REPUBLIC OF KENYA

Kenya Meteorological Department

MINISTRY OF ENVIRONMENT, CLIMATE CHANGE AND FORESTRY

KENYA METEOROLOGICAL DEPARTMENT

Dagoretti Corner, Ngong Road, P. O. Box 30259, 00100 GPO, Nairobi, Kenya

Telephone: 254 (0) 20 3867880-7, 0724 255 153/4 E-mail:

director@meteo.go.ke, info@meteo.go.ke

Follow us on X: @MeteoKenya and **Facebook**: Kenya Meteorological Department

REF. NO. KMD/FCST/4-2024/MO/05 **Date: 30 April 2024**

THE OUTLOOK FOR MAY 2024 AND RAINFALL REVIEW FOR APRIL 2024

1. HIGHLIGHTS

1.1. The Forecast for May 2024

May marks the cessation of the "Long Rains" season over several parts of the country except for the Coastal region and the Western sector of the country where rainfall continues into June. The outlook for May 2024 indicates that several parts of the country are likely to experience near-average to above-average rainfall. Occasional storms are also likely to be experienced.

1.2 The Climate Outlook for May, June and July, 2024

The forecast for the next three months indicates that rainfall is expected over the Highlands West of the Rift Valley, the Lake Victoria Basin, Central and South Rift Valley as well as the Coastal region. The Highlands East of the Rift Valley including Nairobi County and parts of the Southeastern lowlands are likely to experience rainfall in May and remain generally cool and cloudy with occasional light rains in June and July. The rest of the country is expected to receive occasional rainfall in May and remain generally dry in June and July.

Temperature is expected to be warmer than normal over the whole country during the forecast period with higher probabilities for warmer than average temperatures expected over the eastern half of the country.

1.3. Rainfall Review for April 2024

April marked the peak of the Long Rains (March-April-May) season over most parts except over the Coastal region where the peak is expected in May. Most parts of the country experienced near to above average rainfall during the month except over Voi Meteorological station where below average rainfall was recorded. The month was characterized by severe storms over most parts of the country.

2. May 2024 Forecast

The rainfall forecast for May 2024 is based on regression of sea surface temperatures (SSTs), SST gradients, and the expected evolution of global SST patterns as well as upper air circulation patterns on Kenyan rainfall. **Figure 1a** illustrates the mean monthly rainfall in May.

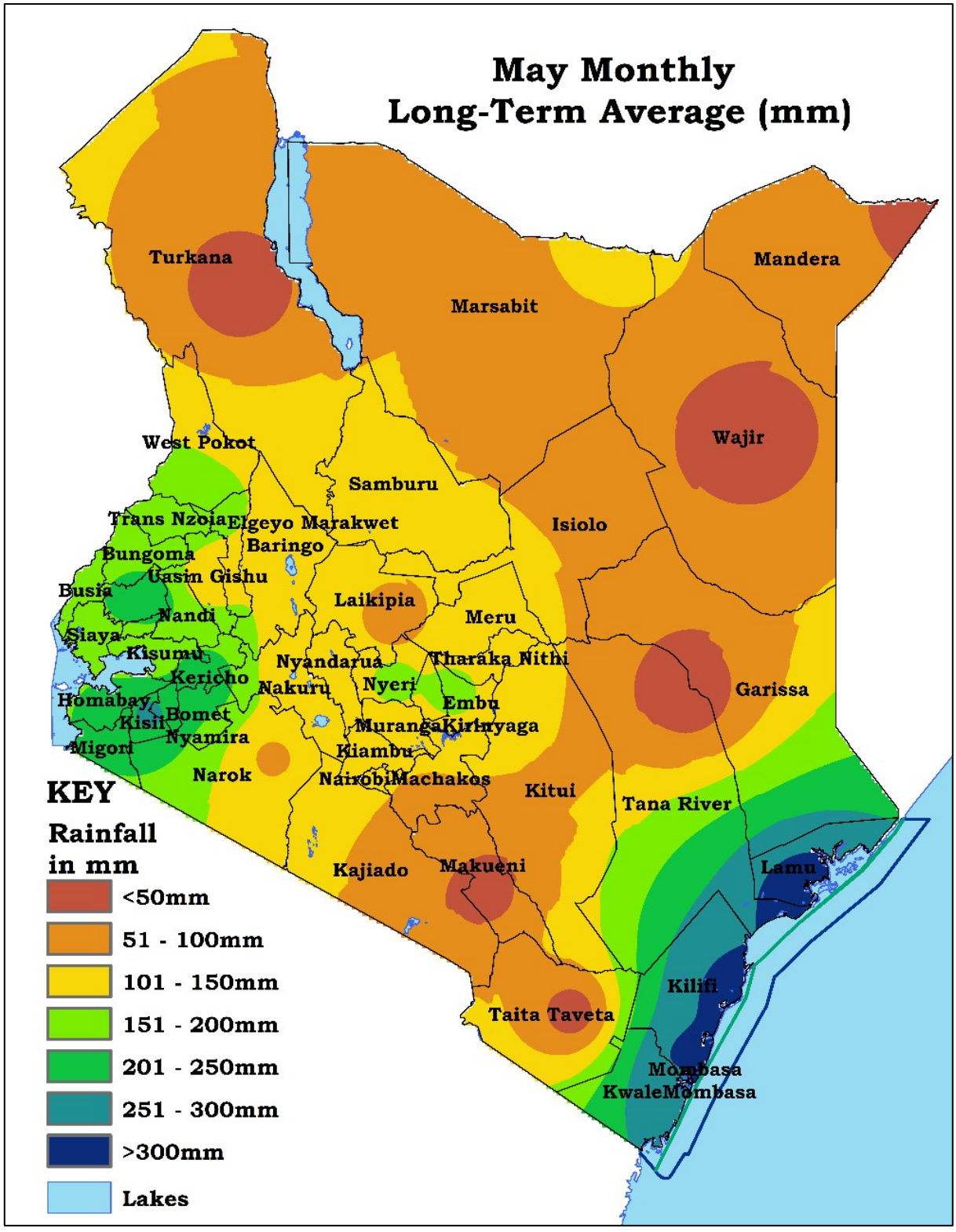

Figure 1a: May mean monthly rainfall

2.1 The Rainfall Forecast for May 2024

The forecast indicates that several parts of the country are likely to experience near-average to above average rainfall as shown in **Figure 1b**.

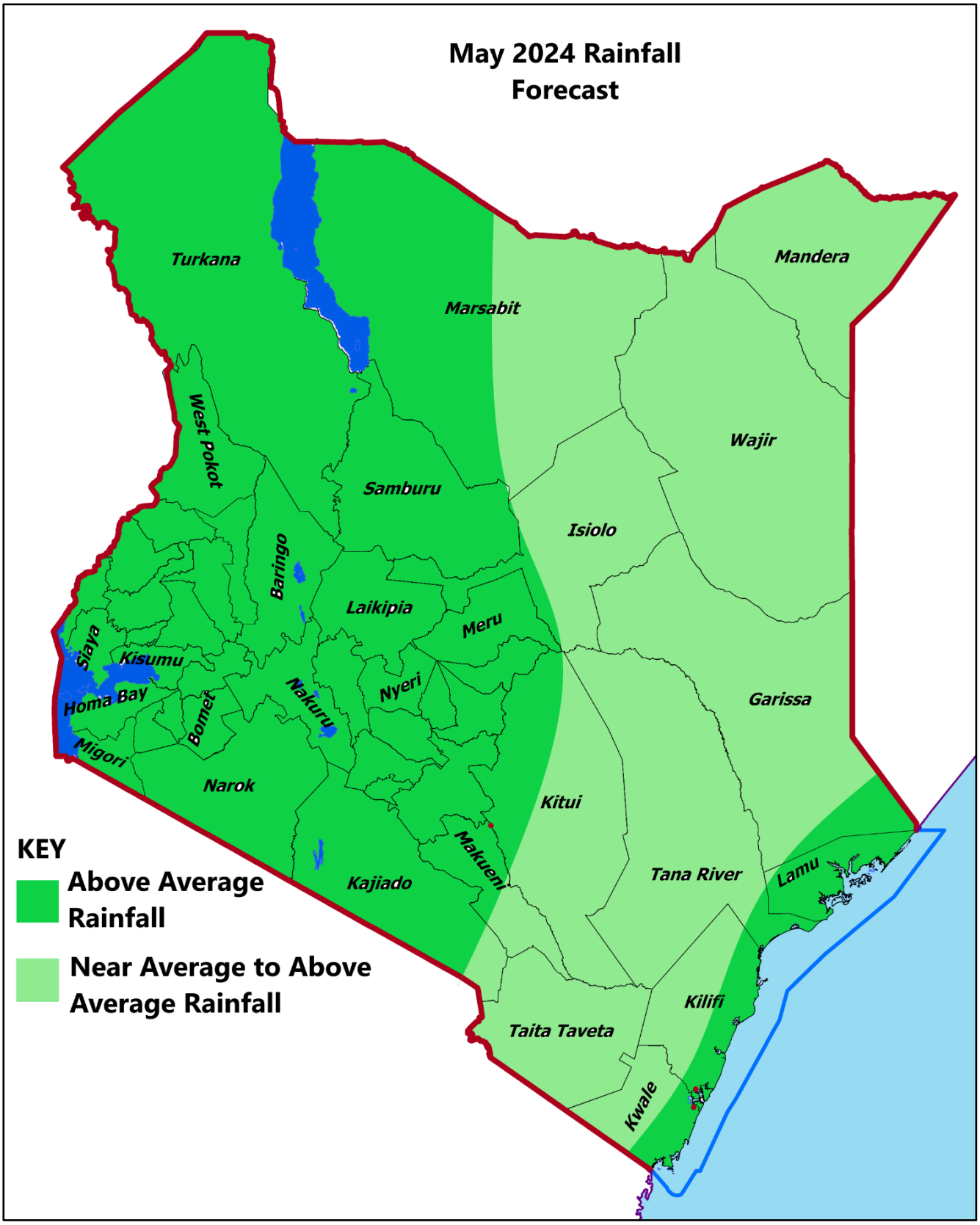

Figure 1b: Rainfall forecast for May 2024

2.2. SPECIFIC OUTLOOK FOR INDIVIDUAL AREAS

2.2.1. The Lake Victoria Basin (Siaya, Kisumu, Homa Bay, Migori, Busia, Highlands West of the Rift Valley (Bungoma, Kisii, Nyamira, Bomet, Nandi, Kakamega, Vihiga, West Pokot, Elgeyo Marakwet, Trans Nzoia and Uasin Gishu), Central and South Rift Valley (Baringo, Nakuru, Narok and Western parts of Laikipia County): Rainfall is expected throughout the month. The total amounts of rainfall are likely to be **above average**. Occasional storms are also likely to be experienced.

2.2.3. North-western Region (Turkana and Samburu): Occasional rainfall is expected during the month. The total amounts of rainfall are likely to be **above-average**. Occasional storms are also likely to be experienced.

2.2.4. Highlands East of the Rift Valley including Nairobi County (Nairobi, Nyandarua, Nyeri, Kirinyaga, Murang'a, Kiambu, Meru, Embu, Tharaka Nithi and eastern parts of Laikipia): Rainfall is expected throughout the month. It is likely to be intense during the first week. The total amounts of rainfall are likely to be **above-average**. Occasional storms are also likely to be experienced.

2.2.5. North-eastern Region (Marsabit, Mandera, Wajir, Garissa, and Isiolo):
Occasional rainfall is expected during the month. The total amounts of rainfall are likely to be **near to above-average**.

2.2.6. South-eastern Lowlands (Kajiado, Kitui, Makueni, Machakos, Taita Taveta and parts of Tana River):
Occasional rainfall is expected during the month. The total amounts of rainfall are likely to be **near to above-average**. Occasional storms are also likely to be experienced.

2.2.7. The Coastal Strip (Mombasa, Kilifi, Lamu, Kwale and Parts of Tana River): The total amounts of rainfall expected in the month are likely to be **near to above-average**. Occasional storms are also likely to be experienced. May marks the peak of the Long Rains season in the Coastal Strip.

2.3. POTENTIAL IMPACTS

2.3.1. Agriculture and Food Security

The expected rainfall is likely to be conducive for agricultural production, especially in the high-potential counties of the Highlands West of the Rift Valley, the Lake Victoria basin region as well as Central and Southern Rift where rainfall is expected to continue into the June-July-August season. Farmers in these areas are encouraged to continue liaising with agricultural extension officers to get advice on appropriate land use management and hence maximize their crop yields.

The near-average to above average rainfall expected over the ASAL areas of Northern and Southeastern lowlands is expected to improve pasture and browse. However, pastoralists and relevant authorities are advised to conserve pasture as the season comes to an end to ensure their livestock have adequate feed to last till the next rainfall season.

2.3.2. Disaster Management

There is a likelihood of flooding in low-lying areas and flood plains especially over the Lake Victoria Basin, the Highlands West of the Rift Valley, the Coastal region as well as in poorly drained urban centers where rainfall is expected. Relevant authorities are therefore advised to put in place measures to avert possible negative impacts that may arise. County Governments are also advised to clear drainages in good time to avert artificial flooding of the urban areas. The public are advised not to drive or walk through flooded rivers or moving waters.

Cases of lightning strikes are still likely over the Lake Victoria Basin and Highlands West of the Rift Valley, especially in Kisii, Kisumu, Nandi, Bungoma (Mt. Elgon areas), and Kakamega Counties. The public are advised not to shelter near metallic structures or under trees to avoid the risk of lightning strikes, which could lead to loss of life.

2.3.3. Water Resource Management and Energy

The anticipated increase in rainfall is poised to improve water availability, benefiting both domestic and livestock needs. To capitalize on this resource, the public is encouraged to adopt rainwater harvesting and storage techniques. However, this surge in rainfall may also bring about adverse effects, such as heightened siltation and sedimentation in rivers and dams, as well as the risk of flooding, including river channel overflows, urban flooding, and flash floods. To address these challenges, authorities are advised to prioritize dam desilting efforts and implement strategies for separating stormwater and wastewater channels. These measures can help alleviate the impact of flooding on communities.

Furthermore, the rise in inflow into hydropower reservoirs is anticipated to bolster hydropower generation and facilitate groundwater recharge for geothermal power production. Nonetheless, it is crucial to acknowledge that increased rainfall may lead to disruptions in power supply, posing socio-economic risks. Thus, there is a critical need to enhance power transmission and distribution infrastructure to ensure reliable electricity supply.

As the seasonal rainfall gradually declines in arid and semi-arid areas, effective water management becomes imperative to sustain water resources for both human and animal populations beyond the season. Residents are urged to embrace rainwater harvesting to augment their water requirements.

2.3.4. Environment and Forestry

The anticipated increase in rainfall across the Lake Victoria Basin, Highlands West of the Rift Valley, Central, and South Rift Valley regions is poised to provide sufficient soil moisture, creating conducive environments for tree growth. Thus, active participation in tree planting initiatives, such as the 15B tree planting initiative, is strongly encouraged to further enhance the national forest cover. However, it is crucial to remain mindful of the potential environmental risks associated with excessive rainfall, particularly soil erosion.

To mitigate these risks and ensure environmental sustainability, the public is advised to adopt responsible agricultural practices. These include implementing soil conservation measures to protect against erosion and maintain soil health. By taking proactive steps to safeguard the environment, communities can contribute to long-term resilience against the impacts of climate change while promoting the growth of healthy, thriving ecosystems.

2.3.5. Health

The risk of vector-borne diseases, notably Malaria, is anticipated, particularly in regions such as the Lake Victoria Basin, the Highlands West of the Rift Valley, and the Coastal region. Additionally, flood-prone areas, particularly in the Lake Victoria region, may experience outbreaks of waterborne diseases. Health

authorities are advised to strategically position and redistribute medical supplies and insect-treated nets in the affected areas. Furthermore, public health education efforts focusing on disease prevention, as well as initiatives promoting Water Sanitation and Hygiene (WASH), should be intensified to mitigate the spread of diseases among these vulnerable communities.

2.3.6. Transport and Public Safety

Flash floods are expected to be a concern in various regions, including the Lake Victoria Basin, the Highlands West of the Rift Valley, the Central and South Rift Valley, the Coastal region, and parts of the Highlands East of the Rift Valley, including Nairobi County. The anticipated floods pose a risk of causing structural damage to infrastructure such as roads, bridges, and sub-standard facilities. Consequently, transportation may be affected, with the possibility of property damage and loss of lives. It is crucial for the public to exercise caution while driving in rainy conditions and to refrain from crossing flooded roads to minimize the risk of accidents resulting from such adverse weather conditions.

3. Outlook for May to July 2024

The forecast for the next three months indicates that the Highlands West of the Rift Valley, the Lake Victoria Basin, Central and South Rift Valley are likely to experience rainfall with some breaks throughout the forecast period. This rainfall is expected to be above the May to July Long Term Mean (LTM). The Coastal region is expected to receive rainfall with some breaks throughout the forecast period. This rainfall is likely to be near to slightly above the May to July LTM. The Highlands East of the Rift Valley including Nairobi County and parts of the Southeastern lowlands (areas bordering Nairobi and Central region) are expected to receive rainfall in May and early June. The rest of June and July are expected to be generally cool and cloudy with occasional light rains. This rainfall is likely to be near to slightly above the May to July LTM. Most of the Southeastern lowlands are expected to receive occasional rainfall in May and remain generally dry in June and July. This rainfall is likely to be near to slightly above the May to July LTM. The Northeastern region is expected to receive occasional rainfall in May and remain generally dry for the remaining part of the forecast period. This rainfall is likely to be near to slightly above the May to July LTM. A few high-ground areas in Marsabit County are likely to experience occasional cloudy and foggy conditions in the mornings in June and July. The Northwestern region is expected to receive occasional rainfall in May and remain generally dry in June and July. However, areas bordering Uganda and Southern Sudan may experience occasional rainfall throughout the forecast period. This rainfall is expected to be above the May to July LTM. Temperature is expected to be warmer than usual over the whole country during the forecast period, with higher probabilities for warmer than average temperatures expected over the eastern half of the country.

4. REVIEW OF THE WEATHER AND CLIMATE IN APRIL 2024

4.1. Review of Rainfall Performance During April 2024

April marked the peak of the Long Rains (March-April-May) season over most parts of the country except over the Coastal region where the rainfall is expected to peak in May. Most parts of the country experienced rainfall during the month. This rainfall was near to above average over the whole country except over Voi Meteorological station where below-average rainfall was recorded. By 26th April, the highest monthly rainfall total (767.9mm) was recorded in Miad Kandongu rainfall station in Kirinyaga county, followed by Kabete Meteorological station with 623.9mm. Other stations that recorded high amounts of rainfall are shown in **Table 1**. All the other stations recorded less than 400mm of rainfall, with Voi Meteorological station recording the least amount of rainfall at 14.8mm.

Table 1: Stations that recorded more than 400mm of Rainfall

S/NO	Station	County	Amount in mm
1	Kianamu Rainfall station	Embu	616.5
2	Dagoretti Meteorological station	Nairobi	614.5
3	Ngong Meteorological station	Kajiado	573.5
4	Ndaka-ini Rainfall station	Murang'a	560.7
5	Kiambicho Rainfall station	Murang'a	556.7
6	Kimakia Rainfall station	Murang'a	553.0
7	Lower Matasia Rainfall station	Kajiado	552.9
8	Kangema Meteorological station	Murang'a	543.3
9	Embu Meteorological station	Embu	540.7
10	Mukaa Rainfall station	Makueni	538.7
11	Kirie Rainfall station	Embu	516.4
12	Thika Meteorological station	Kiambu	514.9
13	Kalawa Rainfall station	Makueni	499.2
14	Machakos Meteorological station	Machakos	487.2
15	Zaina Forest Rainfall station	Nyeri	479.0
16	Kitui Meteorological station	Kitui	478.4
17	Kasafari Forest Rainfall station	Embu	476.3
18	Chehe Forest Rainfall station	Nyeri	471.6
19	Chinga Factory Rainfall station	Nyeri	471.3
20	Wilson Meteorological station	Nairobi	463.2
21	Nguu Masumba Rainfall station	Makueni	455.1
22	Mbooni Rainfall station	Makueni	453.0
23	Meru Meteorological station	Meru	438.9
24	Masii Rainfall station	Machakos	438.8
25	Gitii Ngura Rainfall station	Embu	430.5
26	Managia Rainfall station	Embu	427.0
27	Moi Air Base Meteorological station	Nairobi	425.4
28	Castle Forest Rainfall station	Kirinyaga	423.9
29	Wote Rainfall station	Makueni	422.0
30	Kabaru Forest Rainfall station	Nyeri	416.6
31	Kagwe Tea Factory Rainfall station	Kiambu	411.2

Severe storms were recorded during the month over most parts of the country. For instance, Miad Kandongu rainfall station in Kirinyaga county recorded 173.3mm in twenty-four hours on 3rd April while Mwasuma rainfall station in Kitui recorded 171.7mm on 7th April. Other stations that recorded more than 90mm of rainfall in twenty-four hours are shown in **Table 2.**

Table 2: Stations that recorded more than 90mm of rainfall in twenty-four hours

S/NO	Station	County	Amount in mm	Date
1	Nguu Masumba Rainfall station	Makueni	152.8	10/04/2024
2	Thika Meteorological station	Kiambu	150.3	15/04/2024
3	NIA Mwea Rainfall station	Kirinyaga	147.0	15/04/2024
4	Kiima Kiu Rainfall station	Makueni	140.2	05/04/2024
5	Kasafari Rainfall station	Embu	130.0	03/04/2024
6	Kianamu Rainfall station	Embu	127.9	03/04/2024
7	Kibauni Rainfall station	Machakos	123.6	20/04/2024
8	Kikumbulyu South Rainfall station	Makueni	122.7	11/04/2024
9	Koitogos Farm Rainfall station	Trans Nzoia	122.0	20/04/2024
10	Kianamu Rainfall station	Embu	119.5	23/04/2024
11	Kinna Rainfall station	Isiolo	118.6	07/04/2024
12	Kairungu Rainfall station	Kitui	118.5	25/04/2024
13	Miad Kandongu Rainfall station	Kirinyaga	118.3	08/04/2024
14	Wote Rainfall station	Makueni	118.2	08/04/2024
15	Ikisaya Primary Rainfall station	Kitui	117.4	08/04/2024
16	Dagoretti Meteorological station	Nairobi	113.6	20/04/2024
17	Managia Rainfall station	Embu	112.0	03/04/2024
18	Kabete Meteorological station	Nairobi	111.3	22/04/2024
19	Ngong Meteorological station	Kajiado	108.5	14/04/2024
20	Mukaa Rainfall station	Makueni	103.6	05/04/2024
21	Njuki-ini Forest rainfall station	Kirinyaga	100.7	03/04/2024
22	Muthesya Rainfall station	Machakos	100.4	06/04/2024
23	Wilson Meteorological station	Nairobi	100.3	20/04/2024
24	Kimakia Forest Rainfall station	Murang'a	100.3	23/04/2024
25	Kiambicho Rainfall station	Muranga	99.4	14/04/2024
26	Gitii-Ngura Rainfall station	Embu	98.6	03/04/2024
27	Meru Meteorological station	Meru	97.1	03/04/2024
28	Tseikuru Rainfall station	Kitui	96.0	03/04/2024
29	Mandera Meteorological station	Mandera	95.0	20/04/2024
30	Ikisaya Primary Rainfall station	Kitui	94.8	05/04/2024
31	Ndalani Rainfall station	Machakos	93.0	05/04/2024
32	Machakos Meteorological station	Machakos	92.3	05/04/2024
33	Muthetheni Rainfall station	Machakos	92.0	23/04/2024
34	Kwangamor Primary Rainfall station	Busia	91.7	14/04/2024
35	Kyome Rainfall station	Kitui	90.9	20/04/2024
36	Mbooni Rainfall station	Makueni	90.0	05/04/2024

Figure 2a shows the total amount of rainfall recorded in April 2024 (**blue bars**) as compared to the LTMs – (**red bars**) while Figure 2b depicts the spatial distribution.

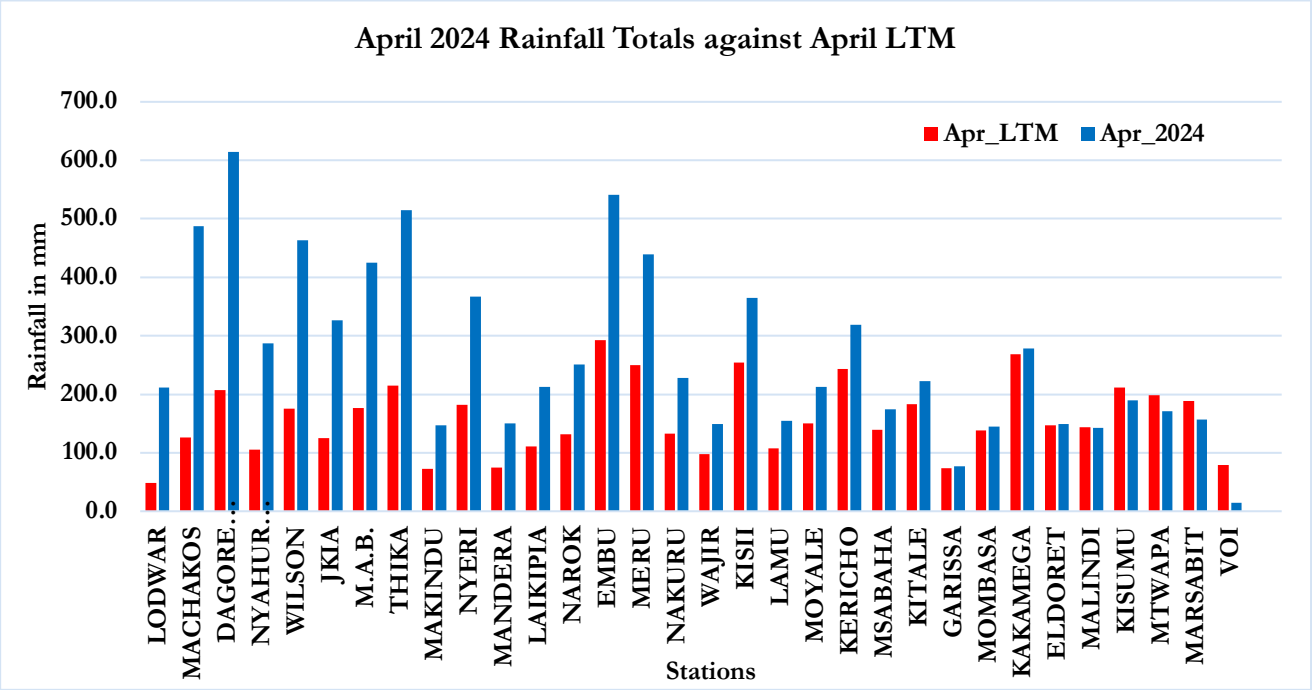

Figure 2a: April 2024 Rainfall as Compared to the April Long-Term Mean

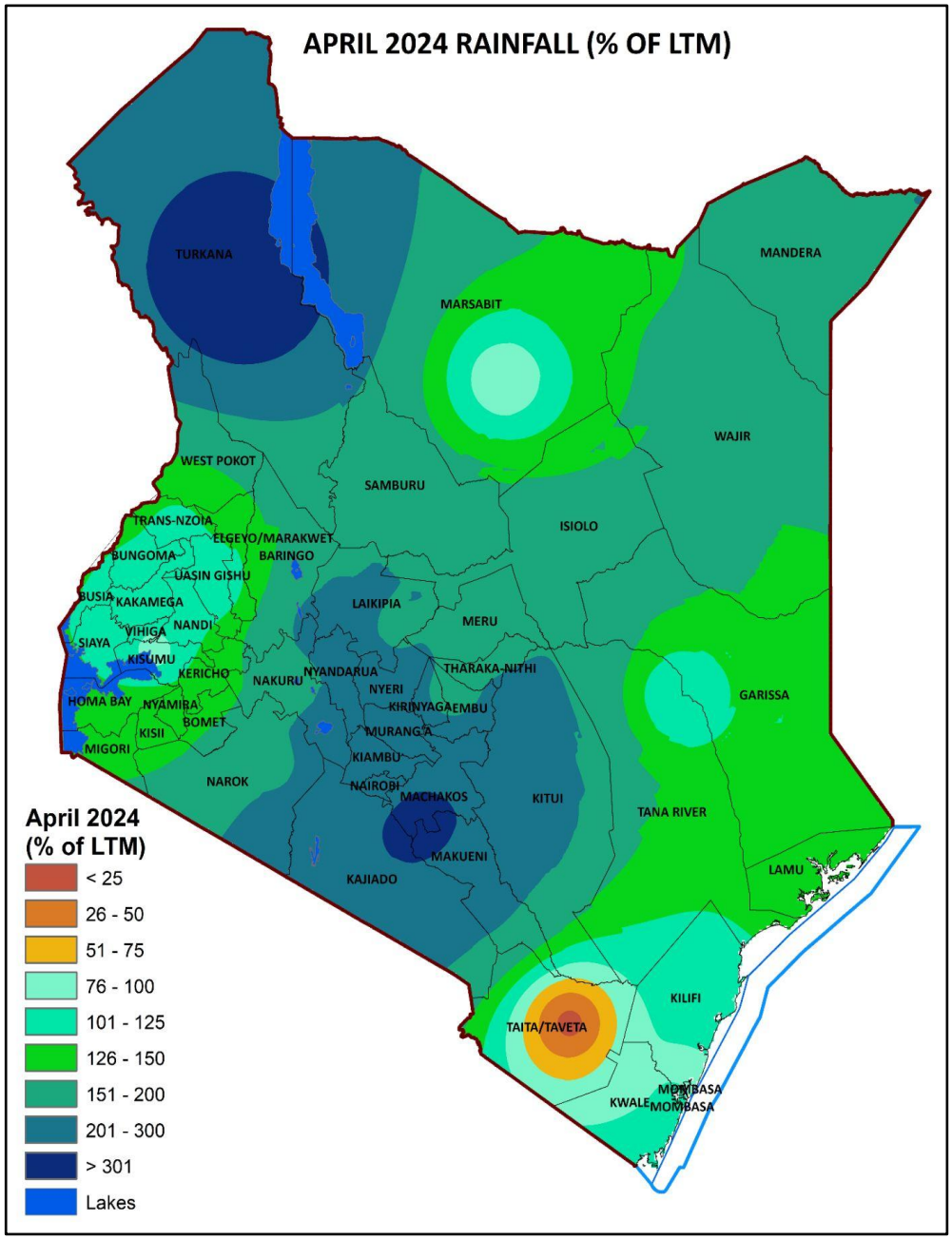

Figure 2b: April 2024 rainfall performance as percentage of the April LTM

4.2. SEASONAL RAINFALL PERFORMANCE UP TO APRIL 2024

Analysis of March-May 2024 seasonal rainfall indicates that most Meteorological stations in the country have so far received near to above-average rainfall for the season.

In March-April 2024, several KMD stations showed variations in rainfall compared to their Long-Term Mean (LTM) measurements. Notably, Dagoretti Corner, Wilson Airport, Thika and Embu stations received substantially higher rainfall than their climatological averages. For instance, Dagoretti Corner received 789.6mm of rainfall compared to its LTM of 308.8mm, while Wilson Airport recorded 640.7mm compared to its LTM of 273.4mm. Similarly, Thika and Embu stations experienced higher-than-average rainfall, with Thika receiving 623.2mm compared to its LTM of 314.2mm and Embu receiving 601.1mm compared to its LTM of 397.5mm. Some stations received less rainfall compared to their LTMs. Garissa for example, observed near-normal precipitation relative to its LTM, receiving 94.3mm compared to its LTM of 108.2mm.

Rainfall records up to 26 April 2024 indicate that the highest seasonal amount was recorded at Kabete Meteorological station with 818.5mm. It was followed by Dagoretti Corner with 789.6mm. Other stations that recorded high amounts of rainfall are Miad Kandongu (767.9mm), Ndaka-ini (745.1mm), Kangema (692mm), Kimakia (684.5mm), Ngong (663mm), Kianamu (658.8mm), Wilson Airport (640.7mm), Mbooni (626.9mm), Lower Matasia (626.6mm), Kitui (623.5mm), Thika (623.2mm), Kiambicho (604.9mm), Mukaa (603.5mm) and Embu (601.1mm). All the other stations recorded less than 600mm of rainfall, with Garissa having recorded the lowest amount (94.3mm) as depicted by **Figure 3**.

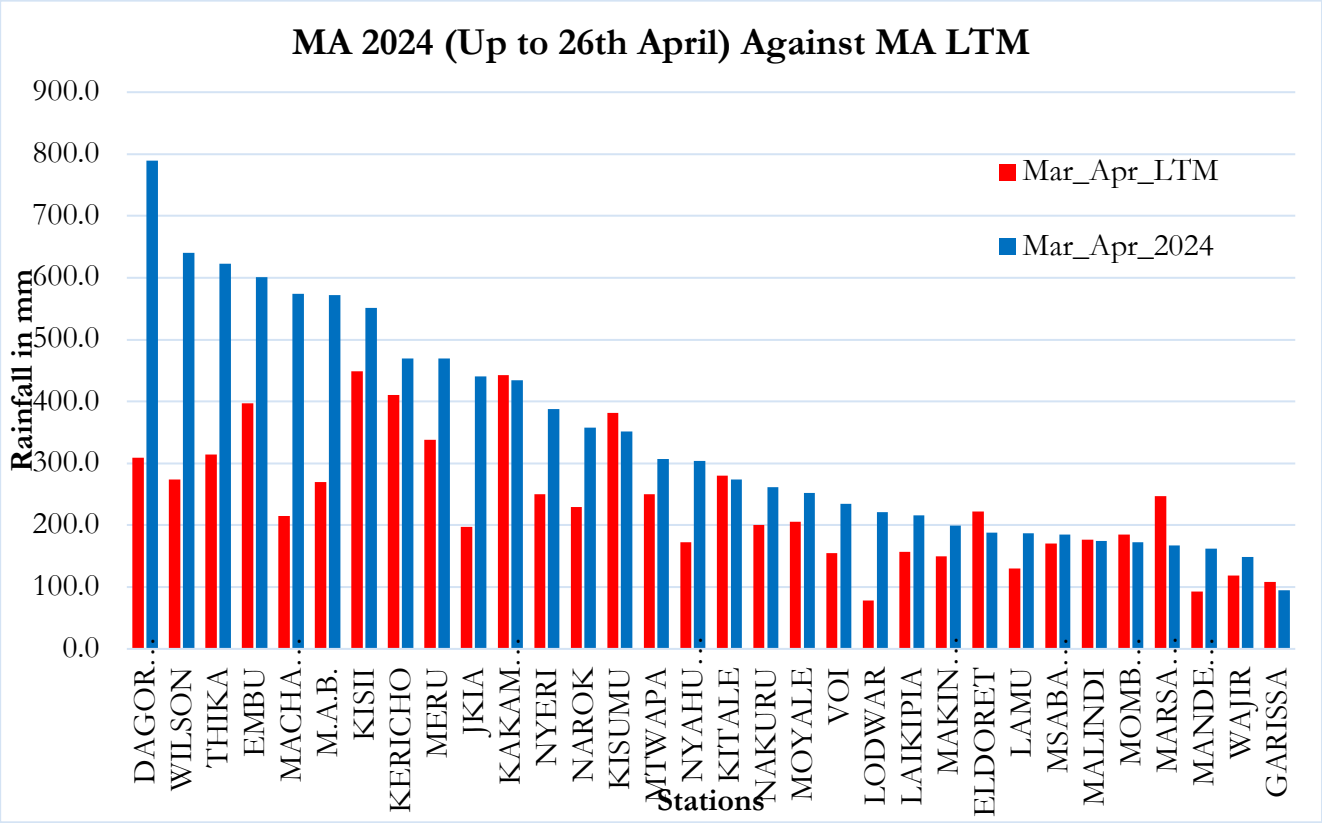

Figure 3: MA 2024 (up to 26th April) Against MA LTM

5. EXPERIENCED IMPACTS OF RAINFALL IN APRIL 2024

5.1. Agriculture and Food Security

The rainfall experienced throughout the month provided favorable conditions for agricultural activities in key agricultural regions such as the Highlands East and West of the Rift Valley, Lake Victoria Basin, Central, and South Rift Valley, as well as the Southeastern lowlands. However, the heavy rainfall also resulted in significant crop damage in various parts of the country. An unknown number of livestock were killed by floods and landslides.

5.2. Disaster Risk Management

The heavy rainfall experienced on various dates across several parts of the country resulted in several significant impacts:

- Fatalities due to floods and landslides were reported in different parts of the country.
- The floods displaced many people in several parts of the country.
- Property of unknown value was destroyed in several parts of the country.

5.3. Transport and Public Safety

The heavy rainfall experienced during the month led to the disruption of transport services and the destruction of infrastructure in different parts of the country. For example, rail transport was affected

along the Nairobi-Kisumu route after a landslide destroyed the railway line in Thogoto area while air transport was disrupted at JKIA.

5.4. Water Resource Management and Energy

Water availability for both human and livestock use saw improvements across most regions of the country. Essential water sources such as Ndaka-ini, Sasumua, and Ruiru dams, which supply water to Nairobi reached full capacity due to the increased rainfall. Additionally, all Seven Forks dams were full by the end of April and spilling over. However, the heavy rains occasionally led to disruptions in power supply in certain areas. For instance, the power supply was interrupted in the Kikambala area of Kilifi County on April 15th, when strong winds brought down a power line.

.

5.5 Health

A number of people were injured and hospitalized as a result of floods and landslides in different parts of the country.

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

Dr. David Gikungu
DIRECTOR OF METEOROLOGICAL SERVICES