Republic of Zambia
Ministry of Green Economy and Environment
Zambia Meteorological Department
Period: 10 – 20 February, 2025 **Issue No. 10** **Season: 2024/2025**

Agro Meteorological Bulletin

Highlights

- **Soil moisture saturated (90% - 100%)** across Zambia;
- Forecast indicates **wide spread rainfall to continue** during the period 24th February to 5th March, 2025;
- **Flooding** expected to continue in most parts of Zambia especially over the southern half of Zambia during the forecast period;

Crops

- **Continue planting** root and tuber crops and fruit tree seedlings;
- **Improve drainage** in fields to **prevent root rot and crop damage** due to potential floods and waterlogging;
- **Start harvesting early-planted legume crops** such as beans and cowpeas that have matured; store them in drier storages to prevent pod shattering in the field;
- **Horticultural farmers** - be on the **lookout for outbreaks** of bacterial and fungal diseases; and **take necessary measures**;
- **Pest surveillance** through scouting of fields for the management of pest infestations is highly recommended;
- **Split fertilizer application** is recommended to **maintain soil fertility**.

Fish Farmers

- **Raise & Reinforce Pond Dykes -** In areas where rainfall is intense, increase dyke heights by at least 30 cm above expected peak water levels;
- **Install & Maintain Effective Drainage Systems -** Desilt pond inlets and outlets to prevent waterlogging; Construct emergency spillways lined with concrete or stones to guide excess water safely away from ponds;
- **Secure Inlet & Outlet Structures -** Install **wire mesh screens (5 mm – 10 mm)** on inlet and outlet pipes to prevent fish from escaping.
- In areas prone to floating debris, clear blockages frequently to prevent overflow.
- **Lower Water Levels Before Heavy Rains -** In high-rainfall regions gradually **reduce pond water levels by 20–30%;**
- **Prevent Erosion & Siltation -** In areas with loose soils, reinforce pond walls with **gravel or stabilized soil** to prevent erosion.
- **Emergency Preparedness & Backup Plans - Stock fish cages in deep ponds** as an extra precaution for valuable species.

Livestock farmers

- Once there a dry period (for a week), **cut and preserve grass as hay or silage**;
- For any **unusual strange insects** or disease on crops, report to the nearest Agricultural Office in your area.

Ministry of Green Economy and Environment
Zambia Meteorological Department
P.O. Box 30200, Lusaka, Zambia

RAINFALL PERFORMANCE

Dekadal Rainfall performance

Period: 10th to 20th February, 2025

During the period 11th to 20th, 2025, Zambia experienced widespread rainfall activities due to Inter-tropical Convergence Zone (ITCZ) which was lying over the southern parts of the country. From the meteorological stations (Table 1), the highest rainfall amounts recorded during the dekad under review were as follows: Kasama: 193mm, Misamfu: 170mm, Chipepo: 162mm Msekera: 148mm, Magoye: 137mm, Serenje: 130mm, Petauke & Chipata: 129mm, and Solwezi: 100mm.

Stations that recorded below 50mm of rainfall include: Simon Mwansa Kapwepwe International Airport: 49mm, Isoka: 47mm, Mumbwa & Choma: 46mm, Livingstone: 44mm, Senanga & Chinsali: 37mm, Kenneth Kaunda International Airport: 36mm, Lundazi: 33mm, Lusaka City: 32mm and the lowest was from Kaoma and Kabwe Agro where 30mm was recorded. The rest of the stations reported rainfall ranging between 50mm and 99mm.

Satellite observations (Figure 2) show Most parts of the country had received rainfall around 55mm to 146mm, except for some areas over Muchinga, Northern, Luapula, Western and Northwestern provinces including Chirundu districts that received rainfall below 55mm (orange areas). In contrast, some districts in Eastern, Central, Copperbelt, Lusaka and Southern Provinces had rainfall amounts, exceeding 146mm (darker green areas) on the map ***(See figure 1 & Table 1).***

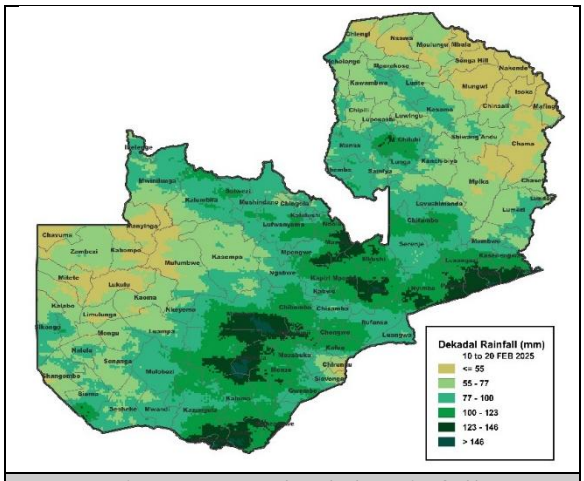

Figure 1: Dekadal Rainfall
10th to 20th February, 2025

Rain-days:

Period: 10th to 20th February, 2025

The rain days distribution for the period 11th to 20th February, 2025 indicates that the country had good distribution recorded at most stations. Most stations recorded between 5 to 10 rain days. However, 10 rain days were recorded at Zambezi, Serenje and Mkushi, while the lowest recorded were recorded from Mpulungu 4 and Choma 3 rain days. This distribution led to sufficient soil moisture for plants and crops and water resources for animals (***See figure 2 & Table1***).

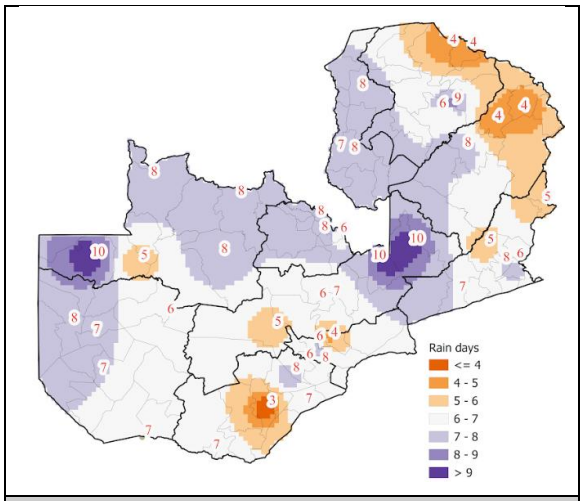

Figure 2: Number of Rain days
10th to 20th February, 2025

Ministry of Green Economy and Environment
Zambia Meteorological Department
P.O. Box 30200, Lusaka, Zambia

Cumulative Rainfall since start of season

Period: 1st October, 2024 – 20th February, 2025

The cumulative rainfall performance since the start of the season up to 20th February, 2025 indicates that cumulative rainfall recorded from most meteorological stations is between 500mm – 1200mm. The highest recorded so far include Kasempa 1360mm, Mbala 1309mm and Misamfu 1205mm. The rest of the stations recorded cumulative amounts between 500mm and 1200mm, the lowest cumulative rainfall amounts recorded were from Mfuwe 444mm, Livingstone 357mm and Choma 352mm. Generally, based on the cumulative rainfall, Zambia has recorded normal to above normal rainfall as of 20th February, 2025.

The satellite cumulative rainfall map indicates that most parts of the country had received rainfall above 450mm and also indicate normal to above rainfall. (***See fig 3 & Table 1***).

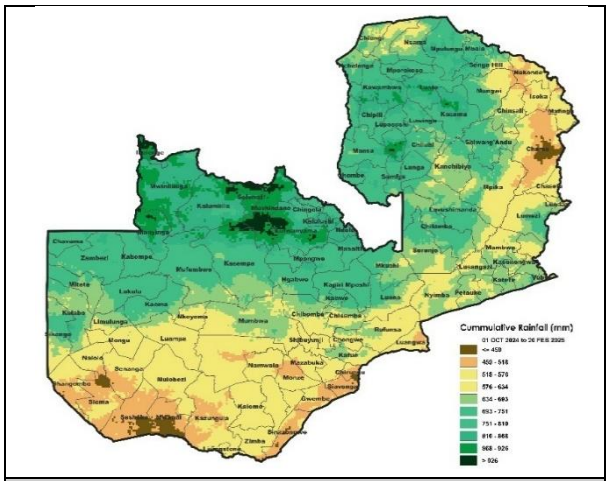

Figure 3: Cumulative Rainfall
1st October, 2024 to 20th February, 2025

Rainfall Departure:

Period: 1st October to 20th February, 2025

The cumulative rainfall departure from average as of 20th February, 2025 indicates that most areas recorded normal (average) cumulative rainfall with some stations recording above average rainfall.

Rainfall surplus recorded from Meteorological stations indicate that Kasempa has recorded the highest surplus rainfall of 595mm. Other stations include Mbala with 530mm, Misamfu 367mm, Chipepo 235mm and Kasama 202mm. 0ther stations have recorded surplus rainfall below 200mm.

On the other hand, rainfall deficits were recorded in some parts of Zambia with the highest deficit of 227mm recorded in Choma, 159mm in Isoka, 149mm in Kabwe Agromet station, 131mm in Livingstone, 128mm in Mfuwe and 101mm in Solwezi. Other stations had deficits less than 100mm, however, these are within the normal range.

The percentage departure from the average indicate that most stations recorded normal (average) rainfall with some stations recording above average rainfall and these include Kasempa with 77%, Mbala 68%, Misamfu 44% and Chipepo 42%.

On the other hand, percentage departures for below average rainfall recorded indicate that only 2 stations have recorded below average rainfall with Choma recording the highest percentage departure of -39% and Livingstone -27%. The rest of the stations had percentage deficits falling within the normal range.

The satellite rainfall analysis shows that most parts of the country recorded rainfall surpluses more than 25mm. Deficits exceeding 30mm were also noted in some parts of the country; however, these deficits fall within the normal range. (***figures 4 and Table1***).

Ministry of Green Economy and Environment
Zambia Meteorological Department
P.O. Box 30200, Lusaka, Zambia

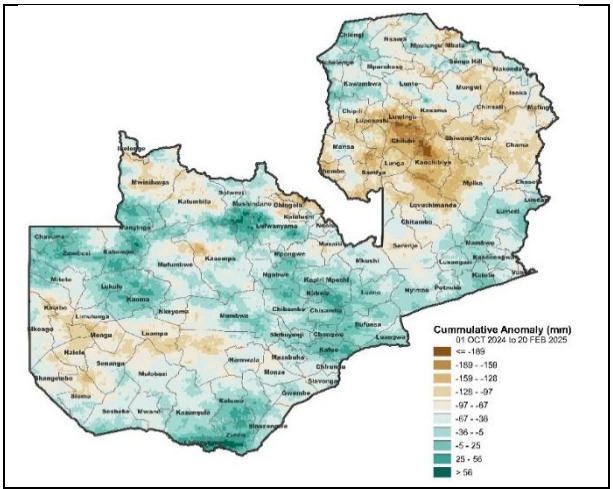

Figure 4: Cumulative Rainfall Anomaly
1st October, 2024 to 20th February, 2025

10 -DAY WEATHER FORECAST

General Situation

Period: 24th February to 5th March, 2025

There is more than 65% chance of recording rainfall exceeding 50mm over Southern and Western Provinces. However, the probability of recording rainfall exceeding 50mm is less than 40% for the rest of the country.

Detailed Forecast:

Period: 24th February to 5th March, 2025

Southern, Western, Northwestern, Copperbelt, Central and Lusaka Provinces including the southern parts of Eastern Provinces:

Mornings: Mainly cloudy, slightly windy with isolated rain and occasional thunder. Temperature will be mild ranging between 16°C and 22°C.

Afternoons: Mainly cloudy, slightly windy with rain and thunderstorms. Temperature will be warm to hot ranging between 27°C and 34°C.

Nights: Partly cloudy, slightly windy and warm to mild with isolated rain and occasional thunder.

Luapula, Northern and Muchinga Provinces including the northern parts of Eastern Province:

Mornings: Partly cloudy, slightly windy with a chance of isolated rain and occasional thunder. Temperature will be mild to warm ranging from 15°C to 20°C.

Afternoons: Mainly cloudy, slightly windy with isolated rain and thunderstorms. Temperature will be warm to hot ranging between 26°C and 32°C.

Nights: Partly cloudy, slightly windy and warm to mild with isolated rain and occasional thunder.

The satellite forecast rainfall map for the period 24th February to 5th March, 2025 indicates that most of the rainfall will be concentrated over the western and southern parts of the country where amounts exceeding 60mm are expected (green and yellow colour) ***(See figure 5)***.

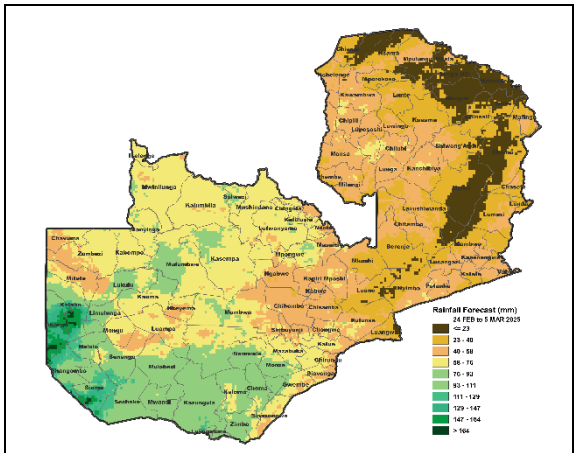

Figure 5: Forecast Rainfall
24th February, to 5th March, 2025

The forecast anomaly map that compares the expected rainfall to the long-term average (30-year Period) rainfall expected during the period 24th February to 5th Mach, 2025; indicates that most areas over southern Zambia are anticipated to record excess rainfall exceeding 25mm, with some areas over the southern boarders of the country exceeding by 61mm. However, areas in in deep brown shades covering some areas over northern Zambia are expected to record deficits of exceeding 51mm. ***(See figure 6)***.

Ministry of Green Economy and Environment
Zambia Meteorological Department
P.O. Box 30200, Lusaka, Zambia

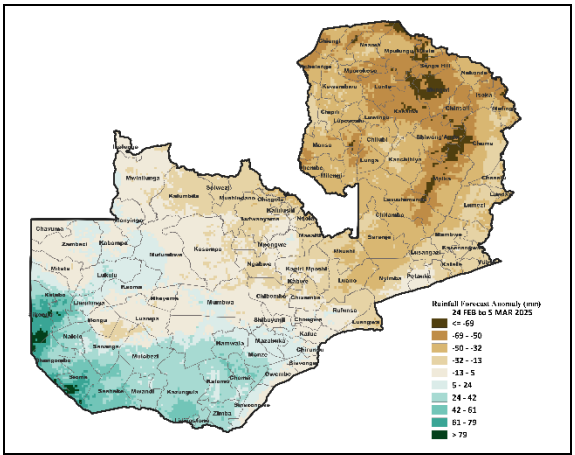

Figure 6: Forecast Rainfall Anomaly
24th February to 5th March, 2025

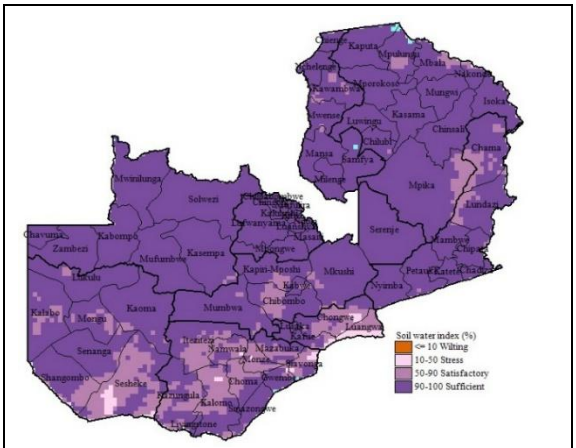

Figure 7: Soil Water Index
As of 20th February, 2025

AGRO-METEOROLOGY CONDITIONS

Soil Water Index

The soil water index as of 20th February, 2025 indicates sufficient soil moisture (90% to 100%) across Zambia. This is due to the wide spread and heavy rainfall that was experienced. During the period under review, the Inter-Tropical Convergence Zone was oscillating about the southern boarders of Zambia.

The forecast for the next 10 days indicates wide spread rainfall with heavy falls coupled with strong winds. This is expected to lead to continuous flooding due to the already saturated soil moisture.

The Soil Water Index quantifies the moisture conditions at various depths in the soil and is mainly driven by rainfall infiltration, penetration and surface water evaporation processes ***(figure 7)***.

AGRICULTURE, FISHERIES AND LIVESTOCK ADVISORIES

Due to the widespread distribution of rainfall across the country, farmers are advised to **continue the planting of root and tuber crops and fruit tree seedlings.**

Farmers should **improve drainage in the fields** to prevent root rot and crop damage due to potential floods and waterlogging.

Horticultural farmers should be on the lookout for **outbreaks of bacterial and fungal diseases** thus take the necessary measures such as staking and application of fungicides.

Some early-planted legume crops such as beans and cowpeas are now maturing. Farmers are advised to start harvesting and store them in drier storages to prevent pod shattering in the field.

Weeds thrive with increased rainfall activities. Farmers are advised to continue weeding and reduce the weed seed bank.

Pest surveillance through scouting of fields for the management of pest infestations is recommended.

Split fertilizer application is recommended to maintain soil fertility

Ministry of Green Economy and Environment
Zambia Meteorological Department
P.O. Box 30200, Lusaka, Zambia

because high rainfall levels increase the risk of nutrient leaching.

Raise & Reinforce Pond Dykes

In areas where rainfall can be intense, increase dyke heights by **at least 30 cm above expected peak water levels**.

Use **laterite or compacted clay soils** for reinforcement, as sandy soils are prone to erosion.

Plant **vetiver grass or Napier grass** on embankments to stabilize soil and prevent washouts.

Install & Maintain Effective Drainage Systems

Desilt pond inlets and outlets to prevent waterlogging.

Construct **emergency spillways** lined with **concrete or stones** to guide excess water safely away from ponds.

Use **contour trenches** and drainage ditches, especially in hilly areas to prevent runoff from overwhelming ponds.

Secure Inlet & Outlet Structures

Install **wire mesh screens (5 mm – 10 mm)** on inlet and outlet pipes to prevent fish from escaping.

In areas prone to floating debris, clear blockages frequently to prevent overflow.

Lower Water Levels Before Heavy Rains

In high-rainfall regions gradually **reduce pond water levels by 20–30%**

Prevent Erosion & Siltation

In areas with loose soils, reinforce pond walls with **gravel or stabilized soil** to prevent erosion.

Create **sediment traps** in incoming water channels to reduce siltation and maintain water quality.

Emergency Preparedness & Backup Plans

Stock fish cages in deep ponds as an extra precaution for valuable species.

Keep **updated fish stock records** to assess losses if escapes occur.

Monitor local weather updates daily and adjust farming activities accordingly.

For any unusual strange insects or disease on crops, report to the nearest Agricultural Office in your area.

For any further information, farmers can contact their local District Agricultural Coordinator's (DACO) office or Ministry of Agriculture field officers.

The Agrometeorological Bulletin is a collaborative production of the Ministry of Agriculture, Ministry if Fisheries & Livestock and the Ministry of Green Economy and Environment.

Ministry of Green Economy and Environment
Zambia Meteorological Department
P.O. Box 30200, Lusaka, Zambia

Table 1:

Period: 10 – 20 February, 2025				**Issue No:** 10				**Season:** 2024/2025
Station	**Dekad Observations**			**Total Since 1st July 2024**				
	Rainfall (mm)	**Rain-days (>=1mm)**	**Normal Dekadal Rainfall (mm)**	**Cumulative Rainfall (mm)**	**Cumulative Rain-days**	**Normal Cumulative Rainfall (mm)**	**Rainfall Departure (mm)**	**Percentage Departure (%)**
North-Western Province								
Kasempa	56	8	67	1360	84	768	592	77
Kabompo	51	5	64	750	69	727	23	3
Solwezi	100	8	81	823	74	924	-101	-11
Copperbelt Province								
Ndola	71	6	86	924	25	888	36	4
SMKIA	49	8	86	826	66	888	-62	-7
Kafironda	68	8	91	957	72	952	4	0
Luapula Province								
Kawambwa	64	8	65	950	79	802	148	18
Mansa	89	7	74	647	66	807	-160	-20
Mansa Agro	72	8	74	793	71	807	-14	-2
Northern Province								
Mbala	76	8	84	1309	61	780	530	68
Kasama	193	6	87	1051	62	850	202	24
Misamfu	170	9	91	1205	71	839	367	44
Mpulungu	71	4	84	935	63	780	156	20
Muchinga Province								
Mpika	82	8	72	698	60	744	-47	-6
Isoka	47	4	81	532	52	691	-159	-23
Chinsali	37	4	81	724	59	691	33	5
Eastern Province								
Msekera	148	8	60	650	51	708	-58	-8
Chipata	129	6	74	718	50	804	-86	-11
Lundazi	33	5	65	562	41	591	-30	-5
Mfuwe	56	5	50	444	42	572	-128	-22
Petauke	129	7	65	624	43	712	-88	-12
Central Province								
Serenje	130	10	79	721	58	760	-39	-5
Mumbwa	46	5	0	537	38	635	-98	-15
Kabwe Agro	30	7	63	536	53	686	-149	-22
Kabwe Met	64	6	63	795	58	686	110	16
Lusaka Province								
K.K. Int. Airport	36	4	49	575	51	634	-59	-9
Lusaka City	32	6	52	700	56	629	71	11
Mt Makulu	94	8	67	745	54	655	90	14
Southern Province								
Livingstone	44	7	39	357	44	488	-131	-27
Magoye	137	8	44	614	48	564	50	9
Choma	46	3	53	352	43	579	-227	-39
Chipepo	162	7	66	792	44	557	235	42
Western Province								
Mongu	83	7	65	644	70	680	-36	-5
Kaoma	30	6	56	690	55	647	43	7
Senanga	37	7	44	646	66	535	110	21
Sesheke	86	7	42	502	47	478	24	5

Ministry of Green Economy and Environment
Zambia Meteorological Department
P.O. Box 30200, Lusaka, Zambia