1. Bulletin Highlights

First half of 2019, total rainfall has been below average, despite the fact that June, July and the first ten days of August experienced considerable rainfall, confined mostly to the South-Western Regions. Meteorological forecasts suggest areas in the dry-zone are expected to remain dry through to September.

Abnormally dry and moderate drought conditions remain in pockets of North, North-Western, North-Central, Uva and Eastern Provinces. Focus must be placed on risk reduction, adaption measures, and preparedness for drought response interventions; including integrated drought resilience programs to promote improved drought resilience strategies from climate shocks.

Major water reservoirs are becoming dangerously low at only 19% capacity, compared with 33% at the same time last year. Water assistance is being provided to 177,173 households across 17 Districts.

Surplus Maha (2018/19) and Yala (2019) paddy production means there is no immediate food shortage, and total rice availability is sufficient to meet demand until January 2020 (Department of Agriculture). However, dry conditions and pest attacks in pockets of Kurunagala, Batticaloa, Ampara, Puttalam and Trincomalee caused the destruction of 4,362 ha of paddy. This will not have a major impact on overall paddy production, but will have adverse localised impacts.

Following forecasts issued in the previous bulletin (June 2019), July was set to be warm and relatively dry for most of the country. While total rainfall was slightly higher than the average, the Northern and North Central Provinces were dry and rainfall in these areas was below average. Majority of the rainfall fell across the Central, Western, Sabaragamuwa and Southern Provinces, however; it was concentrated in short bursts during the second dekad of July, and resulted in landslips and flash floods to areas in Nurwara Eliya (Figure 1).

Most of the regions that received below average rainfall have also been exposed to prolonged dry conditions and are in need of targeted and timely intervention. The probabilistic forecasts issued by the Department of Meteorology in July suggests below normal rainfall is likely to continue through August and September in the Northern, North Central, North Western and Eastern Provinces. Lower rainfall will put further stress on access to water and soil conditions. So far, rains received during the first ten days of August show above normal rainfall in many regions of the country.

This bulletin highlights recent key climatic seasonal trends across the country, and how these have, and will, impact the population’s access to water for consumption, domestic, and agricultural purposes.

2. Seasonal Observations

Figure 01: July Rainfall Anomaly – 10-Day Analysis

Figure 02: Rainfall Anomaly March – July 2019

Following dry conditions in March, April and May, parts of the country, particularly in the Central, Western, Southern, and areas in the Uva Provinces experienced above normal rain conditions throughout June (Figure 02). In July, the North Central, North and Eastern Provinces remained dry due to the fact that the concentration of rain over the last two months has been predominately in the southern parts of the country.
The Integrated Drought Severity Index (IDSI), shown in Figure 03, on the right, prepared by the International Water Management Institute (IWMI), gives a deeper look at the extent of the dry conditions across Sri Lanka. Many areas in the north and eastern parts of the country are facing varying levels of drought, from drought watch up to extreme drought conditions. These include the Districts of Anuradhapura, Mannar, Kilinochi, Mullativu, Trincomalee, Batticaloa, Ampara and Hambantota.

Figure 03: Integrated Drought Severity Index - August 2019

Figure 04: Monthly Water Storage Capacity of Major Irrigation Reservoirs until 1 August

Source: Department of Irrigation

Overall rainfall in June and July 2019 accounted for 40.3 mm and 26.0 mm per day, respectively, which is above average. However, in both months majority of the rainfall was concentrated in a single 10-day period.

In spite of the above average rainfall in July, the main water reservoirs, as per the Department of Irrigation, remain very low at only 19% as of 1 August 2019, compared to 33% in the previous year, with a deficit of 14% in reference to June (Figure 04). Hot and dry conditions creating evapotranspiration, in conjunction with insufficient rainfall, has resulted in this dramatic decline.

Figure 05 shows the average rainfall per month for 2019 - split into three, 10-day periods - compared with the overall rainfall averages. From the trend lines we see that the overall average line (in red) is smoother, indicating rain occurs gradually and is spread across the periods. When this is compared with the actual rainfall for 2019 (in blue), there are significant peaks and troughs, illustrating that heavy rainfall seems occurs in shorter and concentrated periods of time, with the rest of the period remaining relatively dry.

The inconsistency of rainfall, and excessive rainfall in short periods of time, can be extremely destructive as the land is not able to absorb such a significant amount of rain, particularly when preceding periods have been dry.

While some areas across the country are experiencing extremely dry conditions, others are being adversely impacted by these instances of heavy rain. During July 18th and 19th, heavy rainfall in Nuwara Eliya District led to reports of several landslips and flash flooding in streams.

Figure 05: Rainfall Actual vs Average Trend for 2019 – by Dekad

Source: DataViz World Food Programme (CHIPRS data)
3. Agricultural Conditions and Food Security

- Soil Water Anomaly Drought Index (SWADI) is a measure of moisture held in the soil. From the map shown in Figure 06, it becomes clear that water stress and dry conditions are persistent through much of the country, particularly in Kilinochchi, Mannar, Vavuniya, Anuradhapura, Trincomalee, Polonnaruwa, Batticaloa, and Matale.
- This information is further confirmed by the Vegetation Health Index (VHI) in 16 Day lapses (Figure 07). While the persisting dry conditions have improved slightly over the 32 day period, the health of vegetation has been adversely impacted in the same districts.
- No immediate food security emergencies are predicted due to Maha paddy cultivation of 2,397,000 Mt and predictions of a Yala season of 1,471,000 Mt (slightly lower than season 2017/18).
- According to Department of Agriculture, paddy production for season 2018/19 is expected to meet domestic rice demand until January 2020. Total rice production is set to be 2.73 million Mt this year (Figure 08).
- Rice production has, however, been impacted by drought conditions with 4,266 ha being damaged in Kurunagala, Batticaloa, Ampara, Puttalam and Trincomalee as a direct result of the prolonged dry conditions.

Agricultural Market Shifts

- Average price of rice has fallen significantly from roughly 120 rupees per kg to under 100 rupees compared with this time last year. This price has remained relatively constant since April 2019, after the Maha harvest and the positive projections in rice yields this year (Figure 08).
- The price of most vegetables have decreased from the same time last year; conversely, important protein sources including fish, meat and eggs have all increased.
- Due to the country’s economic challenges, particularly the downturn in tourism industry due to the Easter bombing incident, depreciation of the rupee and increased rates of indirect taxes, affordability of a nutritious food basket is challenging for vast majority of people, in spite of the lower cost of staples.

Source: Socio Economic Planning Centre of Department of Agriculture
Note: Total 2019 Rice Production includes forecasts for Yala 2019
4. Drinking Water Needs

- Access to drinking water remains a challenge in several districts. Special attention needs to be given to the intermediate zones mainly in the drought prone divisions in Batticaloa, Mannar, Mullaitivu, Kurunegala and Puttalam Districts.
- Reducing reservoir tank levels, coupled with drying up of ground water has led to a major reduction in drinking water for many households. As of 1 August a total of 177,173 households across 17 districts are being supplied drinking water (Figure 09). This number is almost double compared with June (89,035 families), with three more Districts receiving assistance.

5. Suggested Targeted Interventions and Adaptation Measures

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<tr>
<th>Agriculture Support</th>
<th>Target Districts:</th>
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| - Appropriate and relevant climatological information to be communicated directly to the farming communities. | - Anuradhapura  
| - Advise farmers with agriculture drought contingency plans and crop cultivation strategies, aided by climate information services. | - Batticaloa  
| - Sufficient access to water resources to be prioritised in agriculture subsistent districts. | - Mannar  
| | - Kilinochchi  
| | - Ampara  
| | - Hambantota  
| | - Kurunegala  
| | - Mullaitivu  
| | - Puttalam  
| | - Trincomalee |

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<tr>
<th>Food Security Planning</th>
<th>Target Districts:</th>
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| - Track loss of crops as a result of water stress or dry conditions. | - Batticaloa  
| - Initiate community level agriculture infrastructure projects, in participation with local communities, to enhance food security measures for the medium to long-term. | - Matale  
| | - Moneragala  
| | - Mullaitivu  
| | - Mannar  |

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<th>Water Distribution and Trucking</th>
<th>Target Districts:</th>
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| - Enhance public awareness and media campaigns around water conservation and usage. | - Jaffna  
| - Discussions around formalised water restrictions at local level. | - Mannar  
| - Identify sources for water distribution. | - Mullaitivu  
| - Plan and conduct stakeholder discussions in severely affected areas for better drinking water management planning. | - Kurunegala  
| | - Puttalam  
| | - Batticaloa  
| | - Monaragala |

Source: National Disaster Relief Services Center (NDRSC)
6. Climate Forecast

A detailed seasonal climate outlook for July, August and September was issued by the Department of Meteorology in July. The projections from this indicate that rainfall, specifically across the North, North Central and along the coastal East Districts have a moderate likelihood to experience below normal rainfall in this period (Figure 10). However, it must be noted that forecasts of rain are highly dependent on changes in atmospheric conditions from day to day.

Moreover, the El-Niño over the Pacific Ocean is moving into a neutral state. However, the sea surface temperature in the Indian Ocean is slightly above average as per the latest observations which may influence weather over Sri Lanka.

Current conditions are similar to those seen during 2016-17 (El-Niño year), which resulted in severe impacts to food security and agricultural livelihoods.

Collectively, these changes could affect how much rain is seen in the North East Monsoon (December to March). Failure of monsoonal rainfall during this coming period would result in immense water stress in the dry-zone areas, which are already suffering water scarcity.

Continued monitoring of the situation and its implications on drinking, agricultural and domestic uses, will be undertaken.

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Disclaimer: This bulletin looks into the key aspects of climatic seasonal trends and their impact on the population and food security during June to August 2019, through the products of Platform for Real-time Information and Situation Monitoring (PRISM) and through CGIAR. PRISM system is hosted at the Disaster Management Centre, has the capability of automatic capture of climate related and space based information.