



Ethiopian Meteorology Institute (EMI)



# Monthly Hydro Meteorology Bulletin



## ***Forward***

*This Monthly Hydro Meteorological Bulletin is prepared and disseminated by the Ethiopia Meteorological institute (EMI). The ultimate objective of producing and disseminating this bulletin is to inform all level decision makers with the updated and relevant hydro meteorological information. This monthly Bulletin reviews the January 2025-month climate condition and its impacts over the river catchment across the country and highlights the February 2025 climate outlook along with the likely impact over the water dams and the rivers basins.*

*The information contained in this bulletin is believed to assist the water professionals for planning the capacity expansion of reservoirs, water supply, ecosystem restoration as well as rehabilitation of existing systems including dams, irrigation, canals, pumps, wetlands and the likes. In addition to the aforementioned benefit the bulletin also reveals the aridity levels of each basin, extremes heavy rainfall events and areas where significant amount of moistures loss through evapotranspiration. In the impact outlook section of the bulletin it provides the likelihood of the climate in the coming month and its potential impact over various aspect of the river basins including the hydraulic structures such as culverts, bridges, reservoir spillways, road embankments and dikes. It also indicates the measures need to be taken as the early actions so as to reduce the possible negative impact of the upcoming month climate condition. Meanwhile, your comments and constructive suggestions are highly appreciated to make the objectives of this bulletin a success.*



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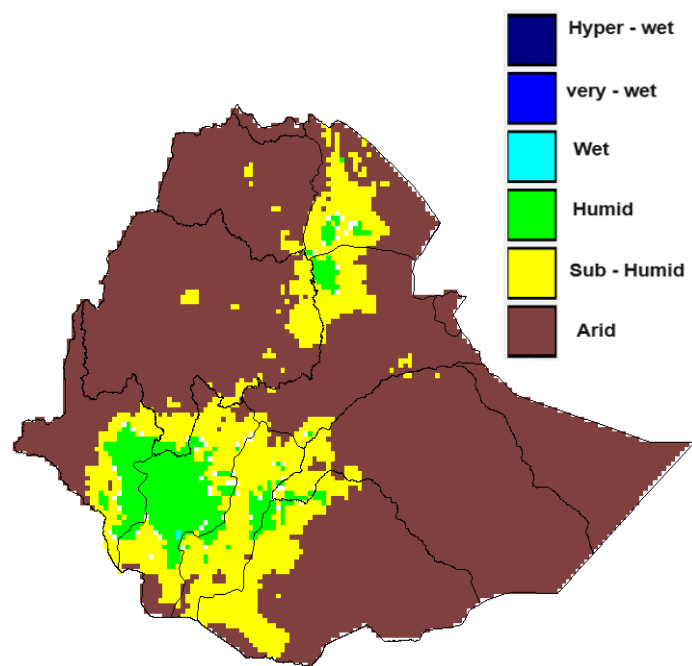


## 1. Introduction

The provision of hydro meteorological services can contribute a significant role toward water resource management and socio-economic development. both surface water and groundwater management are essentially linked to climate variability. Therefore, the provided climate information and knowledge in this monthly hydro meteorological bulletin have a critical importance for efficient, equitable and sustainable development and management of the national water resources and for coping with any climate related risks. The information illustrates the impact of previous month climate on each and every water basins and the associated climate risks observed during the month under review. In addition to the previous month impact assessment, the bulletin also provided the expected climate condition for the coming months and its impact on the water resource. The design of water-use and flood-control facilities, mainly dams and reservoirs, is frequently based on these analyses. Estimating the likelihood of precipitation, the distribution of precipitation and the rate of evaporation in location and time, the heavy rainfall and the subsequent runoff, extreme temperature and wind are among issues that hydro meteorologists are concerned with.

### 1.1 Monthly Hydro Meteorological Assessments

#### 1.1.1 Monthly aridity Climatology over the Ethiopian River Basin

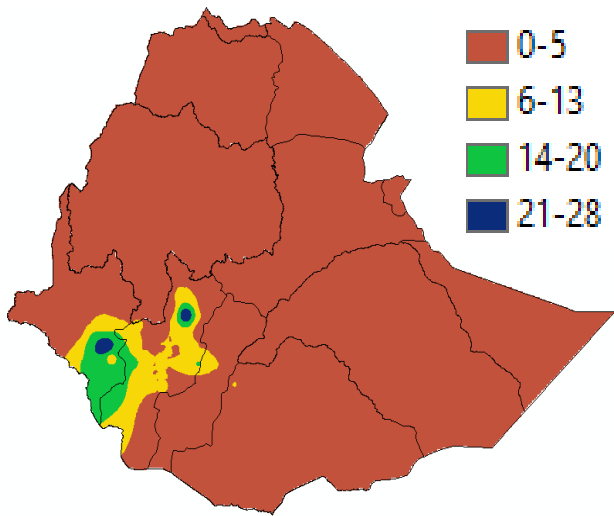


As illustrated in figure 1, in the normal condition the southern western and southern parts of the river basin experience sub-humid to wet moisture condition. In line with this, most parts of Baro Akobo, Omogibe, Rift Valley, some parts of upper Genale Dawa receive significant amount of rainfall exceeding the potential evapotranspiration of the areas. On the other hand, most of western, northern and south eastern half parts of the river basins remain in arid moisture condition.

**Figure 1. Monthly Moisture Climatology over the river basin during January**



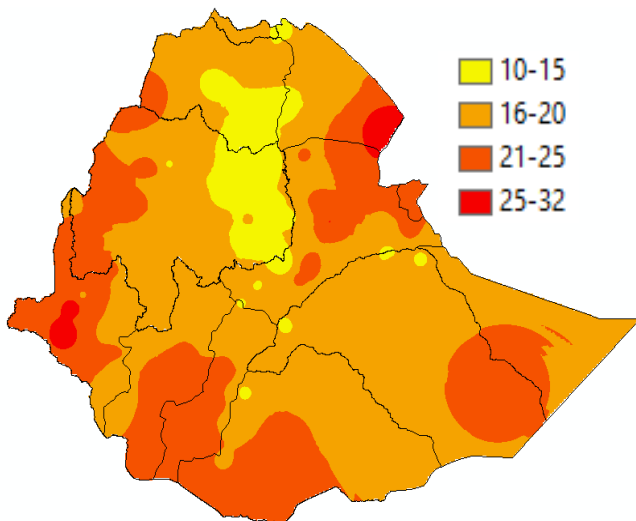
## 1.1.2 Rainfall Assessment over January 2024 the River Basins



A better monthly rainfall distribution is observed across the south western half basins of the country. According to this, firstly, most parts of Baro Akobo, Omo Gibe got above 28mm of rainfall. Likewise, the rest of the basin received below 5 mm of rainfall as it is illustrated in Figure 2.

**Figure 2 January monthly mean rainfall over Ethiopian River Basin**

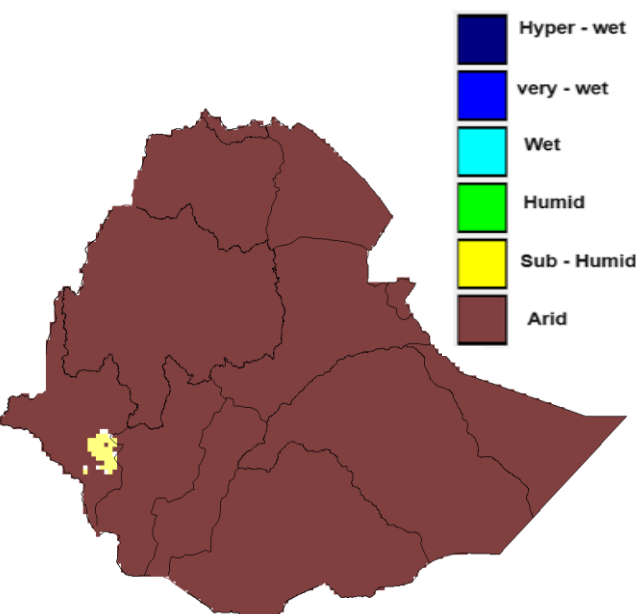
## 1.1.3 Monthly Mean Temperature over the River Basin



As we can see in Figure 3, the majority of the central catchments, Abay, Baro, Omo Gibe, Rift Valley upper Wabishebele, upper Awash and Genaledawa, experienced monthly average temperatures below 25°C. However, the monthly average temperatures that were reported in the remaining catchments of some part of lower BaroAkobo, Awash, Omo Gibe, Rift Valley, Genaledawa, Ogaden and Afar Denakel, was received above 25 °C.

**Figure 3 January monthly mean temperature over Ethiopian River Basin**

## 1.1.4 Assessments of Aridity Index during the month of August



During this month, most parts of Abay, Baro Akobo, Tekeze, Mereb Gashe, Afar Denakile, Omogibe, Rift Valley, Genale Dawa, Wabishebele, Afar Denakel, and Ogaden have experienced dry moisture condition.

**Figure 4. January monthly Aridity Index condition over the river basins**

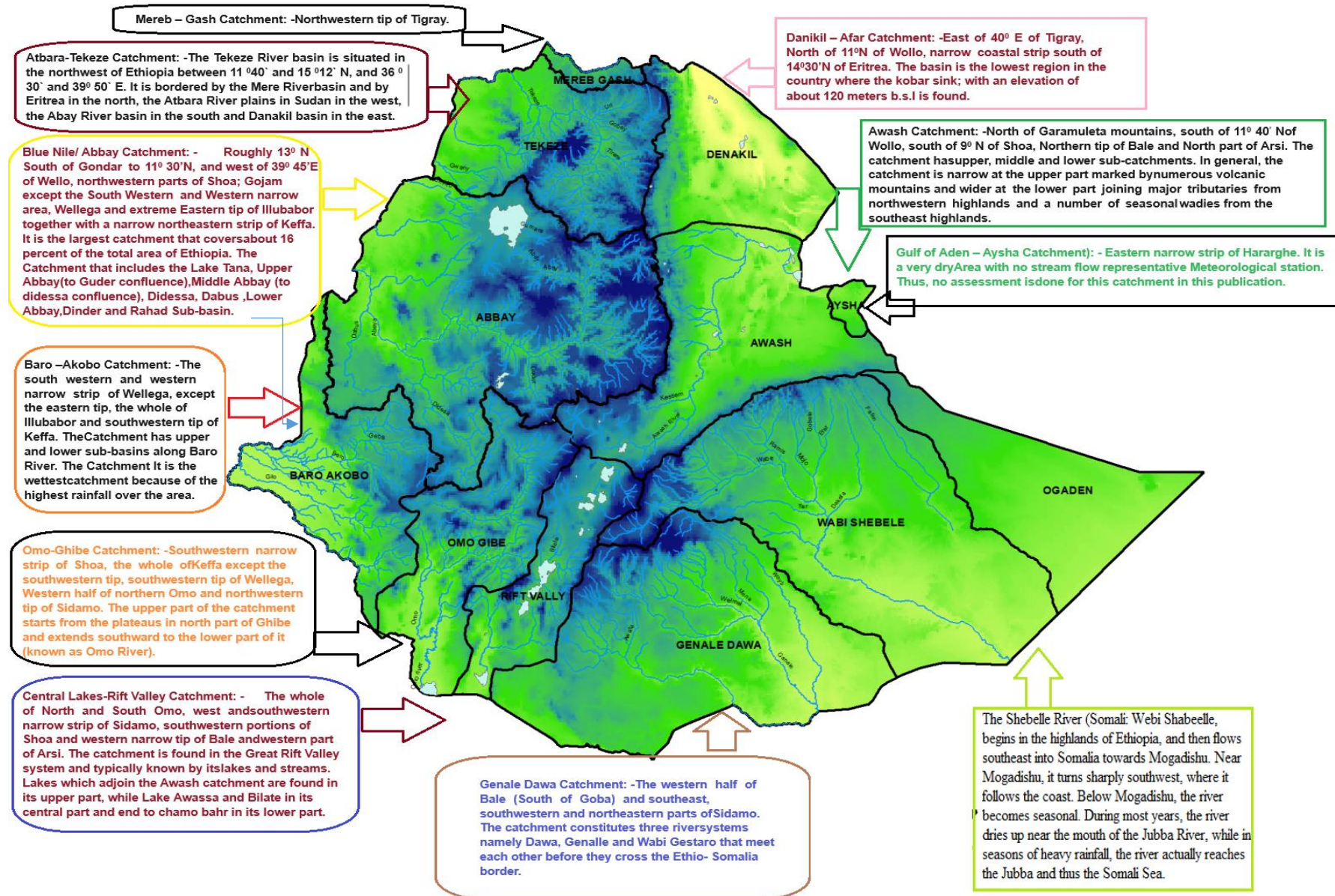


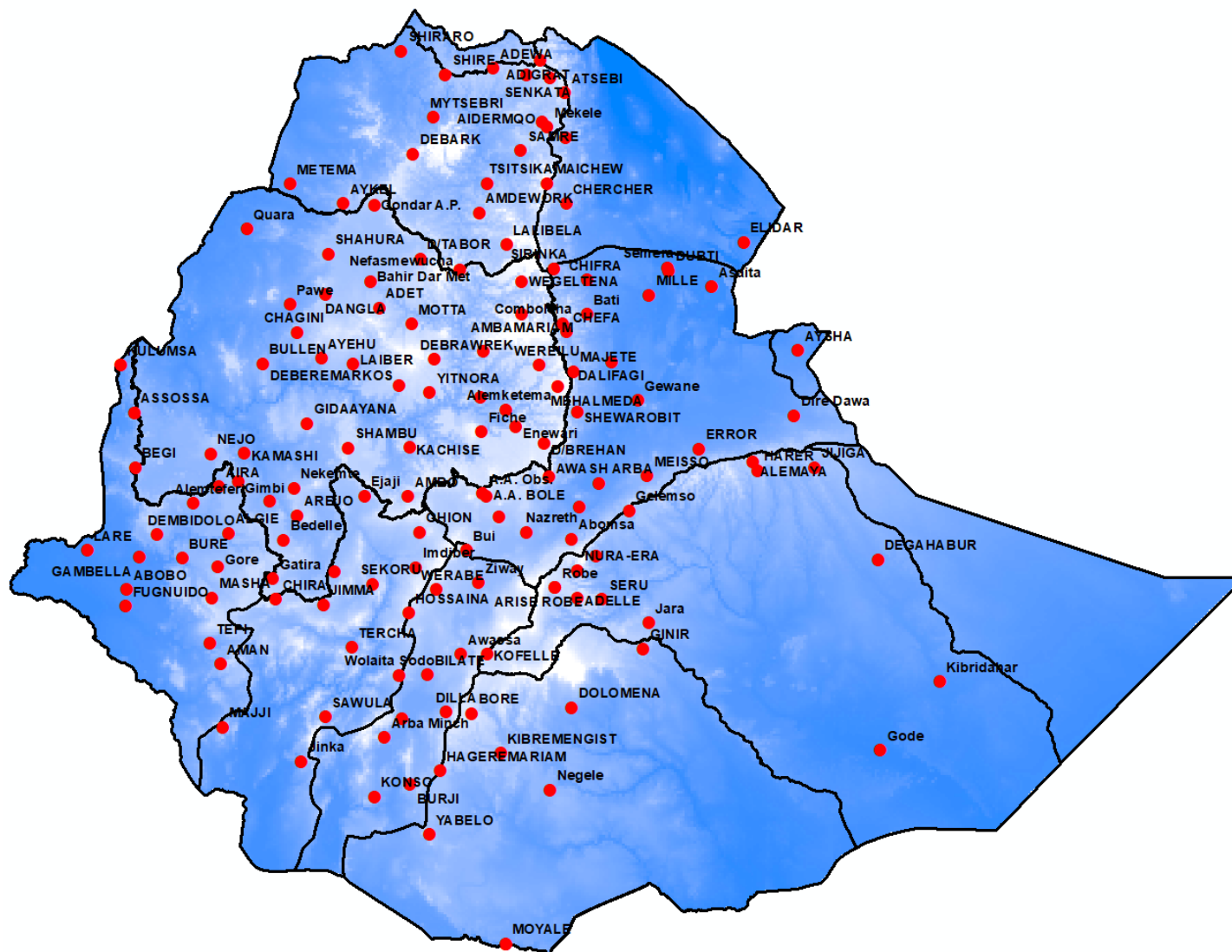


## 2. Hydro Meteorological Impact Outlook for February 2025

Looking at the humidity in the coming month of February, Baro Akobo, Omo Gibe, Rift Valley, Genale Dawa, Upper Awash and a few Upper Tekeza and Afar Denakle basins will experience moderate humidity. As this situation has a positive contribution to the improvement of surface water resources, it is recommended to implement water resource enhancement activities by collecting and storing rainwater found in areas with a lack of moisture. On the other hand, most of Wabe Shebele, Ogaden, Aisha, Merb Gash, Middle and Lower Awash, Abay, Tekeza and Lower Baro Akobo remain under dry conditions, so it is necessary to use the available water in a way that is free from waste and pollution.







Number of weather stations used for Hydro Meteorological Analysis



