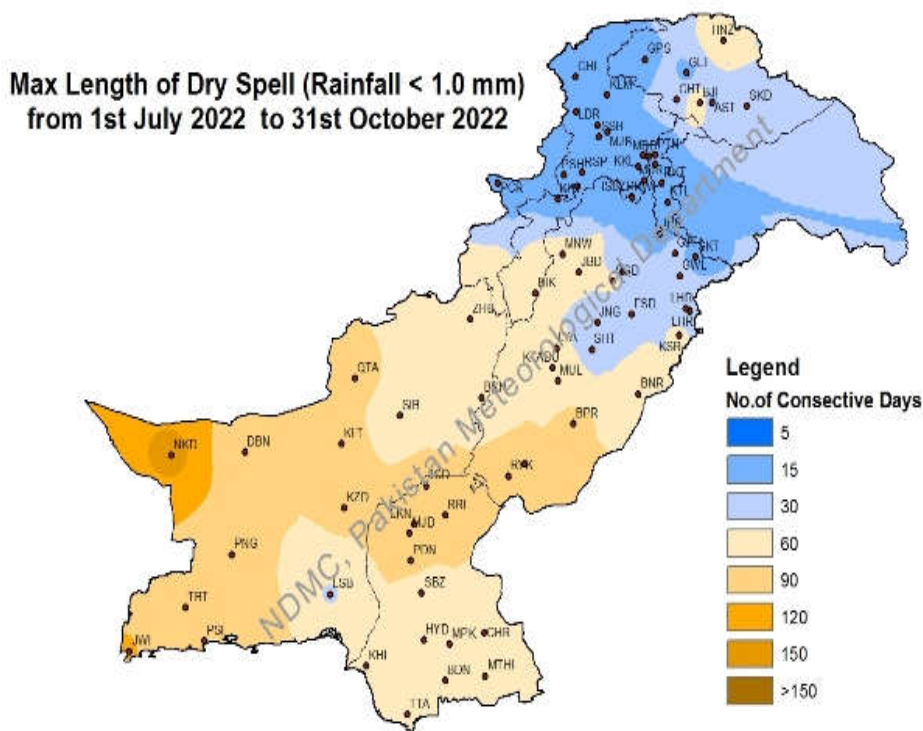


Fig. 7: TVDI during 16-31 October 2022

Temperature Vegetation Dryness Index (TVDI) derived from MODIS product MOD13A2 (NDVI) and MOD11A2 (LST) is shown in Fig. 7, which indicates the start of mild dry and less soil moisture conditions in the south east areas of Sindh and western areas in Balochistan. Same picture is arising in the map of length of dry spell given below.

V. Length of Consecutive Dry Days:



Source: National Drought Monitoring Center-PMD-Islamabad

3. Water availability/ Dams flow data:

In the month of October 2022, water inflow, outflow and levels of Rawal, Khanpur, Tarbela and Mangla dams are shown in Figs. 8 & 9. Except Rawal dam, levels at other major reservoirs has dropped while inflow has also dropped due to the less or no rains in the catchment areas.

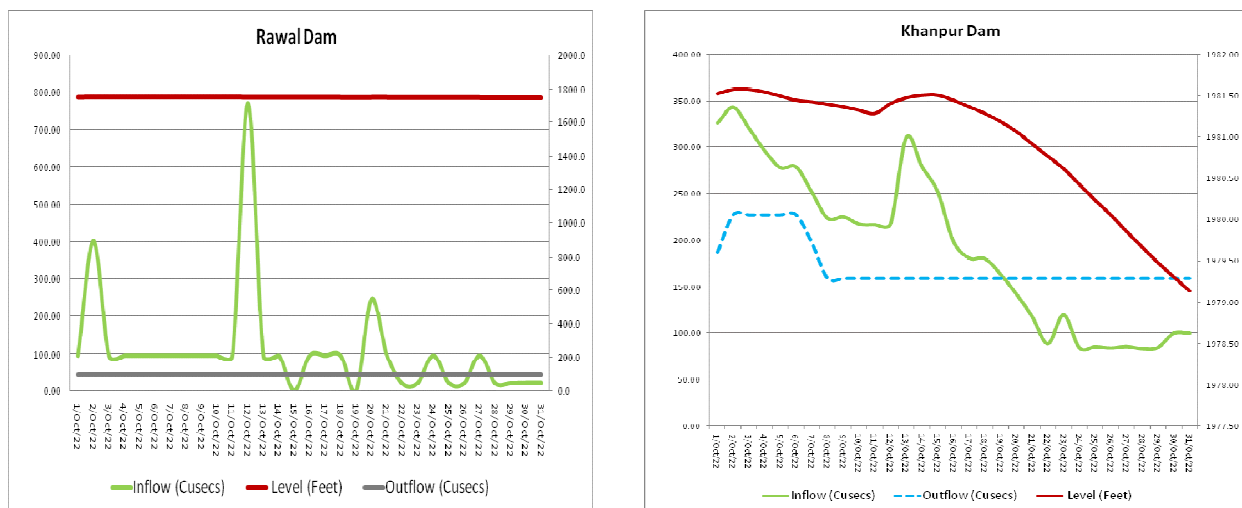


Fig. 8: Water inflow, outflow and level of Rawal and Khanpur Dams

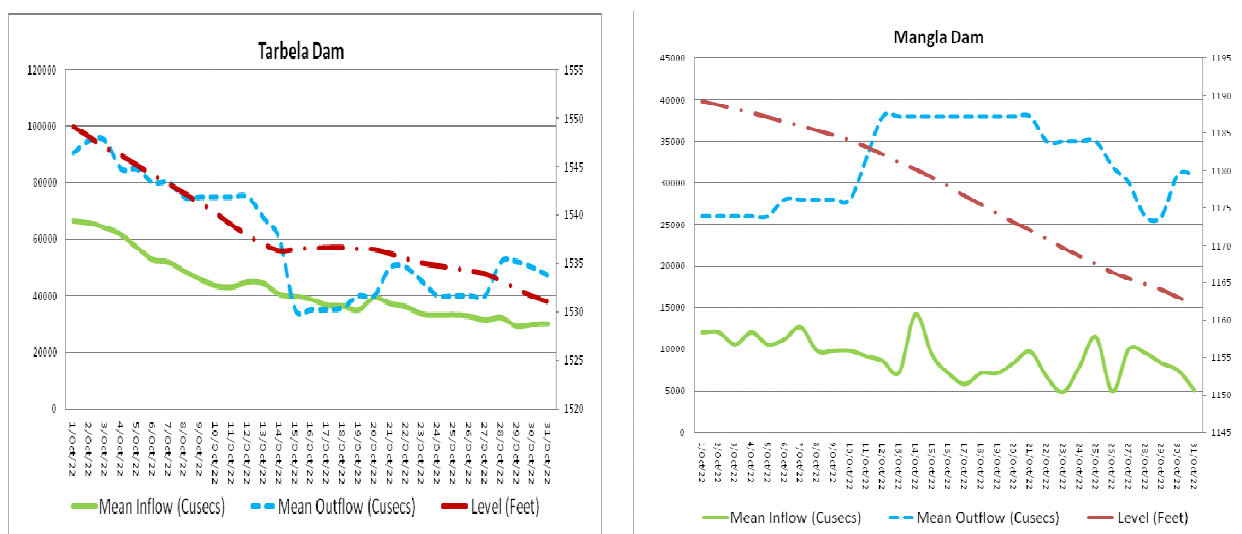


Fig. 9: Water inflow, outflow and level of Tarbela and Mangla Dams

4. Weather outlook for November 2022

November is normally a dry month over Pakistan with respect to precipitation. Northern parts of Punjab and Khyber Paktunkhawa may receive some precipitation due to westerly troughs passing across the area. Over rest of the agricultural plains of the country, generally, weather would remain dry during the month of November. Due to shorter days, lower solar intensities as compared with those during October, some freezing nights in the later parts of the month are expected over high agricultural plains of Balochistan.

5. Drought Outlook for November 2022

The month of November may not be good for previously drought affected areas of Balochistan and Sindh. At present, most of the drought conditions have been minimized or terminated in Sindh, while in Punjab, KP, AJK and Gilgit Baltistan condition may continue as normal.

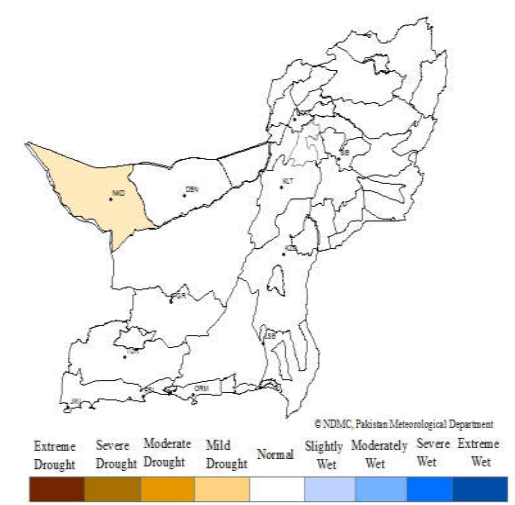


Fig-10: Conditions across Balochistan

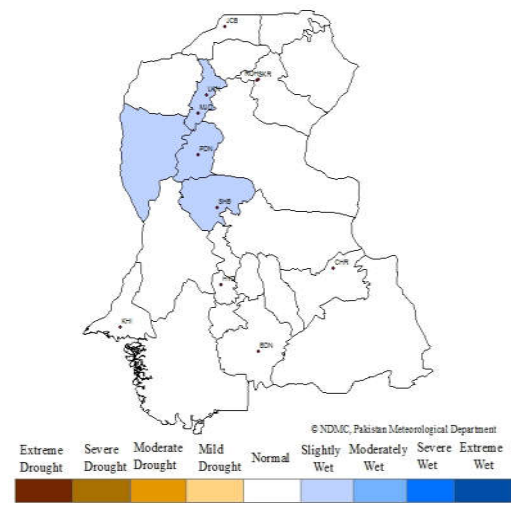


Fig-11 Drought Conditions across Sindh

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

6. Crop Condition:

Harvesting of Kharif crops is in full swing, which include crops like Millet (local name Bajra), Sorghum (local name Jawar), Maize, Mung bean, Sugar-cane, Peanut, Sunflower, Soybean, Rice, Cotton etc. Condition of Rice is satisfactory. Sowing of Rabi crops has started at some places.

7. Advice for Farmers:

- I. Farmers of wheat growing areas are advised to sow their crops in time to get the optimum yield. The best suitable time for wheat cultivation is 1st November to 20th November.
- II. Wheat cultivation is in progress in most of the rain-fed areas. Farmers of rain-fed areas are advised to sow their crops before 15th November to get maximum yield. After this time the yield of wheat crop may decrease gradually.
- III. Farmers of rain-fed areas are advised to sow wheat crop by keeping in mind the above mentioned weather conditions during the current decade.
- IV. Farmers of irrigated areas are advised to harvest Kharif crops, including cotton well in time so that timely sowing of Rabi crops, especially wheat crop may be possible without any delay.

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