REPUBLIC OF KENYA

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NYERI COUNTY CLIMATE OUTLOOK FOR MARCH-APRIL-MAY (MAM) 2025 LONG-RAINS SEASON; AND REVIEW OF THE OCTOBER-NOVEMBER-DECEMBER (OND) 2024 RAINFALL SEASON

1. HIGHLIGHTS

- *The Climate Outlook for the March-April-May (MAM) 2025 "Long Rains" season indicates that several parts of the county are likely to experience near to below normal rainfall.*
- *The distribution of the rainfall in time and space is expected to be generally fair over several areas in the county.*
- *The season is expected to be characterised by a normal to late onset with occasional dry spells.*
- *Occasional storms are likely to be experienced in some parts of the county during the season.*
- *In the month of January, heavy rains were experienced in the last week of the month.*
- *Nyeri County received below normal rainfall during October-November-December (OND) 2024.*
- *Nyeri Meteorological station recorded seasonal rainfall totals of 215.7 mm (70.4% of the long-term average) during the OND 2024 season.*
- *Ragati Tea Factory recorded seasonal rainfall total of 186.6 mm.*
- *Kabage Forest station recorded seasonal rainfall of 377.6 mm.*
- *Sunny and dry weather conditions prevailed over most parts of the county in January and February.*
- *Temperatures were generally higher than the January and February LTM over most parts of the county.*

2. FORECAST FOR MARCH-APRIL-MAY (MAM) 2025 "LONG RAINS" SEASON

2.1 Climatology for MAM season

The forecast for March-April-May 2025 "Long Rains" season is based on the prevailing and expected evolution of Sea Surface Temperature Anomalies (SSTAs) over the Pacific, Indian and Atlantic Oceans as well as the synoptic, mesoscale and local factors that affect the climate

of Kenya. These factors were assessed using various tools including ocean-atmosphere models, statistical models, satellite-derived information, and expert interpretation. The global drivers considered included the Indian Ocean Dipole (IOD), El Nino Southern Oscillation (ENSO), Quasi-Biennial Oscillation (QBO), Western North Pacific (WNP), and Madden-Julian Oscillation (MJO).

Climate outlook for the March-April-May (MAM) 2025 "Long Rains" season indicates that most parts of the county are likely to experience near to below normal rainfall. This will be driven by near to below average Sea Surface Temperatures (SSTs) over the western Equatorial Indian Ocean (adjacent to the East African coastline), coupled with warmer than average SSTs over the eastern Equatorial Indian Ocean (adjacent to Australia). This constitute a negative Indian Ocean Dipole (IOD) that is not favourable for good rainfall over most of East Africa. Also, Equatorial Sea Surface Temperatures (SSTs) are near-to-below average across most of the equatorial Pacific Ocean which implies that ENSO neutral conditions are present. The distribution of the rainfall in time and space is expected to be generally fair over most areas in the county. The peak of the rains is expected to be in April for most regions. In the month of May, rainfall reduction is expected over several places in the county during the season as the season draws to the end. The temperature forecast indicates that warmer than average temperatures are likely over most parts of the county during the season. The climatology for the county for March to May is as shown in figure 1 below.

NYERI COUNTY LONG TERM MEAN (LTM) FOR MAM

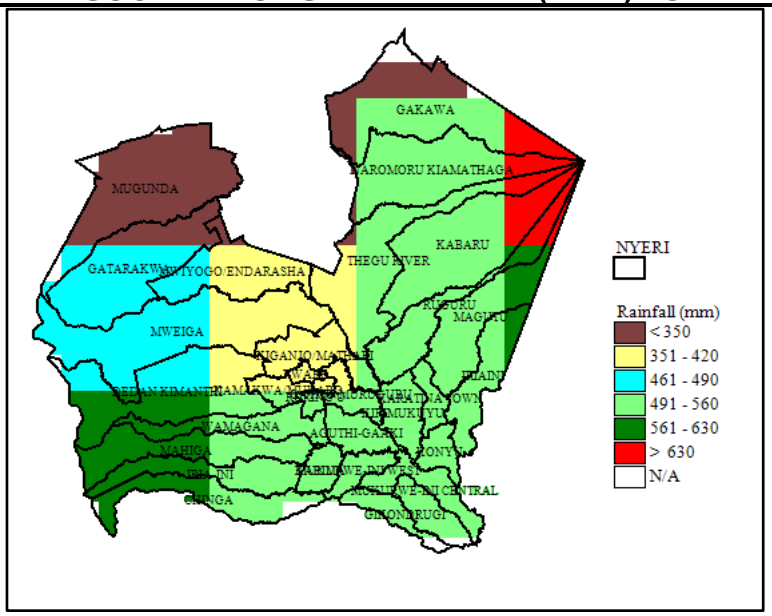

Figure 1: March-April-May (MAM) Seasonal Rainfall Long-Term Mean (1981 - 2010)

2.2 Outlook for MAM 2025

The "Long Rains" March-April-May (MAM) 2025 season constitutes an important rainfall season in the county.

During MAM 2025, it is expected that several parts of the county will experience near to below normal rainfall that will be fairly distributed both in time and space as shown in figure 2 below. Despite the near to below normal rainfall, isolated incidences of storms are likely, even in the areas expected to receive depressed rains which may cause flash floods.

The specific outlook for March-April-May (MAM) 2025 is as follows:

The South Western and extreme Eastern parts of the County

These areas are likely to experience Near to below normal rainfall during the season. However, they are expected to experience the highest rainfall in the county.
The expected rainfall amounts are likely to be below the long-term average amounts for the season.
The rainfall amount is expected to range between 561mm - 630mm for the whole season.

The Southern and Central parts of the County (Nyeri central, Mathira and Mukurwe-ini)

These sub-counties are likely to experience Near to below normal rainfall during the season.
The expected rainfall amounts are likely to be below the long-term average amounts for the season.
The total seasonal rainfall amount is expected to range between 350mm – 560mm for the whole season.

The Northern parts of the County (Kieni East and Kieni West)

These sub-counties are likely to experience Near to below normal rainfall during the season.
The expected rainfall amounts are likely to be below the long-term average amounts for the season.
The total seasonal rainfall amount is expected to be less than 350 mm for the whole season.

NYERI COUNTY FORECAST FOR MAM 2025

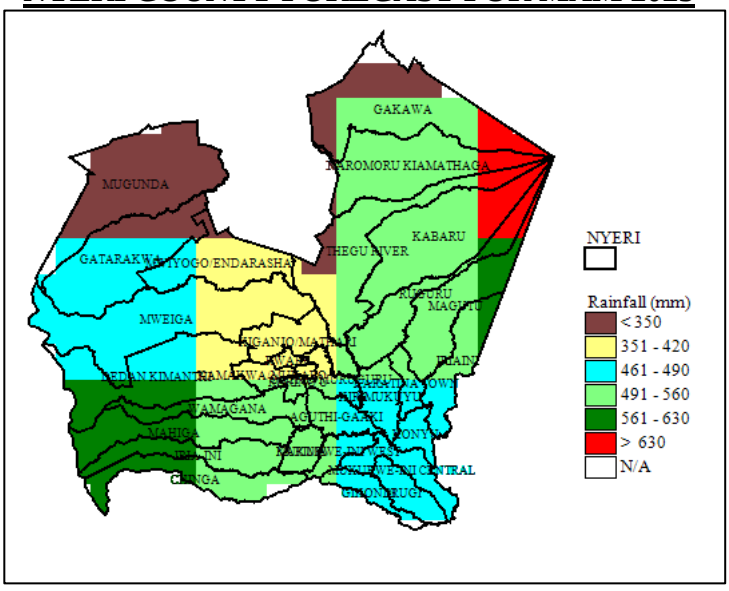

Figure 2: March-April-May 2025 Weather Forecast for Nyeri County.

2.3 MAM 2025 Seasonal Anomalies

The March to May period is the major rainfall season (long rains) over most parts of Kenya and much of equatorial Eastern Africa. The seasonal rainfall anomalies of between -50 to 20 mm are as shown in Figure 3. It indicates that the southern part of the county will experience below normal (-50 to -20) mm while the northern part of the county will experience Near normal (-20 to 20) mm.

NYERI COUNTY SEASONAL ANOMALIES FOR MAM 2025

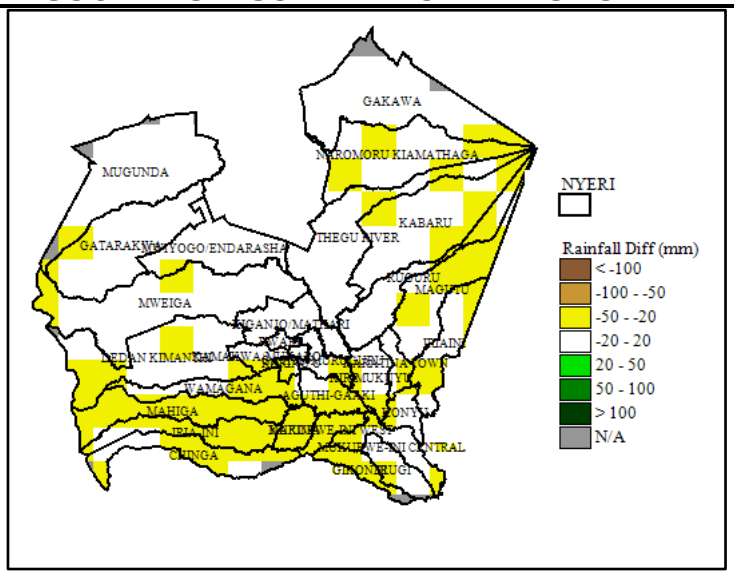

Figure 3: March-April-May 2025 Seasonal Anomalies.

2.4 Temperature Forecast for March-May season

The forecast indicates that warmer than average temperatures are likely over most parts of the county. There are enhanced probabilities for warmer than average temperatures in the county.

3. EXPECTED DISTRIBUTION OF THE MAM RAINFALL, ONSET AND CESSATION DATES

a) Distribution

The predicted onsets, cessations, and distribution of rainfall were derived from 5 Global Climate Models (GCMs) runs as well as statistical analysis of past years which showed similar characteristics to the current year. The analogue (similar) years chosen were 2017 and 2021. The season is expected to experience a normal to delayed onset with fair distribution characterised by dry spells over the areas that are expected to receive below-average rainfall. Occasional localized storms are however still likely to be experienced in some parts of the county.

b) Onset and cessation dates

The forecast indicates that most parts of the county are likely to have a late onset and an early cessation. The expected onset for the MAM Long Rains for the county begins on 4th week of March to 1st week of April, 2025 while the cessation is expected to begin on 3rd to 4th week of May, 2025.

4. POTENTIAL IMPACTS OF THE MAM 2025 RAINS

The forecasted near to below normal rainfall during the month of March to May indicates a likelihood of drought conditions that may worsen as the period progresses over most of the semi-arid regions in the county. The most likely impacts on various sectors are highlighted below.

Agriculture and Food Security and Livestock Sectors

In view of the forecasted near to below normal rainfall, farmers are advised to liaise with the County Department of Agriculture to get advice on appropriate crops to plant that are drought resistant in order to make the best use of the anticipated poor rainfall performance. Late onsets, fair distribution and reduced amounts of rainfall is likely to negatively affect agriculture production especially in areas where reliance on the long rains is high.

Health Sector

In areas expected to receive near to below-average rainfall, waterborne diseases such as malaria are likely to emerge.

Dry areas are likely to be susceptible to dust storms which may lead to an increase in respiratory tract diseases. Poorly drained areas may cause pools of stagnant water which may become conducive breeding areas for disease causing pathogens. Water scarcity may lead to water related and water washed diseases e.g. cholera, typhoid, scabies, trachoma.

Transport and Public Safety

The expected rainfall may cause slippery roads in some parts of the county resulting in conditions that may cause road accidents. Flash floods may cause transport challenges especially during rush hour and more so in areas where there is poor drainage.

Water and Energy Sector

The near to below normal rainfall may lead to below-normal stream flows, low recharge of aquifers as well as reduced water levels in rivers and reservoirs. This will in turn result in the disruption of water supplies both for domestic and livestock use. Efficient water management and tracking should therefore be enhanced to ensure that the water needs of animal and human populations in the affected areas are met. Relevant authorities and the public are also encouraged to practice rainwater harvesting and storage in order to supplement their water needs.

Long dry spell may lead to dusty conditions which may deposit dust on solar panels and reduce their performance. Continuous monitoring and cleaning of solar panels should be enhanced.

Disaster Management Sector

The current drought being experienced over the county is expected to intensify and may spread to other parts of the country. Relevant authorities are advised to sensitize and disseminate early warning information for anticipatory action to be taken as well as step-up measures already being implemented to avert loss of lives, livestock and livelihoods.

There is a possibility of isolated storms that may cause floods in low-lying areas and along rivers. The public is advised not to walk through flooded waters or cross flooded rivers to avoid loss of lives. County Government are also advised to clear drainages in good time to avert artificial flooding in the urban areas.

Water passages, alleys, channels and dried up rivers should be cleared of debris, to avoid flooding in the event of sudden storms during the season.

Environment and Forest Sector
The destruction of forest biodiversity is expected to increase due to forest and wildfires, logging, increased charcoal burning and encroachment of forest areas for pasture. To mitigate these threats, relevant authorities and communities are encouraged to increase surveillance for fires and illegal activities in forested areas. Conservation measures should also be promoted to allow for improved vegetation regeneration and restoration of forest habitats. By implementing these measures, the negative impacts of these destructive activities can be reduced and the biodiversity of forest ecosystems can be preserved.

5. REVIEW OF WEATHER DURING OCTOBER-NOVEMBER-DECEMBER (OND) 2024 SEASON

The "Short Rains" October to December (OND) season constitutes an important rainfall season in the county. The start of the seasonal rains (onset) was delayed over most parts of the county as the onset criteria were not met in certain parts of the county. The rainfall distribution both in time and space was poor throughout the county, especially in the month of October and December. The poor rainfall performance over several parts of the county was mainly as a result of the prevailing weak La Nina conditions and negative Indian Ocean Dipole. In November, the distribution was good over several parts of the county.
The seasonal rainfall analysis from 1st October to 31st December shows the depressed rainfall was received most parts of the county. The total amount received in Nyeri Meteorological Station was 215.7 mm of rainfall against the Long-Term Mean (LTM) of 306.1 mm. This represents 70.4% of the LTM.

6. EXPERIENCED IMPACTS DURING OND 2024 SEASON

Agriculture and Food Security and Livestock Sectors
During the OND 2024 season, dry conditions over most parts of the county led to a decline in crop and livestock production. There was also infestation of fall armyworms in several parts of the county that destroyed crops. This led to below-average harvests and high market prices of staple foods which in turn worsened food insecurity, hence increasing the number of vulnerable households requiring food relief and other subsidies.

Environment
There was an increase in wild and forest fires in Aberdares and Mt. Kenya forests. Illegal charcoal burning for commercial purposes to supplement income from farmlands due to the prolonged drought led to environmental degradation.

Water Resources Management and Energy
The depressed rains led to reduced water in rivers impacting irrigation within the county. The performance of solar power plants was reduced slightly as a result of dust settling on the solar panel due to the dry weather conditions.

NB: Please use this seasonal forecast in conjunction with monthly and weekly weather forecasts issued by this office.

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