



**water & sanitation**

Department:  
Water and Sanitation  
REPUBLIC OF SOUTH AFRICA

## **WATER RESOURCE INFORMATION MANAGEMENT**

### **STATUS ON MONITORING & SURFACE WATER LEVEL TRENDS APRIL 2015 to SEPTEMBER 2015**

**D VILJOEN  
NOVEMBER 2015**

**GH4326**



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## 1. EXECUTIVE SUMMARY

The current drought situation in Limpopo is taking its toll on the major dams as levels are dropping sharply and the majority of dams used in this report have less water than the corresponding period last year.

In the Limpopo Water Management Area the following dam levels are of concern: the **Luphephe Dam is at 20.9%, the Nwanedzi Dam is at 35.8%, the Glen Alpine dam is at 54.6% and the Nzhelele Dam at 59.5%**. In the Luvuvhu / Letaba Water Management Area the following dam levels are of concern: **the Middle Letaba Dam is at 33.6%, the Nsami Dam is at 39.4%, the Thabina Dam is at 57.1%, Tzaneen Dam at 57.1% and Modjadji Dam at 37.1%. The Thapane Dam is empty!**

The average storage volume for the Limpopo WMA is 224.5 million cubic meters (80.1%) and is 49.2 million cubic meters less than the corresponding period last year (97.6%).

The average storage volume for the Luvuvhu / Letaba WMA is 413 million cubic meters (62.3%) and is 127.5 million cubic meters less than the corresponding period last year (81.9%).

The average storage volume for the Olifants WMA is 1055.4 million cubic meters (74.2%) and is 133.9 million cubic meters less than the corresponding period last year (83.6%).

**Take note that the storage volume of the Olifants WMA increased with 348.7 million cubic meters, as a result of the new De Hoop Dam** Numerous smaller dams (0.7 – 3.5 million cubic meter capacity) exist in this WMA but only two are equipped with Data Loggers namely Piet Gouws and Molepo Dams. No Real Time data is available from these dams and the obtaining of updated dam status observations are hampered by the remoteness thereof. Although provision has been made at some dams for the installation of Data logging equipment, funds for the purchasing thereof are lacking. The following dams falls within the Olifants WMA, but no status information is available: 1. Piet Gouws (3.94 million Cubic meters), Lola Montes (1.2 million Cubic meters), Makotswane (3.48 million Cubic meters), Spitskop (0.54million Cubic meters), Vergelegen (1.34million Cubic meters) Dr. Esselen (0.73million Cubic meters), Chunnies Poort (2.47million Cubic meters), Der Broggen, Lepellane and Mahlangu dams.

The average storage volume for the Inkomati WMA is 789.8 million cubic meters (75.2%) and is 180 million cubic meters less than the corresponding period last year (92.4%).

The challenge in all the WMAs discussed in this report is the fact that there are smaller dams, which supply water to communities that still need to be monitored. Owing to the lack of data these dams could not be included. Infrastructure at these dams are also a major concern and will have to be put in place before any form of water level monitoring can be considered. The Thapane and Sheshego Dams are examples of this.

**The information presented in this report is based on the status of all the major dams in the province up to the end of September 2015.**

**It is important to take note that the rainfall for the current hydrological year (01 October 2014 to 30 September 2015) is the lowest since the 2009/2010 hydrological year. See attached Provincial Rainfall map (Page 12)**

Available water resources will have to be managed with great care and published restrictions will have to be adhered to by end users! The SAWS predicts a mixture of above- and below normal rainfall conditions for the country. Of note there is an indication that well above normal rainfall conditions may occur over the eastern parts of the country in spring. The forecast for late spring indicates mostly below-normal rainfall for most of the country and some mixed conditions for early summer. The El Nino phenomenon is predicted to persist, greatly increasing the chances of having dryer conditions.

## 2. MONITORING NETWORK

The hydrological monitoring network for the Limpopo Province consists of the following amount of gauging stations:  
81 river flow gauging stations (excluding canals and pipelines)  
21 dam gauging stations  
16 evaporation stations

It is important to take cognizance of the fact that the hydrological gauging stations in the Crocodile-West and Olifants Water Management Areas (shared boundaries) are being managed by the hydrological offices of Gauteng and Mpumalanga respectively.

For the purpose of this report and owing to the strategic location and importance of certain dams in the Olifants and Inkomati Water Management Areas, information regarding their status is also attached.

### 3. OVERVIEW

**Take note that that the following dams have been included under the provincial boundary of the Limpopo Province: Modjadji, Nandoni, Flag Boshielo, Klaserie, Rust De Winter, Tonteldoos, Tours, Vlugkraal and Warmbad. This results in the full supply storage capacity increasing from 767.6 million cubic meters to 1166.6 million cubic meters.**

To give an indication of what the percentage of normal rainfall was for the period April to September 2015, see attached map (page 11). For information purposes a graph depicting provincial rainfall for the current hydrological year is attached (page 12).

The National dam and Provincial storage graphs can be seen on pages 13 and 14 respectively. For additional information storage graphs of the two WMAs (page 15-16), indicates the current situation clearly. This information was obtained from Mr Malose Ngoepe, National Office.

For information purposes a table indicating the comparison of water storage percentage for the different WMA's is attached on page 17.

Rainfall forecasts for September 2015 up to January 2016 are also attached see page 18. This information was obtained from the South African Weather Service.

The purpose for attaching graphs of individual dams (pages 19-43) is to give a broader picture of water storage and status in the sub drainage catchments.

### 4. LIMPOPO WATER MANAGEMENT AREA

The catchment consists of secondary drainage areas A4, A5, A6, A7 and A8.

#### 4.1 A4 Drainage Area (Matlabas, Mokolo Rivers)

The Mokolo Dam (A4R001) was used as no other dam exists in the A4 hydrological monitoring network. The dam storage is at a storage level of 94.4% ( $137.22 \times 10^6 \text{m}^3$ ) and 4.9% lower than the previous year, which means that the storage volume is 7.1 million cubic meters less than the corresponding period last year. See attached graph!

#### 4.2 A5 Drainage Area (Lephalala River)

Two small dams exist in the A5 hydrological network namely the Susandale Dam (A5R001) and the Vischgat Dam (A5R002). Owing to their relatively small storage volumes of approximately 0.6 million cubic meters in total, these dams have not been included in this report!

#### 4.3 A6 Drainage Area (Nile, Sterk, Mogalakwena and Dorps Rivers)

The Doorndraai Dam (A6R001) and Glen Alpine Dam (A6R002) were used as no other dams exist in the A6 hydrological monitoring network. The Doorndraai Dam is at a storage level of 90.8% ( $39.72 \times 10^6 \text{m}^3$ ) and 4.7% lower than the previous year, which means that the storage volume is 2.1 million cubic meters less than the corresponding period last year. See attached graph!

Glen Alpine Dam is at a storage level of 54.6% ( $10.32 \times 10^6 \text{m}^3$ ) and 41.5% lower than the previous year, which means that the storage volume is 7.8 million cubic meters less than the corresponding period last year. See attached graph!

It must be noted that the full capacity storage of Glen Alpine Dam is only 18.889 million cubic and therefore the dam fills and empties much faster than Doorndraai Dam! The graph of Glen Alpine clearly indicates this!

**Take note that the full supply capacity ( $18.889 \times 10^6 \text{m}^3$ ) as supplied in the National Weekly Dam Status report, was used for calculation purposes!**

#### 4.4 A7 Drainage Area (Sand, Blood, Diep, Hout, Dwars and Brak Rivers)

There are no existing dam monitoring stations in the hydrological network for this drainage area!

The Tzaneen Area Office in conjunction with the Hydrometry office is currently busy with the installation of gauge plates at dams in both of the Water Management Areas. Hout River Dam has been equipped with gauge plates, but a futile exercise at Mashashane Dam just reiterated the point that gauge plates should be installed once water levels are below lowest outlet levels! Data capturing and real-time equipment has been installed at Hout River Dam.

#### 4.5 A8 Drainage Area (Nwanedzi and Nzhelele Rivers)

The Nzhelele Dam (A8R001), Luphephe (A8R002), Nwanedzi (A8R003) and Mutshedzi (A8R004) Dams were used as indicators! The Nzhelele Dam is at a storage level of 59.5% ( $30.48 \times 10^6 \text{m}^3$ ) and 37.4% lower than the previous year, which means that the storage volume is 19.17 million cubic meters less than the corresponding period last year. See attached graph!

Luphephe and Nwanedzi Dams are at storage levels of 20.9% and 35.8% respectively. Their combined storage is at  $4.76 \times 10^6 \text{m}^3$ . The combined storage for the corresponding period the previous year was  $18.43 \times 10^6 \text{m}^3$ . (96.4% of storage volume) See attached graphs!

Mutshedzi Dam, is at a storage level of 86.4% ( $1.76 \times 10^6\text{m}^3$ ) and 13.8% lower than the previous year, which means that the storage volume is 0.28 million cubic meters less than the corresponding period last year. See attached graph! **Take note that National Office will conduct a survey of the dam to determine the latest dam capacity. For the sake of this report a full capacity volume of 2.037 million cubic meters was used. Information based from preliminary surveys that was done by the Regional Infrastructure Branch. (2000 and 2007)**

## 5. LUVUVHU / LETABA WATER MANAGEMENT AREA

The catchment consists of secondary drainage areas A9, B8 and B9.

### 5.1 A9 Drainage Area (Mutale, Luvuvhu Rivers)

The Albasini Dam (A9R001), Vondo Dam (A9R002) and Nandoni (A9R004) Dams were used as monitoring points in this report.

Albasini Dam is at a storage level of 80.7% ( $22.7 \times 10^6\text{m}^3$ ) and 17% lower than the previous year, which means that the storage volume is 4.81 million cubic meters less than the corresponding period last year. See attached graph!

Vondo Dam is at a storage level of 77.9% ( $23.73 \times 10^6\text{m}^3$ ) and 14% lower than the previous year, which means that the storage volume is 4.25 million cubic meters less than the corresponding period last year. See attached graph!

Nandoni Dam is at a storage level of 85% ( $141.23 \times 10^6\text{m}^3$ ) and 13.9% lower than the previous year, which means that the storage volume is 23 million cubic meters less than the corresponding period last year. See attached graph!

### 5.2 B8 Drainage Area (Groot, Middle and Klein Letaba Rivers)

The Ebenezer Dam (B8R001), Magoebaskloof Dam (B8R003), Tzaneen Dam (B8R005), Middle-Letaba Dam (B8R007), Nsami Dam (B8R009) and Modjadji Dam (B8R011) were used as monitoring points in this report. The Dap Naudé Dam (B8R006) and Hans Merensky Dam (B8R002) are also being monitored, but were not included in this report!

Thapane Dam is empty, the installation of gauge plates remains a huge challenge. Shortage of manpower and equipment prevents the installation of gauge plates!

The Ebenezer Dam is at a storage level of 84.7% ( $58.57 \times 10^6\text{m}^3$ ) and 13.6% lower than the previous year, which means that the storage volume is 9.4 million cubic meters less than the corresponding period last year. See attached graph!

Magoebaskloof Dam is at a storage level of 100.1% ( $4.857 \times 10^6\text{m}^3$ ) and at the same level as the previous year, See attached graph! **Take note that the full supply capacity ( $4.84 \times 10^6\text{m}^3$ ) as supplied in the National Weekly Dam Status report, was used for calculation purposes!**

Tzaneen Dam is at a storage level of 57.1% ( $89.41 \times 10^6\text{m}^3$ ) and 32.1% lower than the previous year, which means that the storage volume is 50.2 million cubic meters less than the corresponding period last year. See attached graph! **Take note that the full supply capacity ( $156.53 \times 10^6\text{m}^3$ ) as supplied in the National Weekly Dam Status report, was used for calculation purposes!**

Middle-Letaba Dam is at a storage level of 33.6% ( $57.83 \times 10^6\text{m}^3$ ) and 16.8% less than the previous year, which means that the storage volume is 28.8 million cubic meters less than the corresponding period last year. See attached graph!

The Nsami Dam is at a storage level of 39.4% ( $8.63 \times 10^6\text{m}^3$ ) and 15.4% lower than the previous year, which means that the storage volume is 3.36 million cubic meters less than the corresponding period last year.

The Modjadji Dam is at a storage level of 37.1% ( $2.66 \times 10^6\text{m}^3$ ) and 48% higher than the previous year, which means that the storage volume is 3.45 million cubic meters less than the corresponding period last year.

### **5.3 B9 Drainage Area (Shingwedzi, Phugwane and Mphongolo Rivers)**

Only a limited part of this drainage area falls outside the Kruger National Park!  
There are no existing dam monitoring stations in the hydrological network for this drainage area!

## **6. OLIFANTS WATER MANAGEMENT AREA**

Monitoring points in the B3, B4, B5, B6 and, B7 sub drainage areas were also included in this report owing to their strategic location and importance to operational matters in the Limpopo Province.

### **6.1 B3 Drainage Area (Olifants, Elands, Bloed and Selons Rivers)**

For information as well as operational matters the status of Rust de Winter Dam (B3R001) and Loskop Dam (B3R002) has been included in this report.

Rust de Winter Dam is at a storage level of approximately 78.6% ( $22.15 \times 10^6\text{m}^3$ ) and 20% lower than the previous year, which means that the storage volume is 5.65 million cubic meters less than the corresponding period last year. See attached graph!

Loskop Dam is at a storage level of 79.5% ( $287.33 \times 10^6\text{m}^3$ ) and 13.5% lower than the previous year, which means that the storage volume is 48.9 million cubic meters less than the corresponding period last year. See attached graph!

### **6.2 B4 Drainage Area (Steelpoort, Dwars, Dorps, Waterval Tonteldoos, Vlugkraal and Majupane Rivers)**

Two small dams exist in the B4 hydrological network namely the Tonteldoos Dam (B4R001) and the Vlugkraal Dam (B4R002). Owing to their small storage volumes of approximately 0.63 million cubic meters in total, these dams have not been included in this report!

For information as well as operational matters the status of Buffelskloof Dam ((B4R004) and De Hoop Dam (B4R007) has been included in this report.

Buffelskloof Dam is at a storage level of 66.2% ( $3.47 \times 10^6\text{m}^3$ ) and 117.4% lower than the previous year, which means that the storage volume is 0.91 million cubic meters less than the corresponding period last year.

De Hoop Dam is at a storage level of 96.9% ( $337.93 \times 10^6\text{m}^3$ ) and 14.9% higher than the previous year, which means that the storage volume is 52 million cubic meters more than the corresponding period last year. The Vlugkraal and Tonteldoos Dams

### **6.3 B5 Drainage Area (Olifants River)**

For information as well as operational matters the graph of Flag Boshielo Dam (B5R002) has been included in this report.

Flag Boshielo Dam is at a storage level of 66.8% ( $123.75 \times 10^6\text{m}^3$ ) and 24.7% lower than the previous year, which means that the storage volume is 45.6 million cubic meters less than the corresponding period last year. See attached graph!

#### 6.4 B6 Drainage Area (Blyde and Ohrigstad Rivers)

For information as well as operational matters the status of Ohrigstad Dam (B6R001) and Blyde Rivierspoort Dam (B6R003) has been included in this report.

Ohrigstad Dam is at a storage level of 22.2% ( $2.98 \times 10^6\text{m}^3$ ) and 50.5% lower than the previous year, which means that the storage volume is 6.8 million cubic meters less than the corresponding period last year. See attached graph!

**Take note that the full supply capacity ( $13.448 \times 10^6\text{m}^3$ ) as supplied in the National Weekly Dam Status report, was used for calculation purposes!**

Blyde Dam is at a storage level of 85.2% ( $46.3 \times 10^6\text{m}^3$ ) and 13.4% lower than the previous year, which means that the storage volume is 7.3 million cubic meters less than the corresponding period last year. See attached graph!

**Take note that the full supply capacity ( $54.369 \times 10^6\text{m}^3$ ) as supplied in the National Weekly Dam Status report, was used for calculation purposes!**

#### 6.5 B7 Drainage Area (Klaserie and Olifants Rivers)

For information as well as operational matters the status of Klaserie Dam (B7R001) and Tours Dam (B7R003) has been included in this report.

Klaserie Dam is at a storage level of 101.9% ( $5.71 \times 10^6\text{m}^3$ ) and 1.8% higher than the previous year, which means that the storage volume is 0.1 million cubic meters higher than the corresponding period last year. See attached graph!

Tours Dam is at a storage level of 57.2% ( $3.483 \times 10^6\text{m}^3$ ) and 36.6% lower than the previous year, which means that the storage volume is 2.2 million cubic meters less than the corresponding period last year. See attached graph!

**Take note that the full supply capacities ( $5.604 \times 10^6\text{m}^3$  and  $6.084 \times 10^6\text{m}^3$ ) Klaserie and Tours Dams respectively, as supplied in the National Weekly Dam Status report, were used for calculation purposes!**

### 7. NKOMATI WATER MANAGEMENT AREA

#### 7.1 X2 Drainage Area (Crocodile River)

For information as well as operational matters the status of Kwena Dam (X2R005) has been included in this report.

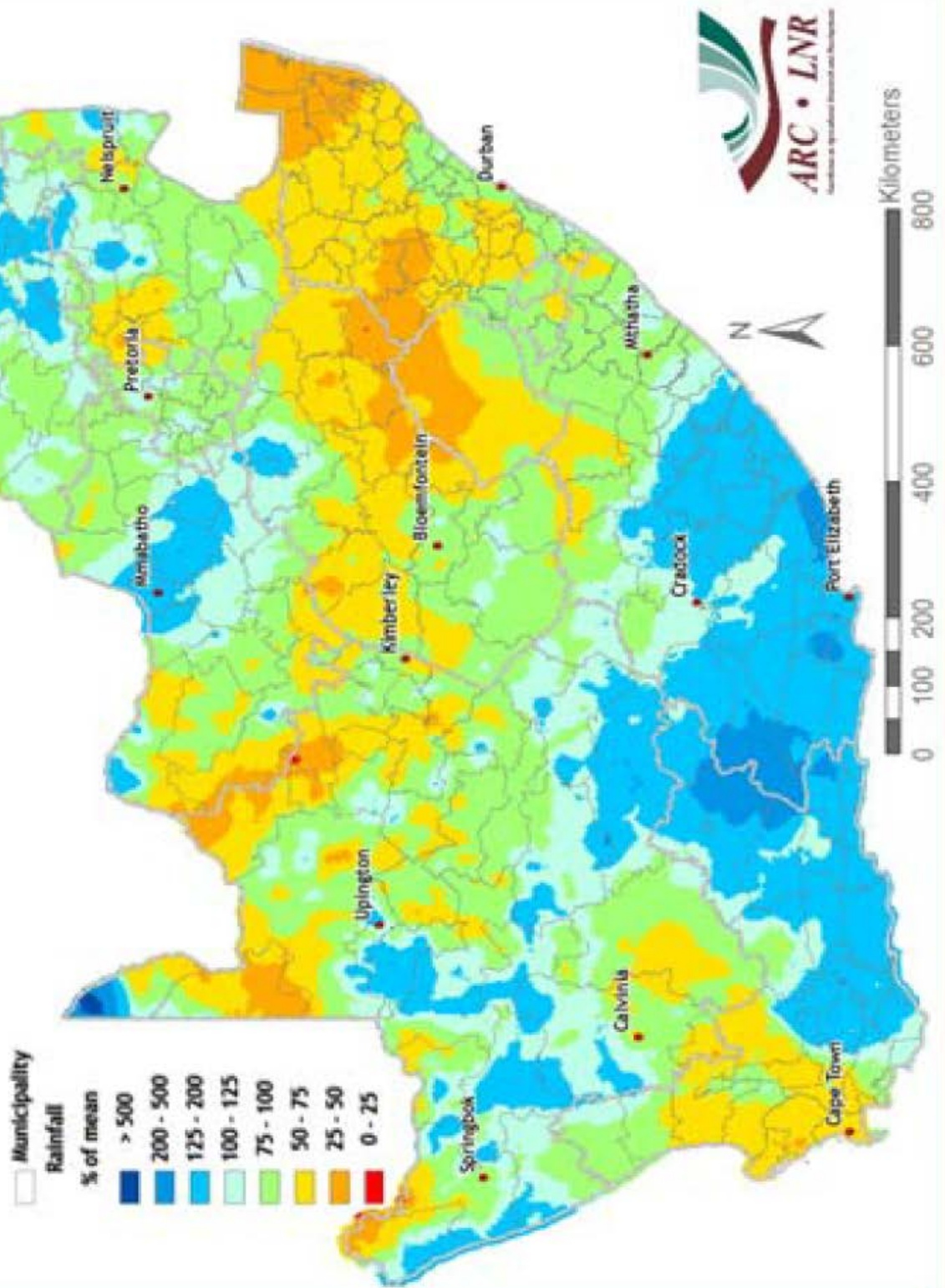
Kwena Dam is at a storage level of 82.4% ( $130.96 \times 10^6\text{m}^3$ ) and 9.2% lower than the previous year, which means that the storage volume is 14.6 million cubic meters less than the corresponding period last year. See attached graph!

#### 7.2 X3 Drainage Area (Mariti River)

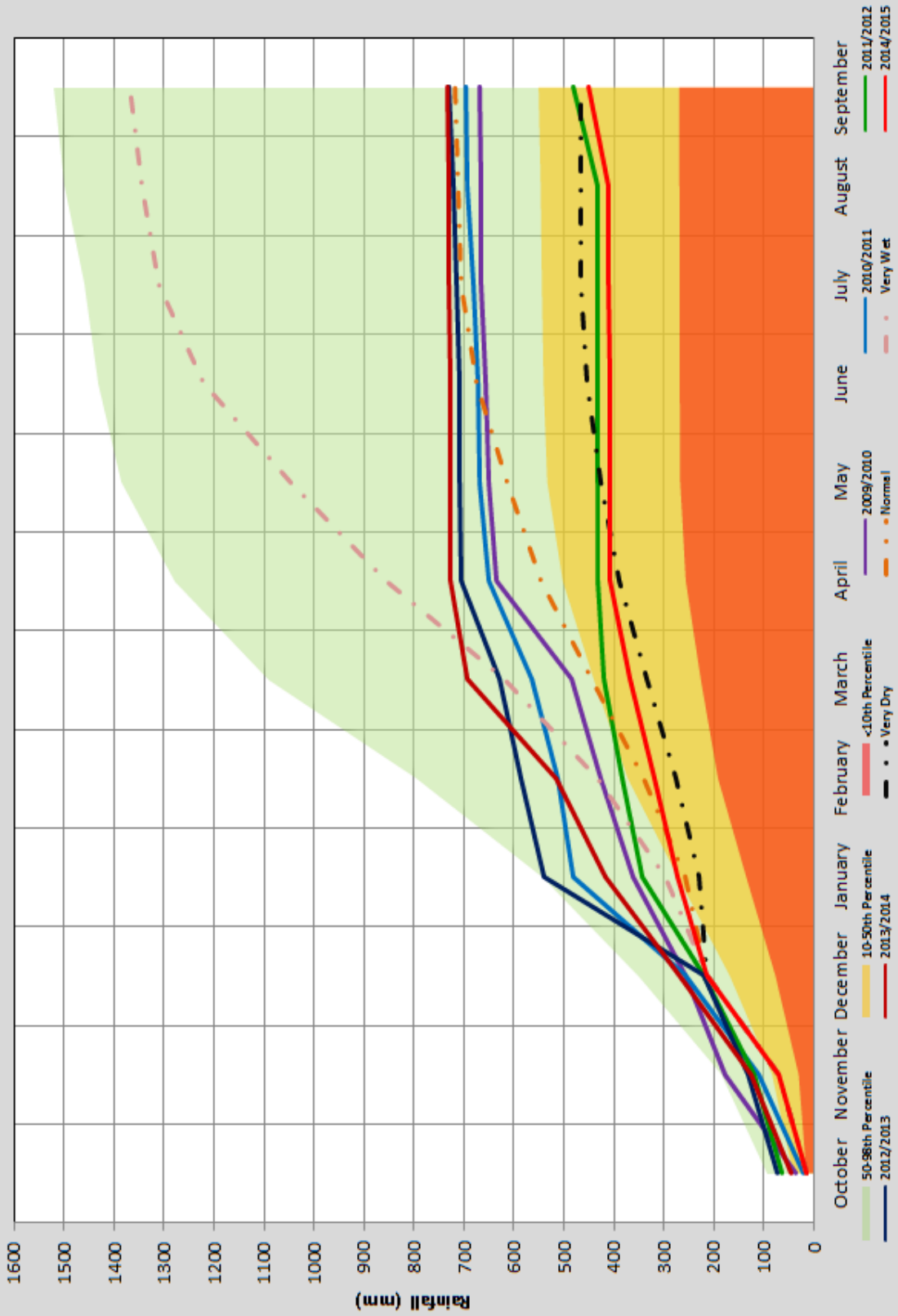
For information as well as operational matters the status of Inyaka Dam (X3R002) has been included in this report.

Inyaka Dam is at a storage level of 86.1% ( $106.42 \times 10^6\text{m}^3$ ) and 11.9% lower than the previous year, which means that the storage volume is 14.8 million cubic meters less than the corresponding period last year. See attached graph!

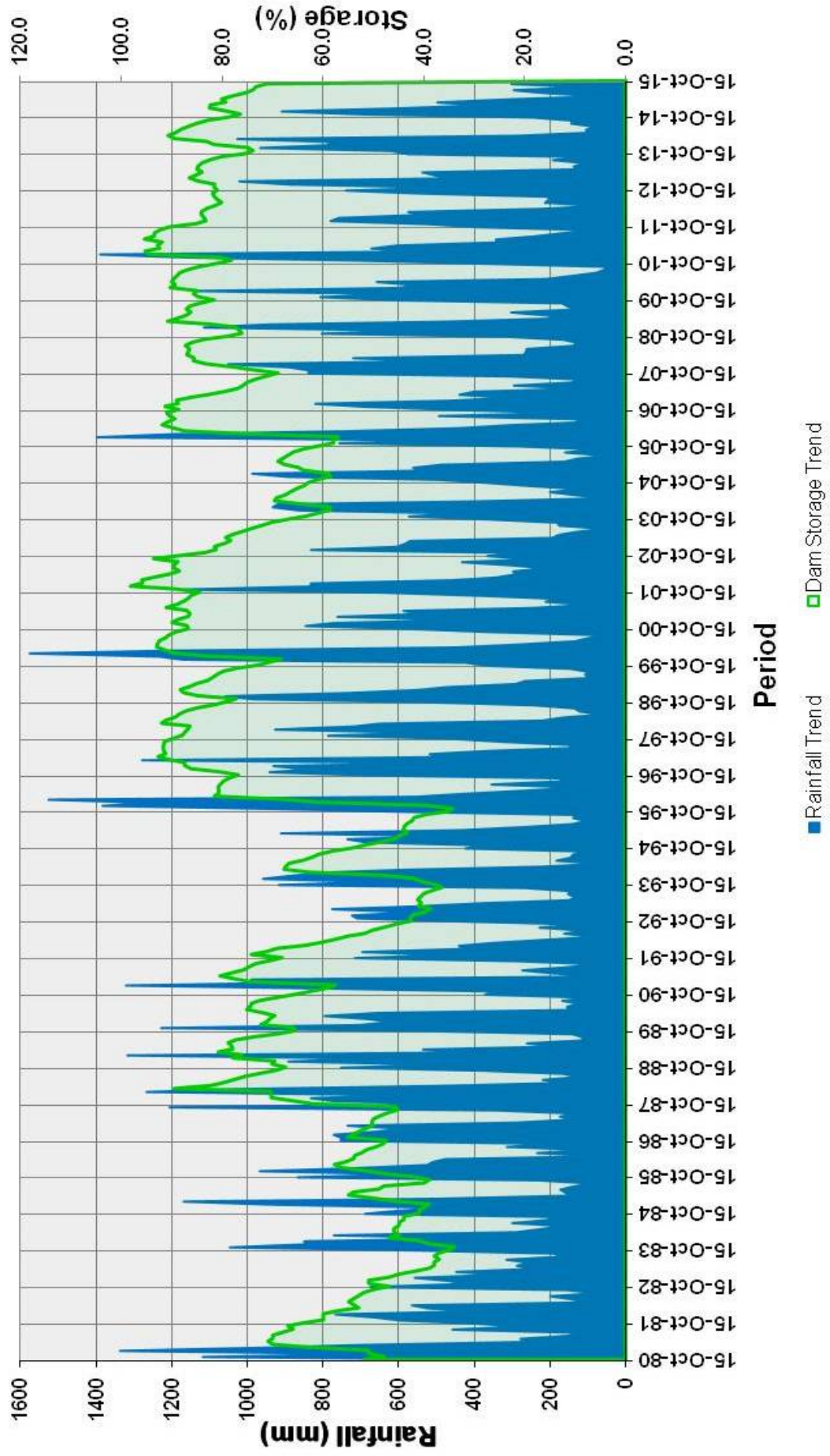
# Total rainfall (% of long-term mean) for April to September 2015



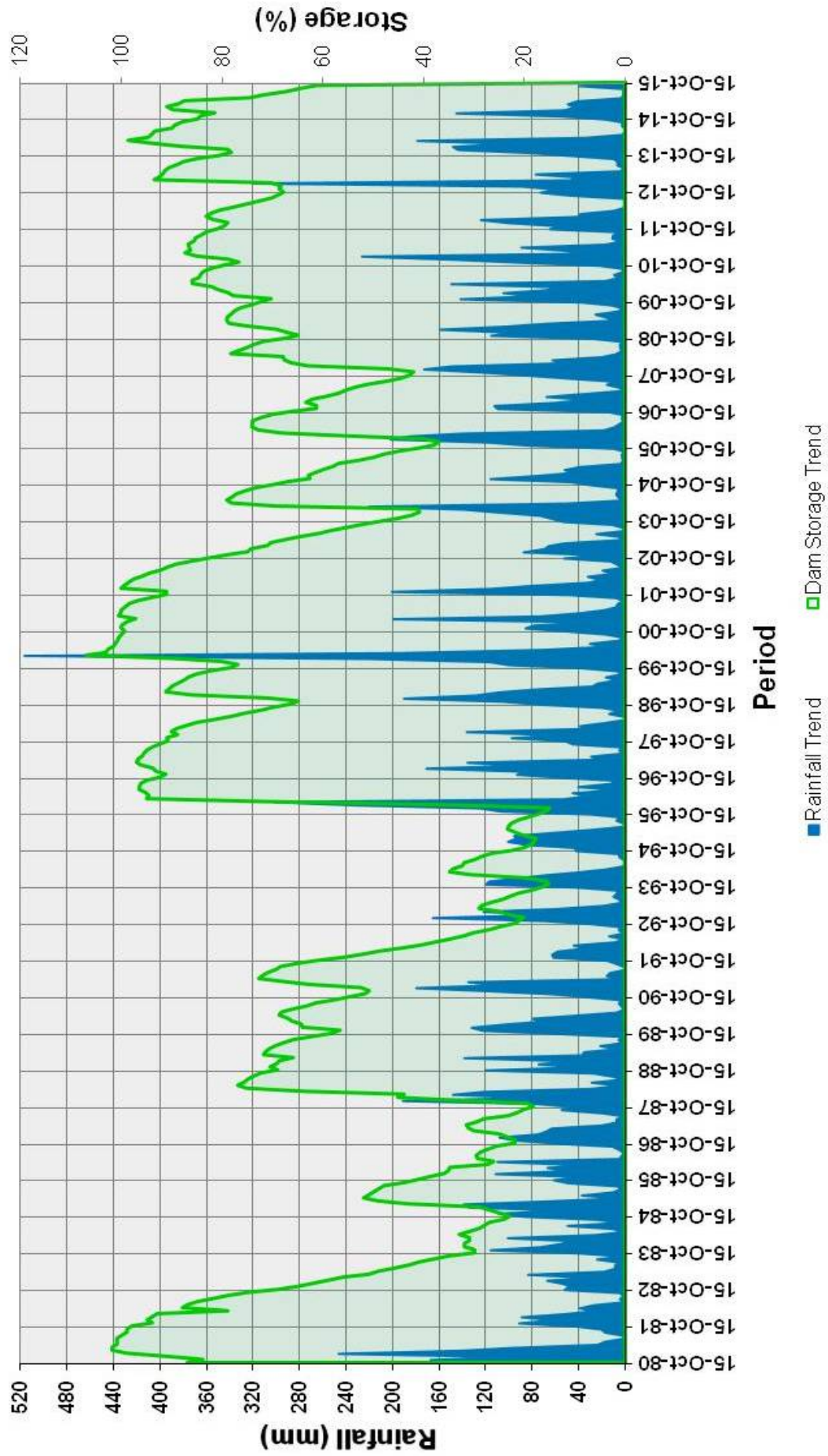
### Limpopo: Cumulative Annual Rainfall Since 2009/10 and Percentiles Since October 1960



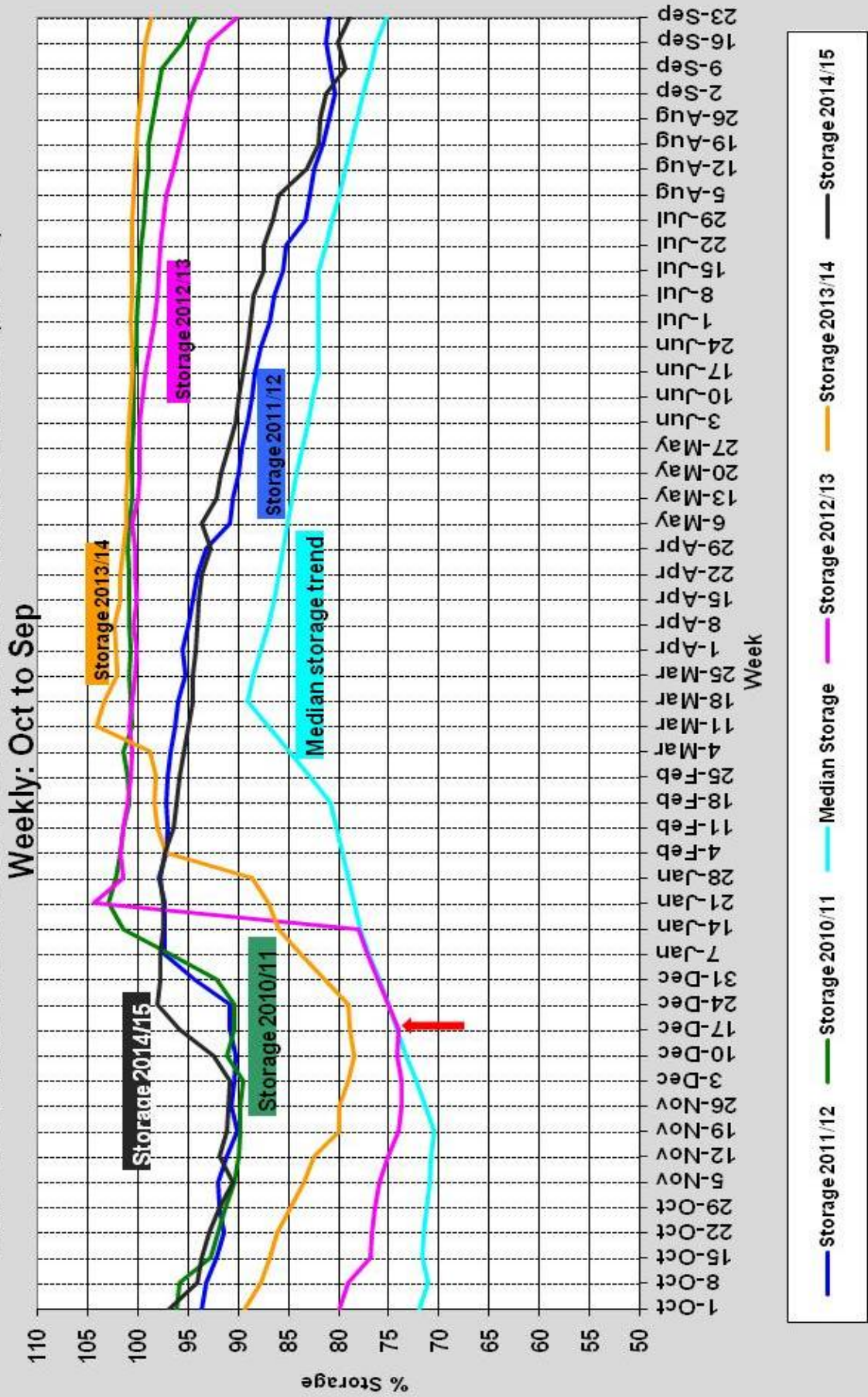
National: Monthly Rainfall and Dam Storage Trend Oct 1980 to September 2015



Limpopo: Monthly Rainfall and Dam Storage Trend Oct 1980 to September 2015

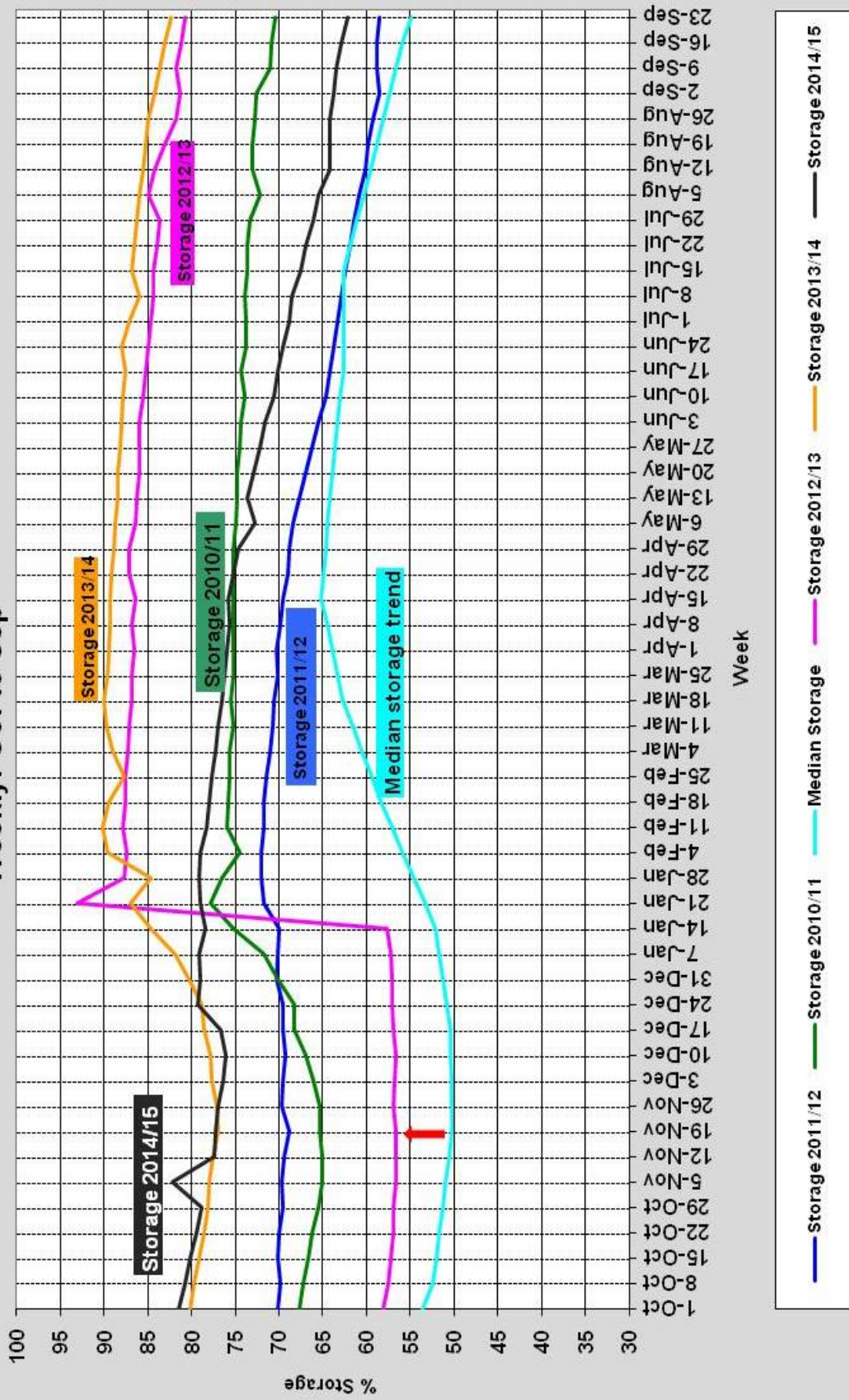


# LIMPOPO: WMA 1: STORAGE FOR CORRESPONDING WEEKS (%FSC)



# Luvuvhu-Letaba: WMA 2: STORAGE FOR CORRESPONDING WEEKS (%FSC)

Weekly: Oct to Sep

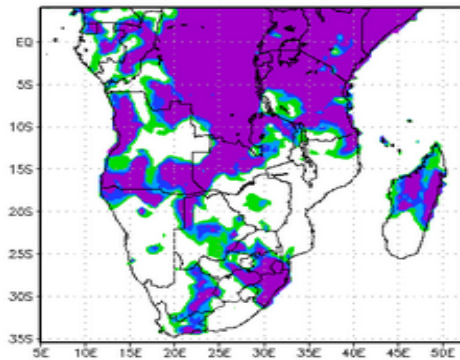


Summary WMA	Full Supply Capacity 10 <sup>6</sup> M <sup>3</sup>	Water in Storage 10 <sup>6</sup> M <sup>3</sup>	Last Year %Full	Last Week %Full	This Week %Full
					28/09/2015
1 Limpopo	280.4	224.5	97.6	79.3	80.1
2 Luvubu/Letaba	652.5	410.2	81.9	63.5	62.9
3 Crocodile (West) Marico	807.3	493.8	72.7	60.5	61.2
4 Olifants	1422.6	1055.4	83.6	75.1	74.2
5 Inkomati	1049.6	789.8	92.4	76.7	75.2
6 Usutu/Mhlatuze	3276.2	1908.4	75.3	59.1	58.2
7 Thukela	1254.5	987.6	85.3	79.4	78.7
8 Upper Vaal	5659.2	4443.0	89.5	79.0	78.5
9 Middle Vaal	1671.6	809.5	75.7	55.8	48.4
10 Lower Vaal	108.5	78.1	89.6	69.0	72.0
11 Mvoti/Umzimkulu	801.9	514.2	80.2	64.8	64.1
12 Mzimvubu/Keiskamma	1091.6	975.1	89.9	89.8	89.3
13 Upper Orange	11428.3	7931.0	75.6	70.1	69.4
14 Lower Orange	36.1	38.3	102.8	107.4	106.3
15 Fish/Tsitsikamma	725.2	475.7	52.8	65.3	65.6
16 Gouritz	268.3	176.1	73.2	65.8	65.6
17 Olifants/Doom	128.2	113.3	100.5	90.5	88.3
18 Breede	1041.0	747.3	91.2	71.4	71.8
19 Berg	416.5	298.9	100.1	72.8	71.8
<b>GRAND TOTAL</b>	32119.6	22470.3	80.6	70.9	70.0

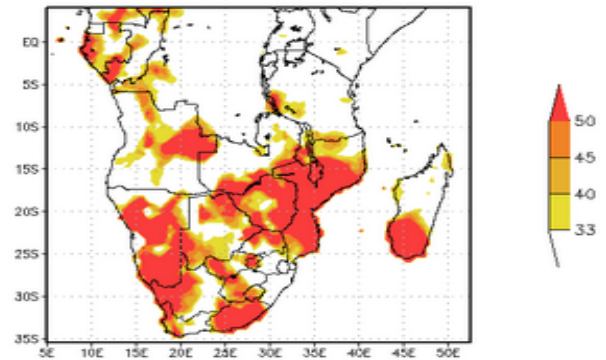
**Please note** that the above summaries are not representative of all dams within any of the Provinces or Water Management Areas.

The summaries only reflect the storages for those dams listed in the Weekly State of Reservoirs Report.

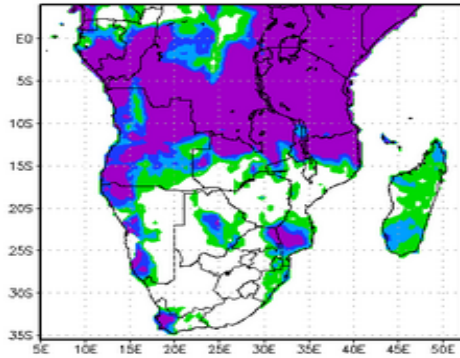
SEPTEMBER–OCTOBER–NOVEMBER  
Above–Normal Rainfall



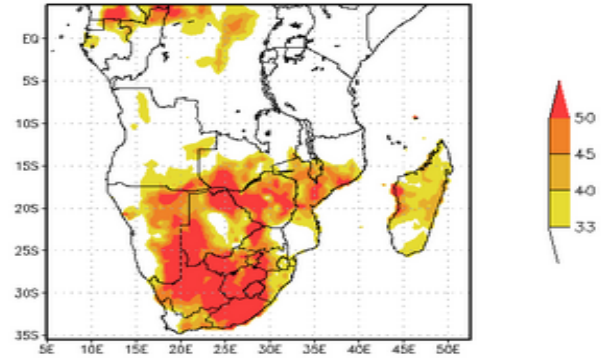
SEPTEMBER–OCTOBER–NOVEMBER  
Below–Normal Rainfall



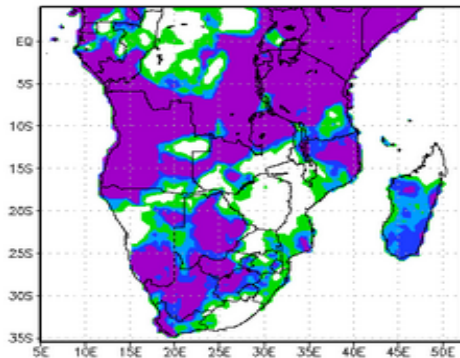
OCTOBER–NOVEMBER–DECEMBER  
Above–Normal Rainfall



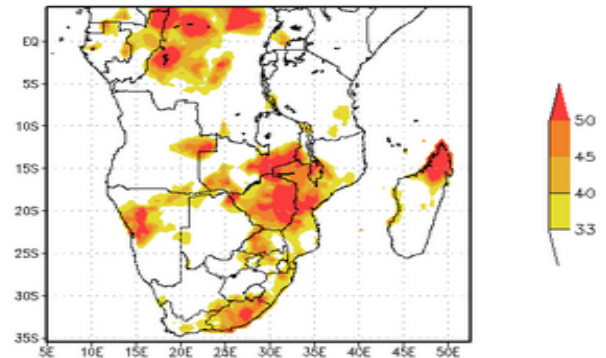
OCTOBER–NOVEMBER–DECEMBER  
Below–Normal Rainfall



NOVEMBER–DECEMBER–JANUARY  
Above–Normal Rainfall

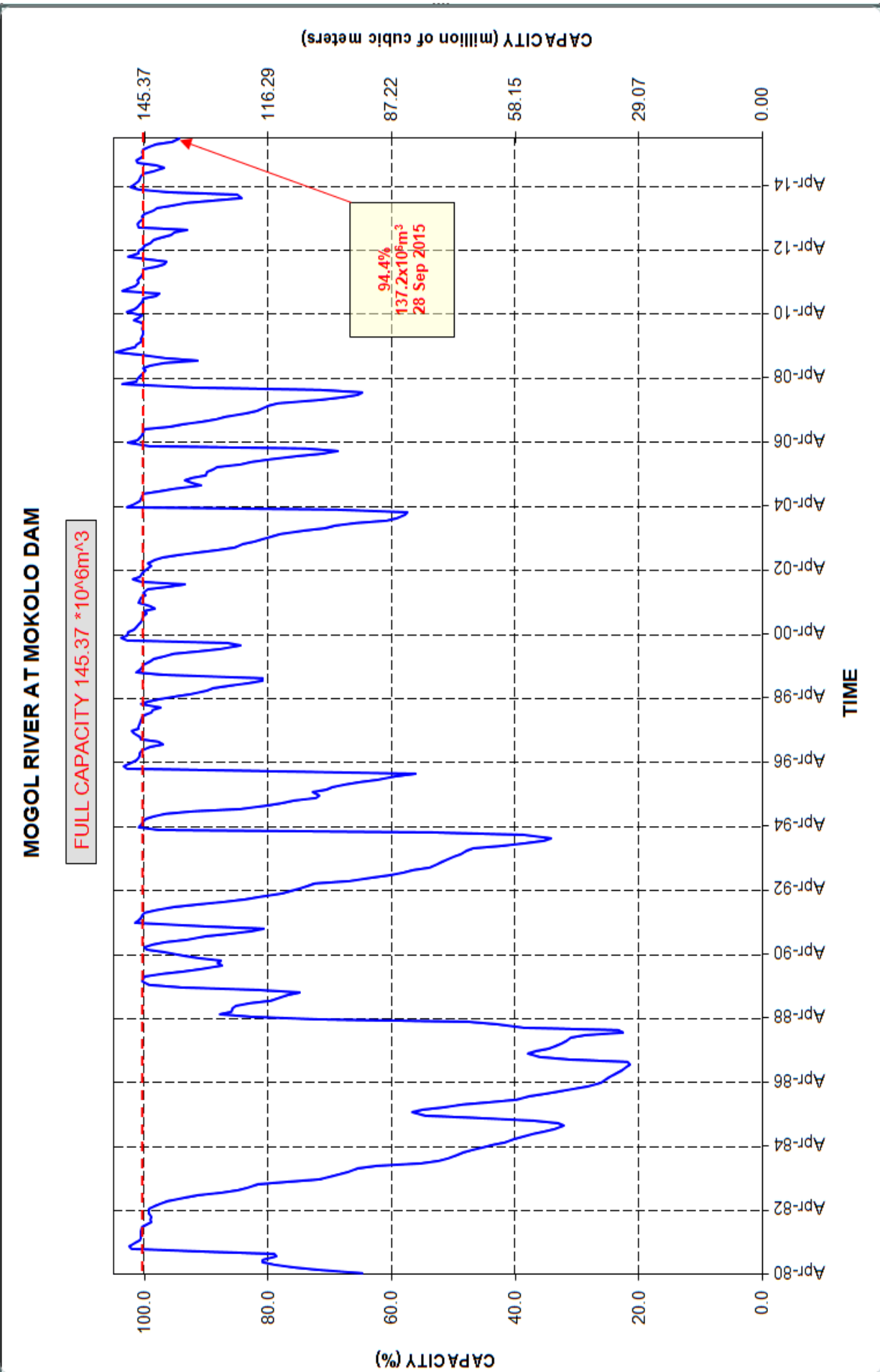


NOVEMBER–DECEMBER–JANUARY  
Below–Normal Rainfall

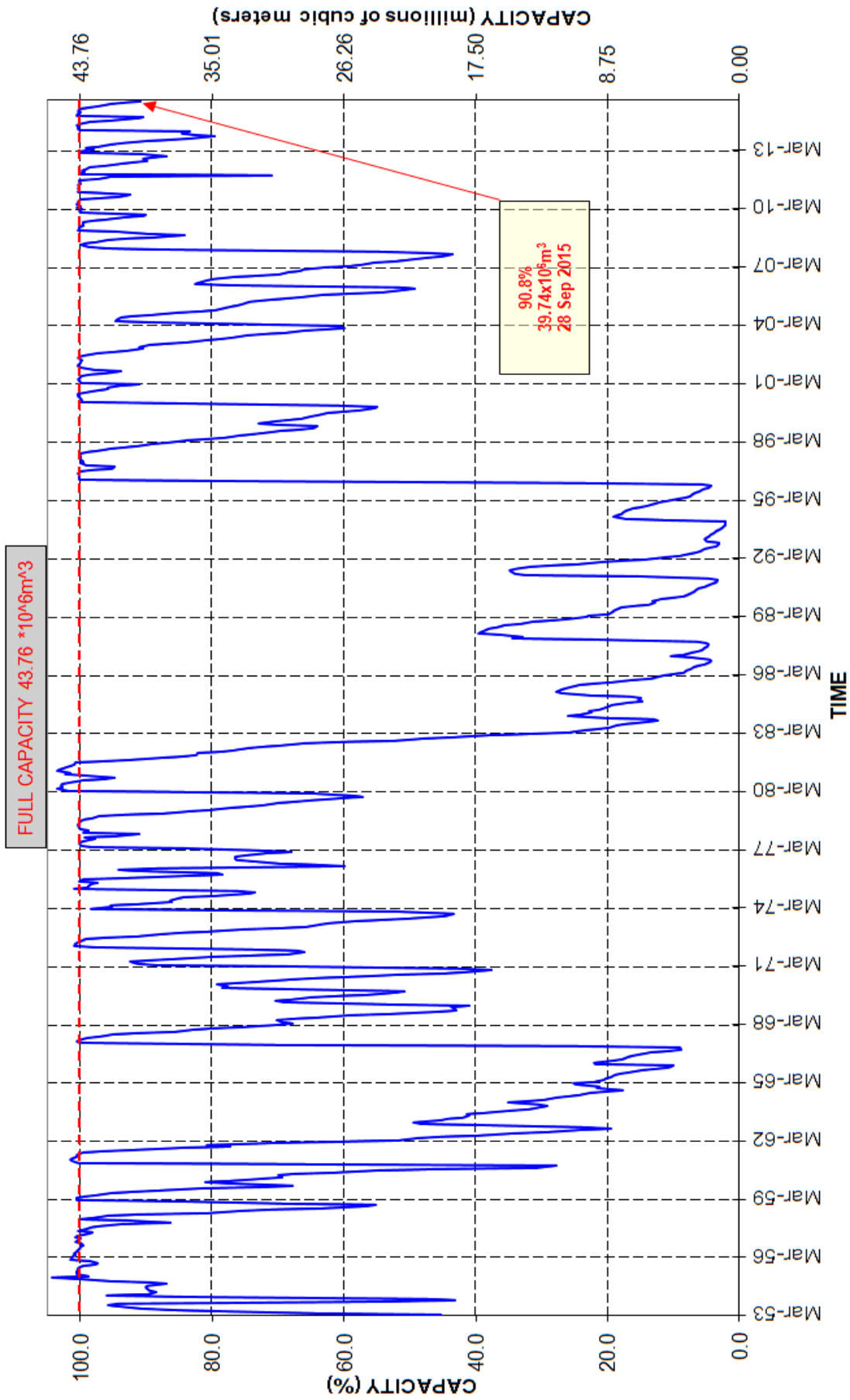


## Climate forecast Details: Rainfall

The forecasting system indicated mostly weak probabilities of below-normal total rainfall for late spring, uncertainty for early summer and strong probabilities for below-normal total rainfall for mid-summer in most parts of the country.  
By Weathersa.

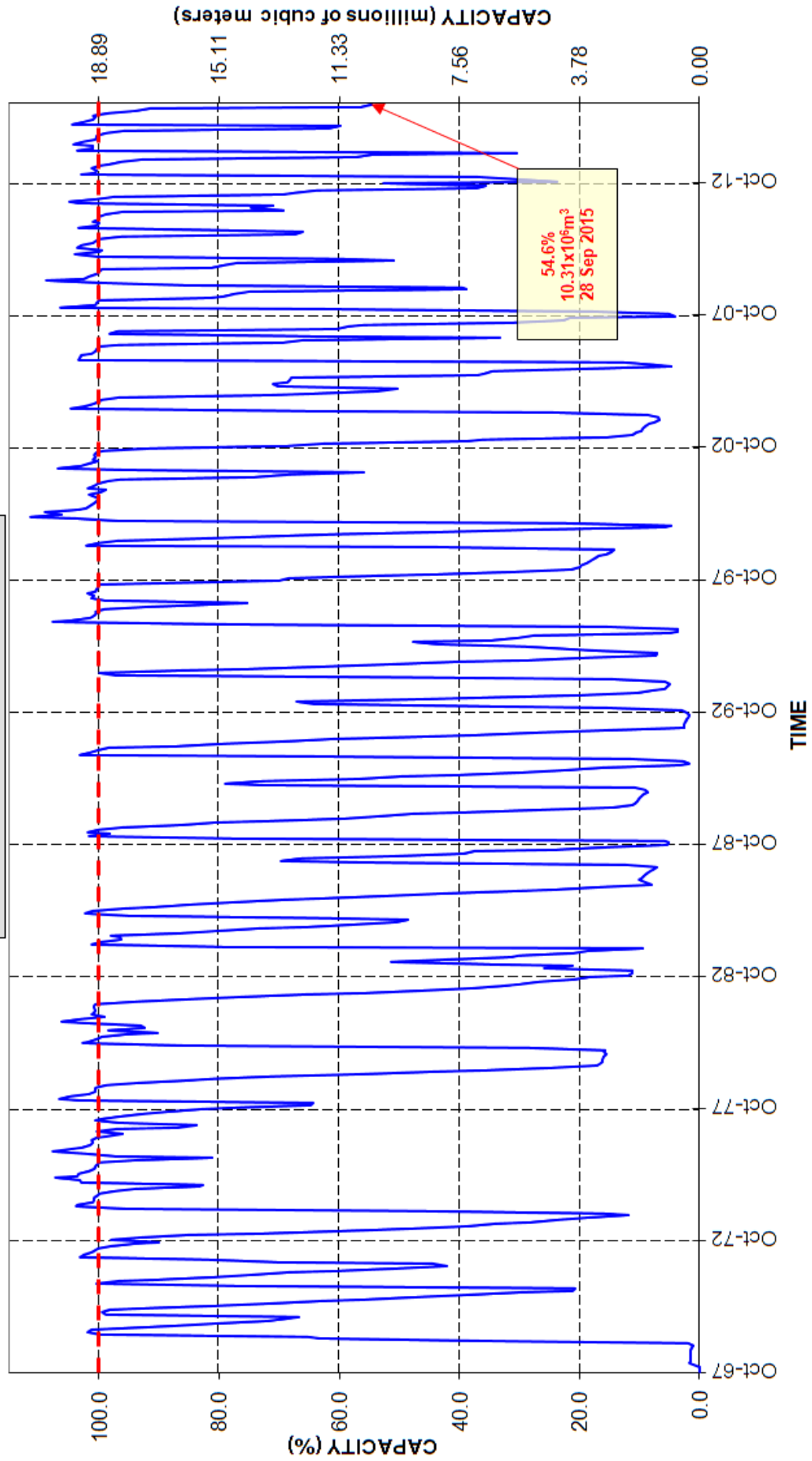


# STERK RIVER AT DOORNDRAAI DAM



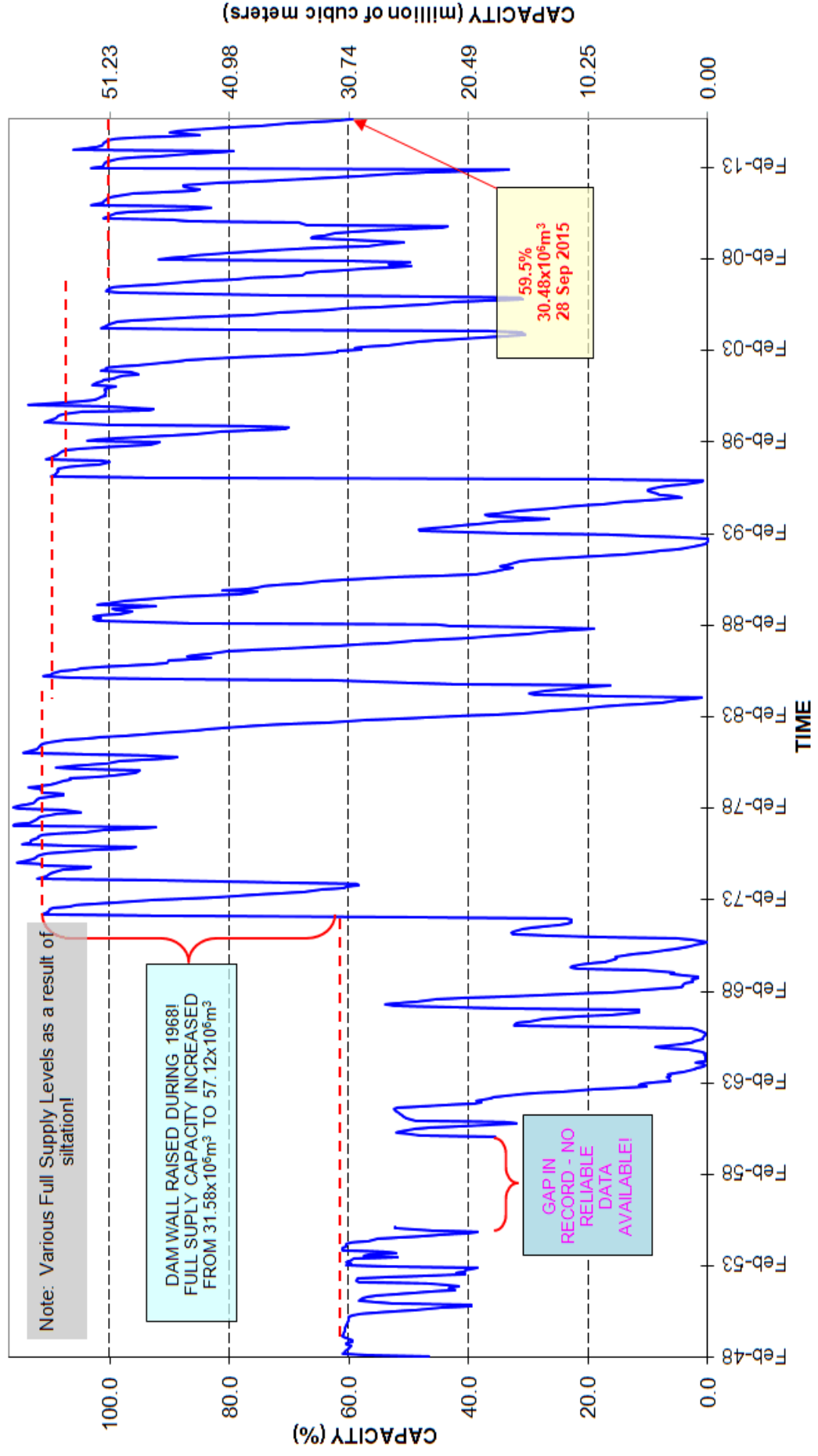
# MOKGALAKWENA RIVER AT GLEN ALPINE DAM

FULL CAPACITY 18.89 \*10<sup>6</sup>m<sup>3</sup>



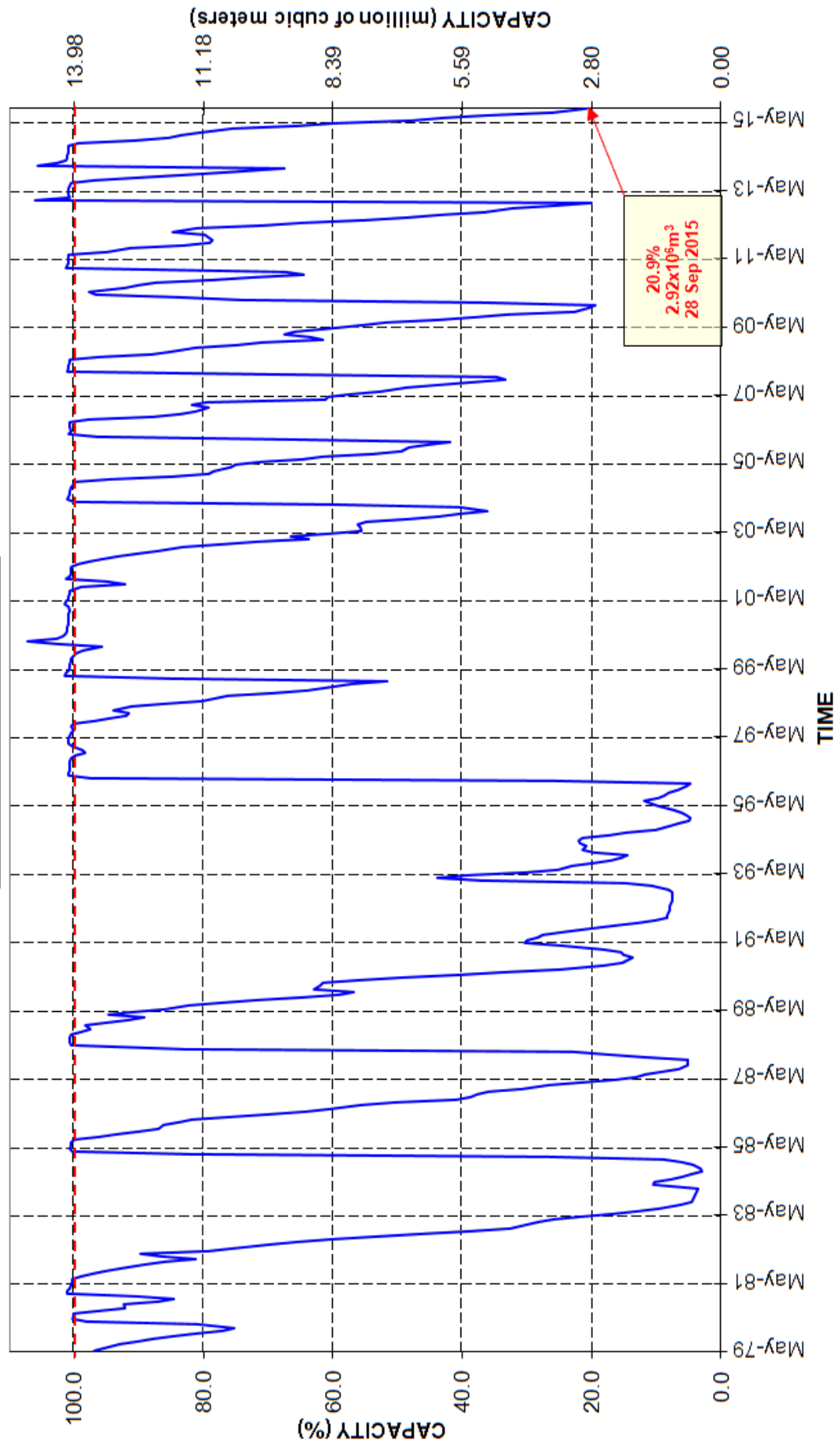
# NZHELELE RIVER AT NZHELELE DAM

FULL CAPACITY 51.23 \*10<sup>6</sup>m<sup>3</sup>



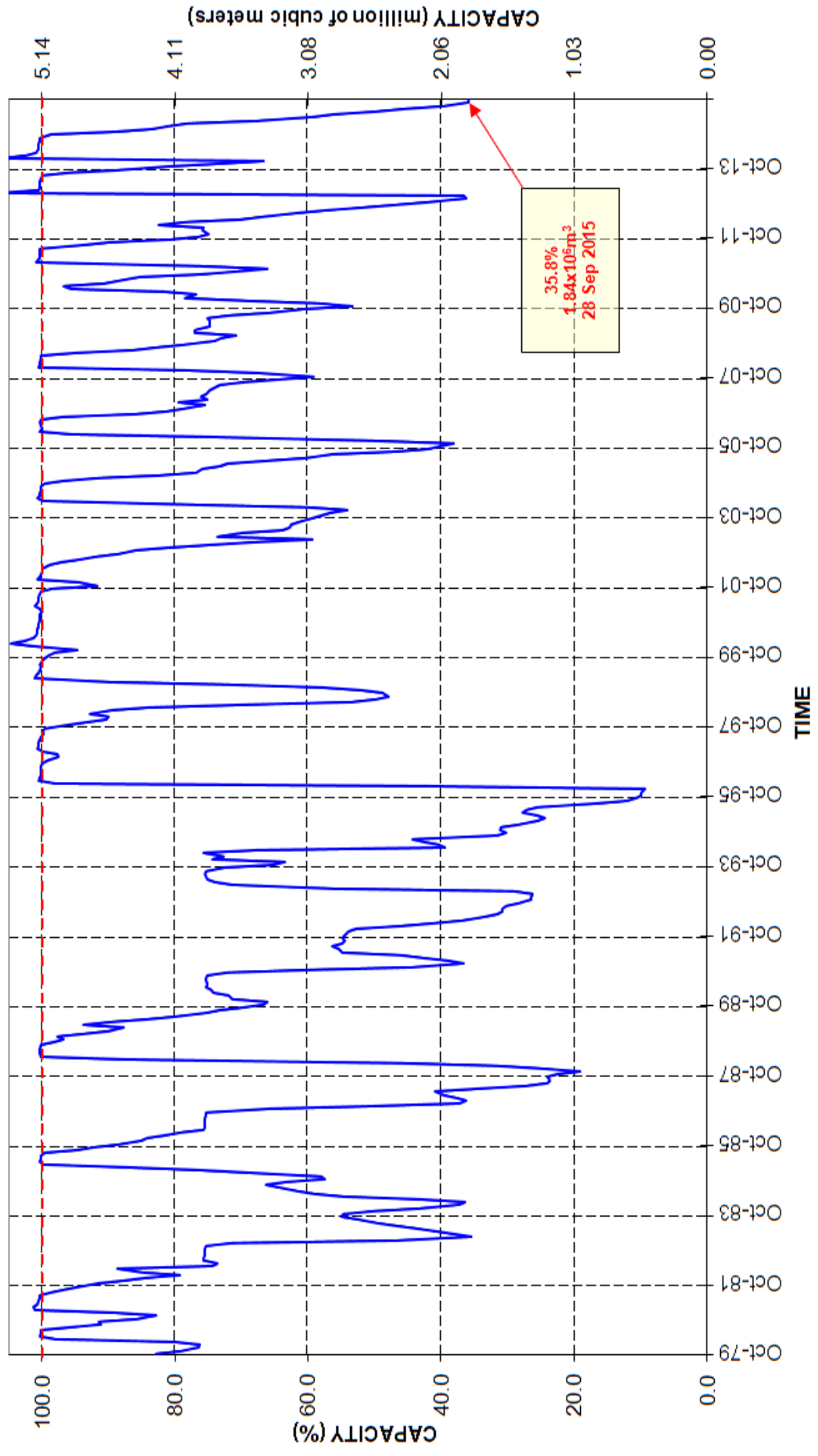
# LUPEPHE RIVER AT LUPEPHE DAM

FULL CAPACITY 13.984 \* 10<sup>6</sup>m<sup>3</sup>



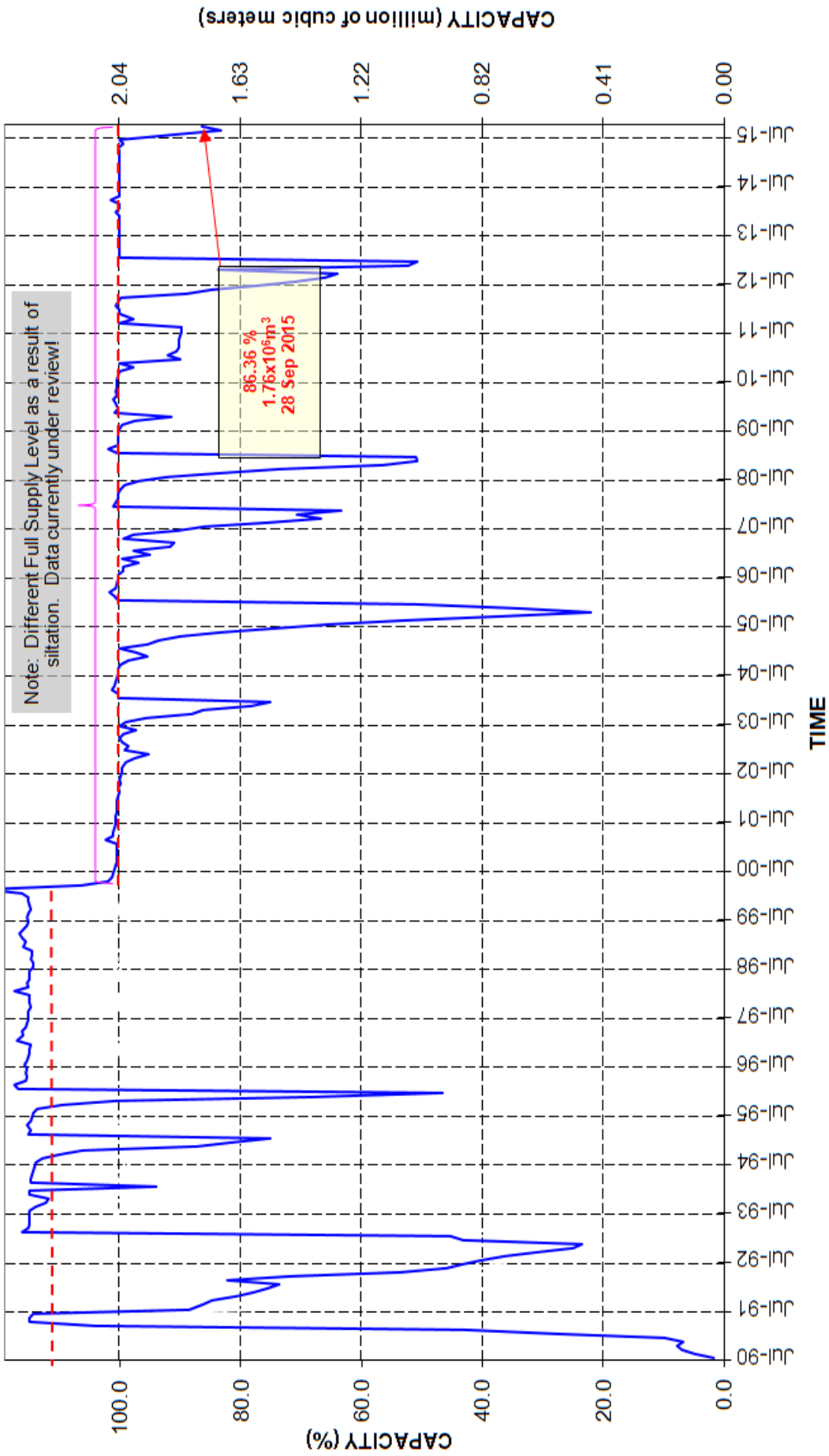
# NWANEDZI RIVER AT NWANEDZI DAM

FULL CAPACITY 5.14 \*10^6m^3



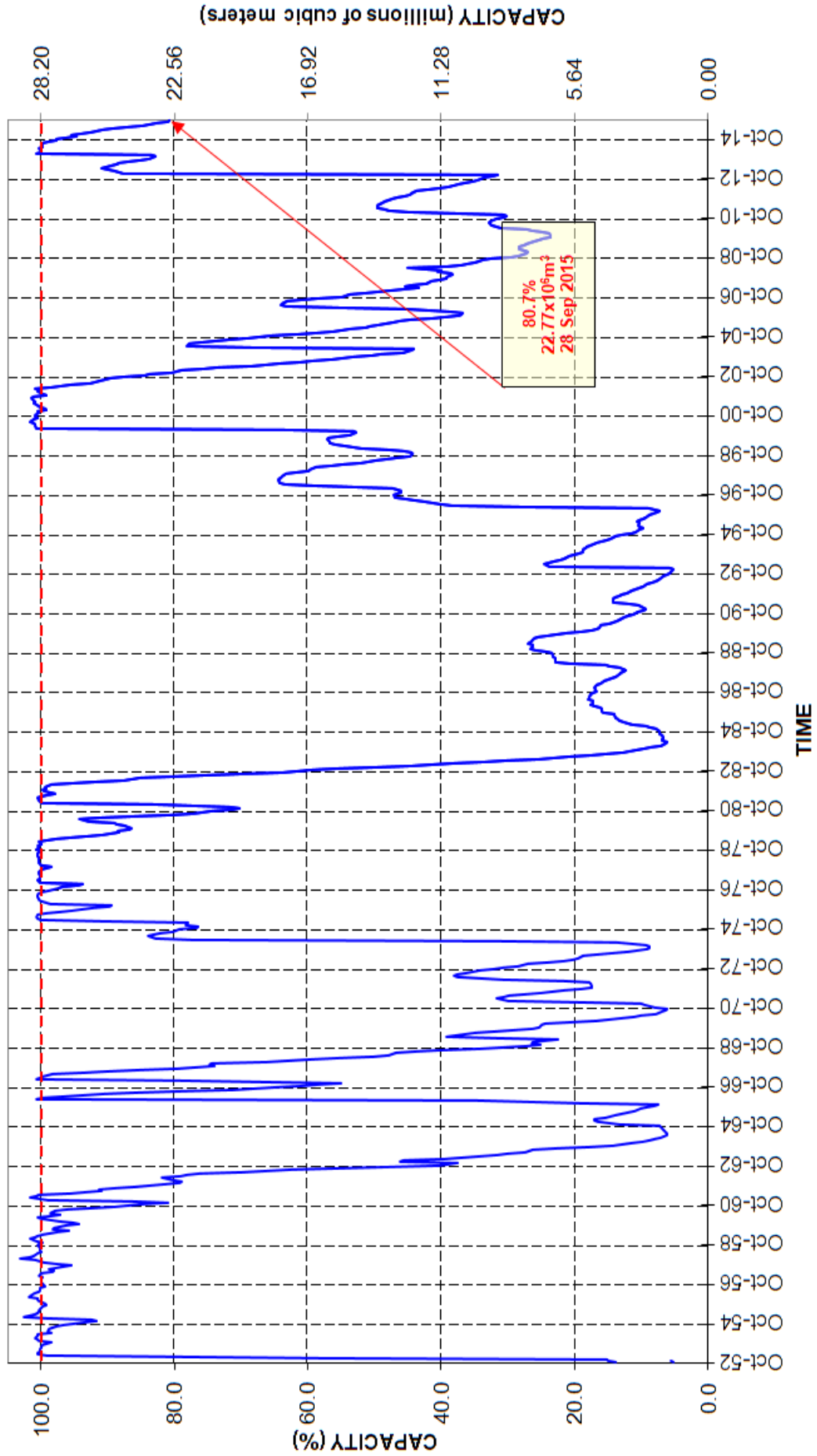
# MUTSHEDZI RIVER AT MUTSHEDZI DAM

FULL CAPACITY  $2.037 \times 10^6 \text{m}^3$



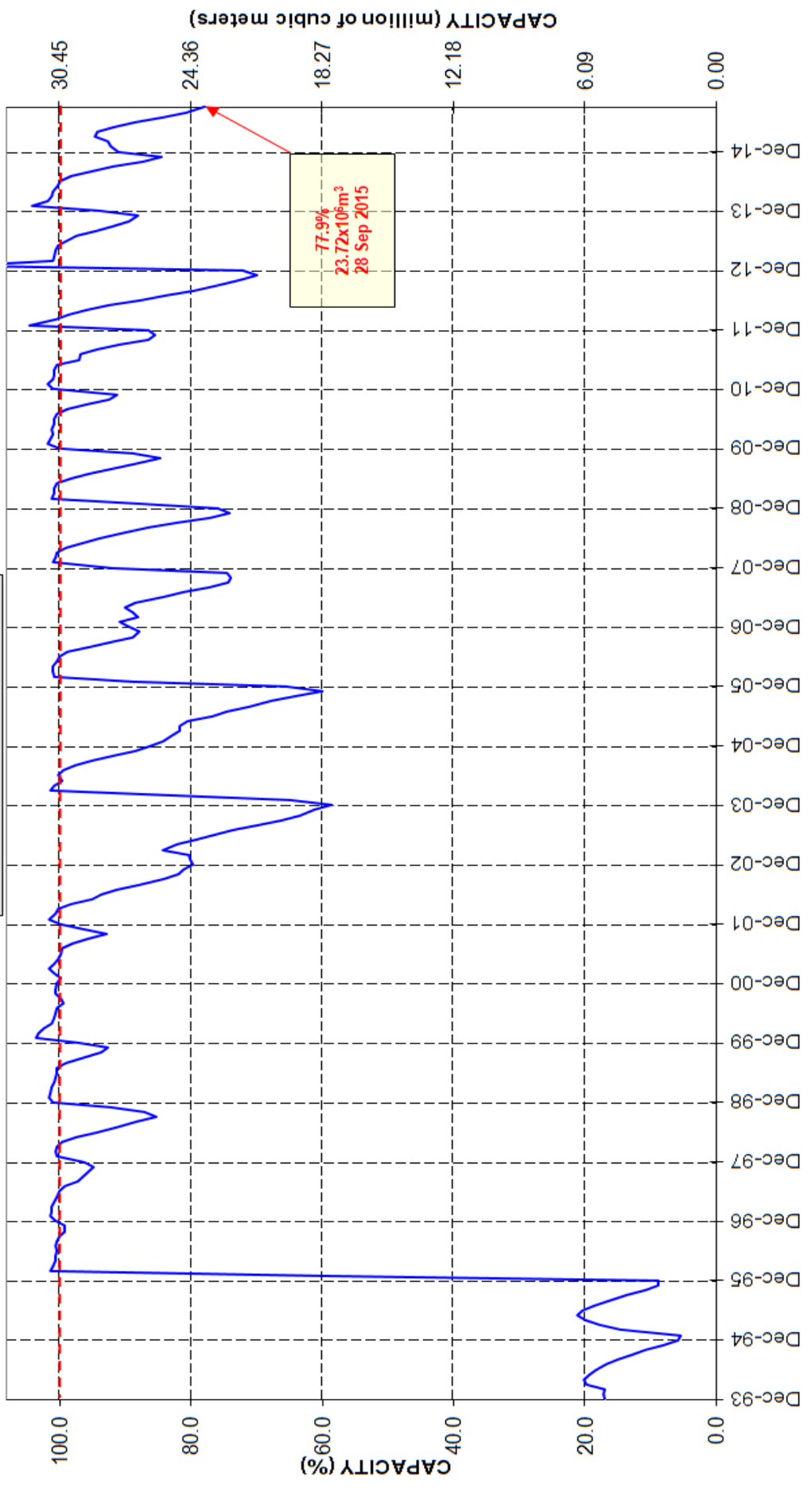
# LUVUVHU RIVER AT ALBASINI DAM

FULL CAPACITY 28.21\*10<sup>6</sup>m<sup>3</sup>



# MUTSHINDUDI RIVER AT VONDO DAM

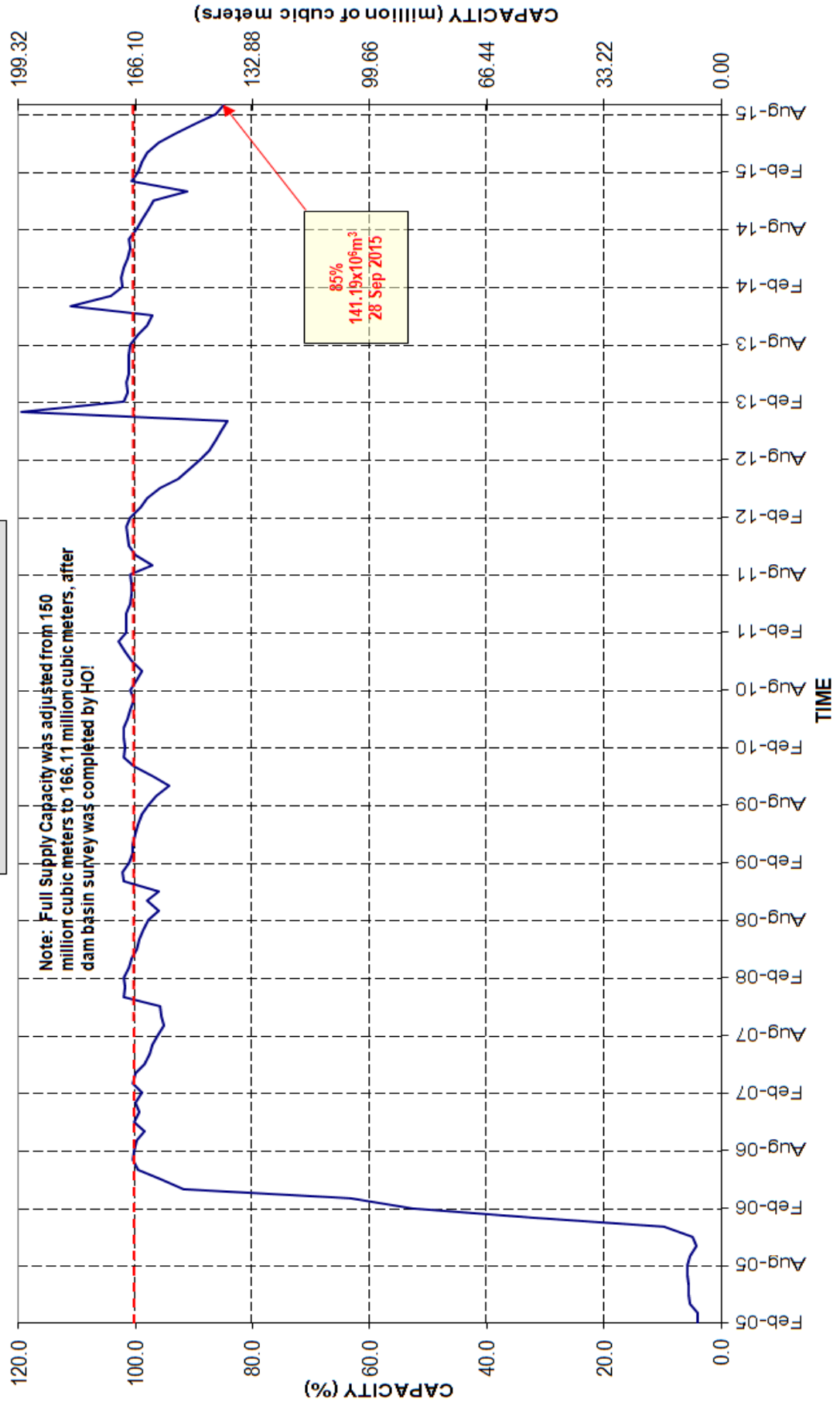
FULL CAPACITY  $30.447 \times 10^6 m^3$



# LUVUVHU RIVER AT NANDONI DAM

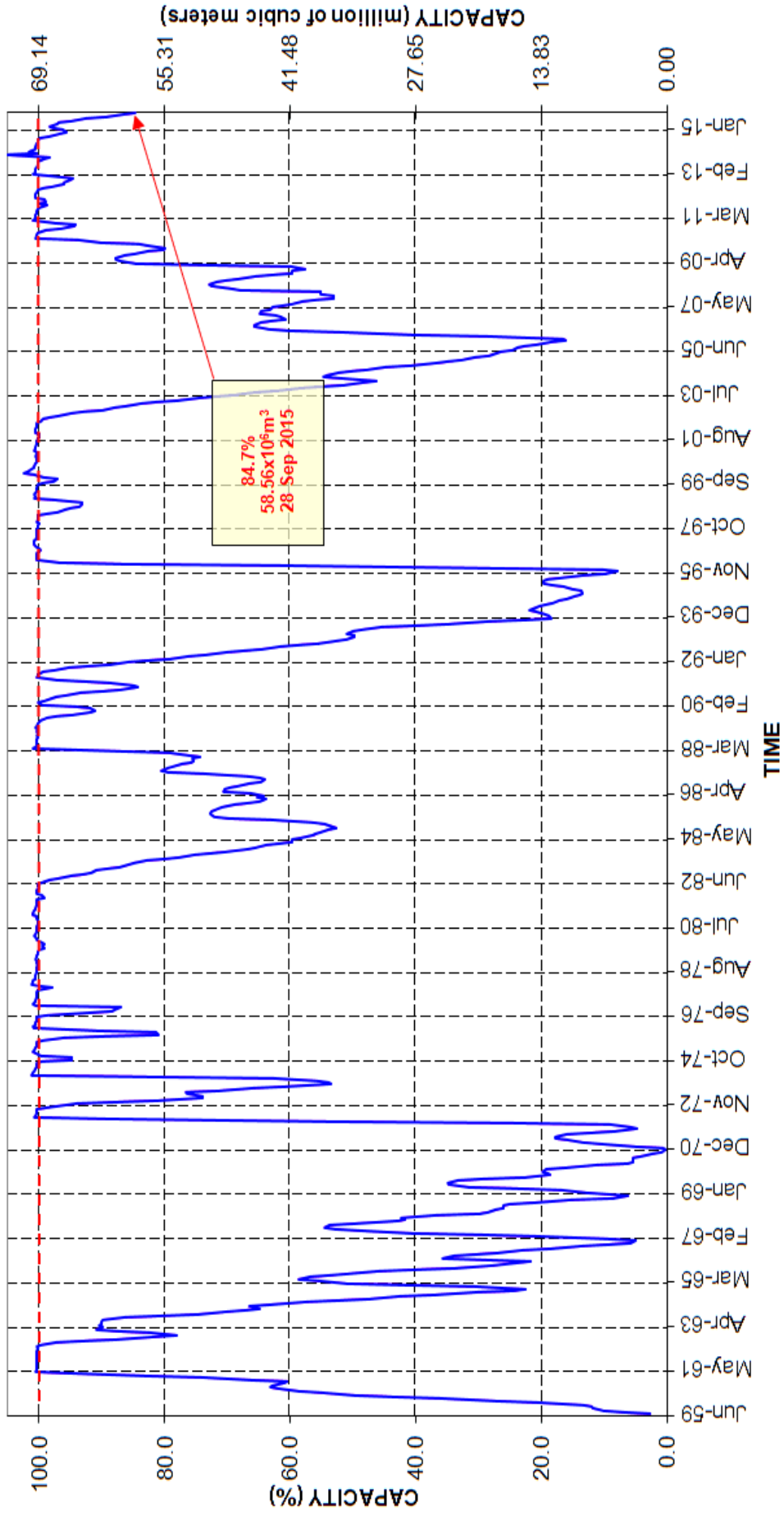
**FULL CAPACITY 166.11\*10<sup>6</sup>m<sup>3</sup>**

Note: Full Supply Capacity was adjusted from 150 million cubic meters to 166.11 million cubic meters, after dam basin survey was completed by HO!



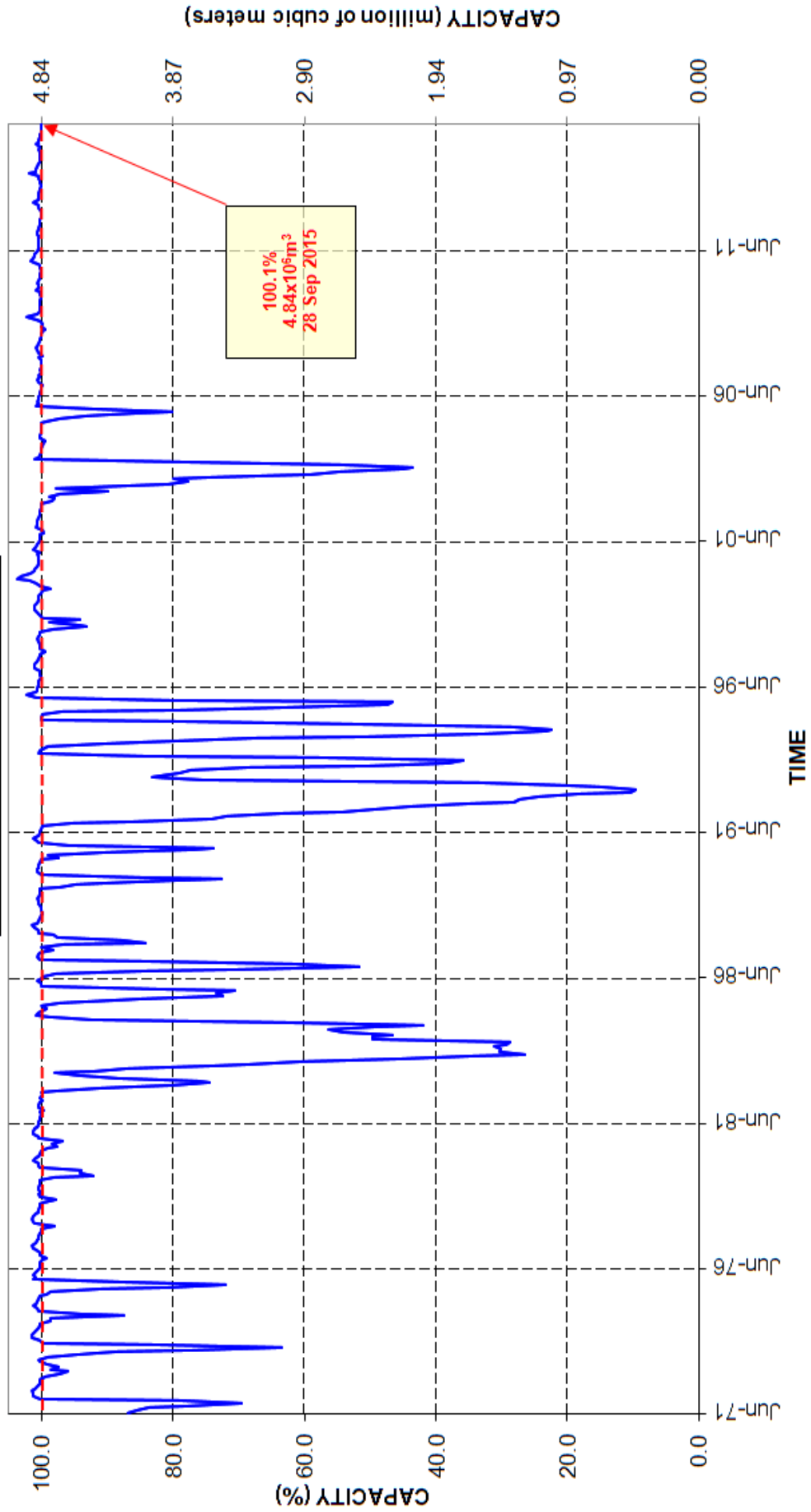
# GREAT LETABA RIVER AT EBENEZER DAM

FULL CAPACITY 69.139 \*10<sup>6</sup>m<sup>3</sup>

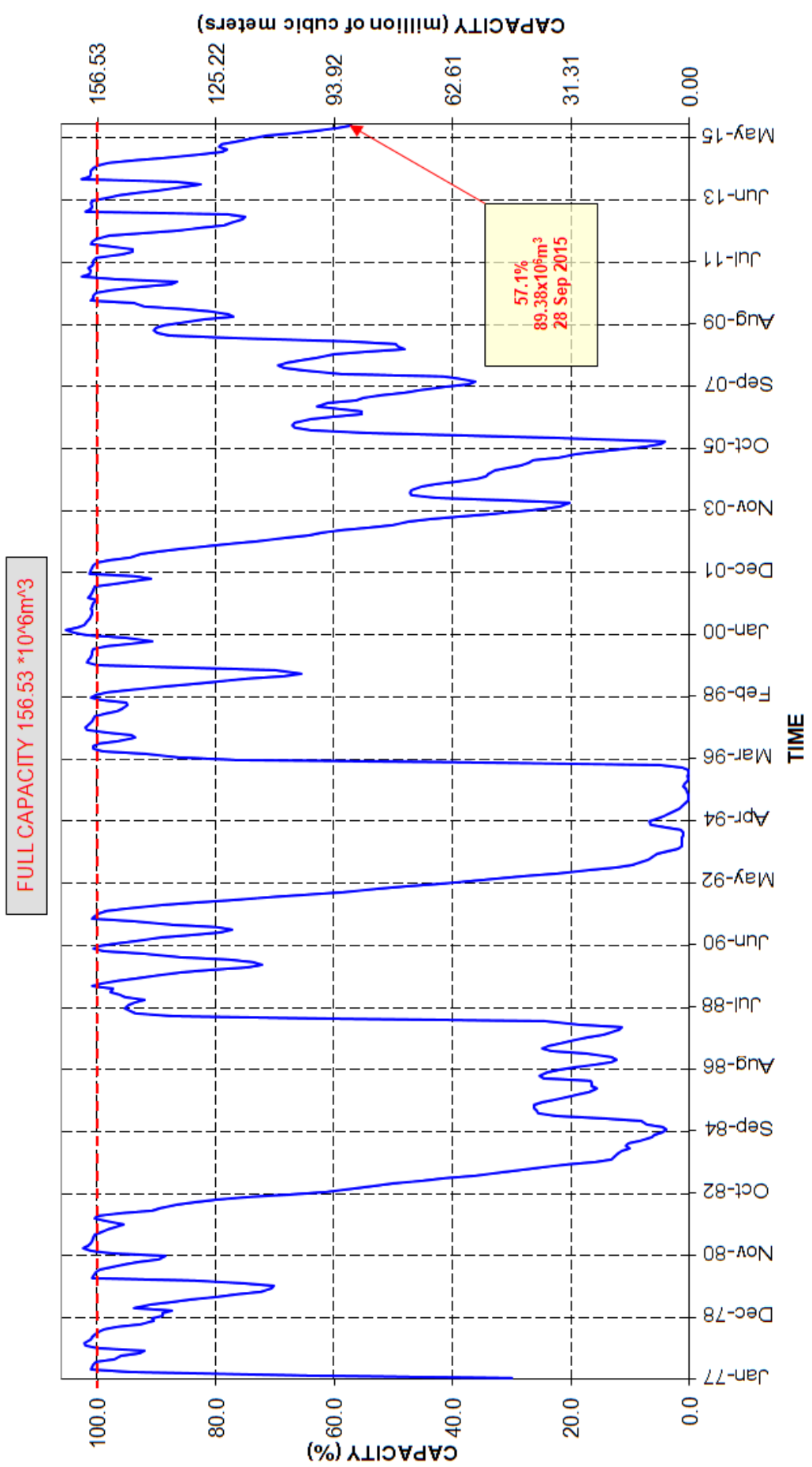


# POLITSI RIVER AT MAGOEBASKLOOF DAM

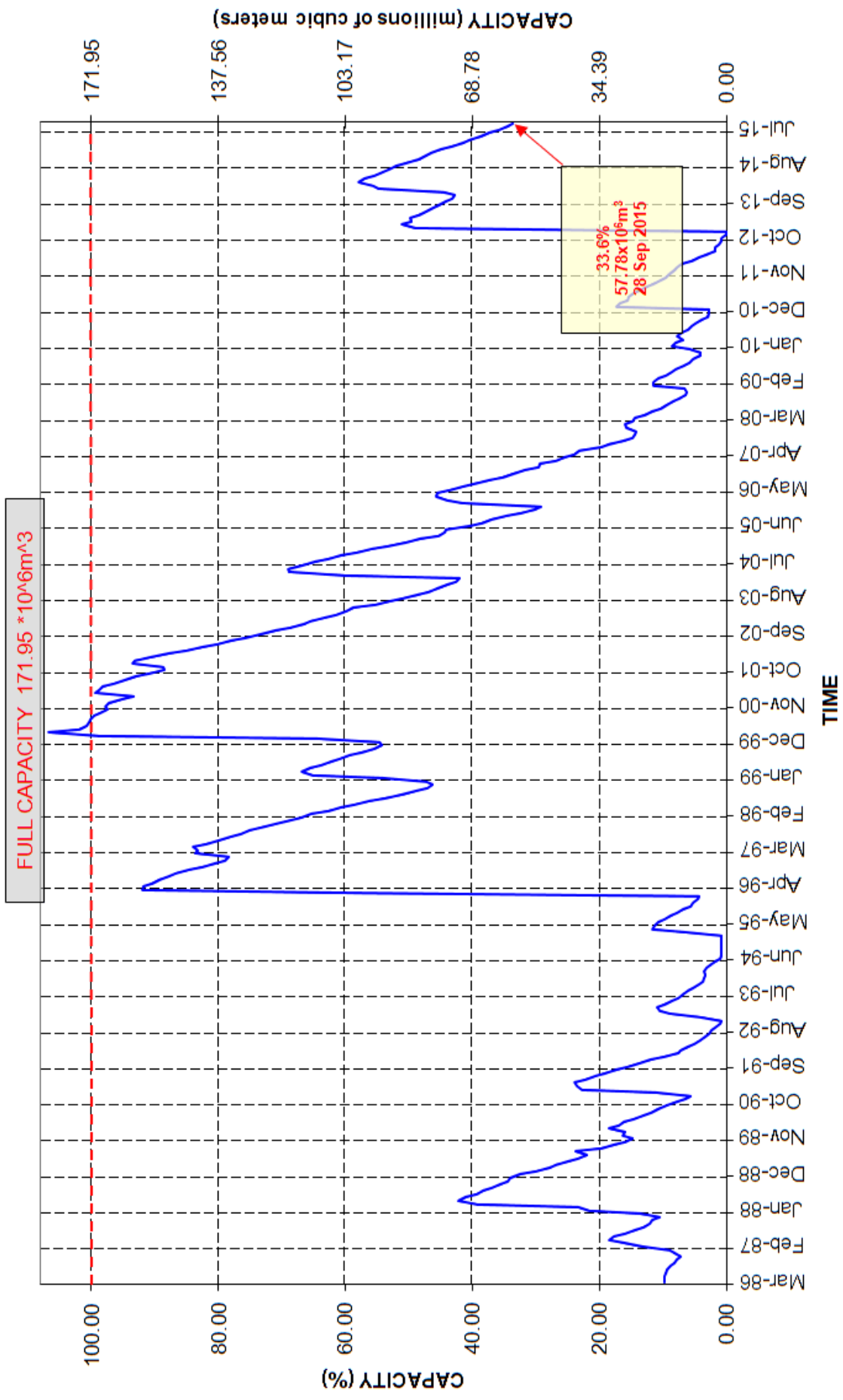
FULL CAPACITY 4.840 \*10^6m^3

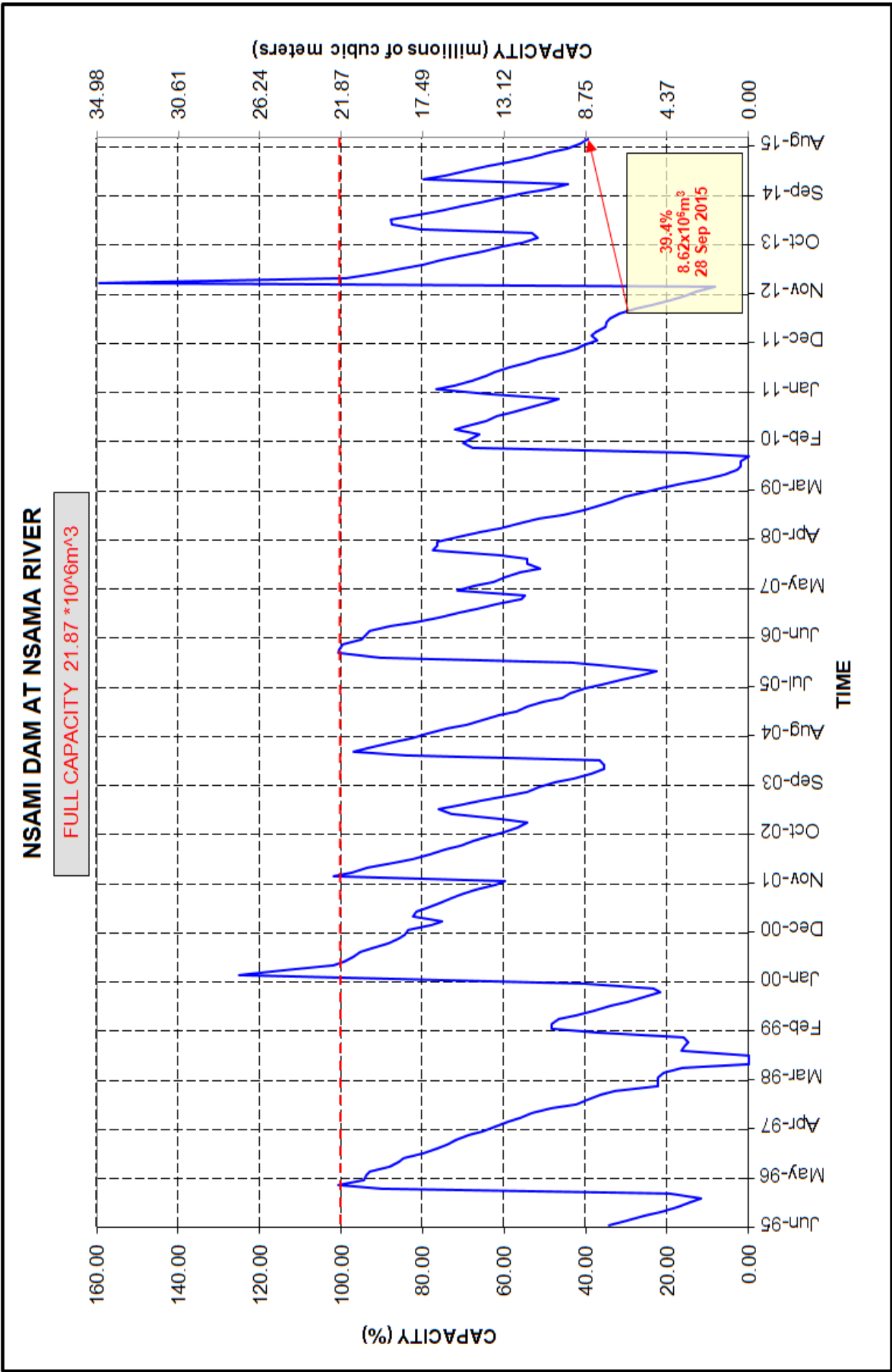


# GREAT LETABA RIVER AT TZANEEN DAM



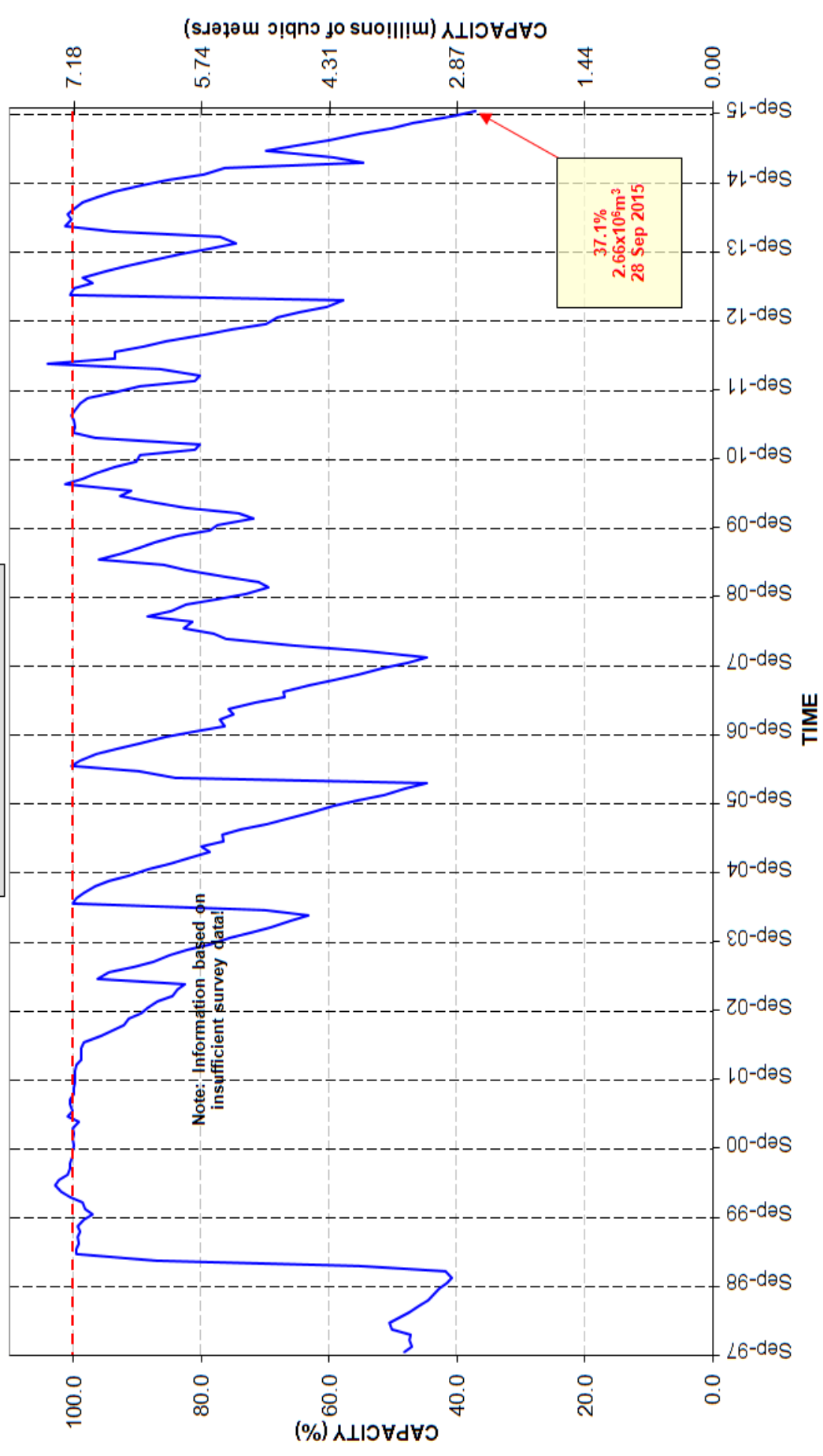
# MIDDLE LETABA RIVER AT MIDDLE LETABA DAM





# MOLOTOTSI RIVERAT MODJADJI DAM

FULL CAPACITY 7.18 \* 10^6 m^3

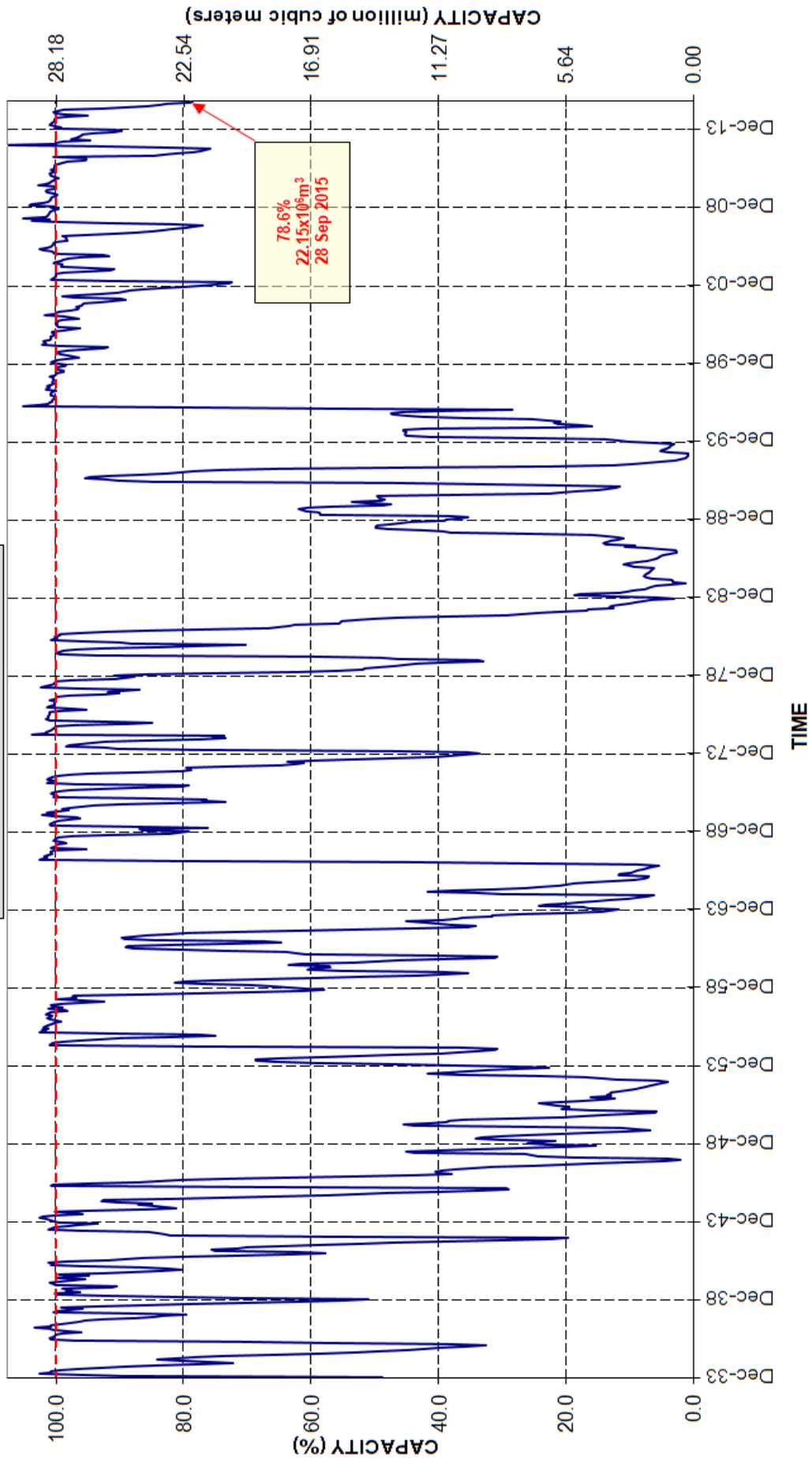


Note: Information based on insufficient survey data!

37.1%  
2.66x10<sup>6</sup>m<sup>3</sup>  
28 Sep 2015

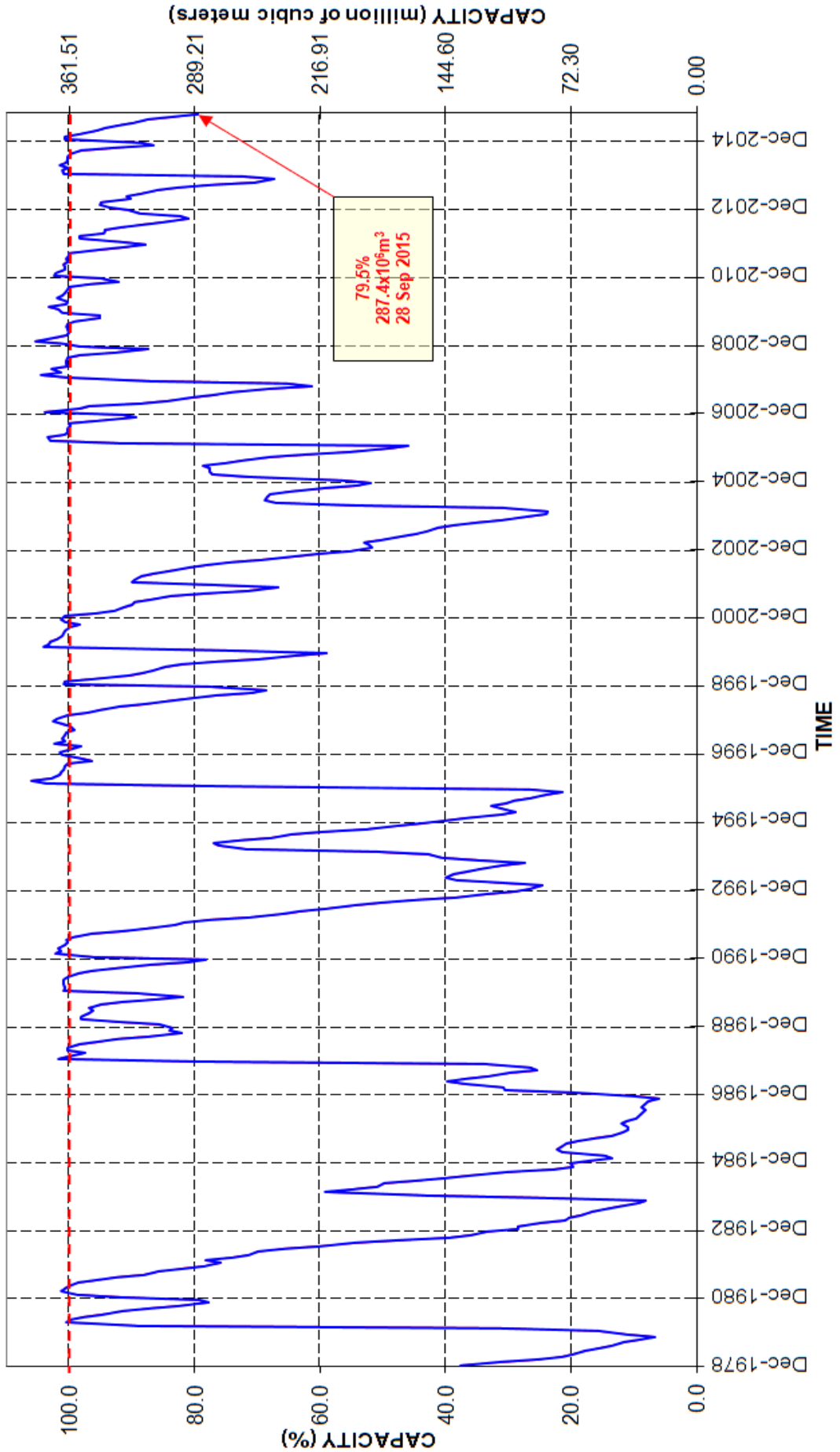
# ELANDS RIVER AT RUST DE WINTER DAM

FULL CAPACITY 28.186\*10<sup>6</sup>m<sup>3</sup>



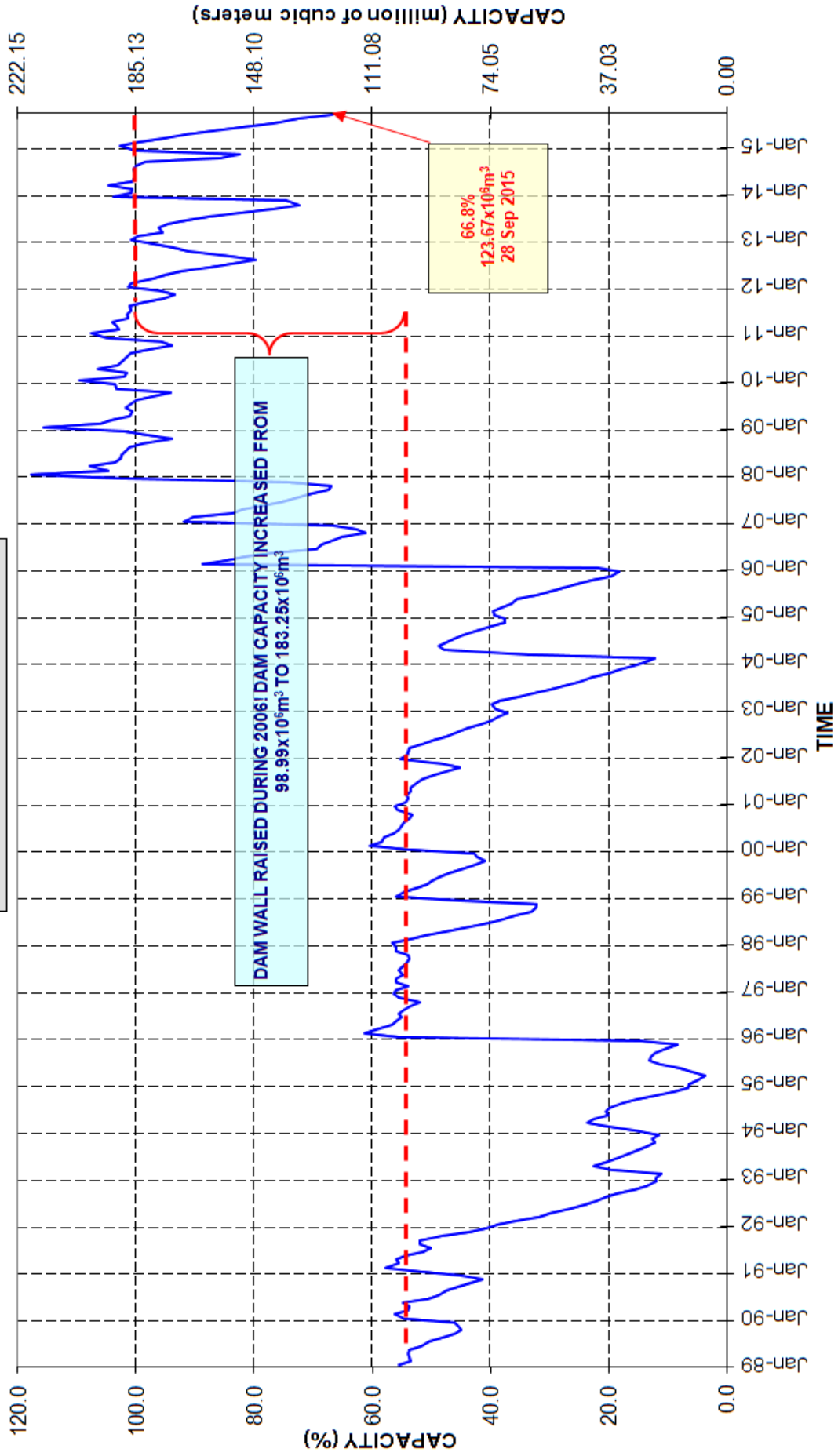
# OLIFANTS RIVER AT LOSKOP DAM

FULL CAPACITY 361.51\*10<sup>6</sup>m<sup>3</sup>



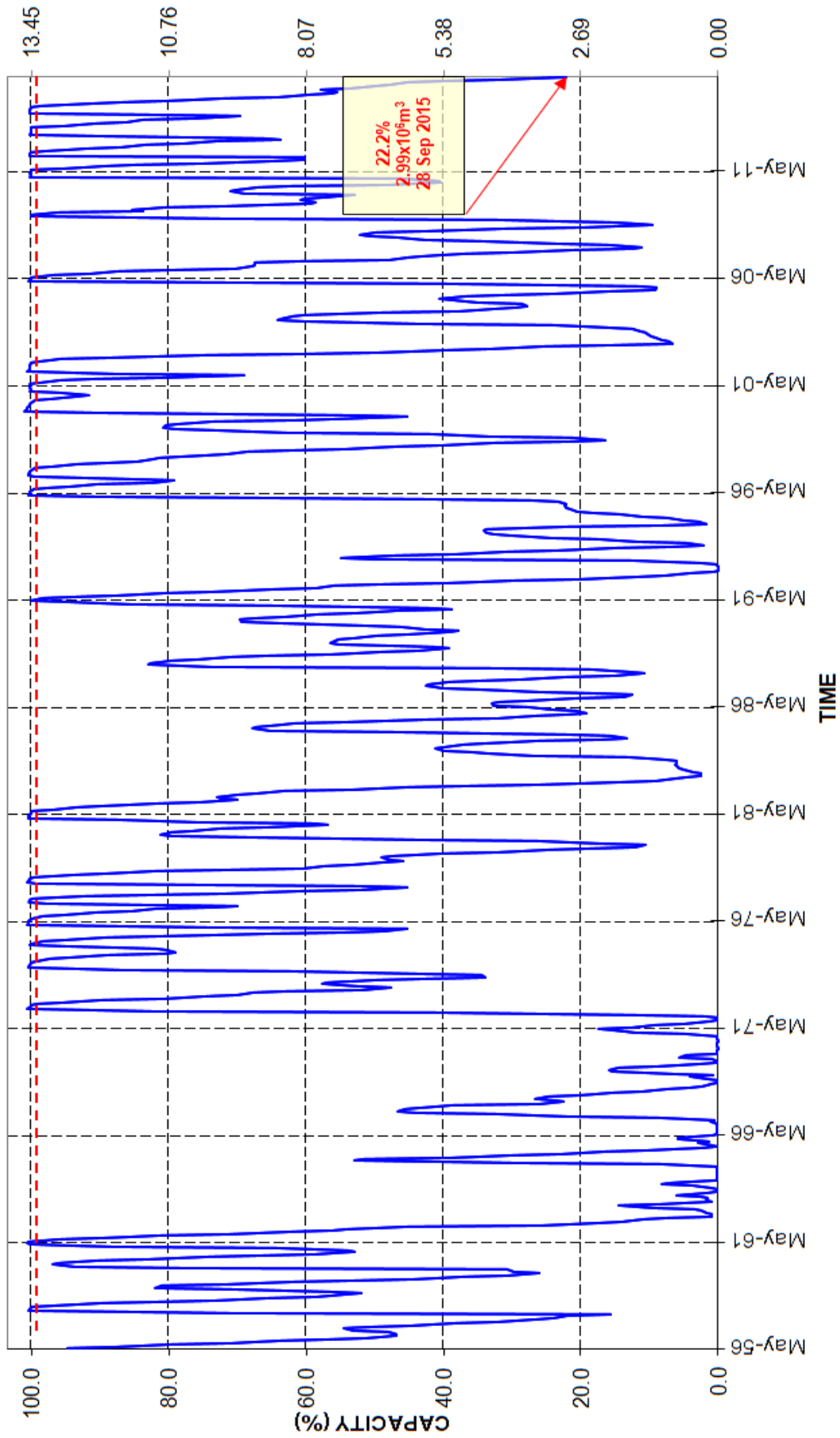
# OLIFANTS RIVER AT FLAG BOSHIELO DAM

FULL CAPACITY 185.13\*10<sup>6</sup>m<sup>3</sup>



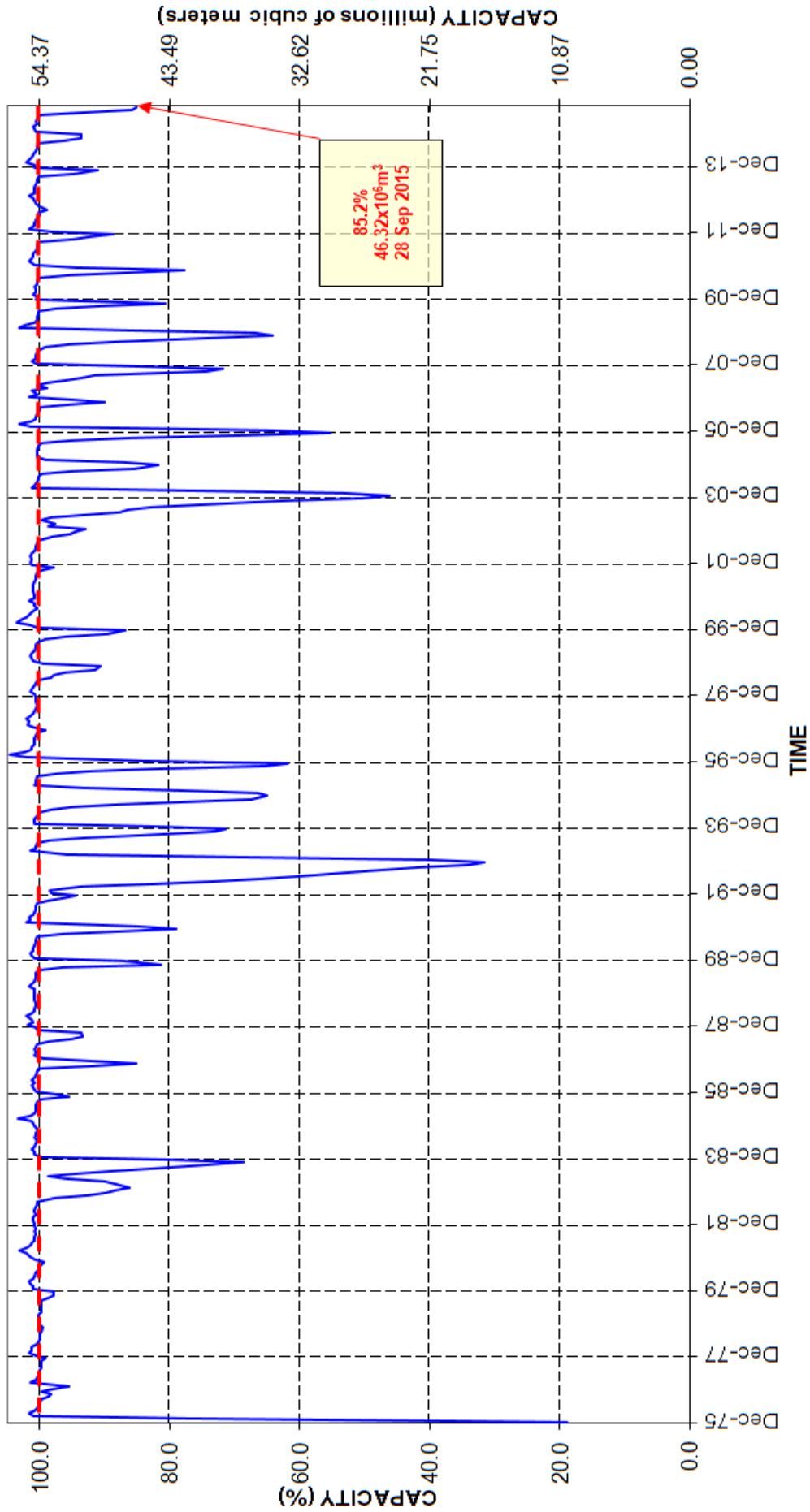
# OHRIGSTAD RIVER AT OHRIGSTAD DAM

FULL CAPACITY 13.45\*10<sup>6</sup>m<sup>3</sup>



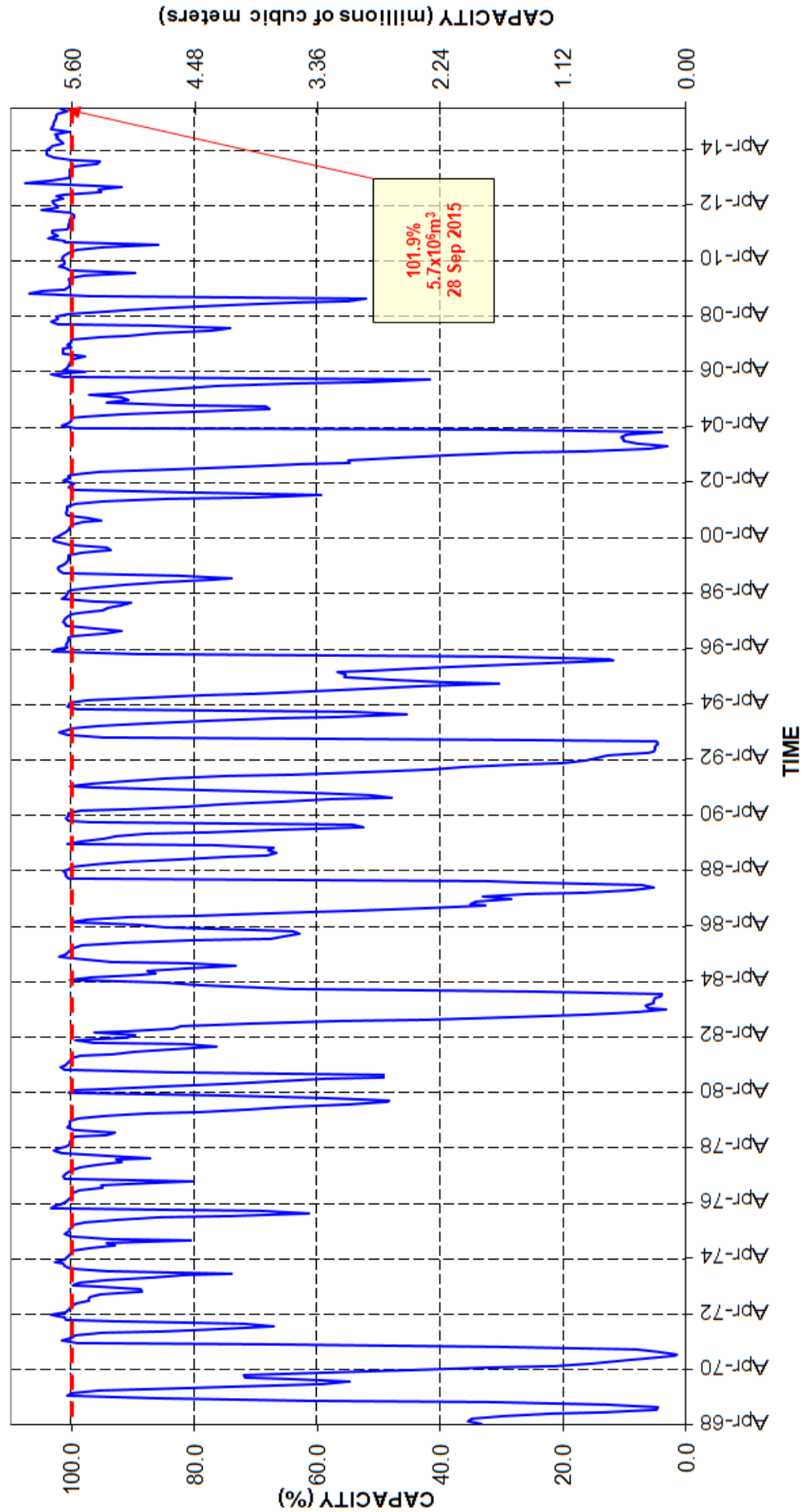
# BLYDE RIVER AT BLYDE RIVERSPOORT DAM

FULL CAPACITY  $54.369 \times 10^6 \text{m}^3$

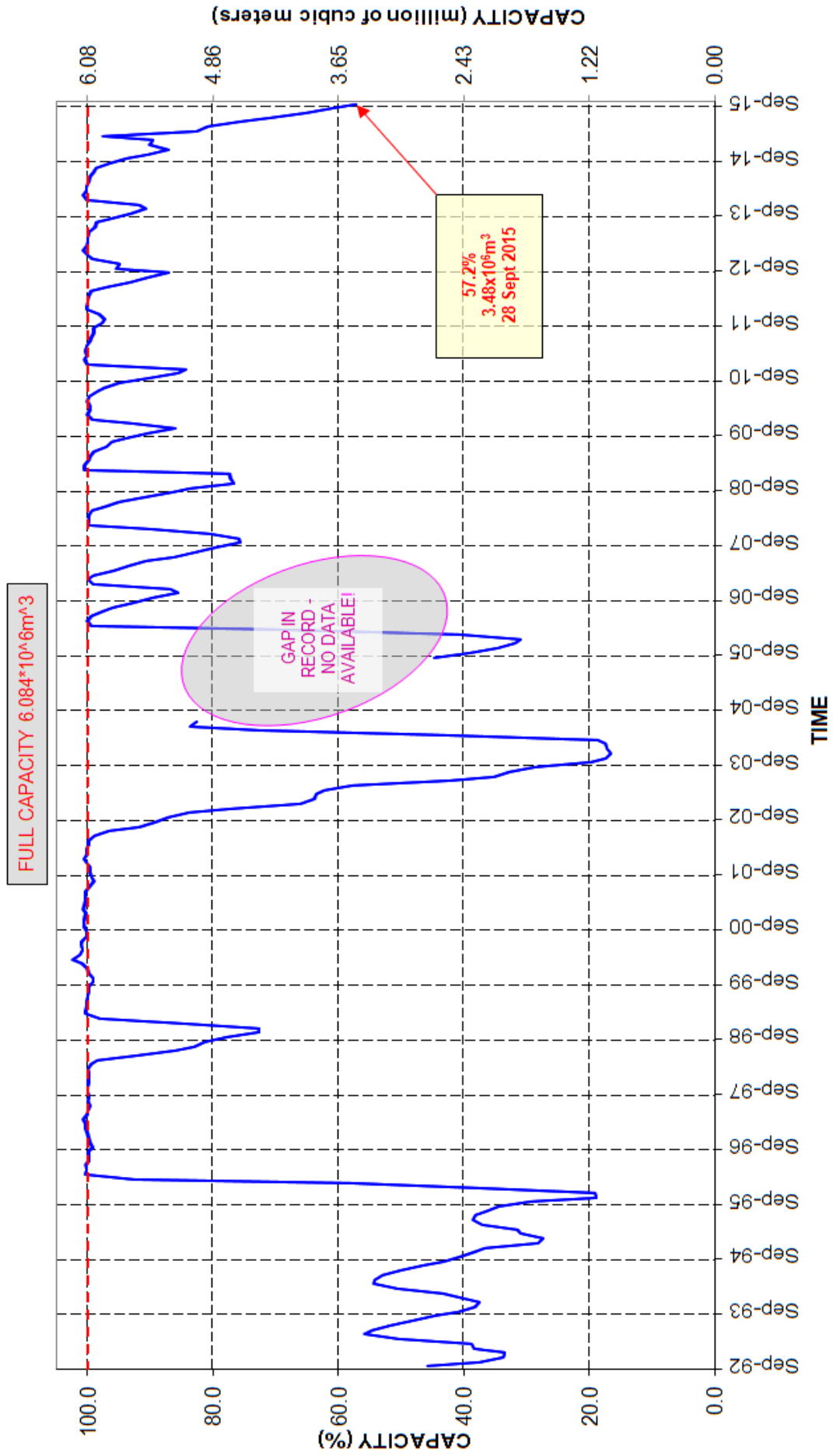


# KLASERIE RIVER AT KLASERIE DAM

FULL CAPACITY  $5.604 \times 10^6 \text{m}^3$

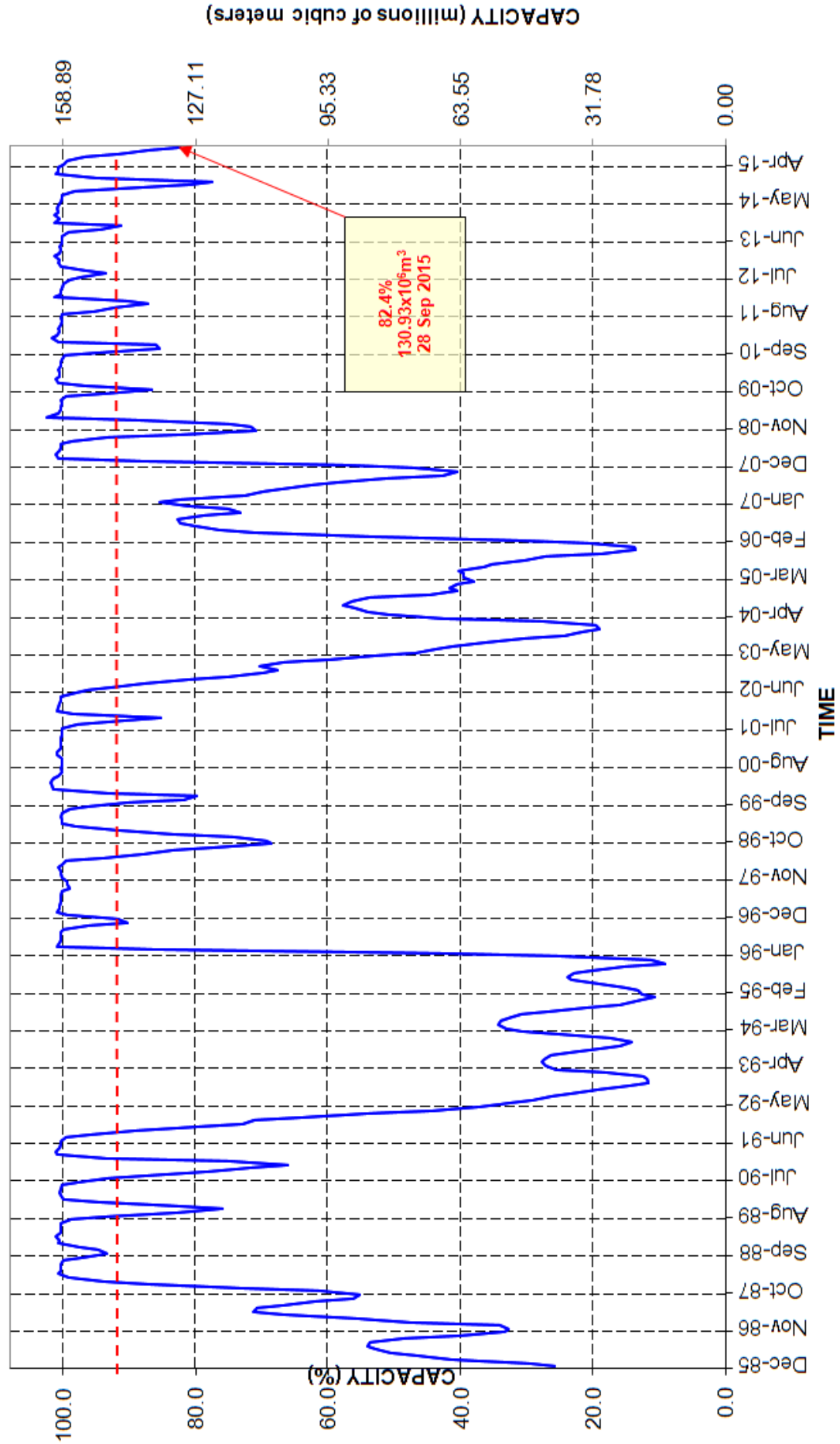


# NGWABITSI RIVER AT TOURS DAM



# CROCODILE RIVER AT KWENA DAM

FULL CAPACITY 158.89 \*10<sup>6</sup>m<sup>3</sup>



# MERITI RIVER AT INYAKA DAM

FULL CAPACITY 123.66

