

MINISTRY OF WATER AND IRRIGATION

LAKE VICTORIA BASIN WATER BOARD



Water Status Report October to December, 2017

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1.0 Executive summary

Water Status Report aims to provide ongoing information on the overall status with relation to hydrological condition of the Lake Victoria Basin. The report covers the period of three months of 2017 with comparison to the Long-term period. The contents of this report include Evaporation, Rainfall, Lake Levels, flows of the major Rivers, and Water Quality for some parts of the basin.

2.0 Rainfall data

Lake Victoria Basin has an equatorial climate. Normally, the basin gets a maximum rainfall during the long rain season (Jan-April) and less rainfall in the short rain season (Oct-Dec). During this reporting period the Basin has received a rainfall which is above Long-term average in all the Regions forming Lake Victoria Basin, Regions are Mwanza, Geita, Simiyu, Mara, Kagera, and some parts of Shinyanga Region (Kahama district and Shinyanga Rural district). The evidence of the rainfall situation in the Basin is described in **Figure 1** (Mwanza Region), **Figure 2** (Kagera Region), **Figure 3** (Geita Region), **Figure 4** (Simiyu Region), and **Figure 5** (Mar Region) as shown below. Note that; the average rainfall above or within the long term average has an impact in crop production process. Therefore the rainfall received in the basin for this reporting period has the impact for the case of agriculture/crop production issues so in this season we don't expect to have a short food because the rainfall is enough to produce the crops.

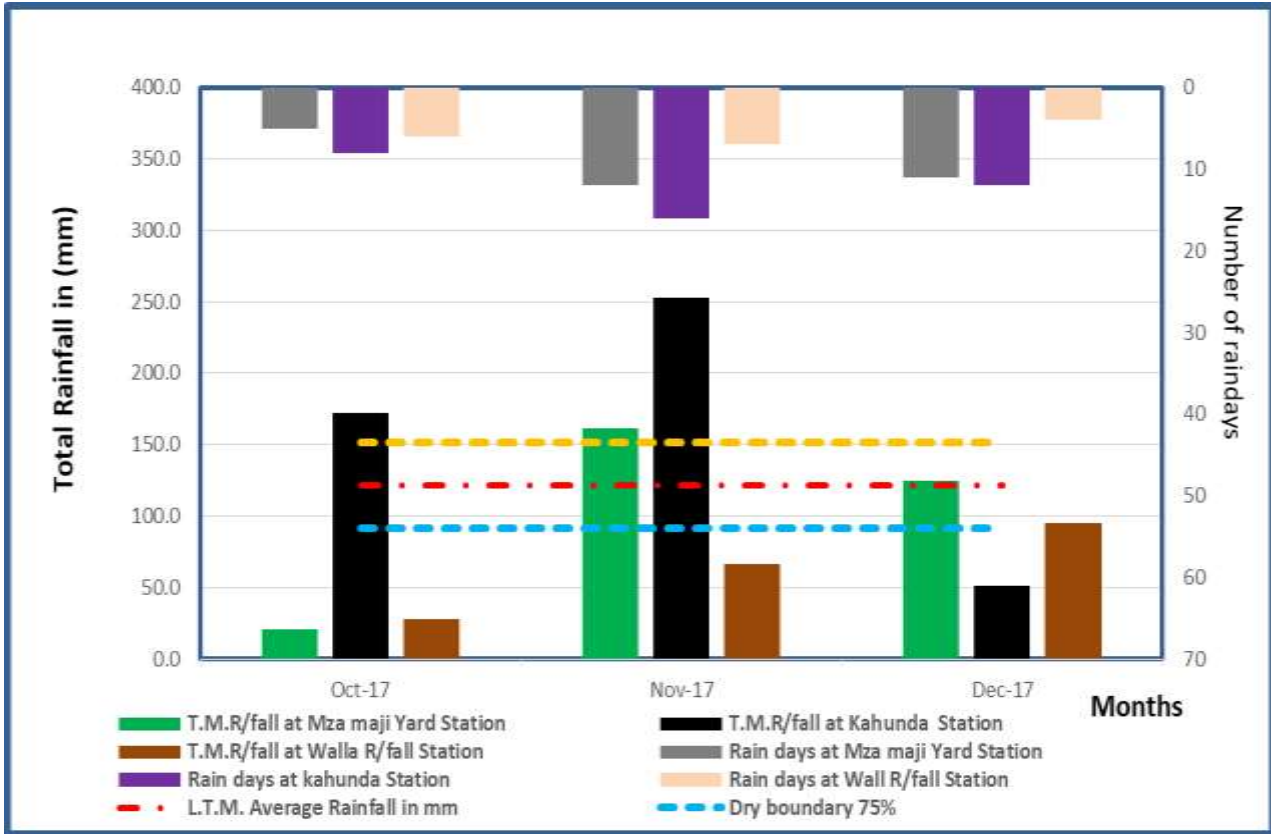


Figure 1: Trend of Rainfall in Mwanza Region

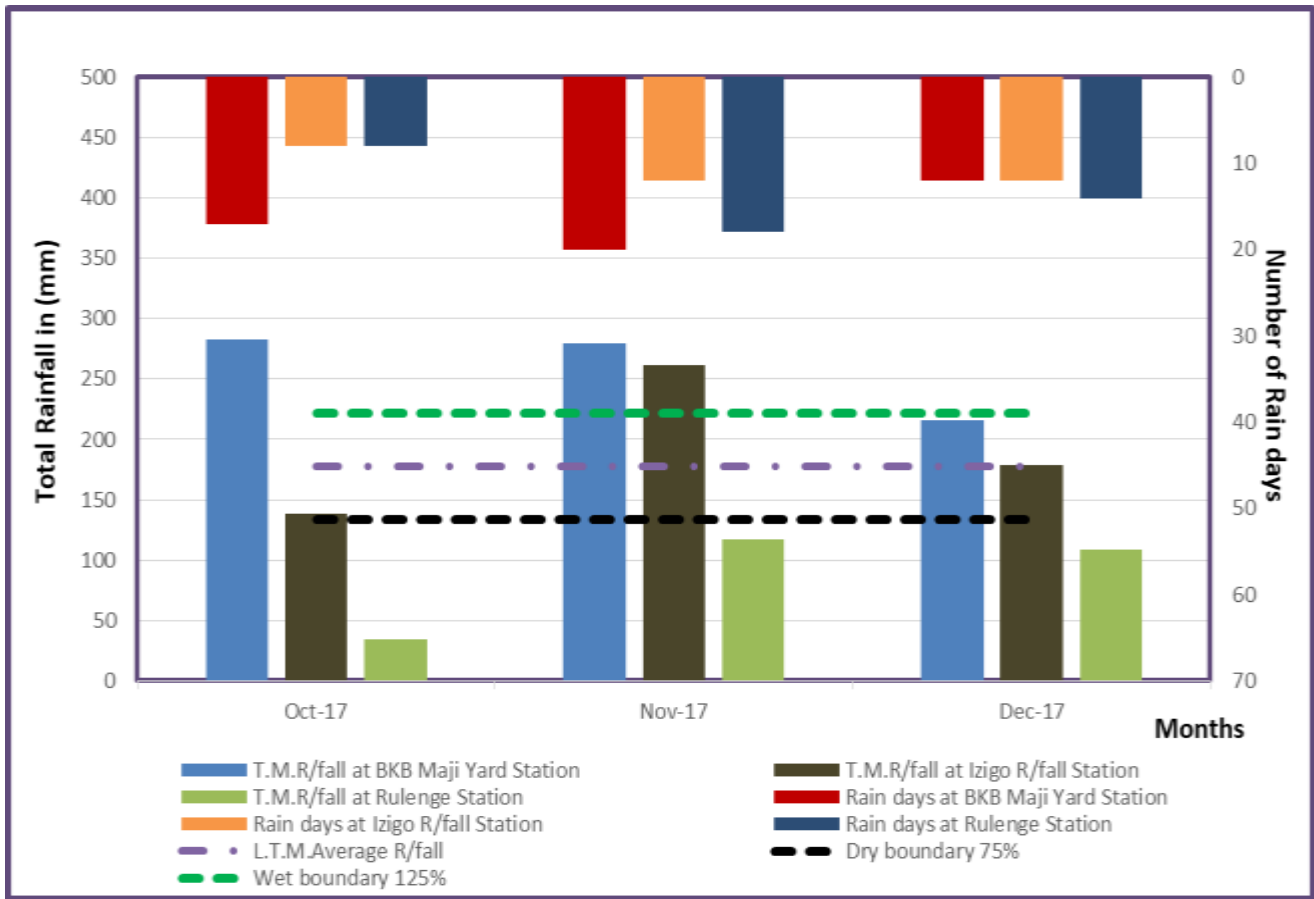


Figure 2: Trend of Rainfall in Kagera Region

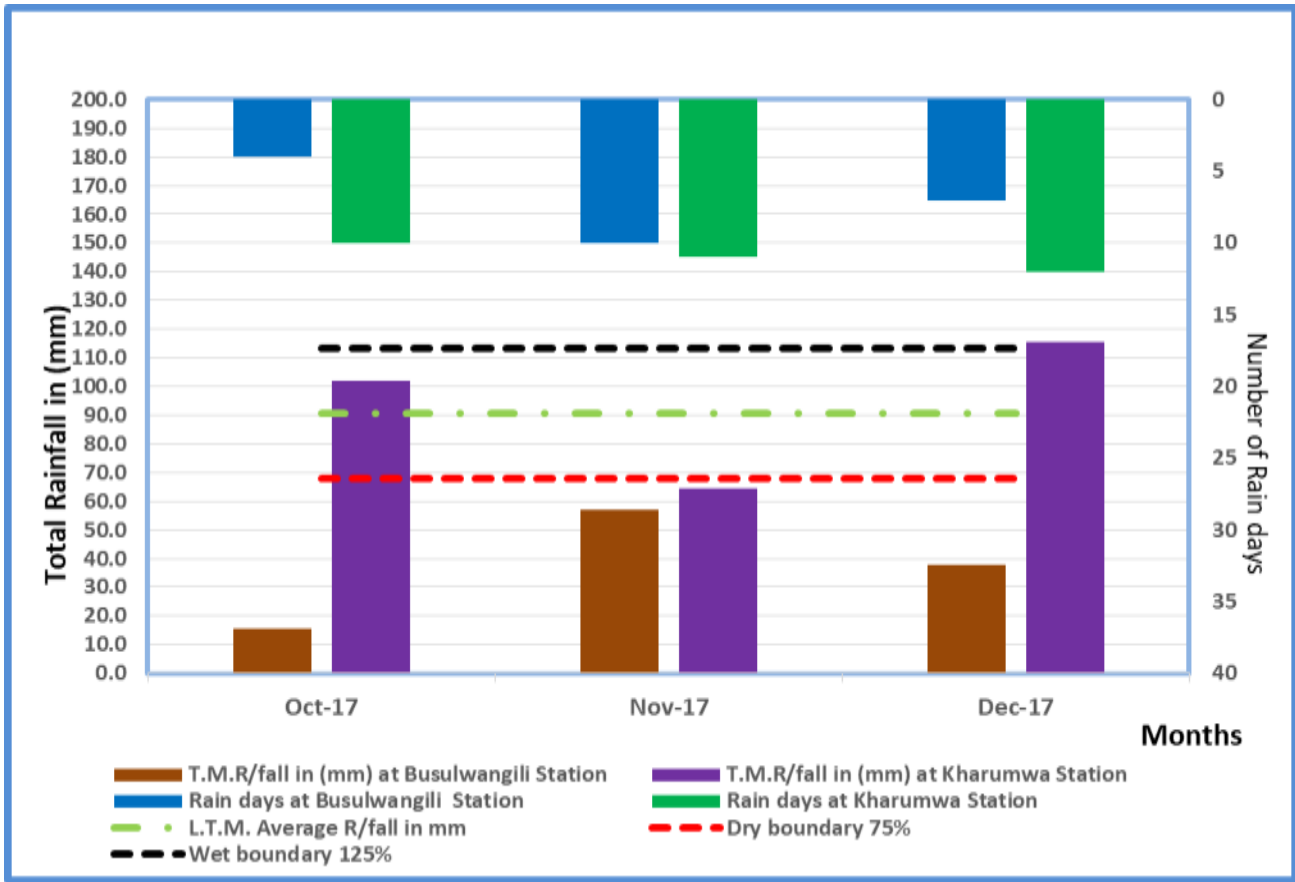


Figure 3: Trend of Rainfall in Geita Region

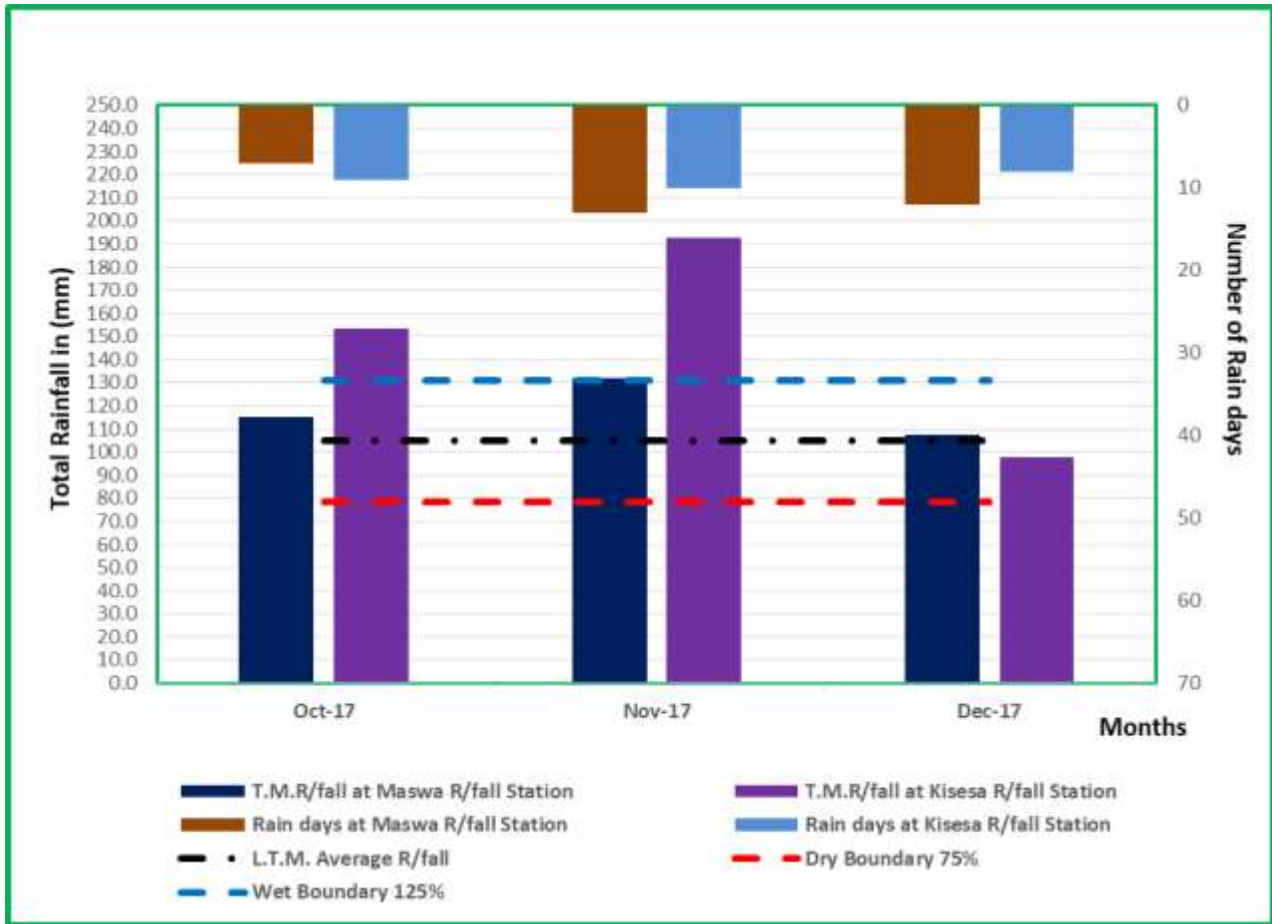


Figure 4: Trend of Rainfall in Simiyu Region

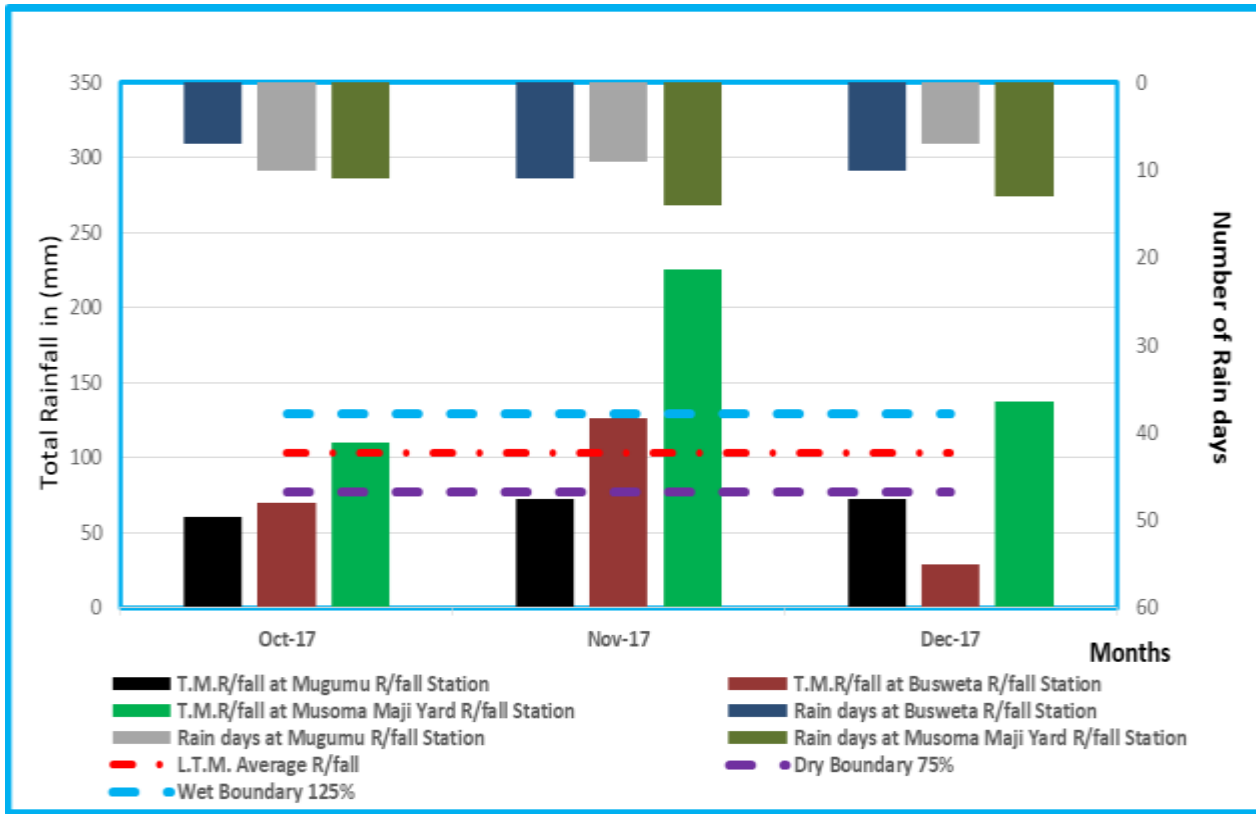


Figure 5: Trend of Rainfall in Mara Region

3.0 Evaporation

The monthly Average Evaporation in the Basin varies from 2.8 mm/day up to 5.0 mm/day according to **figure 6**. The low values of evaporation occurs in Kagera Region and some parts (Tarime) of Mara Region where the highest evaporation occurs in Mwanza Region and this due to historical data in the basin but for this reporting period even the evaporation from Mwanza Region is below the Long-term Average(**figure 6**).

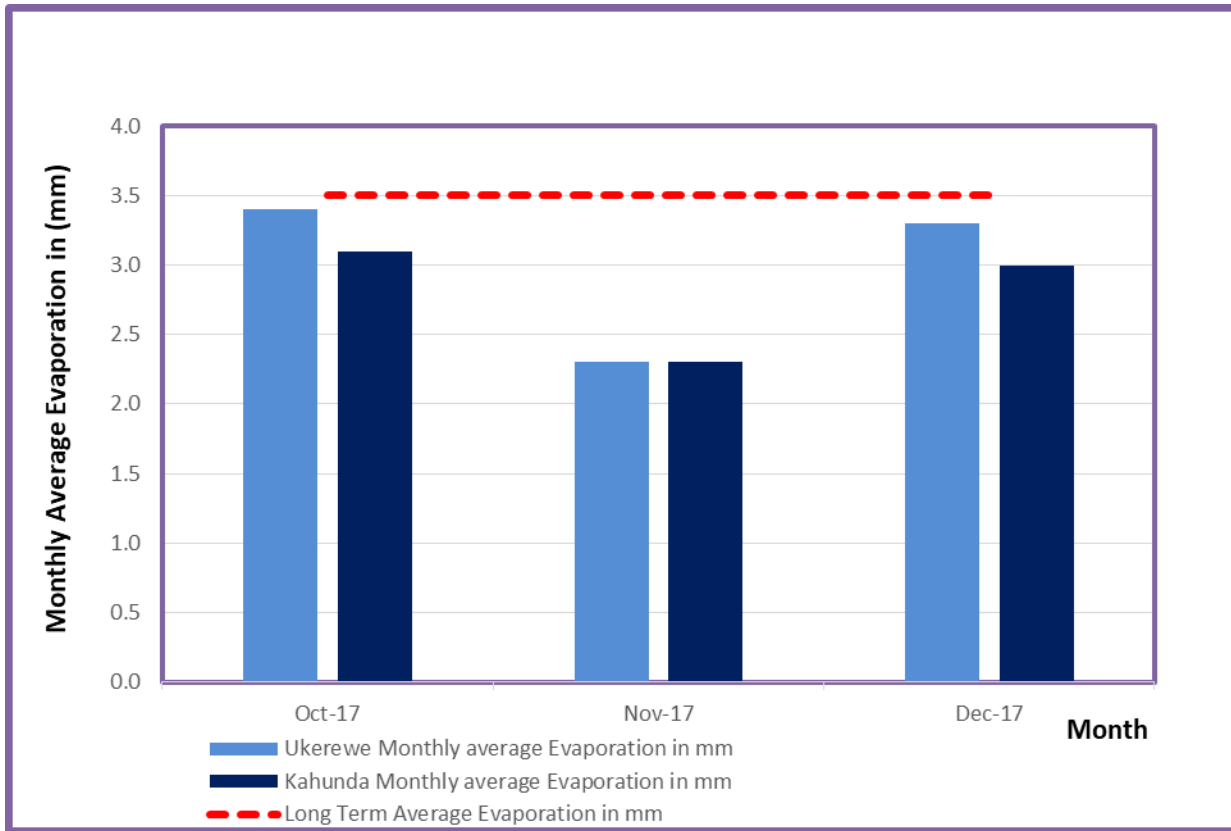


Figure 6: Trend of Evaporation in some part of the Lake Victoria Basin

4.0 Lake levels

The maximum Lake Levels normally occurs in May. But for this reporting period **Figure7** shows that, the lake levels are above the long-term average (2007 - 2017) lake levels. The figure shows the average increase of 0.17 m between the Long-term average lake level and the current lake levels, but this scenario need a number of judgements to say that the water is increasing in the lake because there is quantity of sediments entering the lake, the exit point of the lake, and ground water recharge to the lake.

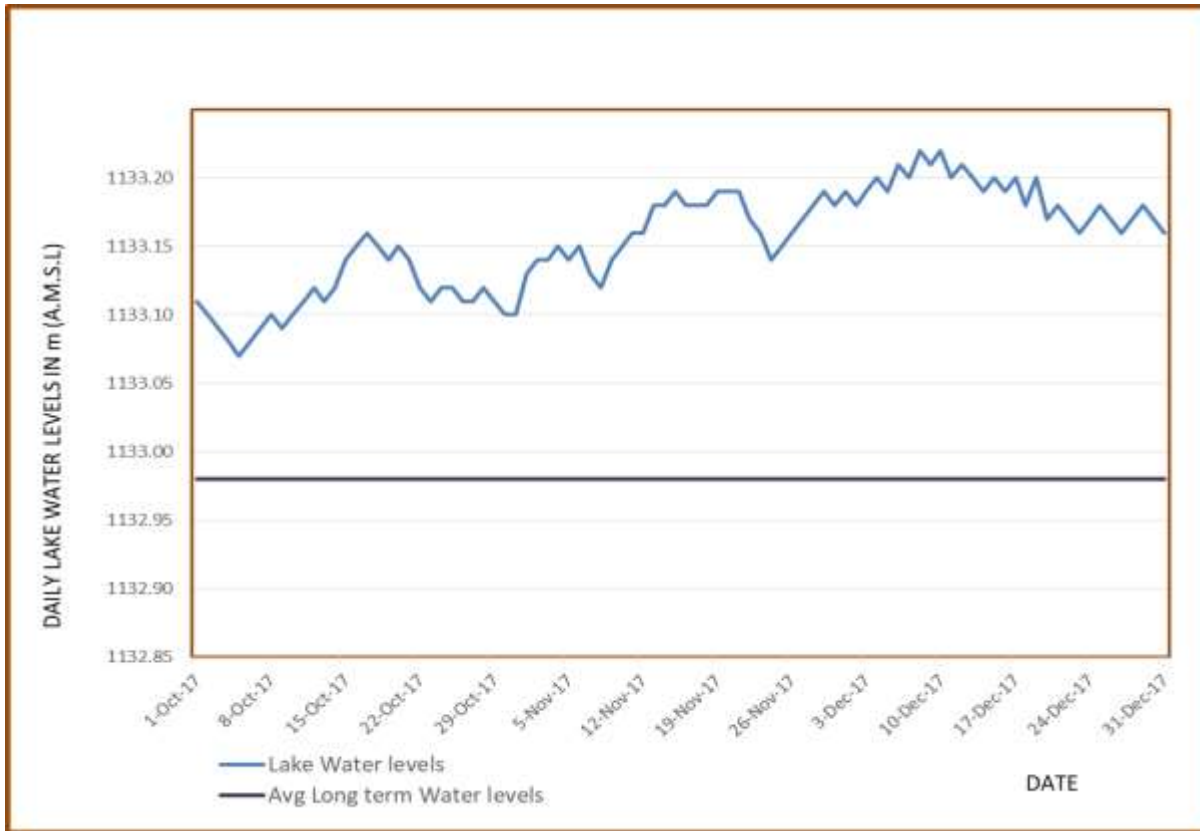


Fig.7: Lake levels fluctuations with comparison of Long term Average

5.0 Water flows in major Rivers

The average monthly water flows in Trans-boundary Rivers such as Mara River, and Kagera River for this reporting period as described in **Figure 8** (Kager River), **Figure 10** (Mara River), shows that flows are low compared to Long-term average water flows (2007 - 2017) also for the internal major River (Simiyu River) as described in **Figure 9** (Simiyu River) shows that the monthly average flows are above the Long Term Average water flow. The reason for low flows in Mara, and Kagera Rivers is due to the shortage of enough rainfall in upstream of these Rivers (Kenya for Mara River and Burundi, Rwanda and Uganda for Kagera River) but high flows in Simiyu River is influenced by the rainfall raining within the whole catchment of Simiyu River.

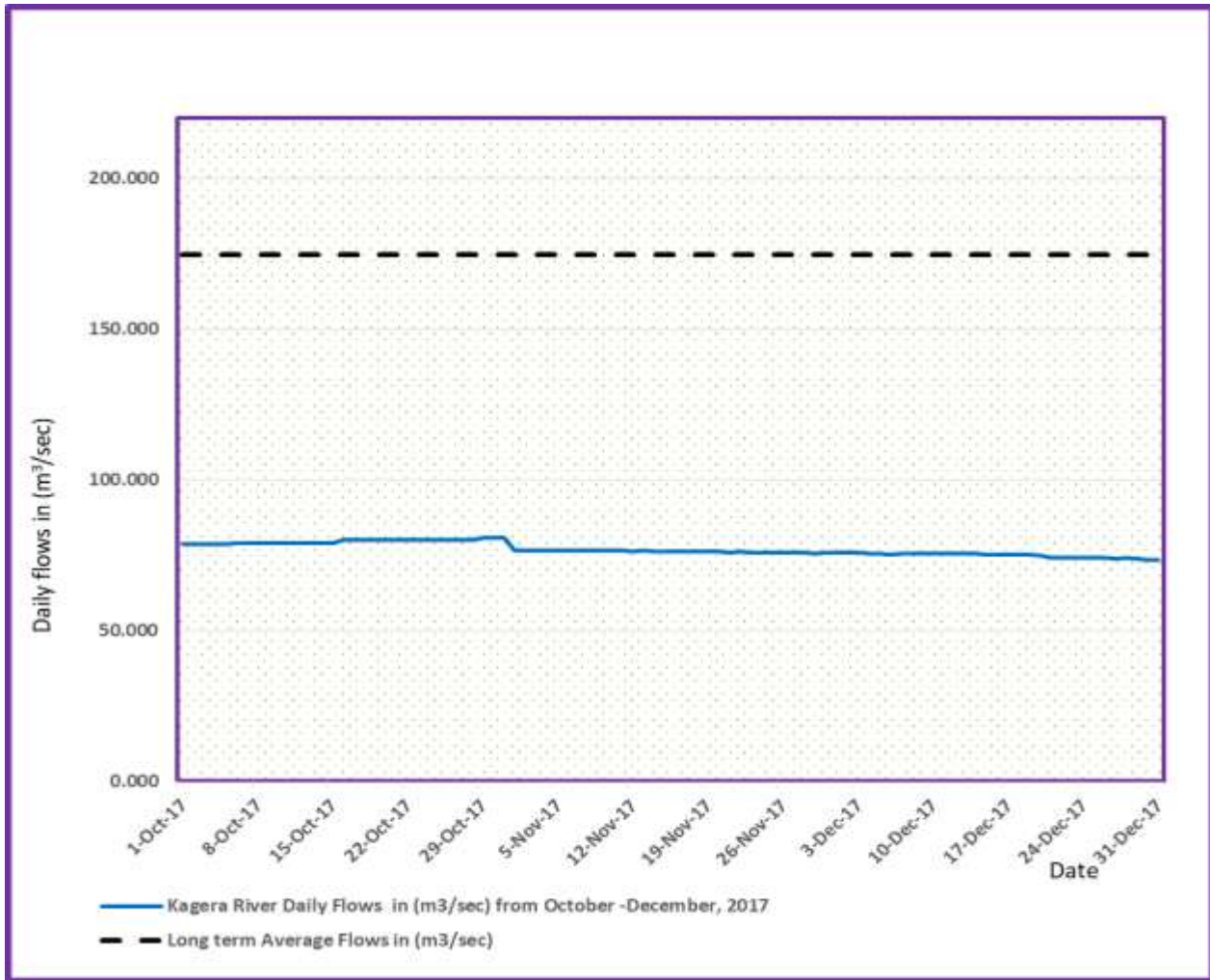


Fig. 8: Relationship between daily flows with long term Average flows in Kagera River at Kyaka Ferry

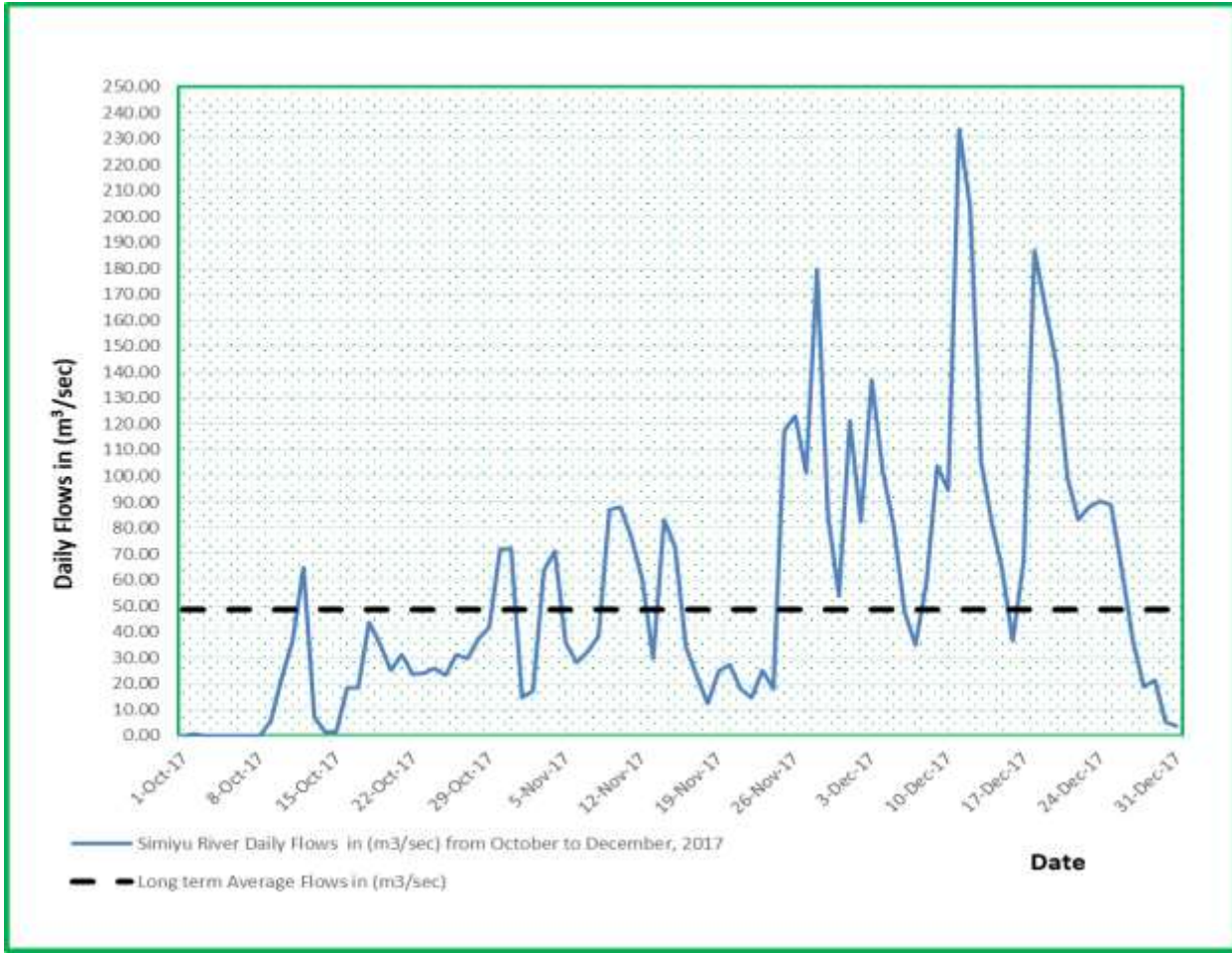


Fig. 9: Relationship between daily flows with Long Term Average flows in Simiyu River

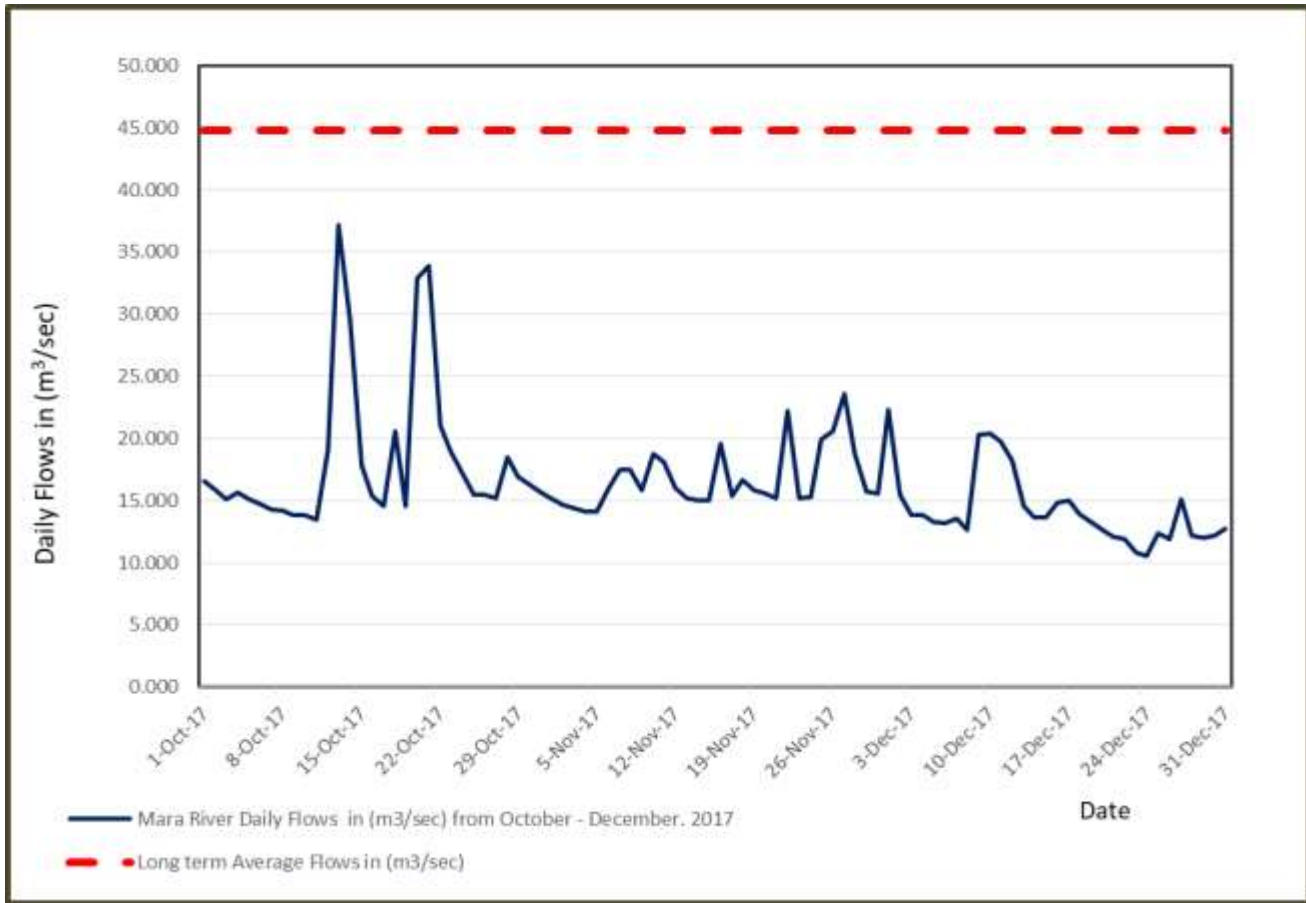


Fig. 10: Relationship between daily flows with Long Term Average flows in Mara River

6.0 Conclusion

The trend of total monthly rainfall and flows in Simiyu River in the entire Basin of Lake Victoria is good because it is above the Long – term average (2008- 2017) and even above the wet boundary of 125% for Rainfall in the basin in most areas of the Lake Victoria basin; so for this reason the rainfall received in the basin is productive for the cultivation of different crops in the basin.

Appendix

Table 1: Total Monthly Rainfall Data for Geita Region

Month-Year	T.M.R/fall in (mm) at Busulwangili Station	T.M.R/fall in (mm) at Kharumwa Station	L.T.M. Average R/fall in mm	Dry boundary 75%	Wet boundary 125%	Rain days at Busulwangili Station	Rain days at Kharumwa Station
Oct-17	15.7	101.8	90.8	68.1	113.5	4	10
Nov-17	57	64.5	90.8	68.1	113.5	10	11
Dec-17	38	115.4	90.8	68.1	113.5	7	12

Table 2: Total Monthly Rainfall Data for Simiyu Region

Month-Year	T.M.R/fall at Maswa R/fall Station	T.M.R/fall at Kisesa R/fall Station	L.T.M. Average R/fall	Dry Boundary 75%	Wet Boundary 125%	Rain days at Maswa R/fall Station	Rain days at Kisesa R/fall Station
Oct-17	115.4	153.4	104.8	78.6	131	7	9
Nov-17	131.8	192.7	104.8	78.6	131	13	10
Dec-17	107.5	98	104.8	78.6	131	12	8

Table 3: Total Monthly Rainfall Data for Mara Region

Month - Year	T.M.R/fall at Mugumu R/fall Station	T.M.R/fall at Busweta R/fall Station	T.M.R/fall at Musoma Maji Yard R/fall Station	L.T.M. Average R/fall	Dry Boundary 75%	Wet Boundary 125%	Rain days at Busweta R/fall Station	Rain days at Mugumu R/fall Station	Rain days at Musoma Maji Yard R/fall Station
Oct-17	60.6	69.6	110.3	103.1	77.3	128.9	7	10	11
Nov-17	72.7	126.6	225.7	103.1	77.3	128.9	11	9	14
Dec-17	72.4	28.9	137.4	103.1	77.3	128.9	10	7	13

Table 4: Total Monthly Rainfall Data for Mwanza Region

Month- Year	T.M.R/fall at Mza maji Yard Station	T.M.R/fall at Kahunda Station	T.M.R/fall at Walla R/fall Station	L.T.M. Average Rainfall in mm	Rain days at Mza maji Yard Station	Rain days at kahunda Station	Rain days at Wall R/fall Station	Dry boundary 75%	Wet boundary 125%
Oct-17	20.8	172.2	27.7	121.3	5	8	6	91.0	151.6
Nov-17	161.1	253.2	66.3	121.3	12	16	7	91.0	151.6
Dec-17	124.6	51.4	95.4	121.3	11	12	4	91.0	151.6

Table 5: Total Monthly Rainfall Data for Kagera Region

Month- Year	T.M.R/fall at BKB Maji Yard Station	T.M.R/fall at Izigo R/fall Station	T.M.R/fall at Rulenge Station	L.T.M.Average R/fall	Rain days at BKB Maji Yard Station	Rain days at Izigo R/fall Station	Rain days at Rulenge Station	Dry boundary 75%	Wet boundary 125%
Oct-17	282.4	138.6	34.6	177.5	17	8	8	133.1	221.9
Nov-17	279.4	261.5	117.7	177.5	20	12	18	133.1	221.9
Dec-17	215.9	178.3	108.5	177.5	12	12	14	133.1	221.9

Table 6: Monthly Average Evaporation in the Basin

Month - Year	Ukerewe Monthly average Evaporation in mm	Kahunda Monthly average Evaporation in mm	Long Term Average Evaporation in mm
Oct-17	3.4	3.1	3.5
Nov-17	2.3	2.3	3.5
Dec-17	3.3	3	3.5

Table 7: Monthly Average Lake levels Data

Date	Lake Water levels	Avg Long term Water levels
1-Oct-17	1133.11	1132.98
2-Oct-17	1133.10	1132.98
3-Oct-17	1133.09	1132.98
4-Oct-17	1133.08	1132.98
5-Oct-17	1133.07	1132.98
6-Oct-17	1133.08	1132.98
7-Oct-17	1133.09	1132.98
8-Oct-17	1133.10	1132.98
9-Oct-17	1133.09	1132.98

10-Oct-17	1133.10	1132.98
11-Oct-17	1133.11	1132.98
12-Oct-17	1133.12	1132.98
13-Oct-17	1133.11	1132.98
14-Oct-17	1133.12	1132.98
15-Oct-17	1133.14	1132.98
16-Oct-17	1133.15	1132.98
17-Oct-17	1133.16	1132.98
18-Oct-17	1133.15	1132.98
19-Oct-17	1133.14	1132.98
20-Oct-17	1133.15	1132.98
21-Oct-17	1133.14	1132.98
22-Oct-17	1133.12	1132.98
23-Oct-17	1133.11	1132.98
24-Oct-17	1133.12	1132.98
25-Oct-17	1133.12	1132.98

26-Oct-17	1133.11	1132.98
27-Oct-17	1133.11	1132.98
28-Oct-17	1133.12	1132.98
29-Oct-17	1133.11	1132.98
30-Oct-17	1133.10	1132.98
31-Oct-17	1133.10	1132.98
1-Nov-17	1133.13	1132.98
2-Nov-17	1133.14	1132.98
3-Nov-17	1133.14	1132.98
4-Nov-17	1133.15	1132.98
5-Nov-17	1133.14	1132.98
6-Nov-17	1133.15	1132.98
7-Nov-17	1133.13	1132.98
8-Nov-17	1133.12	1132.98
9-Nov-17	1133.14	1132.98
10-Nov-17	1133.15	1132.98

11-Nov-17	1133.16	1132.98
12-Nov-17	1133.16	1132.98
13-Nov-17	1133.18	1132.98
14-Nov-17	1133.18	1132.98
15-Nov-17	1133.19	1132.98
16-Nov-17	1133.18	1132.98
17-Nov-17	1133.18	1132.98
18-Nov-17	1133.18	1132.98
19-Nov-17	1133.19	1132.98
20-Nov-17	1133.19	1132.98
21-Nov-17	1133.19	1132.98
22-Nov-17	1133.17	1132.98
23-Nov-17	1133.16	1132.98
24-Nov-17	1133.14	1132.98
25-Nov-17	1133.15	1132.98
26-Nov-17	1133.16	1132.98

27-Nov-17	1133.17	1132.98
28-Nov-17	1133.18	1132.98
29-Nov-17	1133.19	1132.98
30-Nov-17	1133.18	1132.98
1-Dec-17	1133.19	1132.98
2-Dec-17	1133.18	1132.98
3-Dec-17	1133.19	1132.98
4-Dec-17	1133.2	1132.98
5-Dec-17	1133.19	1132.98
6-Dec-17	1133.21	1132.98
7-Dec-17	1133.2	1132.98
8-Dec-17	1133.22	1132.98
9-Dec-17	1133.21	1132.98
10-Dec-17	1133.22	1132.98
11-Dec-17	1133.2	1132.98
12-Dec-17	1133.21	1132.98

13-Dec-17	1133.2	1132.98
14-Dec-17	1133.19	1132.98
15-Dec-17	1133.2	1132.98
16-Dec-17	1133.19	1132.98
17-Dec-17	1133.2	1132.98
18-Dec-17	1133.18	1132.98
19-Dec-17	1133.2	1132.98
20-Dec-17	1133.17	1132.98
21-Dec-17	1133.18	1132.98
22-Dec-17	1133.17	1132.98
23-Dec-17	1133.16	1132.98
24-Dec-17	1133.17	1132.98
25-Dec-17	1133.18	1132.98
26-Dec-17	1133.17	1132.98
27-Dec-17	1133.16	1132.98
28-Dec-17	1133.17	1132.98

29-Dec-17	1133.18	1132.98
30-Dec-17	1133.17	1132.98
31-Dec-17	1133.16	1132.98

Table 8: Daily Flows Data for Kagera River at Kyaka Ferry Station

Date	Kagera River Daily Flows in (m3/sec) from Oct -December. 2017	Long term Average Flows in (m3/sec)
1-Oct-17	78.575	174.7
2-Oct-17	78.575	174.7
3-Oct-17	78.575	174.7
4-Oct-17	78.575	174.7
5-Oct-17	78.575	174.7
6-Oct-17	79.023	174.7
7-Oct-17	79.023	174.7
8-Oct-17	79.023	174.7
9-Oct-17	79.023	174.7
10-Oct-17	79.023	174.7
11-Oct-17	79.023	174.7
12-Oct-17	79.023	174.7
13-Oct-17	79.023	174.7
14-Oct-17	79.023	174.7

15-Oct-17	79.023	174.7
16-Oct-17	79.978	174.7
17-Oct-17	79.978	174.7
18-Oct-17	79.978	174.7
19-Oct-17	79.978	174.7
20-Oct-17	79.978	174.7
21-Oct-17	79.978	174.7
22-Oct-17	79.978	174.7
23-Oct-17	79.978	174.7
24-Oct-17	79.978	174.7
25-Oct-17	79.978	174.7
26-Oct-17	80.126	174.7
27-Oct-17	80.126	174.7
28-Oct-17	80.126	174.7
29-Oct-17	80.649	174.7
30-Oct-17	80.649	174.7
31-Oct-17	80.649	174.7
1-Nov-17	76.486	174.7
2-Nov-17	76.486	174.7
3-Nov-17	76.486	174.7
4-Nov-17	76.486	174.7
5-Nov-17	76.486	174.7

6-Nov-17	76.486	174.7
7-Nov-17	76.486	174.7
8-Nov-17	76.486	174.7
9-Nov-17	76.486	174.7
10-Nov-17	76.486	174.7
11-Nov-17	76.486	174.7
12-Nov-17	76.110	174.7
13-Nov-17	76.486	174.7
14-Nov-17	76.110	174.7
15-Nov-17	76.110	174.7
16-Nov-17	76.110	174.7
17-Nov-17	76.110	174.7
18-Nov-17	76.110	174.7
19-Nov-17	76.110	174.7
20-Nov-17	76.110	174.7
21-Nov-17	75.736	174.7
22-Nov-17	76.110	174.7
23-Nov-17	75.736	174.7
24-Nov-17	75.736	174.7
25-Nov-17	75.736	174.7
26-Nov-17	75.736	174.7
27-Nov-17	75.736	174.7

28-Nov-17	75.736	174.7
29-Nov-17	75.362	174.7
30-Nov-17	75.736	174.7
1-Dec-17	75.736	174.7
2-Dec-17	75.736	174.7
3-Dec-17	75.736	174.7
4-Dec-17	75.362	174.7
5-Dec-17	75.362	174.7
6-Dec-17	74.990	174.7
7-Dec-17	75.362	174.7
8-Dec-17	75.362	174.7
9-Dec-17	75.362	174.7
10-Dec-17	75.362	174.7
11-Dec-17	75.362	174.7
12-Dec-17	75.362	174.7
13-Dec-17	75.362	174.7
14-Dec-17	75.362	174.7
15-Dec-17	74.990	174.7
16-Dec-17	74.990	174.7
17-Dec-17	74.990	174.7
18-Dec-17	74.990	174.7
19-Dec-17	74.990	174.7

20-Dec-17	74.619	174.7
21-Dec-17	74.249	174.7
22-Dec-17	74.249	174.7
23-Dec-17	74.249	174.7
24-Dec-17	74.249	174.7
25-Dec-17	74.249	174.7
26-Dec-17	74.249	174.7
27-Dec-17	73.879	174.7
28-Dec-17	74.249	174.7
29-Dec-17	73.879	174.7
30-Dec-17	73.511	174.7
31-Dec-17	73.511	174.7

Table 9: Daily Flows Data for Simiyu River at MZA-MSM Main Bridge Station

Date	Simiyu River Daily Flows in (m ³ /sec) from October to December, 2017	Long term Average Flows in (m ³ /sec)
1-Oct-17	0.00	48.31
2-Oct-17	0.44	48.31
3-Oct-17	0.00	48.31
4-Oct-17	0.00	48.31
5-Oct-17	0.00	48.31
6-Oct-17	0.00	48.31
7-Oct-17	0.00	48.31
8-Oct-17	0.00	48.31
9-Oct-17	5.45	48.31
10-Oct-17	22.05	48.31
11-Oct-17	36.33	48.31

12-Oct-17	64.87	48.31
13-Oct-17	7.05	48.31
14-Oct-17	1.53	48.31
15-Oct-17	1.34	48.31
16-Oct-17	18.34	48.31
17-Oct-17	18.34	48.31
18-Oct-17	43.76	48.31
19-Oct-17	35.33	48.31
20-Oct-17	25.27	48.31
21-Oct-17	31.00	48.31
22-Oct-17	23.63	48.31
23-Oct-17	24.03	48.31
24-Oct-17	25.69	48.31
25-Oct-17	23.23	48.31
26-Oct-17	31.00	48.31
27-Oct-17	29.62	48.31
28-Oct-17	37.35	48.31
29-Oct-17	41.57	48.31
30-Oct-17	71.91	48.31
31-Oct-17	71.91	48.31
1-Nov-17	14.37	48.31
2-Nov-17	17.30	48.31
3-Nov-17	63.51	48.31
4-Nov-17	71.19	48.31
5-Nov-17	35.83	48.31
6-Nov-17	28.28	48.31
7-Nov-17	32.41	48.31
8-Nov-17	38.37	48.31
9-Nov-17	87.15	48.31
10-Nov-17	87.95	48.31
11-Nov-17	76.32	48.31
12-Nov-17	60.17	48.31
13-Nov-17	29.62	48.31
14-Nov-17	83.19	48.31
15-Nov-17	72.64	48.31
16-Nov-17	34.34	48.31
17-Nov-17	22.83	48.31
18-Nov-17	12.28	48.31
19-Nov-17	24.85	48.31

20-Nov-17	27.40	48.31
21-Nov-17	17.99	48.31
22-Nov-17	14.37	48.31
23-Nov-17	25.27	48.31
24-Nov-17	17.99	48.31
25-Nov-17	117.53	48.31
26-Nov-17	123.22	48.31
27-Nov-17	101.31	48.31
28-Nov-17	179.67	48.31
29-Nov-17	84.76	48.31
30-Nov-17	53.77	48.31
1-Dec-17	121.31	48.31
2-Dec-17	82.41	48.31
3-Dec-17	137.05	48.31
4-Dec-17	102.18	48.31
5-Dec-17	80.87	48.31
6-Dec-17	47.75	48.31
7-Dec-17	34.83	48.31
8-Dec-17	58.86	48.31
9-Dec-17	103.92	48.31
10-Dec-17	94.50	48.31
11-Dec-17	233.74	48.31
12-Dec-17	203.89	48.31
13-Dec-17	105.69	48.31
14-Dec-17	81.64	48.31
15-Dec-17	64.87	48.31
16-Dec-17	36.33	48.31
17-Dec-17	66.94	48.31
18-Dec-17	186.77	48.31
19-Dec-17	164.79	48.31
20-Dec-17	143.21	48.31
21-Dec-17	99.58	48.31
22-Dec-17	83.19	48.31
23-Dec-17	87.95	48.31
24-Dec-17	90.38	48.31
25-Dec-17	88.75	48.31
26-Dec-17	63.51	48.31
27-Dec-17	36.33	48.31
28-Dec-17	18.70	48.31

29-Dec-17	21.28	48.31
30-Dec-17	5.09	48.31
31-Dec-17	3.46	48.31

Table 10: Daily Flows Data for Mara River at Mara Mine Station

Date	Mara River Daily Flows in (m3/sec) from October -Dec. 2017	Long term Average Flows in (m3/sec)
1-Oct-17	16.559	44.753
2-Oct-17	15.873	44.753
3-Oct-17	15.107	44.753
4-Oct-17	15.657	44.753
5-Oct-17	15.107	44.753
6-Oct-17	14.721	44.753
7-Oct-17	14.299	44.753
8-Oct-17	14.184	44.753
9-Oct-17	13.852	44.753
10-Oct-17	13.852	44.753
11-Oct-17	13.442	44.753
12-Oct-17	19.147	44.753
13-Oct-17	37.162	44.753
14-Oct-17	29.473	44.753
15-Oct-17	17.824	44.753
16-Oct-17	15.377	44.753
17-Oct-17	14.597	44.753

18-Oct-17	20.614	44.753
19-Oct-17	14.536	44.753
20-Oct-17	32.930	44.753
21-Oct-17	33.852	44.753
22-Oct-17	21.060	44.753
23-Oct-17	18.949	44.753
24-Oct-17	17.214	44.753
25-Oct-17	15.515	44.753
26-Oct-17	15.446	44.753
27-Oct-17	15.173	44.753
28-Oct-17	18.468	44.753
29-Oct-17	16.963	44.753
30-Oct-17	16.324	44.753
31-Oct-17	15.657	44.753
1-Nov-17	15.107	44.753
2-Nov-17	14.659	44.753
3-Nov-17	14.416	44.753
4-Nov-17	14.127	44.753
5-Nov-17	14.071	44.753
6-Nov-17	15.947	44.753
7-Nov-17	17.471	44.753
8-Nov-17	17.471	44.753

9-Nov-17	15.800	44.753
10-Nov-17	18.754	44.753
11-Nov-17	18.095	44.753
12-Nov-17	16.021	44.753
13-Nov-17	15.240	44.753
14-Nov-17	15.041	44.753
15-Nov-17	15.041	44.753
16-Nov-17	19.551	44.753
17-Nov-17	15.377	44.753
18-Nov-17	16.638	44.753
19-Nov-17	15.800	44.753
20-Nov-17	15.586	44.753
21-Nov-17	15.173	44.753
22-Nov-17	22.231	44.753
23-Nov-17	15.240	44.753
24-Nov-17	15.308	44.753
25-Nov-17	19.967	44.753
26-Nov-17	20.614	44.753
27-Nov-17	23.610	44.753
28-Nov-17	18.754	44.753
29-Nov-17	15.728	44.753
30-Nov-17	15.586	44.753

1-Dec-17	22.352	44.753
2-Dec-17	15.515	44.753
3-Dec-17	13.799	44.753
4-Dec-17	13.799	44.753
5-Dec-17	13.298	44.753
6-Dec-17	13.159	44.753
7-Dec-17	13.541	44.753
8-Dec-17	12.689	44.753
9-Dec-17	20.287	44.753
10-Dec-17	20.395	44.753
11-Dec-17	19.758	44.753
12-Dec-17	18.187	44.753
13-Dec-17	14.597	44.753
14-Dec-17	13.694	44.753
15-Dec-17	13.643	44.753
16-Dec-17	14.847	44.753
17-Dec-17	14.976	44.753
18-Dec-17	13.906	44.753
19-Dec-17	13.251	44.753
20-Dec-17	12.610	44.753
21-Dec-17	12.149	44.753
22-Dec-17	11.963	44.753

23-Dec-17	10.794	44.753
24-Dec-17	10.593	44.753
25-Dec-17	12.351	44.753
26-Dec-17	11.934	44.753
27-Dec-17	15.107	44.753
28-Dec-17	12.181	44.753
29-Dec-17	11.993	44.753
30-Dec-17	12.181	44.753
31-Dec-17	12.770	44.753