FDRE

Ministry of Water and Energy

EMI

Bio Meteorology and Insurance Index Desk

Climate Information
For
The Health Sector
Monthly Bulletin

September_2023

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Foreword

This "Climate Information for the Health Sector" Bulletin has been designed to convey essential information regarding the monitoring of human comfort conditions based on the analysis of temperature and humidity data and also for the monitoring of Malaria outbreak areas based on the analysis of temperature and precipitation data. Since the monitoring of temperature and rainfall over a given area can be used to assess the likelihood of outbreak of Malaria with a lag of two months, this information can be an important for early warning tool if used judiciously.

The major objective of this bulletin is in line with the Ethiopia Meteorological Institute strategy of diversifying climate application products to the basic developmental sectors (such as the Health, the water, the agricultural sector etc…). This bulletin can be a very important source of information to Health professionals engaged in the monitoring of Public Health, to Tourism Agents and institutions who advise tourists regarding the comfort conditions of the places to be visited by the tourists and to the researcher who is interested in the field of Bio-Climatology.

We have the opinion that careful and continuous use of this bulletin can benefit to the improvement of early warning and preparedness in the Heath sector.

Meanwhile, your comments and constructive suggestions are highly appreciated to make the objective of this bulletin a success,
This same bulletin can be accessed online at: http://www.ethiomet.gov.et/bulletins/health_bulletins

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Introduction

The breeding and development of **Climate Sensitive Diseases** are highly dependent on weather and climate conditions though other climate factors can play significant roles. Temperature, Rainfall and Humidity are the key parameters which often determine the suitability of the environment for breeding and transmission of Malaria, which is the current Public Health threat in Ethiopia. The outbreak level of malaria depends on certain threshold value of Temperature, Rainfall and Humidity. Thus,

i. If the monthly total Rainfall is >=80mm, suitable for mosquito breeding and malaria transmission.
ii. If the monthly mean air Temperature is $18<=T^{o}<=32^{0}C$, favorable for Mosquitoes development
iii. If the mean monthly RH is >=60%, favorable to complete the transmission cycle of Mosquitoes.

The comfortability of the environment for human and animals depend on if the value of mean daily temperature and relative humidity exceeds a given thresholds. The threshold values are computed as:

- THI= 0.8*T+ RH*T/500 for Human
- THI =0.8*T + RH*(T-14.4) + 46.4 for Cattle

1. RTH Conditions for Malaria transmission during September 2023

According to the collected and analyzed climate data for the month of September 2023, moderately favorable climate conditions for the breeding and developments of malaria mosquito vector were observed over most parts of western half, such as most parts of wollega zones, all parts of Benshangul gumuz, eastern half of Gambela, western borders of west Amhara, Northern SNNPR, central, southern, eastern parts of the country and Sidama regions. Whereas, low to non-favorable conditions were observed over most parts of the country as illustrated in figure 1.

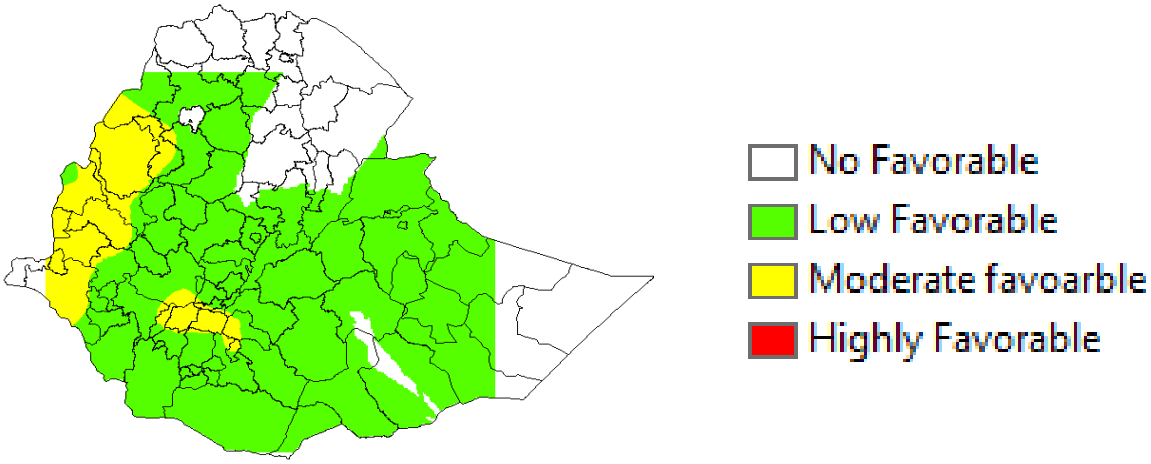

Fig 1:- Combined temperature, rainfall and relative humidity analysis for September 2023.

2. THI Conditions during September 2023

2.1 THI for Human

As a result of Temperature-Humidity Index (THI) analysis indicated, during the month of September heat stress was observed over few places in the lowland parts of southern Somalia, Central Gambela and most parts of Afar regions which contribute only 7% of the recorded stations. Whereas, most of the rest parts of the country (88% of the recorded stations) were experienced comfortable to moderately comfortable weather conditions. The rest highland parts were under influence of cold stress.

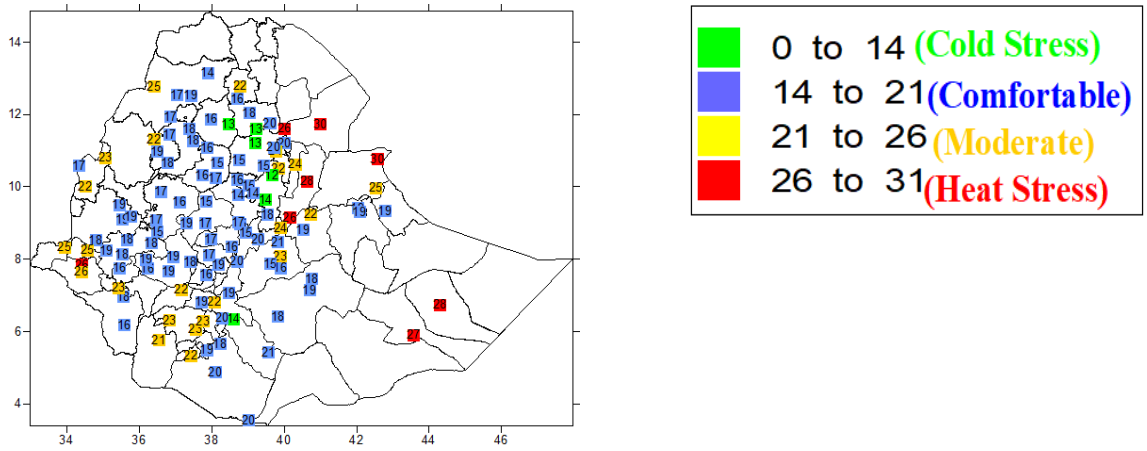

Fig 2; THI for human during September 2023

2.2. THI for Cattle.

Rendering to the collected meteorological data of September 2023, moderate heat stress for cattle was observed over Afar and Somalia regions. Whereas, the rest parts of the country were dominated by mild to not-stress conditions.

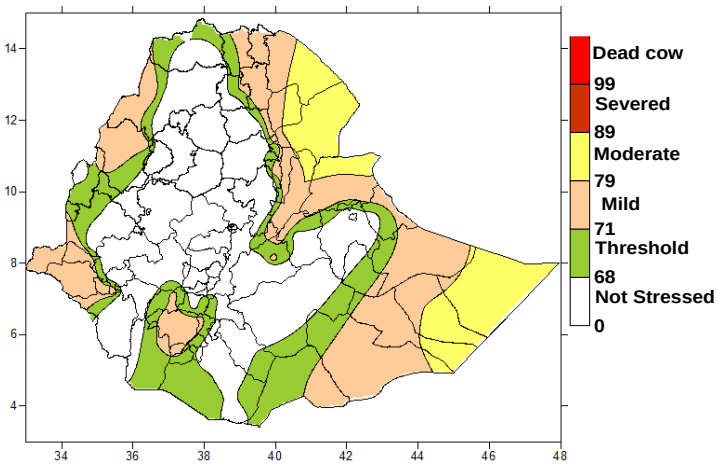

Fig 3:- THI values for Cattle's during the month of September 2023.

3. Conclusion

As the climate health data analysis of September 2023 exhibited most of western parts of the country the climate situation was very conducive for the breeding and development of vector born diseases especially for the malaria mosquito. As consequence, moderate and low incidence of malaria in the moderately favorable and in low favorable were exhibited over of the country respectively. The climate situation in most parts of the country was more comfortable for both humans and cattle's with exception of heat stress was observed in Afar regions.

4.Recomandation

All concerning bodies would attentively respond for the coming incidence of malaria in such favourable areas. Any controlling measurement and activity should be practiced in the malaria prone areas. MOH and EPHI are more responsible to reduce the environmental aggravating condition and aware the community by existing structural information sharing mechanisms'. As per the threshold for malaria, the impact will starts after the end of the months under issue and ready actively to respond before it leads devastating impact. As a usual after the end of rainy seasons, the flood prone areas gradually will dry up intensifies the breeding site of vectors. Therefore, any relevant body will do their parts to reduce the negative impact. In general, as the resources for control measures for malaria are limited, more attention should be given to areas where highly favorable for malaria prevalence.