

FEBRUARY 2021

Highlights

- During the month of February 2021, light to very light rainfall is reported from PMD stations across Pakistan while most of the places in Sindh and Balochistan received no rainfall. Chief amount of rainfall recorded across Pakistan during February, 2021 is shown in Table 1.
- During the month of March 2021, Normal to below normal rainfall is expected across the country and due to less rains in some areas during last months, low water and soil moisture will be available in those areas.
- Rainfall during February was not good for previous drought prone areas of Balochistan and Sindh regions. During the month of March 2021, no significant rainfall is expected in Sindh and Balochistan. Therefore, dry conditions are likely to continue to prevail during the period.

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1. Weather Summary for the month of February,2021

During the month of February2021, rainfall received across Pakistan is shown in Fig.1. Light to very light rainfall is reported from PMD stations across Pakistan.Chief amounts of monthly rainfall recorded across Pakistan during February, 2021 is shown in Table:1

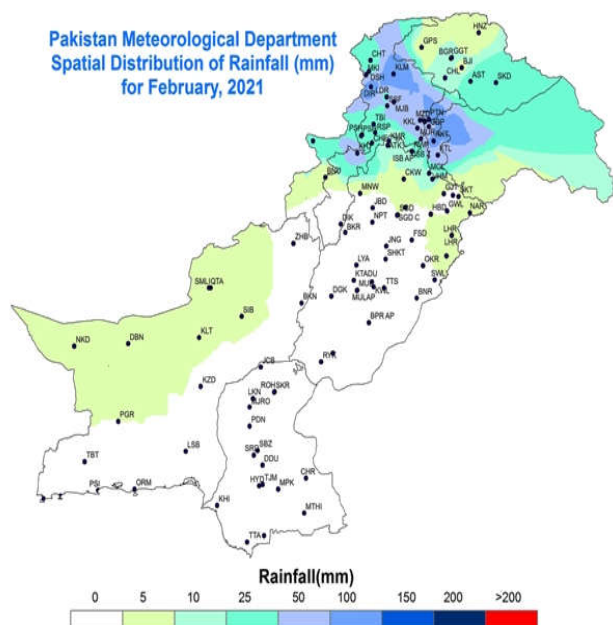


Figure 1: Rainfall distribution for the month of February-2021

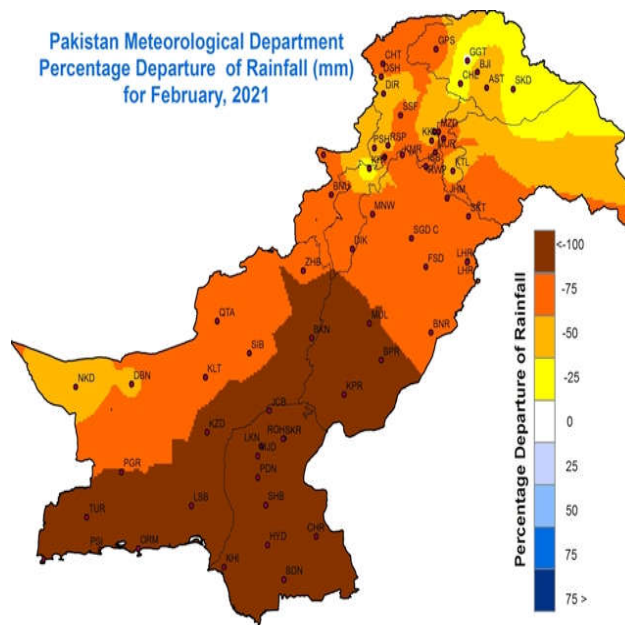


Figure 2: Percentage Departure of Rainfall for the month of February-2021

The Fig. 2 depicts the Percentage Departure of Rainfall from the normal. Below normal rainfall is received across whole of Pakistan, while places in Sindh and Balochistan practically received no rainfall except at some places in western Balochistan.

| S. No. | Stations | Rainfall (mm) | S. No. | Stations | Rainfall (mm) |
|--------|----------------|---------------|--------|-------------------|---------------|
| 1 | Kalam | 92.6 | 11 | Buner | 37.3 |
| 2 | Pattan | 89.0 | 12 | G7arhi Dupatta | 36.0 |
| 3 | Dir | 78.0 | 13 | Kotli | 35.0 |
| 4 | Bandi Abbaspur | 75.5 | 14 | Haraman | 34.3 |
| 5 | Hajira | 66.7 | 15 | Kohat Airbase | 31.5 |
| 6 | Rawalakot | 61.6 | 16 | Muzaffarabad City | 31.1 |
| 7 | Chakothei | 53.6 | 17 | Tandali | 30.5 |
| 8 | Balakot | 50.5 | 18 | Panjera | 29.8 |
| 9 | Malamjabba | 49.0 | 19 | Mirkhani | 28.2 |
| 10 | Besham | 47.8 | 20 | Murree | 28.1 |

2. Drought Situation Analysis

Spatial drought analysis results using different indices are represented in Fig. 3. Normal conditions prevailed over most of the places in the country while dry conditions may arise in Sindh and Balochistan in the coming month of March, 2021.

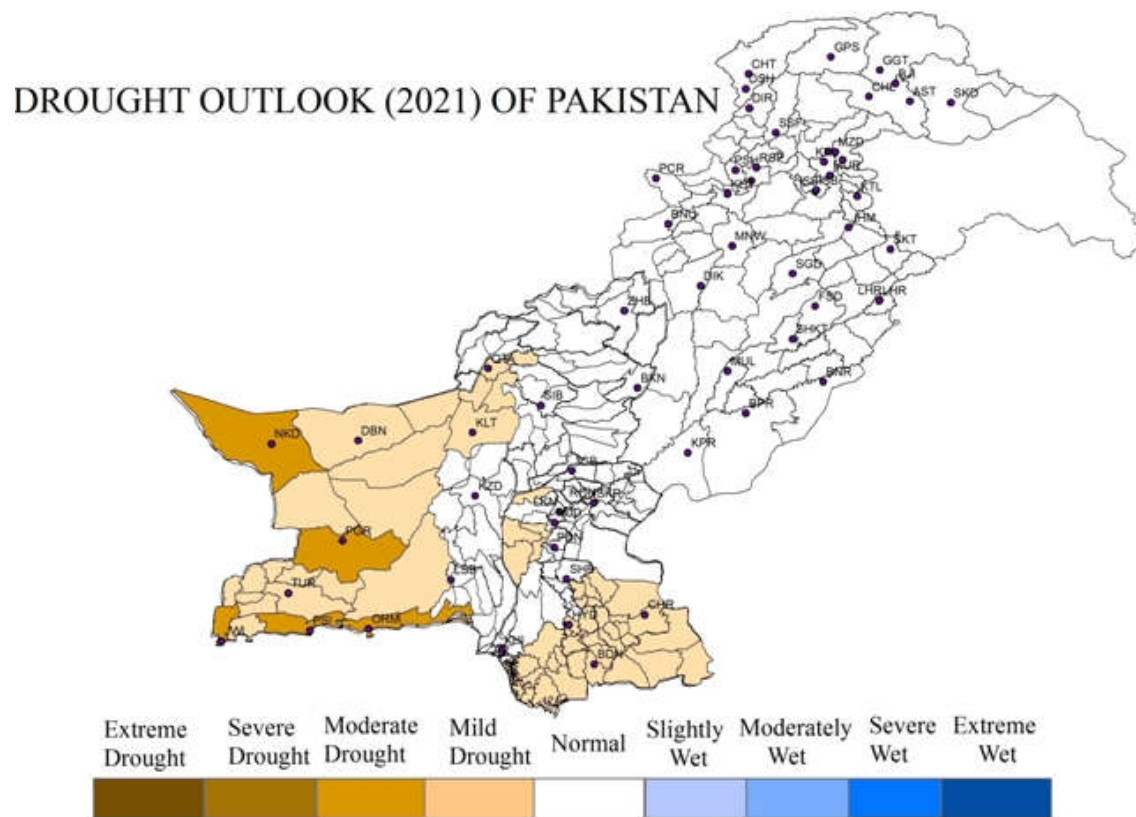
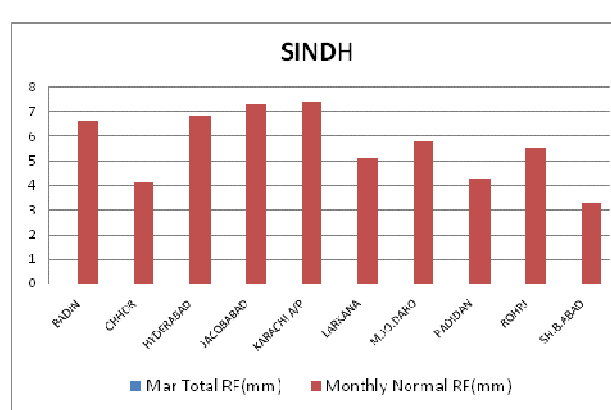
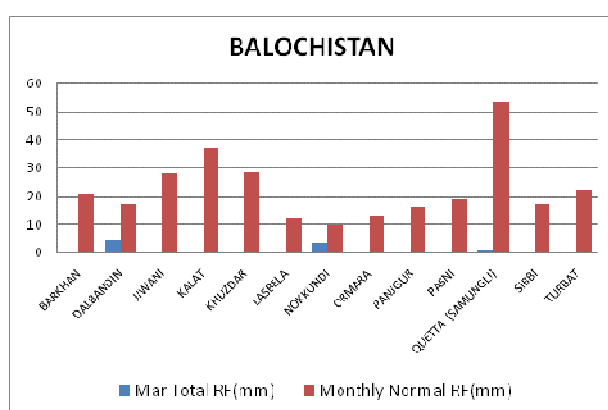
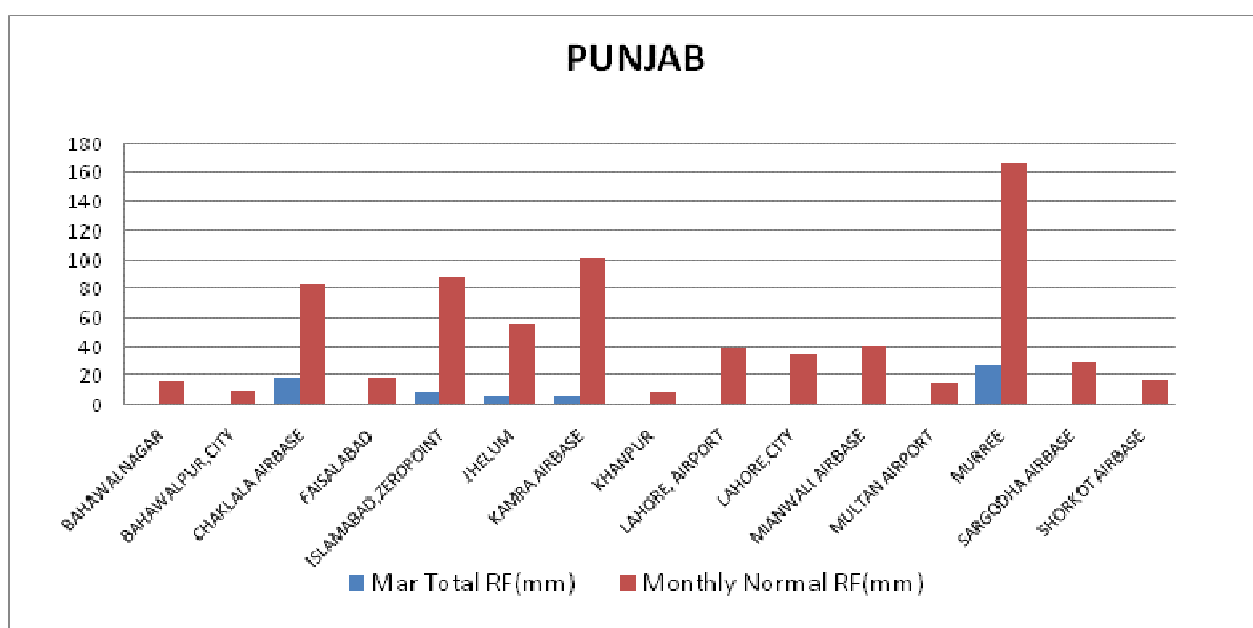
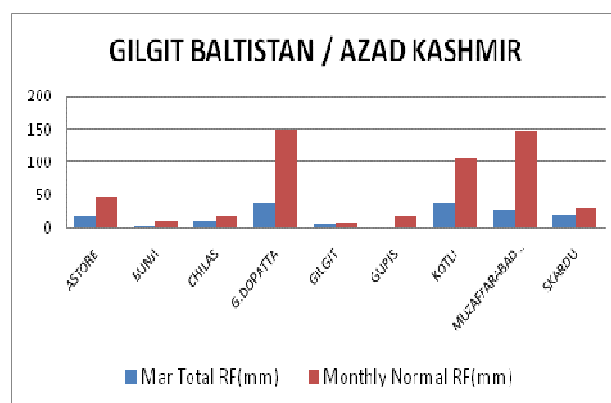
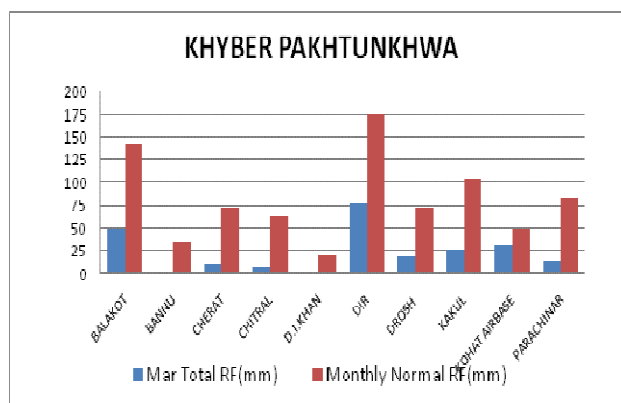


Figure 3: Analysis for Drought conditions of Pakistan

I. Monthly Actual to Normal Rainfall Comparison for February-2021



I. Normalized Difference Vegetation Index (NDVI)

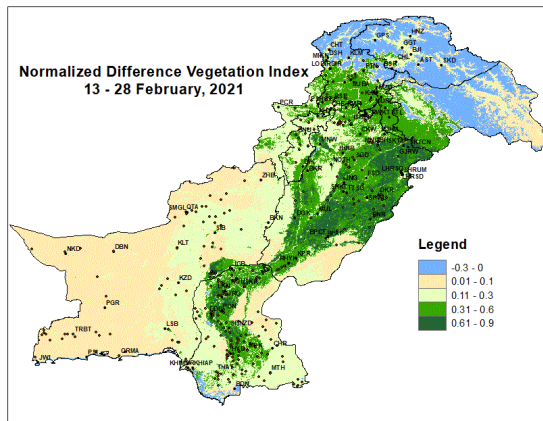


Figure 4: NDVI 13-28February, 2021

Normalized Difference Vegetation Index values for the month of February 2021 are derived from MODIS Satellite Product shown in Fig.4. NDVI conditions in Khyber Pakhtunkhwa, Punjab and along the Indus belt are good. Vegetation index is minimum over most parts of Sindh and Balochistan.

III. Land Surface Temperature (LST)

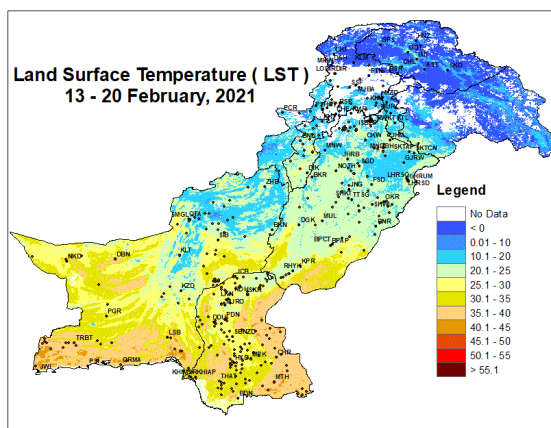


Figure 5: LST (°C) 13-20February, 2021

Land Surface Temperatures (LST) for the period 13–20February, 2021 are represented in Fig. 5. In the central parts of the country, average daytime temperatures remained between 10°C to 20°C while in lower parts of the country, temperature ranges from 25°C to 35°C.

LandSurface Temperatures during the period 21–28, February2021 are shown in Fig. 6. A slightincreasein daytime temperatures has been observed in most parts of the country as compared to the previous week. Nights are still cool and the days are getting warm.

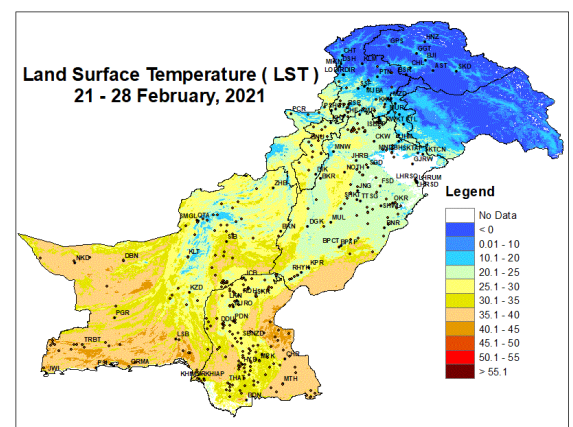


Figure 6: LST (°C) 21-28February, 2021

IV. Temperature Vegetation Dryness Index (TVDI)

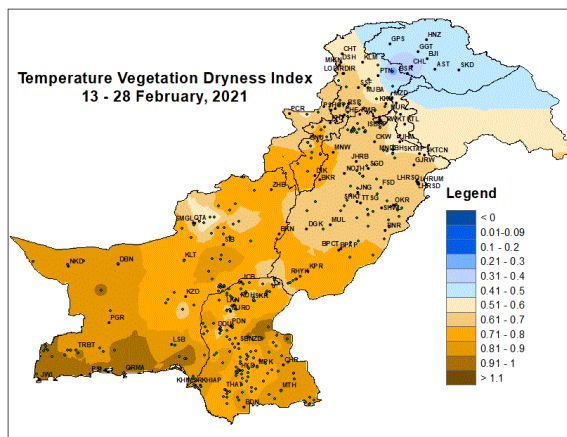
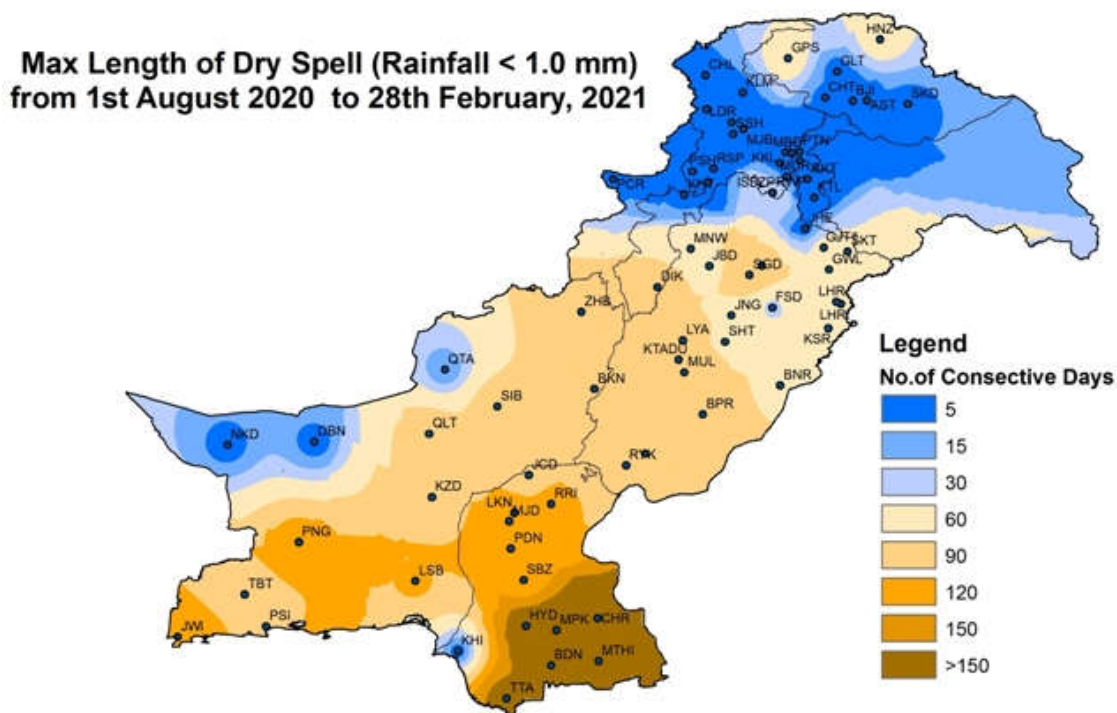


Figure 7: TVDI for period 13-28February, 2021

Temperature Vegetation Dryness Index (TVDI) derived from MODIS product MOD13A2 (NDVI) and MOD11A2 (LST) is shown in Fig. 7, which indicates mild to moderate wet conditions in Gilgit Baltistan and adjoining areas of Khyber Pakhtunkhwa & Kashmir, while most parts of the country are under moisture stress conditions specially in Sindh and Balochistan.

V. Length of Consecutive Dry Days Spell



Source: National Drought Monitoring Center-PMD-Islamabad

3. Water availability/ Dams flow data:

During the month of February 2021, water inflow, outflow and levels of Rawal, Khanpur, Tarbela and Mangla dams are shown in Fig.8& 9. An overall decreasing trend in inflow and levels has been observed in these dams.



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

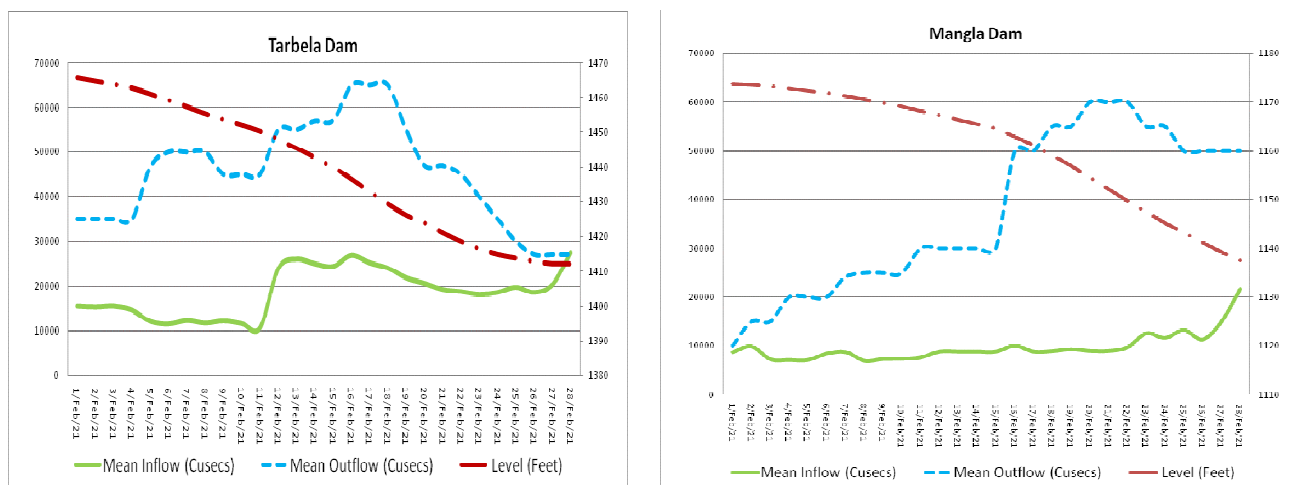


Figure 9: Water inflow, outflow and level of Tarbela and Mangla Dams

4. Weather outlook for March 2021

Normally, March is the wettest month of the winter season. Heating starts over the subcontinent due to increasing solar angle and the sunshine over the equator during the last decade of the month. Heating trend triggers energetic weather systems, which resulted in increasing number of dust / wind storms and precipitation.

March marks substantial addition to Rabi season precipitation and rising temperatures contribute significantly in photosynthesis process. During March 2021, Westerly waves would continue to move along the middle latitudes and their troughs are expected to extend southward occasionally affecting country's agricultural plains. Good rainfall is likely to occur in northern parts of country during 2nd decade of the month.

Wheat is the major Rabi crop in the agricultural plains of the country growing at different phonological phases e.g. at shooting in high agricultural plains of the country and heading to grain formation in low elevation plains during March.

5. Crop Condition:

The sowing of Rabi crops in Pakistan stretches from mid September to end of February. The growth of Rabi crops, especially wheat is satisfactory. Sowing of Lentil crop has completed and recent rains may improve the crop early growth. Harvesting/crushing of sugarcane crop is in full swing.

6. Drought Outlook for March 2021

The month of February was not good for Balochistan and Sindh. During the month of March, no significant rainfall is expected in Sindh and Balochistan. Therefore, dry conditions are likely to continue to prevail during the period.

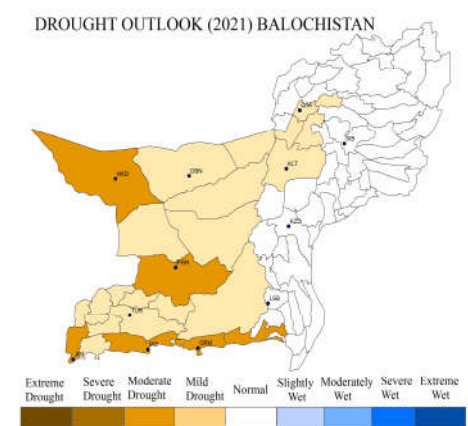


Fig-10: Drought Conditions across Balochistan

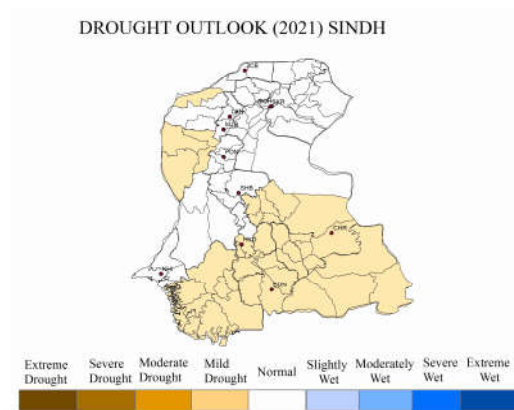


Fig:11 Drought Conditions across Sindh

All stakeholders are requested for keeping a watch across previous drought affected areas.

7. 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.