1. **Highlights**

1.1. **The Outlook for June-July-August 2020 Rainfall Season.**

The outlook for the June-July-August (JJA) 2020 rainfall season indicates that the Highlands West of the Rift Valley, Lake Basin Region, Central and Southern Rift Valley as well as the Northwestern region are likely to receive above-average (enhanced) rainfall. The Coastal strip is likely to receive near-average with a tendency to below-average rainfall. The rest of the country is expected to remain generally dry.

Most areas in the Central Highlands and Nairobi area are expected to experience cool/cold and cloudy conditions with occasional rain and drizzle. The temperatures are likely to be cooler than average.

1.2. **Performance of the March-April-May 2020 Rainfall Season**

The March to May 2020 seasonal rainfall has ceased over several counties in the Northeastern and parts of southeastern Kenya. However, the Lake Victoria Basin, the Highlands West of the Rift Valley, the Central and South Rift Valley, Coastal strip and parts of the Highlands East of the Rift Valley will continue to receive rainfall up to the end of the month of May and into the month of June.

The distribution, both in time and space, has been generally good over most parts of the country. Several parts of the country have received enhanced rainfall that was mainly recorded in March and April 2020. Wajir Meteorological Station in Northeastern Kenya recorded the lowest amount of 79.4mm (53.2% of LTM). The onset of the seasonal rainfall was timely, as forecasted, especially over the Highlands West of the Rift Valley, Lake Basin region and Central Highlands including Nairobi.
2. Rainfall Forecast for June-July-August 2020

During the June-July-August (JJA) season, rainfall is normally concentrated over the western region and the coastal strip while the rest of the country remains generally dry as seen in Figure 1A.

The climate outlook for June to August 2020 is based on the expected evolution of global Sea Surface Temperature (SST) patterns as well as upper air circulation patterns. The forecast process involves regression of Sea Surface Temperature Anomalies (SSTAs), Quasi-Biennial Oscillations (QBO), Southern Oscillation Index (SOI) and the Indian Ocean Dipole (IOD) on the Kenyan rainfall. The expected distribution is also based on statistical analysis of past years, whose characteristics were found to exhibit similarities to the current year.

FIG 1A: JUNE-JULY-AUGUST 2020 AVERAGE RAINFALL.
The forecast for the June-July-August rainfall period indicates that the Highlands West of the Rift Valley, the Lake Victoria Basin, Central Rift Valley, North western region and parts of Central Kenya are likely to receive above average rainfall (enhanced rainfall) while the Coastal Strip is likely to experience near average with a tendency to below average rainfall (depressed rainfall).

The rest of the country is expected to be generally dry as depicted in Figure 1b.

Most areas in the Highlands East of the Rift Valley (including Nairobi area) are expected to experience cool and cloudy conditions with occasional drizzle or light rains.

The outlook for specific areas is as follows:

2.1. The Lake Victoria Basin, the Highlands West of the Rift Valley and the Central and South Rift Valley (deep green shading): (Siaya, Kisumu, Homa Bay, Migori, Kisii, Nyamira, Trans Nzoia, Baringo, Uasin Gishu, Elgeyo Marakwet, Nandi, Laikipia, Nakuru, parts of Narok, Kericho, Bomet, Kakamega, Vihiga, Bungoma and Busia): Occasional showers and thunderstorms is expected to continue throughout the season. The expected rainfall is likely to be higher than the long-term average amounts (above normal) for the season.

2.2. Northwestern regions (deep green shading) especially the areas bordering Uganda/South Sudan (Turkana, West Pokot, parts of Samburu) are also likely to receive occasional showers and thunderstorms. The expected rainfall is likely to be higher than the long-term average amounts (above normal) for the season.
2.3. **The Coastal Strip** (Mombasa, Tana River, Kilifi, Lamu and Kwale): is expected to receive occasional rainfall during the season. The expected rainfall amounts are likely to be near the long-term average with a tendency to below average rainfall.

2.4. **Highlands East of the Rift Valley (including Nairobi area)**: (Nyandarua, Nyeri, Kirinyaga, Murang’a, Kiambu, Meru, Embu, Tharaka Nithi and Nairobi) is likely to experience cool and cloudy conditions with occasional light rain/drizzle. Occasional prolonged hours of overcast skies (cloudy conditions) resulting in cold and chilly conditions are also expected.

The daytime temperatures are also likely to be near-average to below-average during the period. A few days may turn out to be extremely cold with temperatures falling below 18°C in some areas. Occasional afternoon/night showers may also occur especially during the month of June. The total rainfall during the period is likely to be slightly above the long term mean for the season.

2.5. **North-Eastern Region** (Mandera, Marsabit, Wajir, Garissa and Isiolo): is expected to be generally sunny and dry throughout the forecast period. Occasional rains may occur over few places.

2.6. **South-eastern Lowlands** (Kitui, Makueni, Machakos Taita Taveta and parts of Kajiado,): are expected to be generally sunny and dry throughout the forecast period. Areas bordering the Central Highlands (parts of Machakos County) are likely to experience occasional cool and cloudy conditions with light rains.

3. **Temperature Forecast for JJA 2020**

During the June, July and August (JJA) 2020, most areas in the Highlands East of the Rift Valley (including Nairobi area) usually experience cool and cloudy conditions with occasional drizzle or light rains. The **Figure 2A** shows the average temperature conditions during the June, July and August (JJA) season.

The temperature outlook for the June, July and August (JJA) 2020 season is as indicated in **Figure 2B**.
The temperature outlook is as follows:

- **Highlands East of the Rift Valley** including Nairobi (Nyandarua, Nyeri, Kirinyaga, Murang’a, Kiambu, parts of Meru, Embu, parts of Tharaka Nithi and Nairobi), **parts of the Lake Victoria Basin Region** (Kisii, Nyamira, parts of Migori); **Southern and Central Rift Valley** (Bomet, Kericho, parts of Nakuru, Laikipia, Narok, Kajiado) as well as parts of **Southeastern region** (Machakos): these areas are expected to experience near-average with a tendency to cooler than average temperatures.

- **Counties in Northwestern Kenya** (Turkana, Samburu, West Pokot), several counties in the **Highlands West of the Rift Valley** (Trans Nzoia, Uasin Gishu, Elgeyo Marakwet, Kakamega, Nandi, Vihiga, Bungoma), some counties in the **Lake Victoria Basin Region** (Busia, Kisumu, Siaya, Homa Bay, parts of Migori, Kisumu), **Central Rift Valley** (parts of Laikipia and Nakuru, Baringo) as well as some counties in the Lake Victoria Basin region are likely to experience near-average temperatures.

- **Counties in the Coastal** (Lamu, Tana River, Kilifi, Mombasa, Kwale), **Northeastern region** (Mandera, Wajir, Isiolo, Garissa) and **Southeastern regions** (Kitui, Makueni, Taita Taveta, parts of Kajiado) are however likely to have near-average with a tendency to warmer than average temperatures.
4. EXPECTED POTENTIAL IMPACTS
The following are the likely impacts during the June-July- August season:

4.1. Agriculture and Food Security Sector
The expected enhanced rainfall in Western Kenya is likely to provide sufficient soil moisture for agricultural production. However, there is likelihood of occasional occurrence of frost in parts of the Central Highlands as well as Southern and Central Rift Valley which may affect crop production adversely.

4.2. Disaster Management Sector
Cases of isolated flooding are still likely in low lying areas across the country as well as landslides/mudslides in hilly areas of Western and Central Kenya and some parts of the Rift Valley. This is particularly due to the fact that the soils are still highly moist and the river and dam levels are still quite high.

4.3. Health Sector
In areas such as Nairobi, the Highlands East of the Rift Valley, the Central Rift Valley and parts of the Highlands West of the Rift Valley, cases of respiratory diseases like asthma, pneumonia, flu and common colds are likely to increase due to the expected cool/cold conditions. The general public is advised to adopt warm dress codes and follow advise from the Health Authorities.

Vector borne diseases such as malaria and other diseases like cholera are likely to increase in the Lake Victoria Basin region as well as parts of the Highlands west due to the conducive temperatures that favors their spread.

NB: It is advisable that during chilly days, jikos in poorly ventilated houses should be avoided as burning charcoal produces carbon monoxide gas that is lethal when inhaled.

4.4. Transport and Public Safety
Fog formation in the areas that are expected to experience cold and cloudy conditions may pose danger for motorists due to low visibility. Care should be taken while driving in these areas especially along the Nairobi-Naivasha Highway and particularly on the Kikuyu-Kinungi stretch.

Light rains and drizzle may cause roads to be slippery. All road-users are advised to take utmost care to minimize accidents that may result from such weather conditions.

Foggy weather is also likely to cause operational disruption at airports.

4.5. Water Resources Management and the Energy Sectors
The water levels in the main dams are likely to remain high during this period.

4.6. Environment
The expected rainfall over the Highlands West of the Rift Valley, Lake Victoria Basin Region, Central and Southern Rift Valley, the Coastal strip as well as the occasional rains over the Highlands East of the Rift Valley including Nairobi are expected to maintain conducive soil moisture for growing of trees therefore the public should take advantage of this and plant trees while putting in place measures to conserve the environment and adhering to directions from the Ministry of Health with regard to social distancing in this era of Covid19.
5. REVIEW OF MARCH-MAY (LONG-RAINS) 2020 SEASONAL RAINFALL

The March-April-May (MAM) 2020 seasonal rainfall has ceased over most parts of the country except over the Lake Victoria Basin, the Highlands West of the Rift Valley, the Central and South Rift Valley, Coastal Strip and parts of the Highlands East of the Rift Valley. An assessment of the rainfall recorded from 1st March to 26th May 2020 indicates that the rainfall performance was far above normal over most parts of the country. Several meteorological stations in the country have recorded rainfall that is more than 75 percent of their seasonal Long-Term Means (LTMs) for the MAM season.

The most enhanced rainfall was recorded over the Northwest, the Highlands West and East of the Rift Valley, the Northeast and the South-eastern Lowlands. Stations that surpassed their seasonal LTMs include Lodwar (259.9%), Eldoret (207.6%), Narok (185.8%), Nakuru (175.7%), Machakos (172.0%), Nyeri (165.7%) and Meru (164.8%). As at 26th May, Kisii Meteorological Station recorded the highest seasonal rainfall total of 878.2mm. Other stations that have recorded more than 500mm of rainfall during the season include Kericho (872.1mm), Kisumu (804.4mm), Kakamega (777.5mm), Meru (745.4mm), Nyeri (738.2mm), Kitale (718.3mm), Embu (713.3mm), Eldoret (687.5mm), Mtwapa (633.2mm), Dagoretti (607.9mm), Narok (584.1mm), Moyale (530.7mm) and Nakuru (517.7mm). The rest of the stations recorded between 200mm and 500mm with the lowest seasonal totals of 185.0mm and 79.4mm being recorded at Voi and Wajir Meteorological Stations, respectively.

Figure 3a shows the amount of rainfall recorded during the MAM 2020 season (blue bars) as up to 26th May 2020 as compared to the MAM seasonal LTMs (red bars). Figure 3b shows the MAM 2020 seasonal rainfall performance as a percentage of the LTMs.

![Figure 3A: Performance of MAM 2020 Rainfall Compared to MAM Seasonal LTM.](image)
5.1. EXPERIENCED IMPACTS

The enhanced rainfall recorded over most parts of the country was associated with the following impacts:

5.1.1 Agriculture and Food Security Sector.

In the pastoral areas of the Rift Valley, pasture for livestock improved significantly as a result of the enhanced rains, however the raging floods experienced also led to the death of livestock and crops being swept away. Locusts also continued to thrive and spread to more counties due to favorable conditions.
5.1.2 Disaster Management Sector

- Landslides and mudslides that led to loss of lives and destruction of property were reported in West Pokot, Nandi, Elgeyo Markwet, Kericho, Kiambu and Murang’a Counties. Water supply to Nairobi County was also disrupted by landslides;
- Some rivers including the Mara, Tana, Athi, Nzoia, Ewaso Nyiro and several streams across the country had increased water flow and burst their banks due to enhanced rainfall experienced in their catchment areas;
- The water levels in the Lake Victoria, Baringo and Naivasha rose, destroying property and disrupting livelihoods along their shores;
- Flooding affected several Counties especially those within the Lake Victoria and Tana Basins. These counties include Tana River, Kisumu, Garissa, Mandera, Migori, Homa Bay, Busia, Kisumu and Siaya. The floods damaged roads and homes and displaced residents. The heavy rains and flooding also wreaked havoc in Mandera, Garissa, Busia, Kakamega, Narok, Kitui, Nakuru, Uasin Gishu, Kajiado and Nairobi Counties. Approximately 161,000 households were submerged in water (over 800,000 people have been affected in the country);
- Kwale County experienced lightning strikes that led to loss of two lives while eight others were injured;
- Strong winds were reported in Western Kenya, Nairobi and the Coastal Strip. The winds knocked down communication masts in Msabaha.

5.1.3 Health Sector

The heavy rains that pounded several parts of the country led to cases of cholera being reported. In Turkana and Marsabit counties, a number of people died due to the disease.

5.1.4 Transport and Public Safety

There was paralysis of transport in Suswa along the Narok-Mai Mahiu road and traffic snarl-up in Nairobi following heavy rains and flooding; Turkana, West Pokot, Kisumu and several other counties in the Western region were also affected by the floods that led to destruction of roads and Bridges. Transport was also paralyzed after floods submerged Mugeni bridge on the Kisii-Bomet-Kericho-Narok highway.

5.1.5 Water Resources Management and the Energy Sectors.

Heavy rainfall in Mount Kenya and Aberdares region caused an increase in the volume of water held in the Seven Folks Dams hence enough water for power generation. The water levels in the Turkwel and Sondu Dams were also improved. Mudslides and landslides damaged water pipes hence affecting supply of water to Nairobi.

5.1.6 Environment

Due to the good rainfall, the Ministry of Environment and Forestry rolled out the tree planting exercise over several parts of the country. This is in a bid to improve forest cover to 10%.

NB: This outlook should be used together with the 24-hour, 5-day, 7-day, monthly forecasts and regular updates issued by this Department. Weekly County forecasts are available from County Meteorological Offices.

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