Ongoing La Niña drives elevated risk for below average 2017/2018 precipitation

KEY MESSAGES

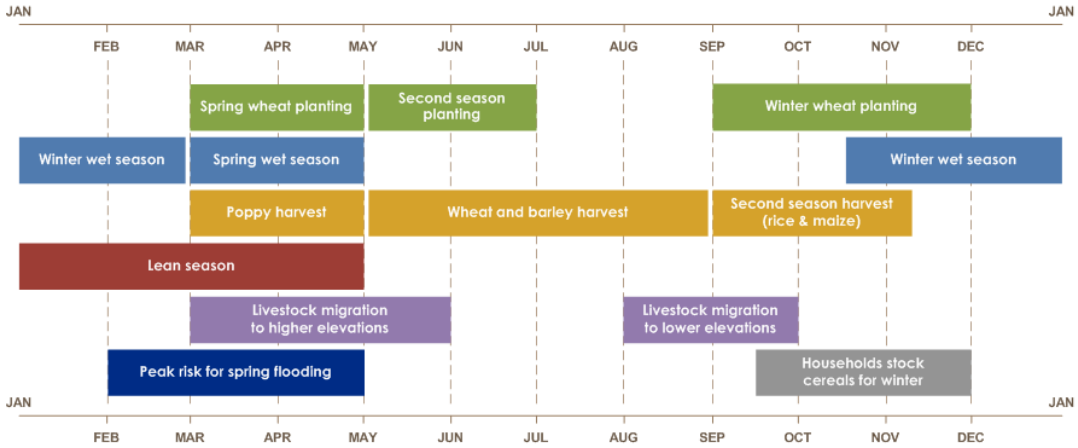
- Seasonal forecast models indicate an elevated likelihood for below-average cumulative precipitation during the October 2017 – May 2018 wet season, associated with the ongoing La Niña that is likely to continue into Northern Hemisphere spring. However, prevailing conditions in the Indian Ocean are expected to somewhat mitigate the impact of La Niña over Central Asia, leading forecast models to predict wetter conditions than is typical during La Niña events.

- Near-surface air temperatures are expected to be above both the long-term and the short-term averages throughout the wet season. This could contribute to below-average snowpack in mid-elevation areas and an early start to spring melt-off, as well as increasing the risk of periods of frost after blooming of orchard crops. However, it may also lead to earlier planting of spring, rainfed staples, primarily wheat.

- Precipitation during the first weeks of the 2017/2018 wet season has been below average in central and northern parts of the country, particularly in the northeast **(Figure 1)**. However, widespread precipitation in mid-November has partially mitigated precipitation deficits and facilitated winter wheat planting in most areas. Current precipitation deficits are reflective of anticipated impacts of the ongoing La Niña. Forecasts for the peak months of the wet season (February – April 2018) indicate a likelihood for larger precipitation deficits.

- The quantity, frequency, and distribution of spring rainfall has a substantial impact on harvest outcomes for rainfed wheat, which exhibited significant year-to-year variation in aggregate production between 2005 and 2017 (**Figure 4**). During this period, there were three particularly poor years for rainfed wheat production: 2008 (217,000 MT), 2011 (321,000 MT), and 2017 (588,000 MT). During each of these years, precipitation during the March/April planting season was well below average in key rainfed production areas. Although current forecast models cannot provide confidence in the timing and distribution of precipitation during the 2018 spring wheat season, it is most likely that cumulative precipitation will be below average. Continued monitoring will be important in determining likely harvest outcomes.

SEASONAL CALENDAR IN A TYPICAL YEAR



Source: *FEWS NET*

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SEASONAL PROGRESS AND FORECAST

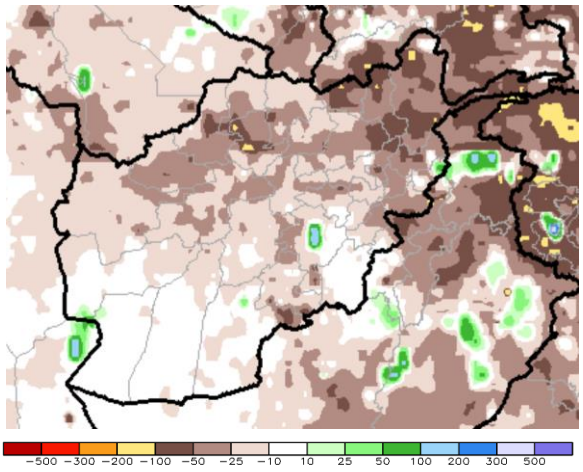
- Satellite-based rainfall estimates and available rain gauge data indicate that precipitation has been below-average and below the same period of last year through December 3rd in areas of central, north, and northeast Afghanistan (**Figures 1, 2, and 5**). However, widespread precipitation in mid-November led to some snow accumulation in higher elevations.

- Observations on the progress of winter wheat planting reported by farmers and agricultural extension workers in much of the northeast and north indicate that farmers in Jawzjan, Faryab, Balkh, Badkhshan, and Takhar Provinces started planting irrigated winter wheat as early as the beginning of October and have continued through the end of November. Planting of some rainfed wheat in these provinces also took place after the widespread precipitation of mid-November. However, many farmers in Baghlan and Kunduz Provinces were delayed in their winter wheat planting due to a lack of water for irrigation.

- Sea surface temperatures in the eastern and central equatorial Pacific Ocean have remained below average, and the tropical atmospheric response has been sufficient to declare the presence of La Niña. La Niña is expected to last into Northern Hemisphere spring. La Niña shifts the range of probable precipitation outcomes in Afghanistan to a greater probability of below-average cumulative precipitation for the season, with the most significant impact during the peak precipitation months (January – April). Although the most likely outcome for the season is for below-average precipitation, the current conditions of the Indian Ocean are likely to partially mitigate the adverse impact of La Niña on precipitation outcomes for Afghanistan.

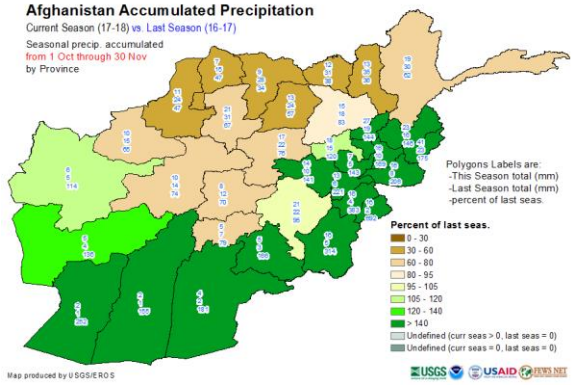
- Climate forecast models indicate that near-surface air temperatures are likely to remain above both the long-term average and the short-term average of recent years (**Figure 3**). Above-average temperatures during the winter months can have varying impacts, depending on region and elevation. Although it may be a contributing factor to below-

Figure 1. Estimated precipitation anomaly (mm), September 5 – December 3 2017



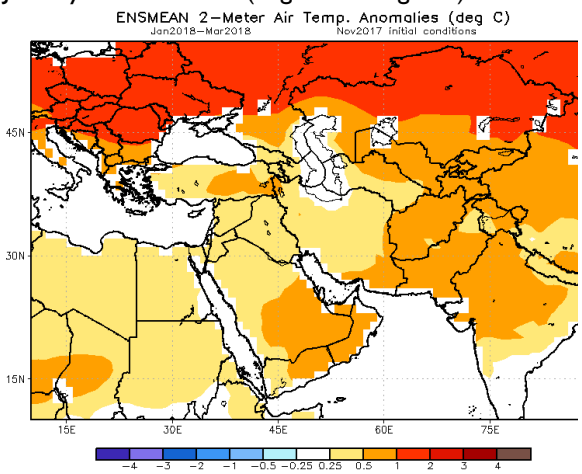
Source: *RFE2, NOAA*

Figure 2. Oct 1 – Nov 30 2017 precipitation versus same period of previous year



Source: *USGS*

Figure 3. 2-meter air temperature anomaly forecast, January – March 2018 (degrees centigrade)



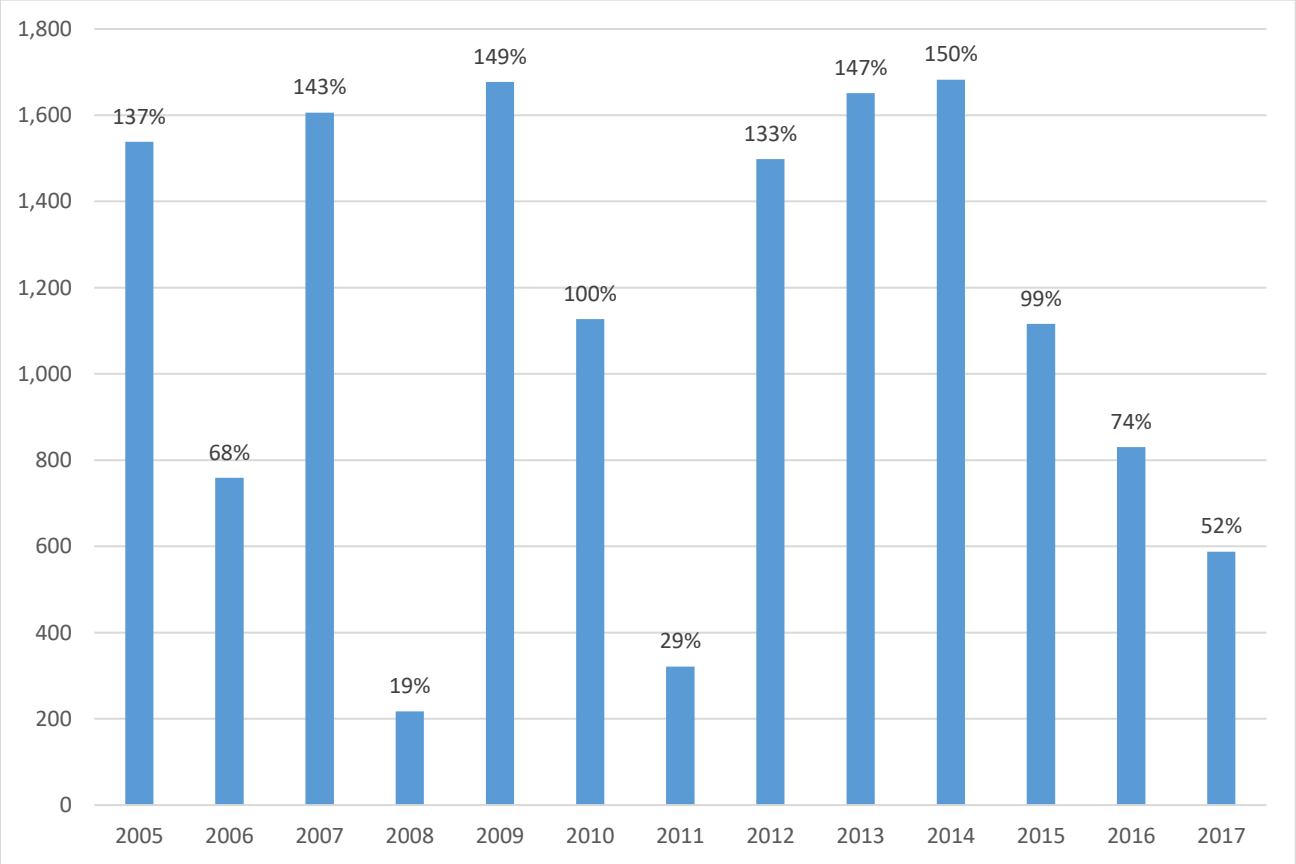
Source: *NMME, NOAA Climate Prediction Center*

average snow accumulation, elevated temperatures may also lead to the possibility of earlier planting for spring, rainfed wheat in lower and mid-elevation areas.

- Rainfed wheat production varies significantly in Afghanistan, depending on precipitation and other conditions. Between 2005 and 2017, production estimates from MAIL indicate a range from 19 percent of average to 150 percent of average **(Figure 4)**. Although cumulative precipitation during the spring months remains significant, the temporal distribution of precipitation is also very important in determining rainfed wheat production outcomes. For example, data for Takhar Province, which has produced the highest total harvests of rainfed wheat in recent years, demonstrates the importance of both cumulative rainfall and temporal distribution. According to MAIL estimates, rainfed wheat yields were worst in Takhar in 2011 (0.4 MT/hectare), when cumulative rainfall was very low **(Figure 6)**. However, **Figure 6** also depicts extended periods of dryness in February and early March during both 2016 and 2017, years in which yields were also lower than during other years of the period despite near-average cumulative precipitation (2016 – 1.07 MT/hectare; 2017 – 1.06 MT/hectare).

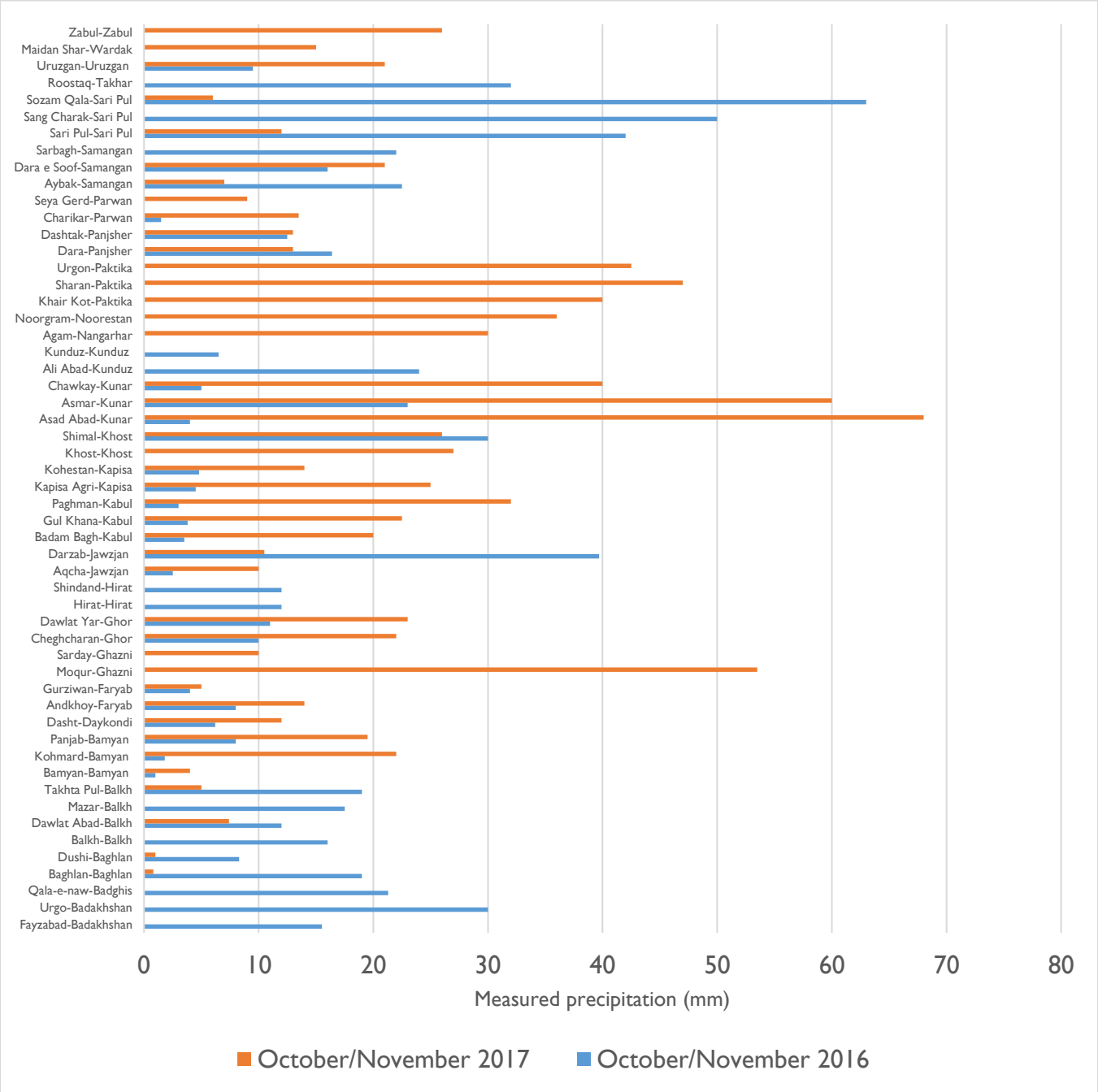
- Although rainfed wheat typically represents just 10 - 35 percent of domestic wheat production, it is a major livelihood activity for many poor households in Afghanistan. The progress of precipitation and planting from February through April is an important monitoring priority for all rainfed areas.

Figure 4. Rainfed wheat production estimates (thousands of MT) and percent of 2005 – 2017 rainfed production average



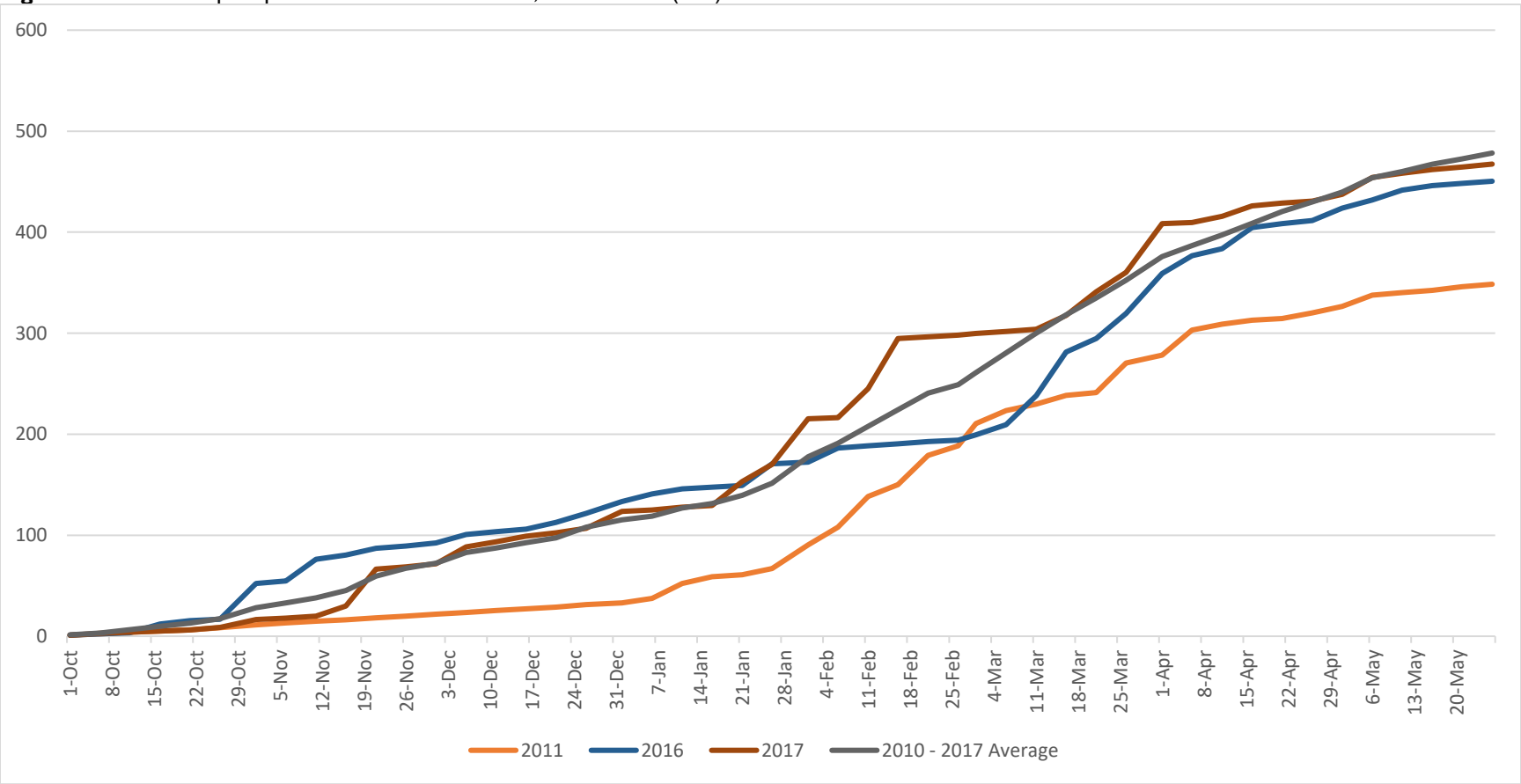
Source: *Ministry of Agriculture, Irrigation and Livestock (MAIL)*

Figure 5. Selected precipitation gauge data, October and November 2017 versus October and November 2016 (mm)



Source: *Ministry of Agriculture, Irrigation and Livestock (MAIL)*

Figure 6. Cumulative precipitation for Takhar Province, 2010 – 2017 (mm)



Source: *USGS/UCSB - CHIRPS*