

# Lake Rukwa Basin Water Board

## October Hydrological Bulletin

### 1. Overview

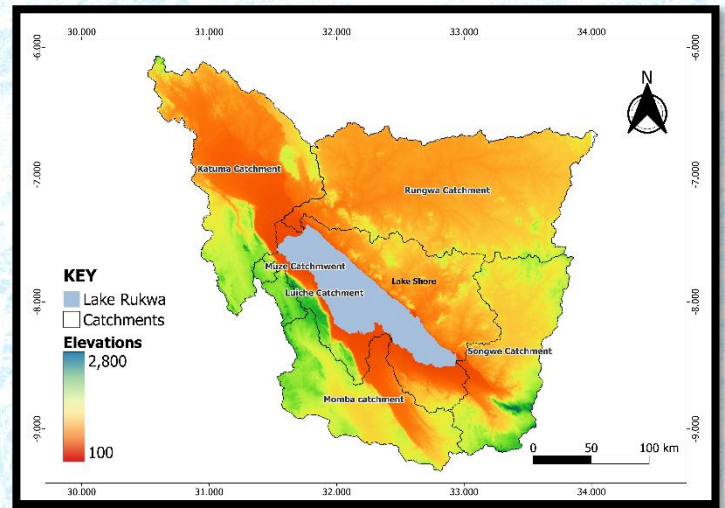
The hydrological situation in the Rukwa Basin during October 2022 was characterized by the ongoing low flow in all catchments as the Basin received no rainfall in October as indicated in Figure 2.

The flow analysis situation was carried out on the two catchments (Songwe and Momba) using the data recorded from the reference gauging stations which are Momba River at Tontera (Momba), Mlowo River at Great North Road (Mbozi), and Ruanda River at Great North Road (Mbozi).

Figures 4 show the comparative hydrographs for the month of October 2022 with previous years.

Figure 5 shows the groundwater level from three observation boreholes located at Songwe catchment.

Figure 6 shows Lake level fluctuations in October 2022 compared to previous years.

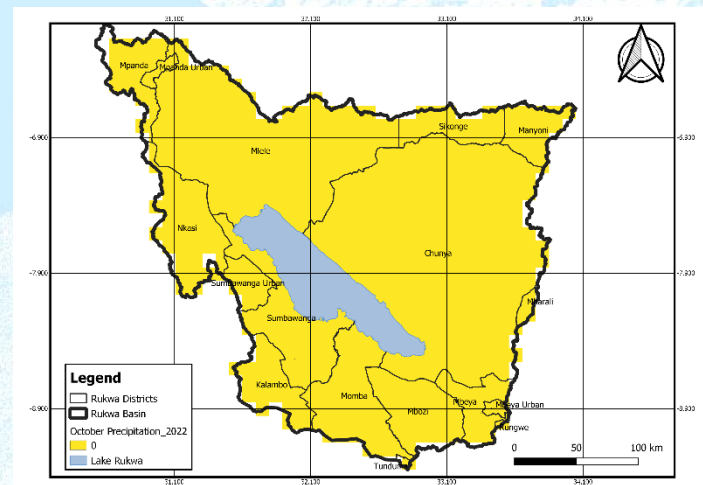


*Figure 1: Catchments of Lake Rukwa Basin*

### 2. Rainfall Trend in the Basin

The monthly distribution of rainfall over the basin is characterized by unimodal rainfall patterns (End of October to Mid of May).

In October 2022, the Rukwa Basin received **NO** rainfall (**Figure 2**) which make a decrease in rainfall by 100% as compared to the long-term average (**Figure 3**).

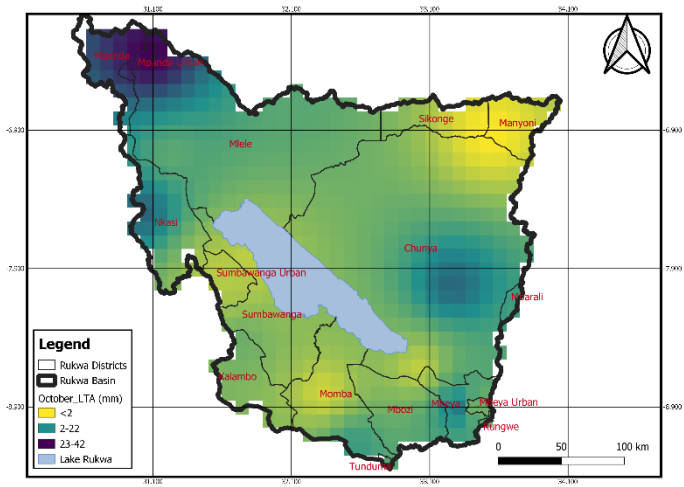


*Figure 2: Rainfall variation in October 2022*



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**Figure 3: Long-term average rainfall distribution for October**

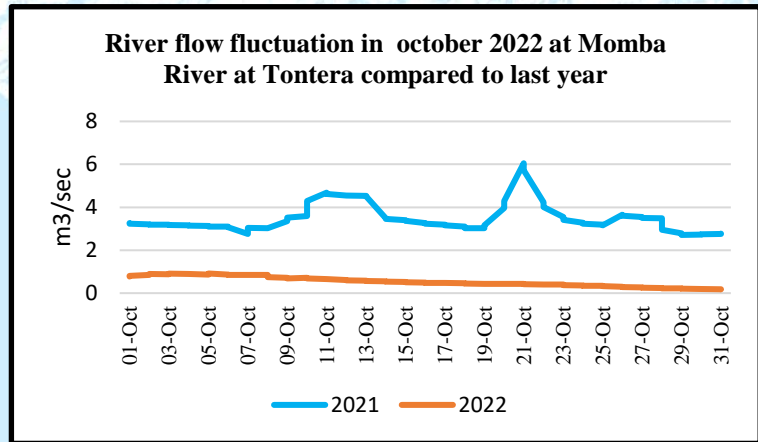
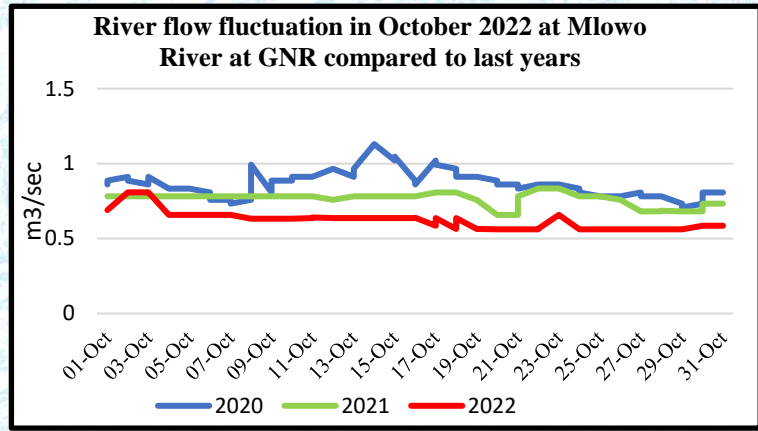
### 3. Flows in Rivers

At all stations representing the mentioned catchments above, the hydrological situation during the month of October 2022 was characterized by the ongoing decrease in river levels which marks the ending of low flow in the basin.

At Mlowo station, the maximum and minimum daily flow observed was 0.657m<sup>3</sup>/s and 0.561m<sup>3</sup>/s respectively in October 2022. The monthly mean flow which passed across the station was 0.613m<sup>3</sup>/s.

At Momba station, the maximum and minimum daily flow observed was 0.915m<sup>3</sup>/s and 0.183m<sup>3</sup>/s respectively in October 2022. The monthly mean flow which passed across the station was 0.538m<sup>3</sup>/s.

At Ruanda station, the maximum and minimum daily flow observed was 0.064m<sup>3</sup>/s and 0.000m<sup>3</sup>/s respectively in October 2022. The monthly mean flow which passed across the station was 0.0073m<sup>3</sup>/s.



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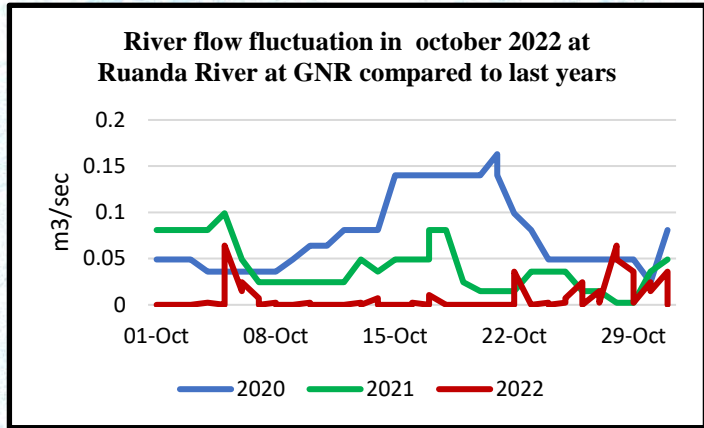


Figure 4: River flows fluctuation

### 4. Groundwater levels

In June 2022, Lake Rukwa Basin drilled 4 boreholes (Table 1) at the Songwe catchment for the purpose of observing parameters such as water levels, and water quality, they can later be used for groundwater monitoring in the basin. Groundwater monitoring provides access to measure groundwater response to abstraction at selected localities.

Table 1: List of observation boreholes

No	Name	Depth (m)	Lat	Long
1	Gua	80	-7.8635	32.4857
2	Chindi	120	-9.0199	32.5807
3	Kapalala	80	-8.0584	32.6803
4	Mbuyuni	120	-8.5311	33.0093

The borehole located at Mbuyuni is an artisanal borehole and the water quality is not suitable for use, therefore the borehole will be sealed. The three observation boreholes were started to be observed in July 2022, and the water level was noted to

decrease from one month to another during this dry season as indicated in Figure 5.

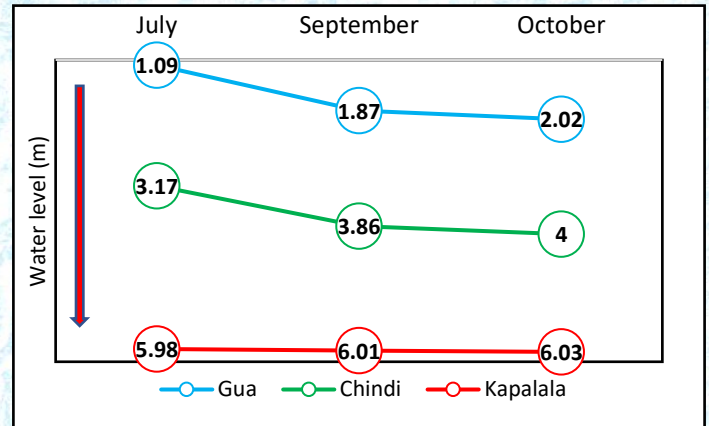


Figure 5: Groundwater level below ground surface

### 5. Water level in Lake Rukwa

The main source of water for Lake Rukwa is the main rivers that depend on rainfall for their survival, as discussed above the decrease in the quantity of water tends to affect the water level in the Lake. The lake height for October 2022 is seen to be lower by 0.50 meters as compared to 2021 as indicated in Figure 6.

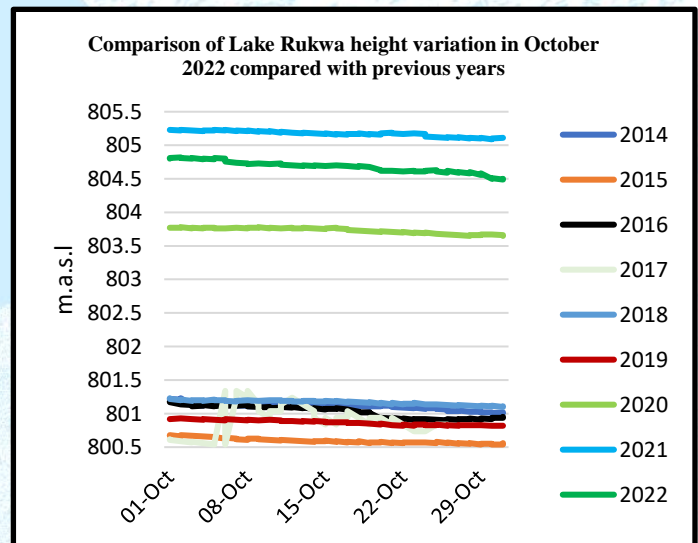


Figure 6: Water level in Lake Rukwa at Mbangala



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### Conclusion

The hydrological situation from October 1<sup>st</sup> to 31<sup>st</sup>, 2022 is characterized by the continued fall in the water level in all compartments of the Momba, Songwe, and other Catchments, leading to a rapid decrease in flows on the main course of the rivers and its tributaries.