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Fiji Sugar Cane Rainfall

Outlook from May 2018

Planting & Harvesting Season

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Introduction

This outlook contains the rainfall predictions for the three-month period beginning May 2018, and the following three months (August to October 2018), for the Fiji sugar cane “belt”. The chances of *below normal*, *normal* and *above normal* predictions are given as probabilities and presented in tables on pages 2 to 4. The Fiji Meteorological Service (FMS) currently uses a statistical climate prediction model known as the Seasonal Climate Outlook for Pacific Island Countries (SCOPIC) for seasonal rainfall guidance. For the Fiji region, the model uses recent monthly anomalies of sea surface temperature from parts of the Pacific Ocean (central - eastern equatorial Pacific regions) as predictors of Fiji’s rainfall.

Summary Statement

- The El Niño Southern Oscillation (ENSO) state in the tropical Pacific have returned to neutral level (that is neither El Niño nor La Niña) during March 2018;
- While the ENSO state have returned to neutral levels, Fiji’s climate may continue to have weak La Niña like influence for another 2-6 months;
- The neutral-ENSO state is likely to continue through the end of first half of 2018, with high uncertainty for the second half of 2018;
- *Normal or above normal* rainfall is favoured across the sugarcane belts for the May to July and the August to October 2018 periods; The confidence in predictions are generally *moderate to high*;
- However, rainfall activity will decrease in comparison to past couple of months as the country progresses into the Dry Season from May. The peak dry season months are June to August;
- *Above normal* air temperatures are expected in the Fiji region during the April to June 2018 period;
- The 2017/18 tropical cyclone season officially ends on the 30th April. However, late season cyclone activity cannot be ruled out as tropical cyclones in the past have formed in our region, though rarely, outside the normal season in May, June and even July;
- Thus, all communities should remain alert, updated with latest weather forecasts and take appropriate precautionary measures when alerts and warnings are issued. At the same time, farmers should also prepare for the coming Dry Season.

Statement from the Sugar Research Institute of Fiji - Advice to Farmers

Source: Sugar Research Institute of Fiji

Normal to above normal rainfall is forecasted across the sugarcane belt areas for the coming three months. Land preparation has commenced in April and planting from late April will continue in May. The dry season normally sets in from mid-May and growers must be aware of this if they are planting. Farmers should take advantage of these conditions to harvest green cane during crushing season. The recent rainy weather has encouraged weed growth which can be controlled manually or by using chemicals. Recent flood has made growers alert to clean fields and drains in and around the farm. Growers need to adhere to the weather forecast in making plans for land preparation, planting, harvesting and transportation of cane to the mill.

Three Month May to July 2018 Rainfall Outlooks

| Sigatoka District | Dry | 33% | Normal | 67% | Wet |
|-------------------|-----|-----|--------|-----|-----|
| Olosara | 14 | 217 | 35 | 294 | 51 |
| Cuvu | 11 | 202 | 39 | 279 | 50 |
| Lomawai | 20 | 159 | 35 | 281 | 45 |

Above normal rainfall favoured across the Sigatoka District. Outlook confidence: *good to high*.

| Lautoka District | Dry | 33% | Normal | 67% | Wet |
|------------------|-----|-----|--------|-----|-----|
| Lautoka Mill | 14 | 151 | 39 | 234 | 47 |
| Lovu | 13 | 135 | 42 | 233 | 45 |
| Drasa | 15 | 148 | 41 | 223 | 44 |

Normal or above normal rainfall favoured across the Lautoka District. Outlook confidence: *good to high*.

| Nadi District | Dry | 33% | Normal | 67% | Wet |
|---------------|-----|-----|--------|-----|-----|
| Nadi Airport | 18 | 141 | 35 | 244 | 47 |
| Malolo | 18 | 117 | 36 | 198 | 46 |
| Navo | 23 | 134 | 36 | 250 | 41 |
| Meigunyah | 15 | 132 | 40 | 231 | 45 |
| Natova | 12 | 142 | 42 | 239 | 46 |

Normal or above normal rainfall favoured across the Nadi District. Outlook confidence: *moderate to high*.

| Ba District | Dry | 33% | Normal | 67% | Wet |
|--------------|-----|------|--------|-----|-----|
| Rarawai Mill | 19 | 146 | 35 | 254 | 46 |
| Koronubu | 18 | 159 | 38 | 242 | 44 |
| Mota | 20 | 159 | 34 | 257 | 46 |
| Navatu | 21 | 40.6 | 35 | 70 | 44 |

Above normal rainfall favoured across the Ba District. Outlook confidence: *moderate to good*.

| Tavua District | Dry | 33% | Normal | 67% | Wet |
|----------------|-----|-----|--------|-----|-----|
| Tavua | 18 | 121 | 33 | 217 | 49 |
| Tagitagi | 10 | 124 | 40 | 233 | 50 |
| Vatukoula | 20 | 149 | 36 | 249 | 44 |

Above normal rainfall favoured across the Tavua District. Outlook confidence: *moderate to high*.

Three Month May to July 2018 Rainfall Outlooks

| Rakiraki District | Dry | 33% | Normal | 67% | Wet |
|-------------------|-----|-----|--------|-----|-----|
| Penang Mill | 18 | 179 | 36 | 296 | 46 |
| Dobuilevu | 17 | 235 | 39 | 365 | 44 |

Above normal rainfall favoured for the Rakiraki District. Outlook confidence: *good*.

| Labasa District | Dry | 33% | Normal | 67% | Wet |
|-----------------|-----|-----|--------|-----|-----|
| Seaqaqa | 13 | 158 | 39 | 271 | 48 |
| Waiqele | 18 | 164 | 38 | 287 | 44 |
| Vunimoli | 15 | 161 | 43 | 271 | 42 |
| Labasa Mill | 14 | 179 | 40 | 253 | 46 |
| Vunivutu | 16 | 187 | 37 | 348 | 47 |
| Wainikoro | 12 | 174 | 41 | 288 | 47 |

Normal or above normal rainfall favoured across the Labasa District. Outlook confidence: *moderate to high*.

Following Three Month August to October 2018 Rainfall Outlooks

| Sigatoka District | Dry | 33% | Normal | 67% | Wet |
|-------------------|-----|-----|--------|-----|-----|
| Olosara | 20 | 214 | 31 | 314 | 49 |
| Cuvu | 19 | 210 | 38 | 322 | 43 |
| Lomawai | 21 | 162 | 37 | 259 | 42 |

Above normal rainfall favoured across the Sigatoka District. Outlook confidence: *moderate to good*.

| Lautoka District | Dry | 33% | Normal | 67% | Wet |
|------------------|-----|-----|--------|-----|-----|
| Lautoka Mill | 21 | 164 | 34 | 258 | 45 |
| Lovu | 22 | 140 | 26 | 233 | 52 |
| Drasa | 19 | 159 | 29 | 277 | 52 |

Above normal rainfall favoured across the Lautoka District. Outlook confidence: *moderate to good*.

| Nadi District | Dry | 33% | Normal | 67% | Wet |
|---------------|-----|-----|--------|-----|-----|
| Nadi Airport | 20 | 170 | 33 | 290 | 47 |
| Malolo | 18 | 178 | 35 | 290 | 47 |
| Navo | 18 | 172 | 29 | 265 | 53 |
| Meiguynah | 18 | 167 | 33 | 252 | 49 |
| Natova | 22 | 182 | 30 | 271 | 48 |

Above normal rainfall favoured across the Nadi District. Outlook confidence: *moderate to high*.

| Ba District | Dry | 33% | Normal | 67% | Wet |
|--------------|-----|-----|--------|-----|-----|
| Rarawai Mill | 23 | 172 | 33 | 278 | 44 |
| Koronubu | 15 | 174 | 39 | 295 | 46 |
| Mota | 16 | 182 | 37 | 271 | 47 |
| Navatu | 16 | 51 | 31 | 86 | 53 |

Above normal rainfall favoured across the Ba District. Outlook confidence: *moderate to high*.

Following Three Month August to October 2018 Rainfall Outlooks

| Tavua District | Dry | 33% | Normal | 67% | Wet |
|----------------|-----|-----|--------|-----|-----|
| Tavua | 21 | 132 | 36 | 230 | 43 |
| Tagitagi | 19 | 140 | 31 | 232 | 50 |
| Vatukoula | 17 | 167 | 31 | 271 | 52 |

Above normal rainfall favoured across the Tavua District. Outlook confidence: *moderate to high*.

| Rakiraki District | Dry | 33% | Normal | 67% | Wet |
|-------------------|-----|-----|--------|-----|-----|
| Penang Mill | 27 | 181 | 29 | 274 | 44 |
| Dobuilevu | 25 | 271 | 42 | 388 | 33 |

Normal or above normal rainfall favoured for the Rakiraki District. Outlook confidence: *very low to low*.

| Labasa District | Dry | 33% | Normal | 67% | Wet |
|-----------------|-----|-----|--------|-----|-----|
| Seaqaqa | 24 | 185 | 37 | 292 | 39 |
| Waiqele | 20 | 197 | 40 | 287 | 40 |
| Vunimoli | 21 | 184 | 37 | 285 | 42 |
| Labasa Mill | 22 | 174 | 34 | 246 | 44 |
| Vunivutu | 34 | 173 | 32 | 344 | 34 |
| Wainikoro | 22 | 152 | 41 | 251 | 37 |

Normal or above normal rainfall favoured for the Labasa District. Outlook confidence: *very low to moderate*.

Explanatory Notes - El Niño and La Niña

El Niño Southern Oscillation (ENSO) is an irregular cycle of persistent warming and cooling of sea surface temperatures in the tropical Pacific Ocean. The warm extreme is known as *El Niño* and cold extreme, *La Niña*.

The term *El Niño* is given to a local warming of the ocean near the Peruvian coast in South America that appears around Christmas. Scientists now refer to an El Niño event as sustained warming over a large part of central and eastern equatorial Pacific Ocean. This warming is usually accompanied by persistent negative values of Southern Oscillation Index (SOI), a decrease in the strength or reversal of the equatorial trade winds and a reduction in rainfall over most of Fiji (not immediate effect as there is a lag period) which can, especially during moderate to strong event, lead to drought.

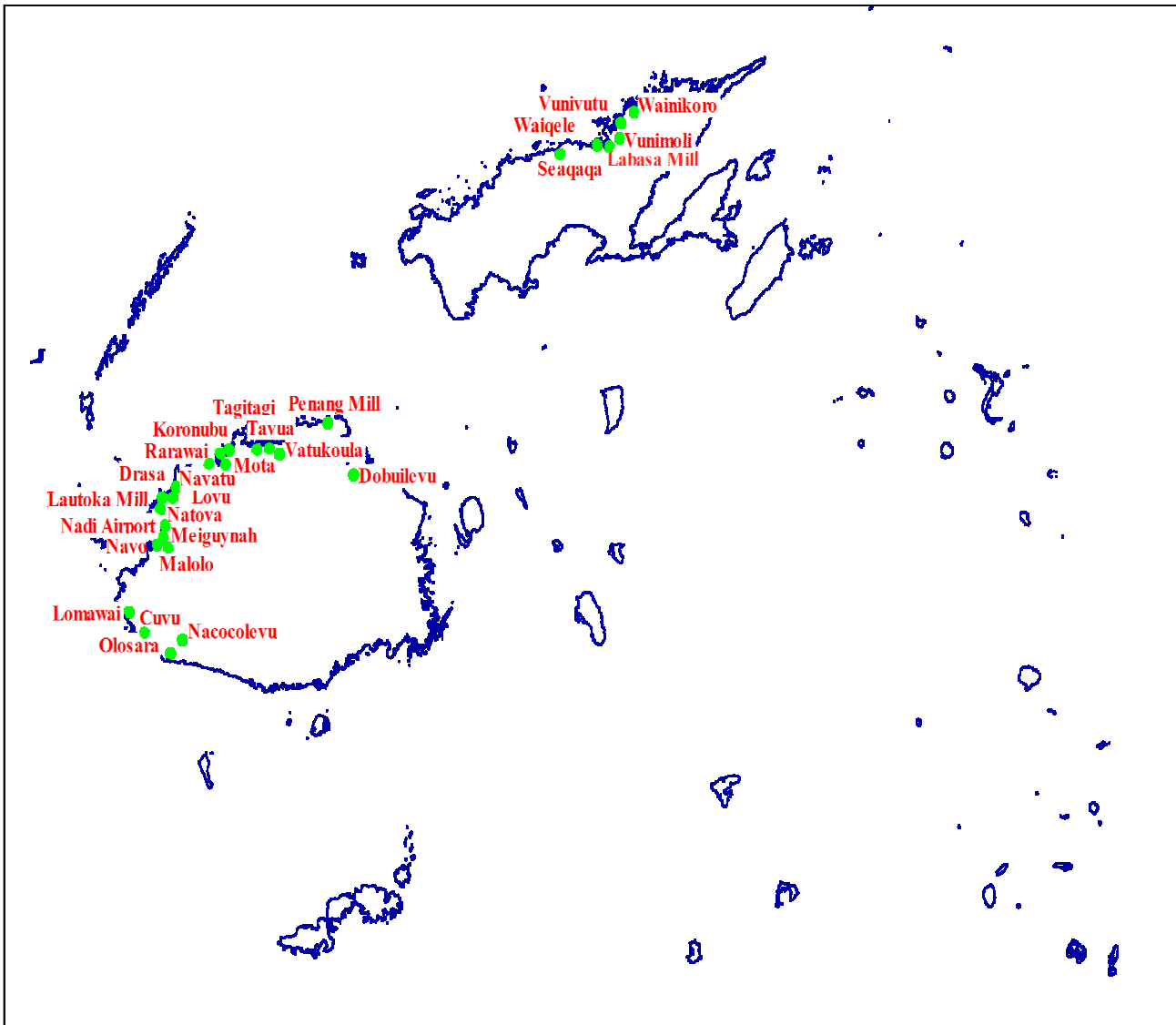
La Niña is sustained cooling of the central and eastern equatorial Pacific Ocean. The cooling is usually accompanied by persistent positive values of SOI, an increase in strength of the equatorial trade winds and higher than *normal* rainfall for most of the Fiji (not immediate effects as there is a lag period), with frequent and sometimes severe flooding, especially during the wet season (November to April).

Rainfall Outlook: Rainfall Probabilities - 'dry', 'wet' and 'normal' conditions

The rainfall outlook probability presents three monthly rainfall in three different categories. The *below normal* range is one where rainfall is less than the 33rd percentile. That is, rainfall for the period (in this case three months) which is in the lowest one third of occurrences. Here, three-month rainfall is arranged for a particular period from the highest on record to lowest on record. Rainfall below the one-third point would be considered *below normal*. Rainfall in the middle third would be considered *normal* and upper third *above normal*. A rainfall prediction of 48:31:21, for example, has the highest probability of rainfall in the *below normal* category (48%). This means that rainfall is most likely to be *below normal* for the on-coming three months. However, there is still a 31% chance of *normal* rainfall and 21% chance of *above normal* rainfall. Similarly, with a prediction of 20:40:40, means *normal* to *above normal* rainfall would be expected. In the case of 33:33:34 there are *equal chances* of receiving *below normal*, *normal* or *above normal* rainfall (climatology).

The success or hit rate of the predictions is highest during the *wet season* and lowest during the *dry season* and *transition* months (dry to wet and wet to dry). The success rate is also high during *El Niño* and *La Niña* events. Predictions during neutral periods, especially during the *dry season* and *transition* months, are the least successful.

Rainfall Stations in the Sugar Cane "Belt"



The seasonal forecast outlook confidence are generated by using the LEPs scores , which also be referred to as the skill scores. The X LEPS % scores, which are used to categorize the confidence of the outlook are as follows:

| | | | |
|-------------------------------|------------------------------------|----------------------------------|-------------------------------|
| Very Low: $X < 0.0$ | Low: $0 \leq X < 5$ | Moderate: $5 \leq X < 10$ | Good: $10 \leq X < 15$ |
| High: $15 \leq X < 25$ | Very High: $25 \leq X < 35$ | Exceptional: $X \geq 35$ | |

Disclaimer: The seasonal rainfall predictions provided in this document is presented for the sugar sector and should be used as a guide only. While FMS takes all measures to provide accurate information and data, it does not guarantee 100% accuracy of the forecast presented in this summary. The department should be sought for expert advice, clarifications and additional information as and when necessary. The user assumes all risk resulting directly or indirectly from the use of the rainfall prediction information.