## Rainfall and Temperature Outlook for Trinidad and Tobago, Wet Season 2023

Key words: below-normal ("less than usual"), near-normal ("usual") or above-normal ("More than usual")

Issued: May 12, 2023

### Rainfall and Temperature Outlook for Trinidad and Tobago, June to December 2023

**Near normal 2023 Wet Season Likely with Usual to slightly Wetter than Usual Conditions Favoured during the First half followed by Usual to slightly Drier than Usual Conditions during the Rest of the Rainy season months. Flood Potential remains High.**

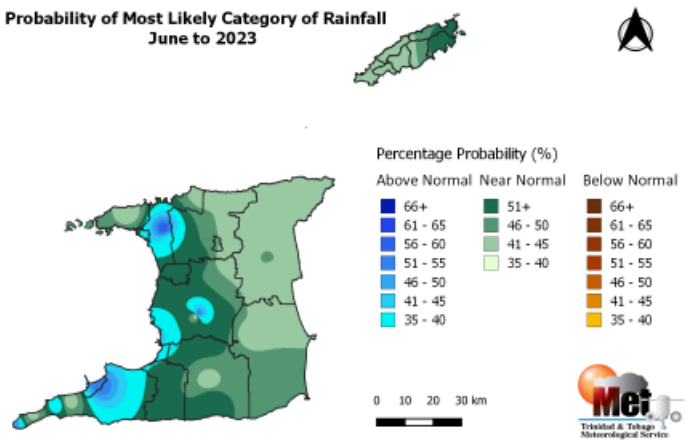



**Figure 1: Category of rainfall likely for June 2023 with the highest chance of occurrence expressed as probabilities represented on the map. Blue areas indicate places with an increased chance for above normal rainfall, brown areas show an increased chance for below-normal rainfall, while green areas show an increased chance for near normal rainfall. Normal is defined by the rainfall that was observed in the middle one-third of the June period rainfall totals during the historical period used to produce the outlook.**

- The June 2023 rainfall outlook indicates that there are enhanced chances for usual to wetter than usual conditions to occur across Trinidad, and usual for Tobago,
- The outlook suggests a 36% to 57% chance for above-normal rainfall in June across western Trinidad.

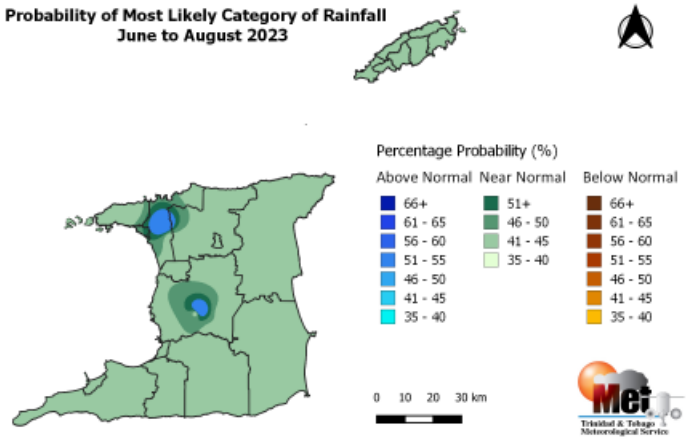
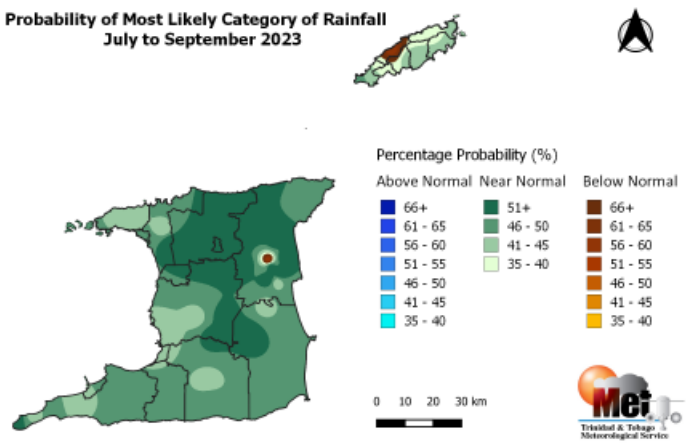



**Figure 2: Category of rainfall likely for the June to August 2023 (JJA) with highest chances of occurrence expressed as probabilities represented on the map. Blue areas indicate places with an increased chance for above normal rainfall, brown areas show an increased chance for below normal rainfall, while green areas show an increased chance for near normal rainfall. Normal is defined by the rainfall that was observed in the middle one-third of the JJA period rainfall totals during the historical period used to produce the outlook.**

- The first half of the wet season, June-July-August (JJA) is likely to be mostly wet as usual, with near normal rainfall totals.
- There is a greater than 32% chance for near normal rainfall totals to occur over most areas.
- The outlook suggests a 51% chance for above normal rainfall in JJA in pockets across western Trinidad.
- High chances for flash flooding during heavy and prolonged rainfall events.

- The three (3) months July to September are likely to get near normal rainfall totals across majority of areas with chances ranging between 31%-63%.
- The three (3) months August to October are likely to get mostly near normal rainfall totals across most areas with a chance greater than 31%.
- There are growing pockets that will receive below normal rainfall totals with chances ranging between 61%-67%.



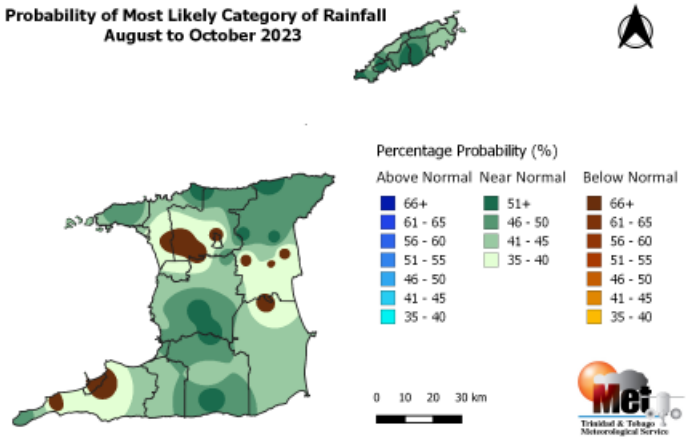



**Figure 3: Category of rainfall likely for July to September 2023 (JAS) and August to October 2023 (ASO) with the highest chance of occurrence expressed as probabilities and colour coded on the map. Blue areas indicate that it is more likely for above normal rainfall to occur than for below normal or near normal. Brown areas indicate that it is more likely for below normal rainfall, while green areas indicate that it is more likely for near normal rainfall. Normal is defined by the rainfall that was observed in middle one-third of the JAS and ASO periods rainfall totals during the historical period used to produce the outlook.**

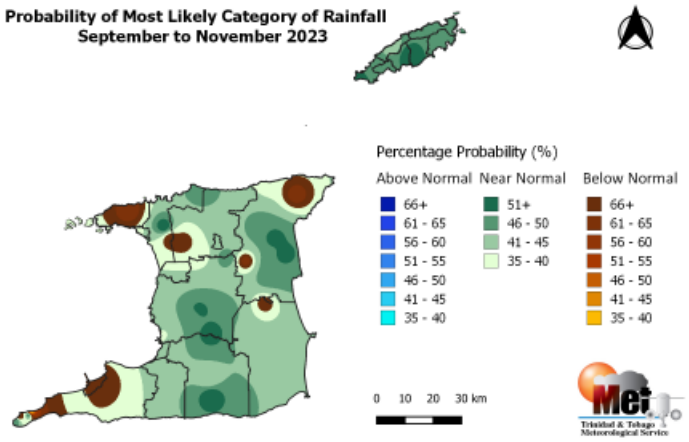



**Figure 4: Category of rainfall likely for September to November 2023 (SON) with the highest chance of occurrence expressed as probabilities and is colour coded on the map. Blue areas indicate that it is more likely for above normal rainfall to occur than for below normal or near normal. Brown areas indicate that it is more likely for below normal rainfall, while green areas indicate that it is more likely for near normal rainfall. Normal is defined by the rainfall that was observed in middle one-third of the SON period rainfall totals during the historical period used to produce the outlook.**

- The outlook indicates a moderate probability (33%-62%) exists that the September to November (SON) rainfall totals will be near normal.
- There are developing and shifting pockets across Trinidad that will receive below normal rainfall totals with chances ranging between 36%-69%.

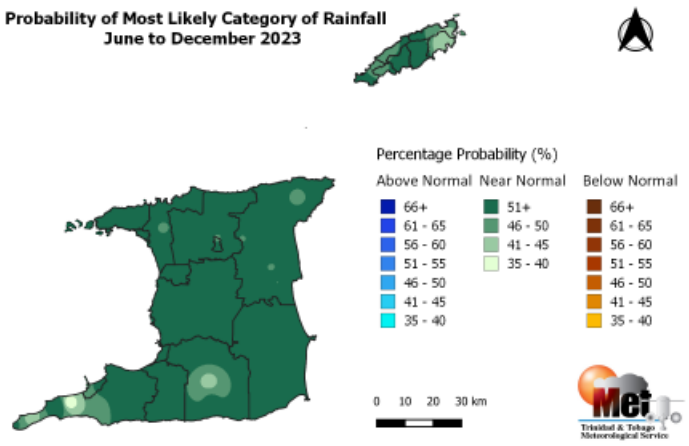



**Figure 5. Category of rainfall most likely for the Wet Season 2023 with the highest chance of occurrence expressed as probabilities and colour coded on the map. Blue areas indicate that it is more likely for above normal rainfall to occur than for below normal or near normal. Brown areas indicate that it is more likely for below normal rainfall; while green areas indicate that it is more likely for near normal rainfall. Normal is defined by the rainfall that was observed in the middle one-third of June to December rainfall totals during the historical period used to produce the outlook.**

- Overall, the 2023 wet season is likely to be usual (near normal).
- Probabilities are greater than 36% for near normal accumulated rainfall totals across the entire Republic of Trinidad and Tobago for the 2023 wet season.
- There is 40% chance for normal number of heavy rainfall days (days with rainfall equal to or exceeding 25 mm). The country is likely to get 10-18 heavy rainfall days during the season.
- A 27% chance exists for above-normal, extremely heavy rainfall days. These are likely to be days with rainfall reaching or exceeding 50.0 mm.
- The country is likely to get 4 to 10 extremely heavy rainfall days, with at least 2 days likely to produce in excess of 3 inches or 75 mm of rainfall.

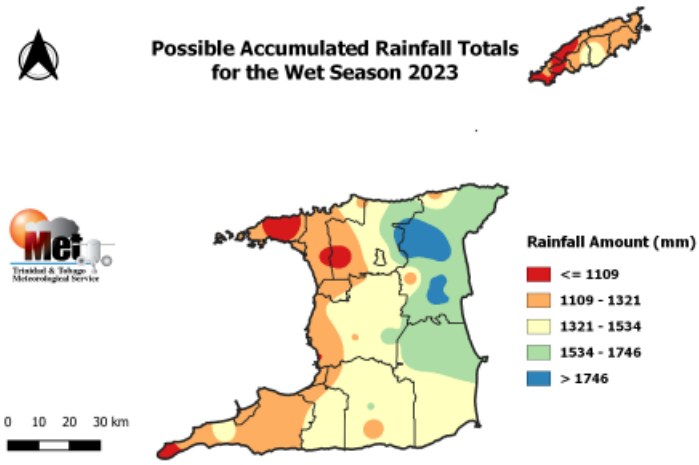



**Figure 6: Possible accumulated rainfall totals with the highest chance of occurring during the 2023 wet season.**

- Possible rainfall volumes for the 2023 wet season are likely to range from 887 mm in most areas of Tobago and areas along the west coast of Trinidad, with higher volumes that are closer to 2076 mm in northeast Trinidad, in the vicinity of Sangre Grande, Vega De Oropouche, Plum Mitan and environs.
- The wet season usually produces 102 to 106 wet days (days with rainfall > 1.0 mm).
- The 2023 wet season is likely to have a reduced number of wet days, with 85 to 107 wet days most likely.

- There is also a high chance for at least six, 3-day wet spells, with 3-day totals exceeding 50 mm and at least three of these wet spells are likely to produce above 75 mm of rainfall.
- The outlook favours at least two, 5-day wet spells, with 5-day totals exceeding 80 mm of rainfall. At least one of the 5-day wet spells is likely to exceed 100 mm.

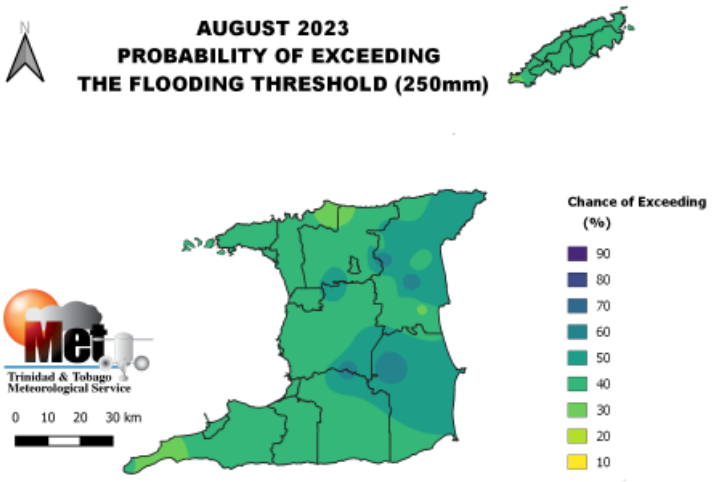



Figure 7: Chance of exceeding 250 mm of rainfall during August 2023.

- The chance of exceeding 250 mm of rainfall during August, the wettest month of the year, is low to moderate.
- The outlook shows there is a 20% to 60% chance of reaching and exceeding 250 mm across Trinidad and Tobago during August 2023, which is more than the average for the month in most areas.
- The outlook shows that Sangre Grande, Navet, Rio Claro and the environs have the highest chance for rainfall to exceed 250 mm in August.

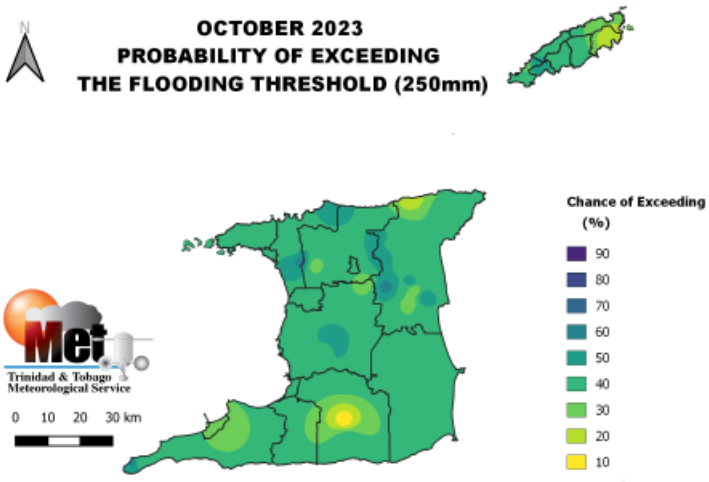
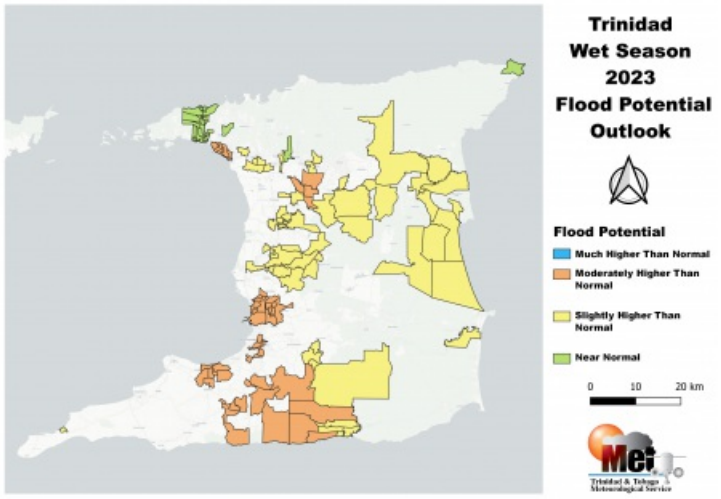



Figure 8: Chance of exceeding 250 mm of rainfall during October 2023.

- The chance of exceeding 250 mm of rainfall during October is low to moderate.

- The outlook shows there is a 4% to 60% chance for October's rainfall to reach or exceed 250 mm, across most areas, with the higher chances to occur in pockets in north, northeast and central Trinidad.



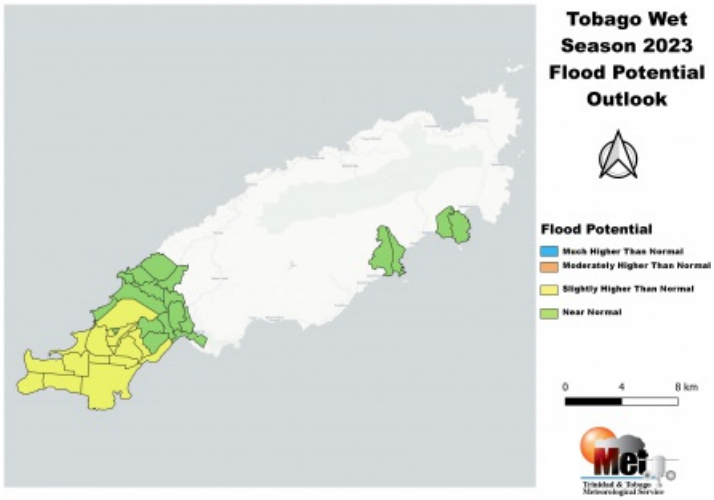




**Figure 9: The 2023 Wet Season flood risk potential outlook with categories of flood potential colour coded on the map. Blue indicates a much higher than normal flood potential. Brown indicates it is more likely for moderately higher normal flood potential. Yellow indicates a slightly higher than normal flood potential. Green indicates a near normal flood potential.**

## Seasonal Flood Potential Outlook:

- Overall, flood risk potential exists across the whole wet season. The areas of greatest risk for flooding include the Caroni, North Oropouche and South Oropouche river basins. The local flood season is likely to expand as the season progresses.
- There is an elevated flood potential (much is the right word?), with a higher than normal flood potential in northeast Trinidad, near Valencia, Sangre Grande, including Vega de Oropouche, Fishing Pond, Sangre Chiquito and environs. Similar elevated potentials exist in the South Oropouche River Basin, Penal, Debe, Princes Town and parts of Couva.

- Flood potential is moderately higher than normal for St Helena and environs, Plum Mitan and environs, parts of Mayaro, the city of Port of Spain, Maraval and lower Diego Martin.
- Tobago has a slightly higher than usual flood potential in the western half of the island.
- Areas which are not colour-coded also have flood risks, but the chances are not as high as those that are colour-coded.

## Saharan Dust Haze Season Outlook:

The 2023 Saharan Dust Haze Season is likely to peak during JJA, with the number of Saharan dust haze days expected to increase significantly in frequency. The duration of plumes of Saharan dust haze visiting both islands are also likely to be more prolonged than earlier in the year, with increased odds for higher dust haze concentration, during plumes visitation.

## Temperature Outlook:

- The 2023 wet season temperature outlook favours warmer than average temperatures particularly in western areas. There is a greater than 45% chance for maximum day temperatures and minimum night temperatures to be above normal.
- The excessive heat season usually peaks during August to October. There are elevated chances for maximum temperatures to reach or exceed 34.0℃ during the season.
- Chances are also elevated for 5-day short-duration hot spells and 3-day heat surges (maximum temperatures ≥34.0℃) to develop during September, and early October.
- Cities and urban areas have the highest chance for warmer than average temperatures and are likely to get the most intense heat, with temperatures likely to reach or exceed 35.0°C.

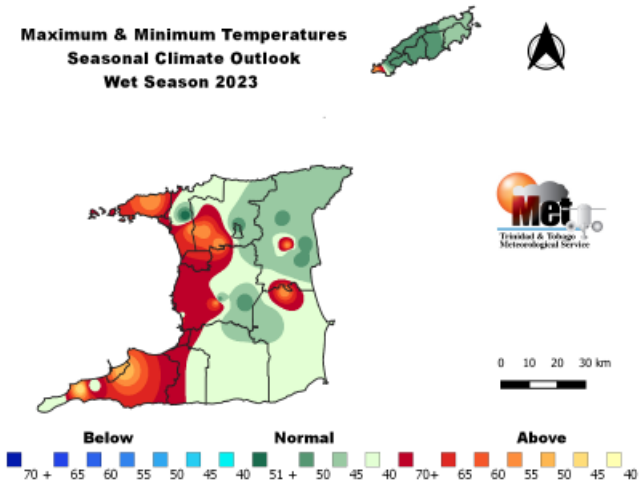



**Figure 10: The map shows the colour-coded category (below-normal, above-normal, and near-normal) of maximum and minimum temperatures that are most likely to occur across Trinidad and Tobago for the Wet Season 2023. The colour-coded bar-graph with the numbers to the right gives the likelihood for each forecast category to occur.**

## Climatic Influencers and Context of the Outlook

- Currently, sea surface temperatures (SSTs) in waters east of Trinidad and Tobago and all the way to the West Coast of Africa (Area of Interest) are above normal. However, there are pockets of near normal sea surface temperatures in and around the eastern Caribbean.
- An El Niño Watch exist in the central-eastern equatorial Pacific Ocean. Over the last month sea surface temperatures remained above average but is forecast to further strengthen in the central-eastern equatorial Pacific ocean. There is a moderate (62%) probability that El Niño conditions will take effect

within the May to July 2023 period.

- El Niño tends to influence unfavourable conditions for cloud development and rainfall over Trinidad and Tobago.
- The north/south sea surface temperature gradients, well known as the Atlantic Meridional Mode (AMM), which is a key facilitator of local rainfall during the season is currently in positive mode but is likely to continue in this mode during later part (ASO) of the the wet season.
- A positive phase of the AMM is associated with enhanced ITCZ activity shift farther north and reducing upper-level westerly winds throughout the Atlantic Main Development Region.
- The North Atlantic Oscillation (NAO) has alternated been phases since April 2023 and is forecast to move to positive phase in June 2023.
- The rainfall enhancement phase of the Madden Julian Oscillation (MJO) is expected to track across Trinidad and Tobago's vicinity during weeks 1 and 2 of June 2023.

**Likely Implications**

- Usual to drier than usual conditions in the second half of the rainy season can still have heavy rainfall days that are high risk enough to cause flooding. Flash flood risk remains elevated in occasional and well-known flood prone areas;
- A moderate likelihood for near-normal rainfall during the 2023 wet season suggests moderate chances for flooding and increased flood-risks in flood-prone areas;
- Localized moderate to heavy rainfall days and prolonged wet spells could trigger flash-flooding in high-risk/flood-prone areas, within watersheds with narrow valleys and steep hill-sides;
- Expect an increase in recharge rates, surface water flows and river levels;
- Possible increased turbidity and degraded water quality on heavy rainfall days;
- Regular rainfall events will serve the agriculture sector but the excess rainfall can lead to water logging of agricultural fields, which can negatively affect crops.
- Increased rainfall, mixed with warm and humid conditions tend to promote rapid multiplication of some agricultural pests, diseases and fungal growth;
- Increased rainfall could lead to reduced traffic flows, disruptions in localized travel and longer travelling times, which may require earlier commute start-times;
- An increase in surface water ponding can promote mosquito breeding, which can lead to an increase in vector-borne diseases;
- Extreme temperatures can lead to relatively excessive heat for Trinidad and Tobago during the peak of the local heat season, which can amplify existing and worsen chronic health conditions in vulnerable persons;
- Increased heat may increase the need to access cooling, which requires energy; (what does this mean);
- Hot days and spells can cause heat stress in livestock and wilting in newly transplanted and younger crops;
- Warmer than usual temperatures can lead to warmer than usual water-temperatures, which are particularly important for the health of aquaponic fishes and plants;
- Water temperatures much warmer than 30.0ºC can affect warm-water fishes such as tilapia.

## ***Sectorial Early Actions and Preparedness That Can Be Taken To Reduce Possible Impact***

### General Public

- Strengthen community coordination with disaster management personnel;
- Persons living in flood risk areas should quicken their flood planning and preparedness efforts;
- Purchase emergency supplies, pack a grab and go-bag with clothes and essentials and have these on standby;
- Get acquainted with your flood prone areas, shelter locations and become sand-bag ready;
- Develop an evacuation plan that outlines the safety of family members and pets;
- Update contact information for the local disaster officials and other emergency services.

### Disaster Risk Management Sector

- Put in place the necessary measures to ensure communities are sensitized;

Telephone: 1-868-669-4392 ext. 120/121 | Fax: 1-868-669-4727
Email: synop@metoffice.gov.tt Website: www.metoffice.gov.tt


- Start preparedness for the expected increase in rainfall and the associated negative impacts;
- Review contingency plans and early warning information dissemination channels;
- Revisit and review emergency plans and communication strategies;
- Refresh media training and distribute appropriate advice on the outlook through the media.

## Water and Energy sector

- Update flood action plans and continue water conservation awareness messaging
- Revisit contingency plans and ramp-up de-silting of major rivers and reservoirs;
- Remove dry branches and tree overhang near electrical wires, especially in landslip prone areas.

## Drainage & Infrastructure

- Ramp-up de-silting and cleaning of drainage systems, water channels, outlets and river mouths;
- Pay attention to areas of rock fall which may be indicative of potential future landslides.

## Agriculture & Food Security Sector

- Raise awareness on agriculture, pest and disease control measures. Revisit flood action plans.

## Waste Management Sector

- Review contingency plans and operational practices (such as diverting rainfall water-flows away from waste heaps) used for preventing leaching and contamination of ground/surface water.

## Health Sector

- Revisit contingency plans to manage spikes in vector-borne and excessive heat ailments;
- Review fumigation plan and programme.

Be vigilant and visit the Met. Service website atwww.metoffice.gov.tt regularly and follow us on social media to keep up to date. Download our mobile app on Google Play Store or Apple iStore.