



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

**WATER RESOURCE INFORMATION MANAGEMENT
LIMPOPO PROVINCE**

**STATUS ON MONITORING &
SURFACE WATER LEVEL TRENDS
Up to 31 March 2019**

GH4335



Tzaneen Dam: Photo courtesy of Willie and Mariette Botha

**D Viljoen
June 2019**

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1. EXECUTIVE SUMMARY

The information presented in this report is based on the status of all the major dams in the province up to the end of March 2019.

32% of the dams in Limpopo Province have more water than the corresponding period last year and 6 dams are below 40%. The average storage capacity for the province is 66% comparing to 67.5% the previous year.

The following dams are below 40% and with the end of the rainy season approaching fast, this gives reason for concern:

1. Middle Letaba Dam 7.4%
2. Glen Alpine Dam 8.5%
3. Modjadji Dam 14.4%
4. Tzaneen Dam 17.1%
5. Doringdraai Dam 18.4%
6. Tours Dam 39.9%

The average storage volume of the dams in the Limpopo WMA is 407.3 million cubic meters (79.5%) and is 13.5 million cubic meters less than the corresponding period last year (82%).

The average storage volume of the dams in the Olifants River catchment is 595.9 million cubic meters (58.9%) and is 138.3 million cubic meters less than the corresponding period last year (72.5%).

The challenge in both WMAs is that there are smaller dams, which supply water to communities that still need to be monitored. Resources need to be put in place before monitoring of these dams can be considered. Water level monitoring infrastructure at these dams are non existing or totally dilapidated, very little design, as built and survey information exists. This need to be addressed before any form of water level monitoring can be considered. The Thapane and Sheshego Dams are examples of this.

Attached find the graph indicating the latest Provincial cumulative annual rainfall since 2014/2015, page 8. A summary of dam capacities in percentage and million cubic meters is attached, see pages 9, 10

The SAWS indicated the following:

Late autumn (April-May-June) and early winter (May-June-July) remain optimistic for above-normal rainfall conditions over the south-western parts of the country. These are also the only areas that typically receive significant rainfall during these seasons. An increased number of rainfall days (greater than 5 mm and 15 mm) is also expected during late autumn, increasing the chances of flooding events in the area; however, a decrease in the number of rainfall days is evident in the early winter forecasts.

2. MONITORING NETWORK

The hydrological monitoring network for the Limpopo Province consists of the following:

- 81 river flow gauging stations (excluding canals and pipelines)
- 22 dam gauging stations
- 16 evaporation stations

3. OVERVIEW

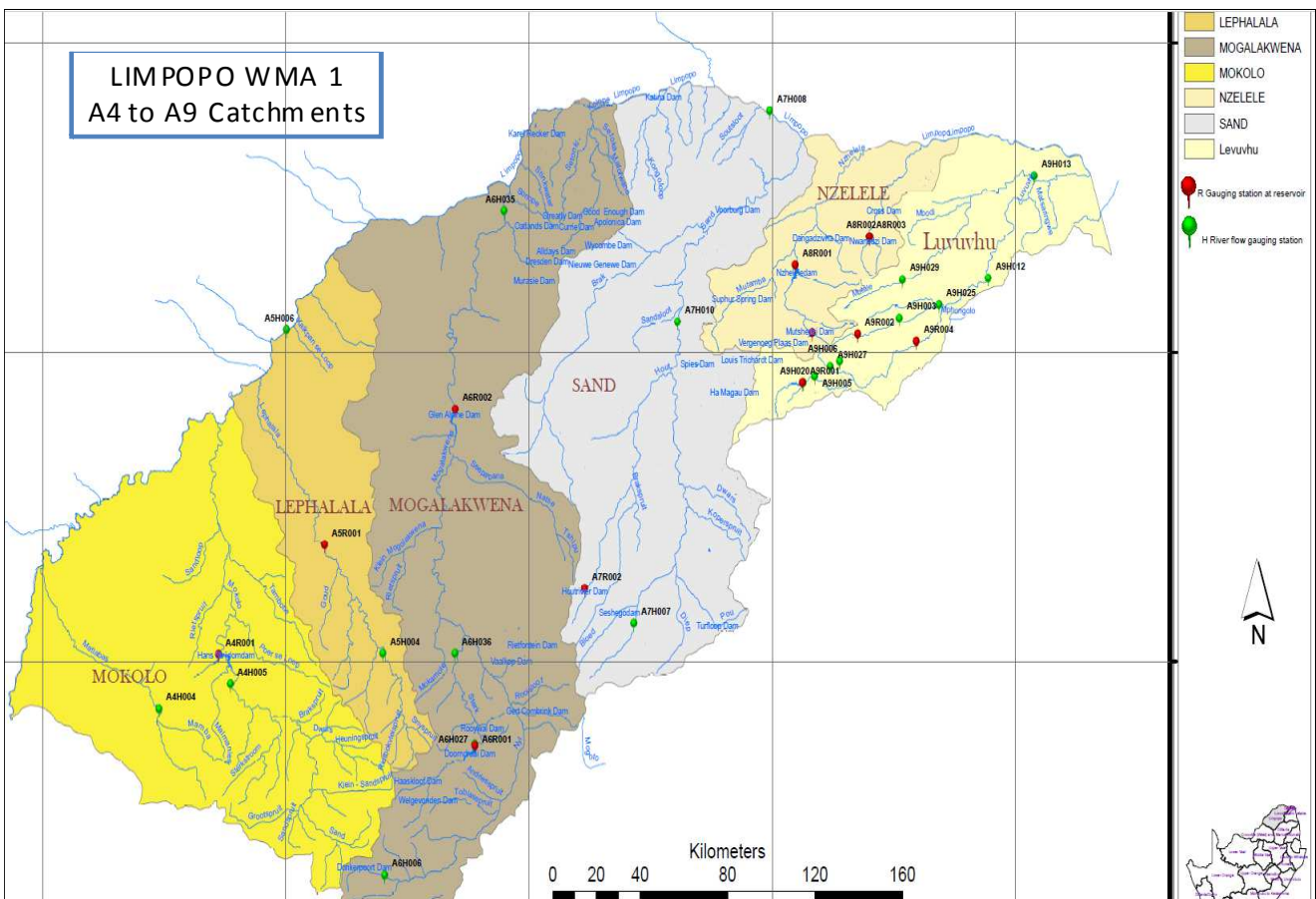
For information purposes a graph depicting annual provincial rainfall from 2014/2015 is attached, page 8.
A summary of dam capacities in percentage and million cubic meters is attached, see pages 9, 10

The following river flow conditions need to be highlighted:

STATION NR	RIVER	PLACE	FLOWS AS ON 13/03/2019 (m ³ /s)	PEAK FLOWS FOR 2019 (m ³ /s)	COMMENTS
A7H008	Limpopo	Beit Bridge	0.06	558	Flows within river banks.
A9H012	Levuvhu	Mhinga	1.97	17	Flows within river banks.
A9H013	Mutale	Pafuri	No real-time equipment installed	135 +	Flows exceeded structure @ 3.650 Meters within river banks
A9H025	Mutshindudi	Tsidzini	0.04	89	Flows within river banks.
A9H029	Mutale	Tengwe	0.04	288 +	Flows within river banks.
B8H008	Great-Letaba	Letaba Ranch	0.58	29 +	Flows exceeded structure limit
B8H033	Klein Letaba	Tabaan	0.64	44	Flows within river banks.
B8H046	Politsi	Turksvygbult	0.53	24	Flows within river banks.
B8R002	Ramadiepa	Waterval	1.10	10	Flows within river banks.

4. LIMPOPO WATER MANAGEMENT AREA

The WMA consists of secondary drainage areas A1 to A9, of which A4 to A9 were addressed in this report.



4.1 A4 Drainage Area (Matlabas, Mokolo Rivers)

A graph of the Mokolo Dam (A4R001) is attached as no other dam exists in the A4 hydrological monitoring network.

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)

Graphs of the Doorndraai Dam (A6R001) and Glen Alpine Dam (A6R002) are attached as no other dams exist in the A6 hydrological monitoring network.

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!

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! Hout River Dam is the only dam equipped with gauge plates. Data capturing and real-time equipment has been installed at Hout River Dam. The dam is currently on 51.9% (3.4 million m³)

B7 Drainage Area (Klaserie and Olifants Rivers)

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

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

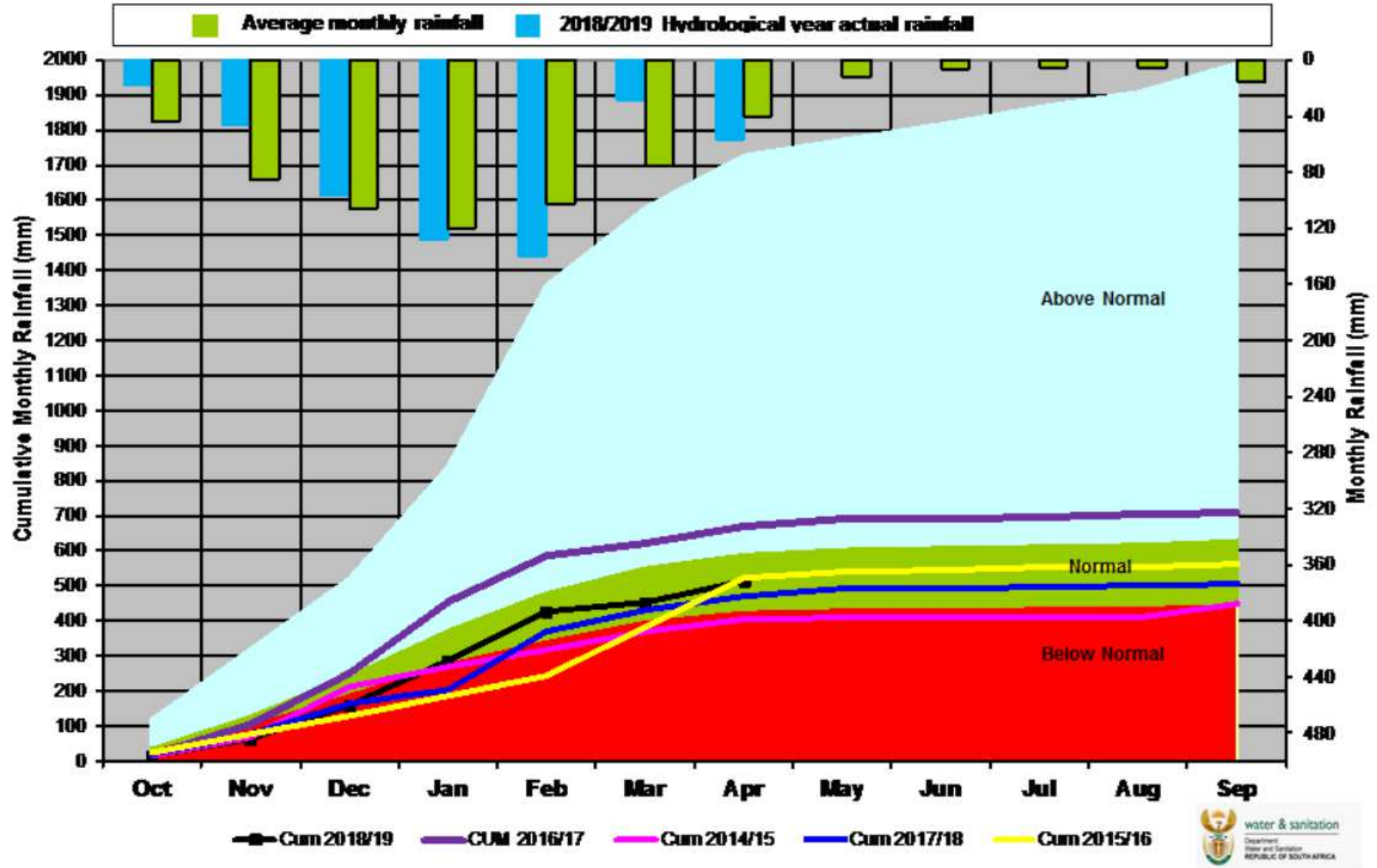
Graphs for the Ebenezer Dam (B8R001), Magoebaskloof Dam (B8R003), Tzaneen Dam (B8R005), Middle-Letaba Dam (B8R007), Nsami Dam (B8R009) and Modjadji Dam (B8R011) are attached.

5.6 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!

LIMPOPO



Levels of dams in Limpopo falling in the Limpopo WMA 1 (25 March 2019)

Full Supply Capacity Average for Limpopo WMA (%)	Dam	Full Supply Capacity in Millions m ³	Current Capacity in Millions m ³	Capacity in % Previous Year	Capacity in % Previous Week	Current Capacity in %
79.9	Mokolo	145.77	116.68	79.20	80.40	80.00
	Doorndraai	43.76	8.22	39.70	19.30	18.80
	Glen Alpine	18.89	1.66	8.70	9.00	8.80
	Hout River	6.63	3.94	51.70	55.10	59.40
	Nzhelele	51.23	41.13	63.70	80.70	80.30
	Luphephe	13.98	11.09	72.60	79.50	79.30
	Nwanedzi	5.14	3.96	75.20	76.90	76.90
	Mutshedzi	2.34	2.37	95.40	101.50	101.30
	Albasini	28.20	21.50	85.80	76.40	76.20
	Vondo	30.45	30.60	100.90	100.60	100.50
	Nandoni	166.11	168.11	100.60	101.00	101.20

Levels of dams in Limpopo falling in Olifants WMA 2 (25 March 2019)

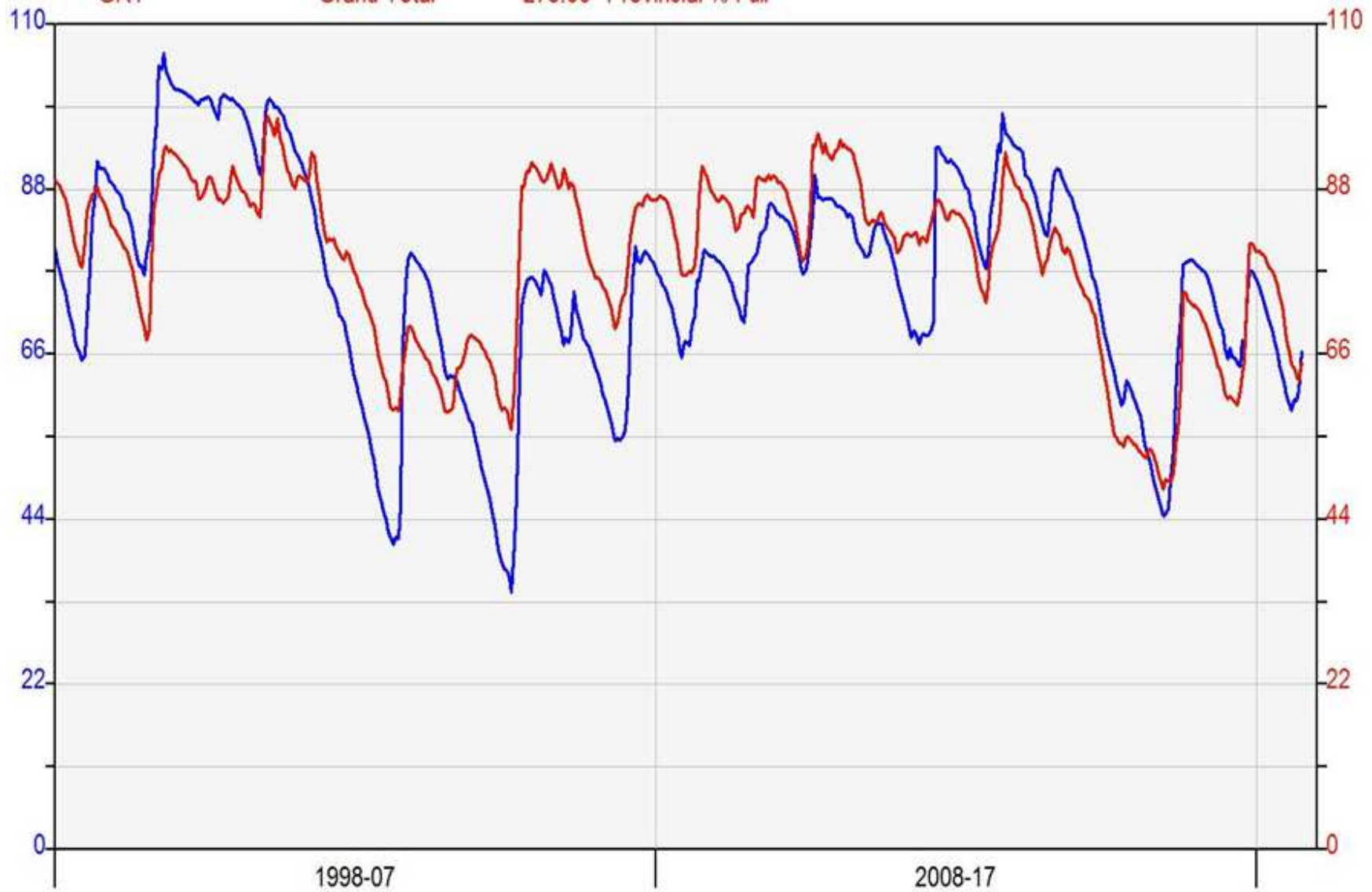
Full Supply Capacity Average (%) <u>Olifants WMA</u>	Dam	Full Supply Capacity in Millions m ³	Current Capacity in Millions m ³	Capacity in % Previous Year	Capacity in % Previous Week	Current Capacity in %
59.4	Rust de Winter	28.19	23.92	88.60	86.10	84.90
	Tonteldoos	0.19	0.19	100.50	100.00	100.30
	<u>Vlugkraal</u>	0.44	0.37	98.80	86.10	84.20
	De Hoop	348.70	312.82	94.70	90.30	89.70
	Flag Boshielo	185.13	143.98	36.40	78.60	77.80
	Klaserie	5.60	5.59	100.60	100.20	99.80
	Tours	6.08	2.45	63.90	40.40	40.30
	Ebenezer	69.14	45.39	92.30	66.00	65.70
	Hans Merensky	1.23	1.23	101.90	100.80	100.80
	Magoebaskloof	4.84	4.85	100.60	100.40	100.30
	Vergelegen	0.25	0.23	101.30	89.80	89.80
	Tzaneen	156.53	27.36	45.10	18.10	17.50
	Dap Naude	1.94	1.91	102.20	98.70	98.60
	<u>Middle-Letaba</u>	171.93	13.08	16.40	7.80	7.60
	Thabina	3.09	3.09	79.47	100.12	100.12
	Nsami	21.87	13.31	56.20	61.90	60.90
Modjadji	7.20	1.10	29.00	15.90	15.30	

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Period 21 Year 01/06/1998 to 01/06/2019

1998-2019

— LP	Limpopo	275.00	Provincial % Full
— GRT	Grand Total	275.00	Provincial % Full



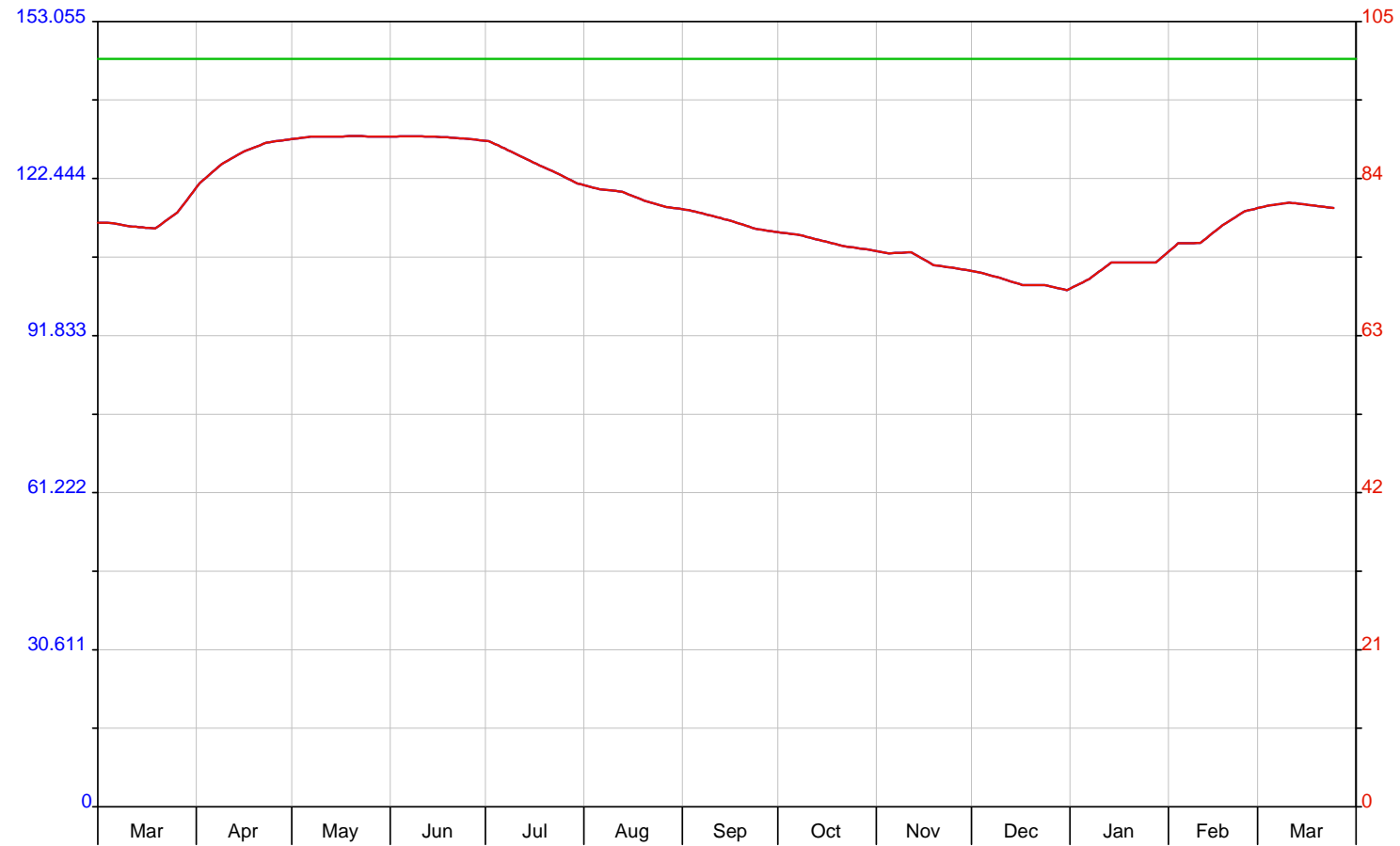
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HYPLOT V133 Output 26/03/2019

Period 13 Month 01/03/2018 to 01/04/2019

2018-19

— A4R001	Mokolo Dam	198.00	Res Nett Cap (MCM)	Weekly Reading	WB
— A4R001	Mokolo Dam	210.00	% Full (nett)	Weekly Reading	WB
— A4R001	Mokolo Dam	210.00	% Full (nett)		TT



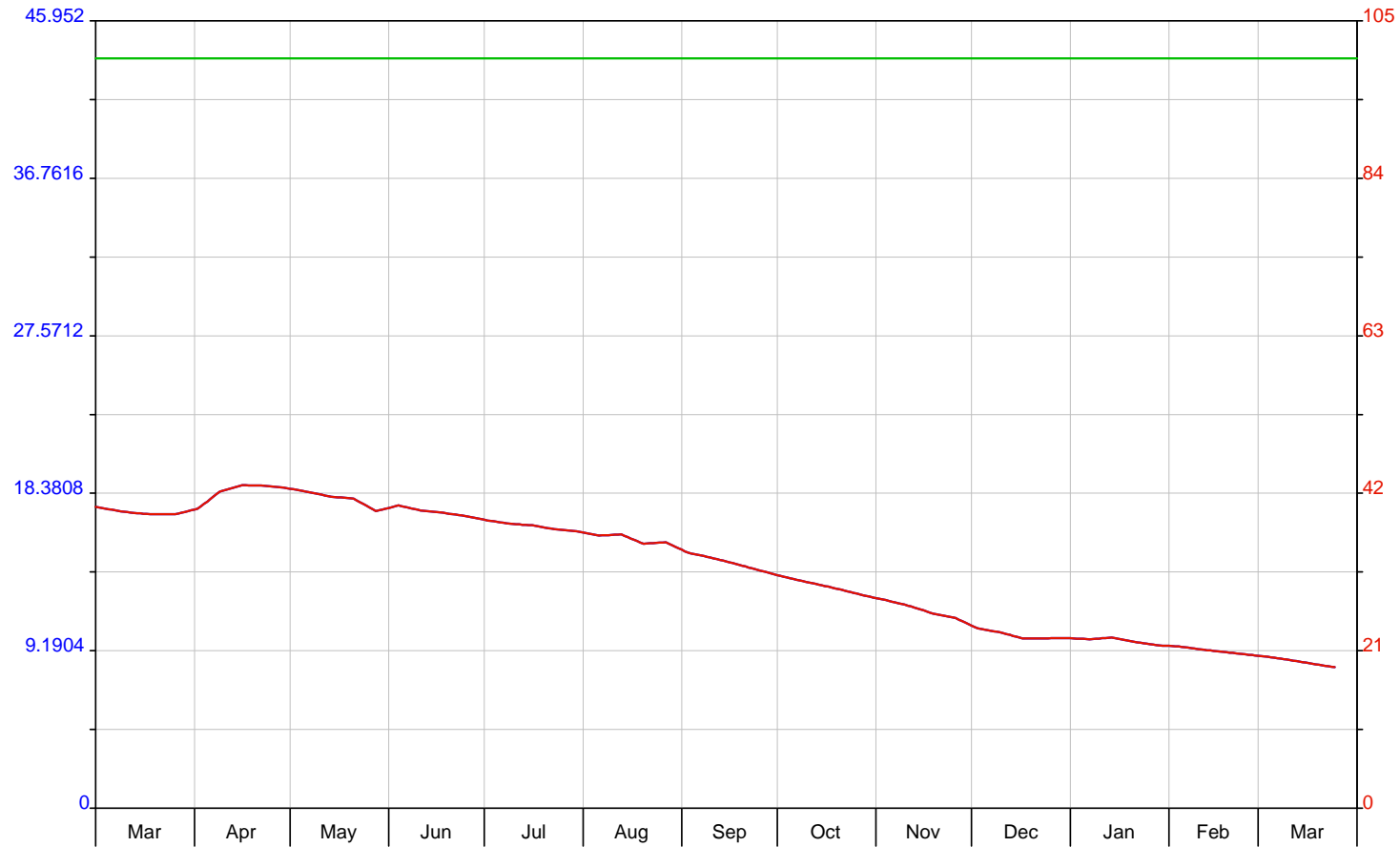
Department of Water and Sanitation

HYPLOT V133 Output 26/03/2019

Period 13 Month 01/03/2018 to 01/04/2019

2018-19

— A6R001	Doordraai Dam	198.00	Res Nett Cap (MCM)	Weekly Reading	WB
— A6R001	Doordraai Dam	210.00	% Full (nett)	Weekly Reading	WB
— A6R001	Doordraai Dam	210.00	% Full (nett)		TT



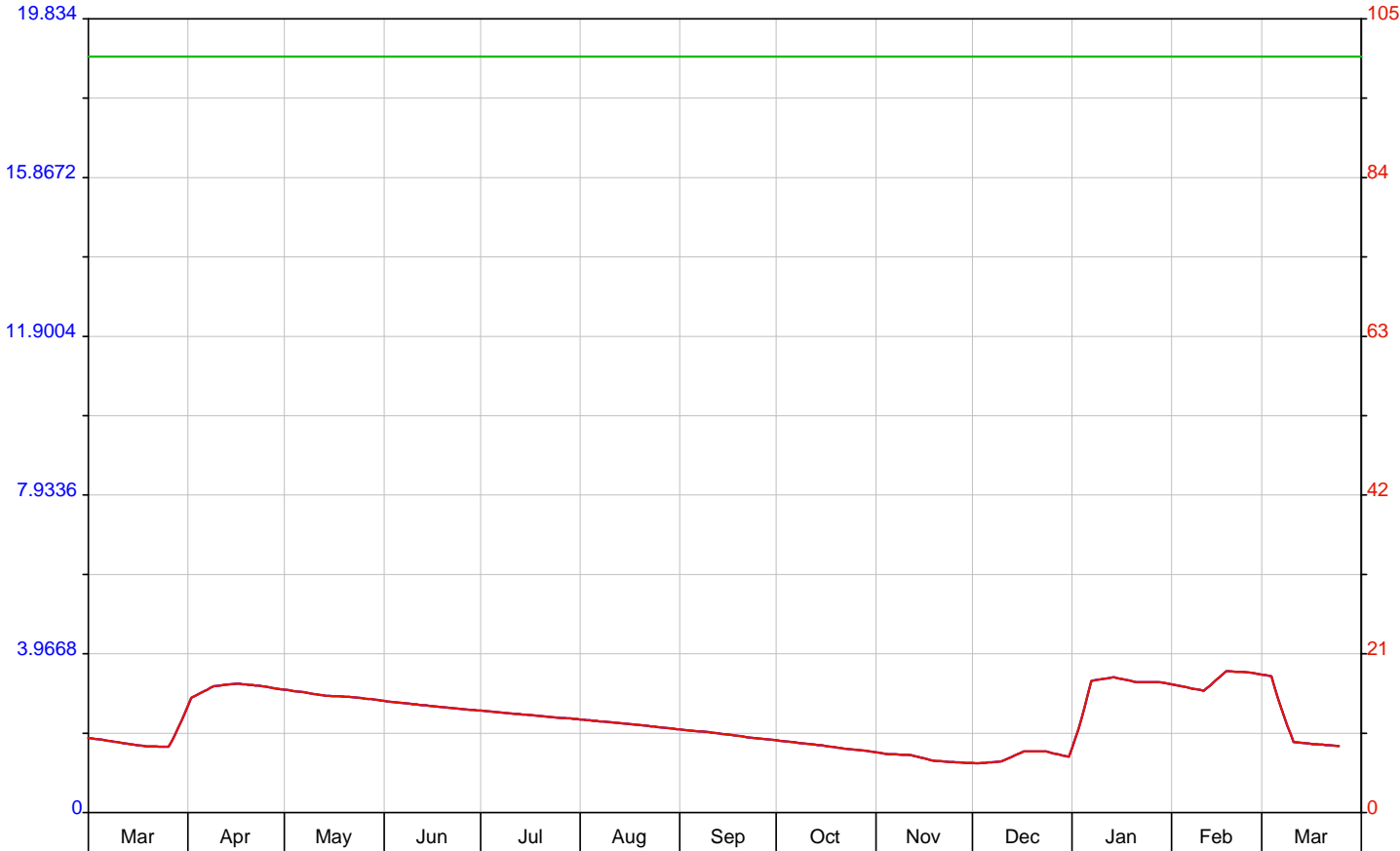
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HYPLOT V133 Output 26/03/2019

Period 13 Month 01/03/2018 to 01/04/2019

2018-19

— A6R002	Glen Alpine Dam	198.00	Res Nett Cap (MCM)	Weekly Reading	WB
— A6R002	Glen Alpine Dam	210.00	% Full (nett)	Weekly Reading	WB
— A6R002	Glen Alpine Dam	210.00	% Full (nett)		TT

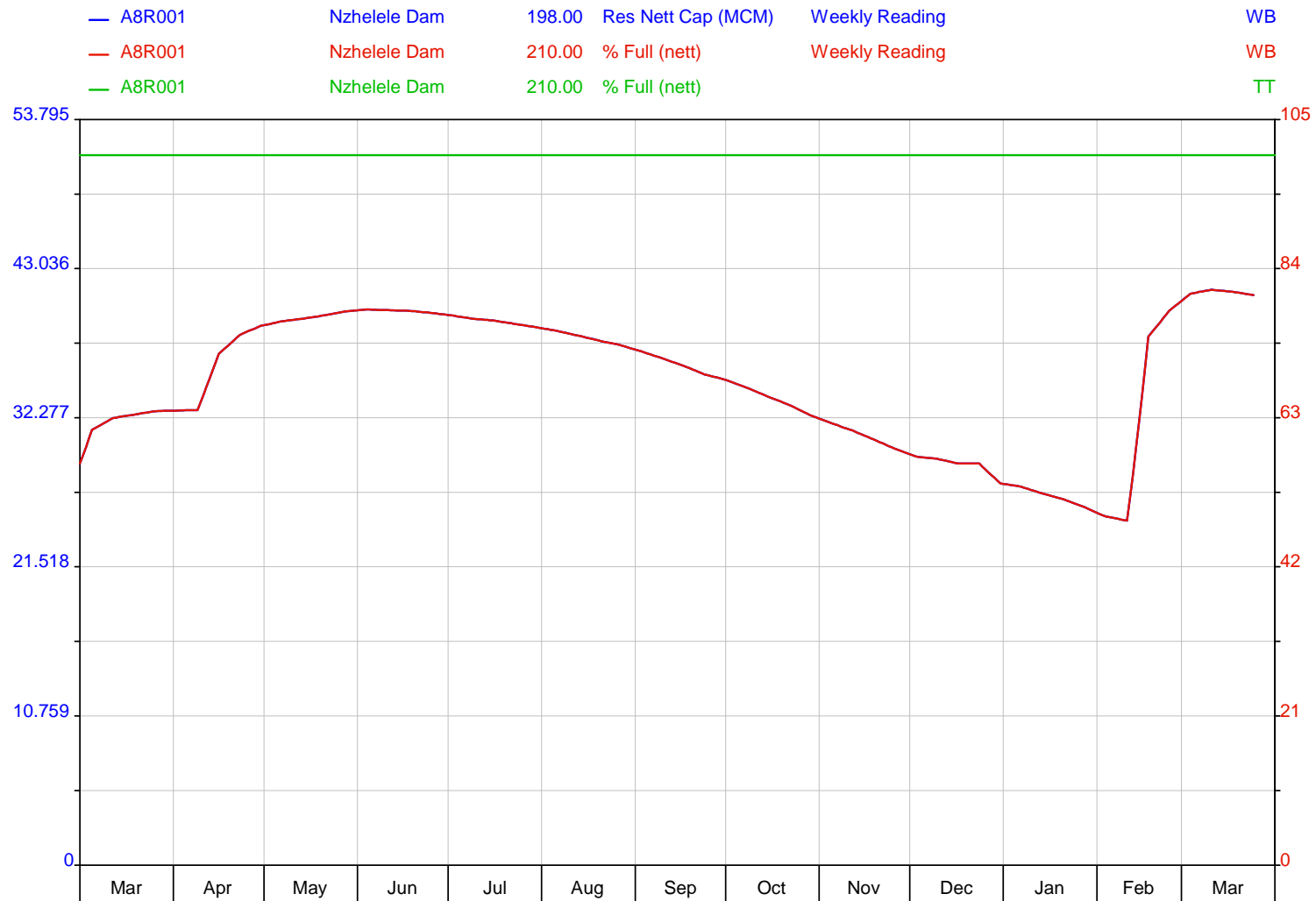


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HYPLOT V133 Output 26/03/2019

Period 13 Month 01/03/2018 to 01/04/2019

2018-19



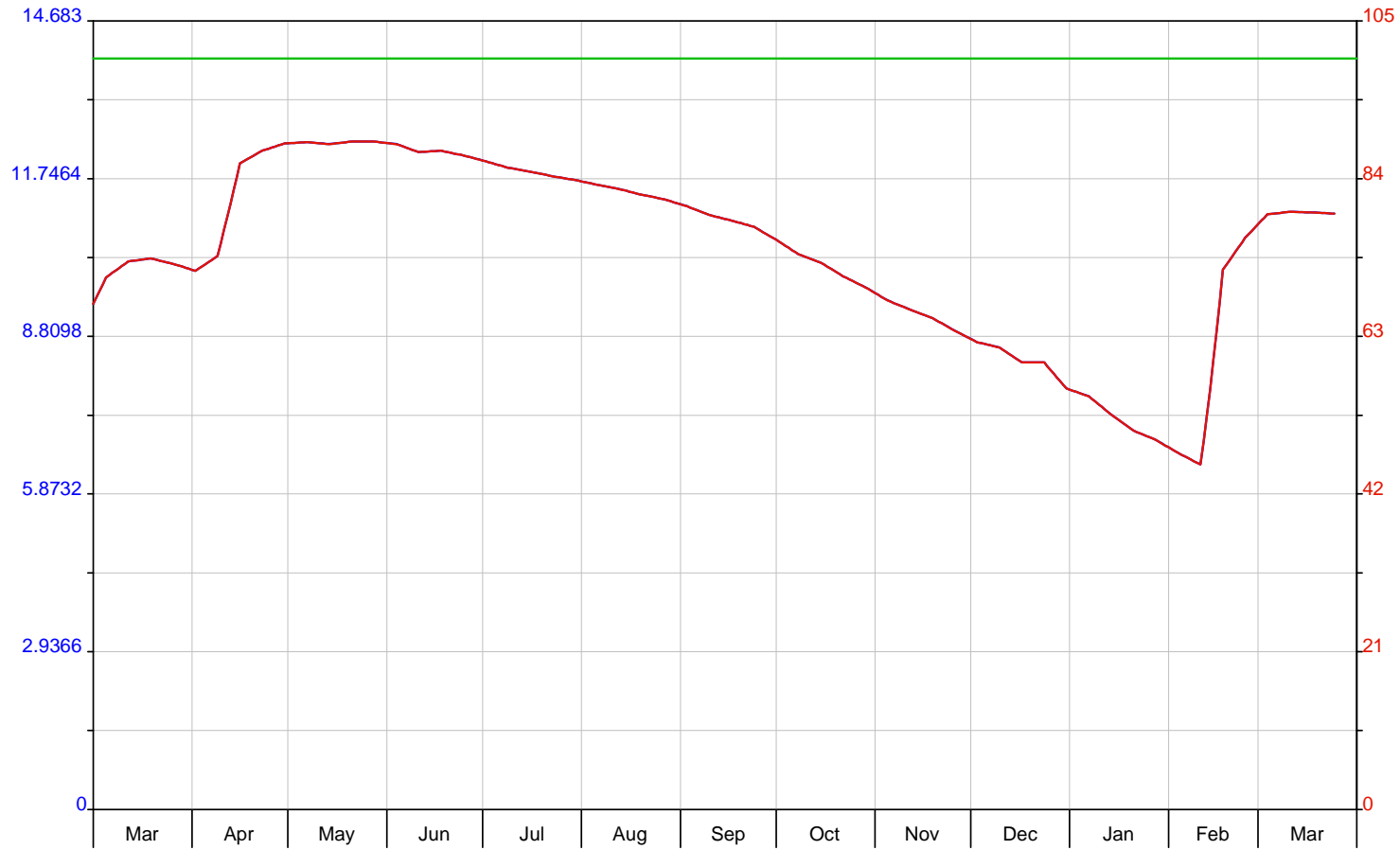
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HYPLOT V133 Output 26/03/2019

Period 13 Month 01/03/2018 to 01/04/2019

2018-19

— A8R002	Luphephe Dam	198.00	Res Nett Cap (MCM)	Weekly Reading	WB
— A8R002	Luphephe Dam	210.00	% Full (nett)	Weekly Reading	WB
— A8R002	Luphephe Dam	210.00	% Full (nett)		TT



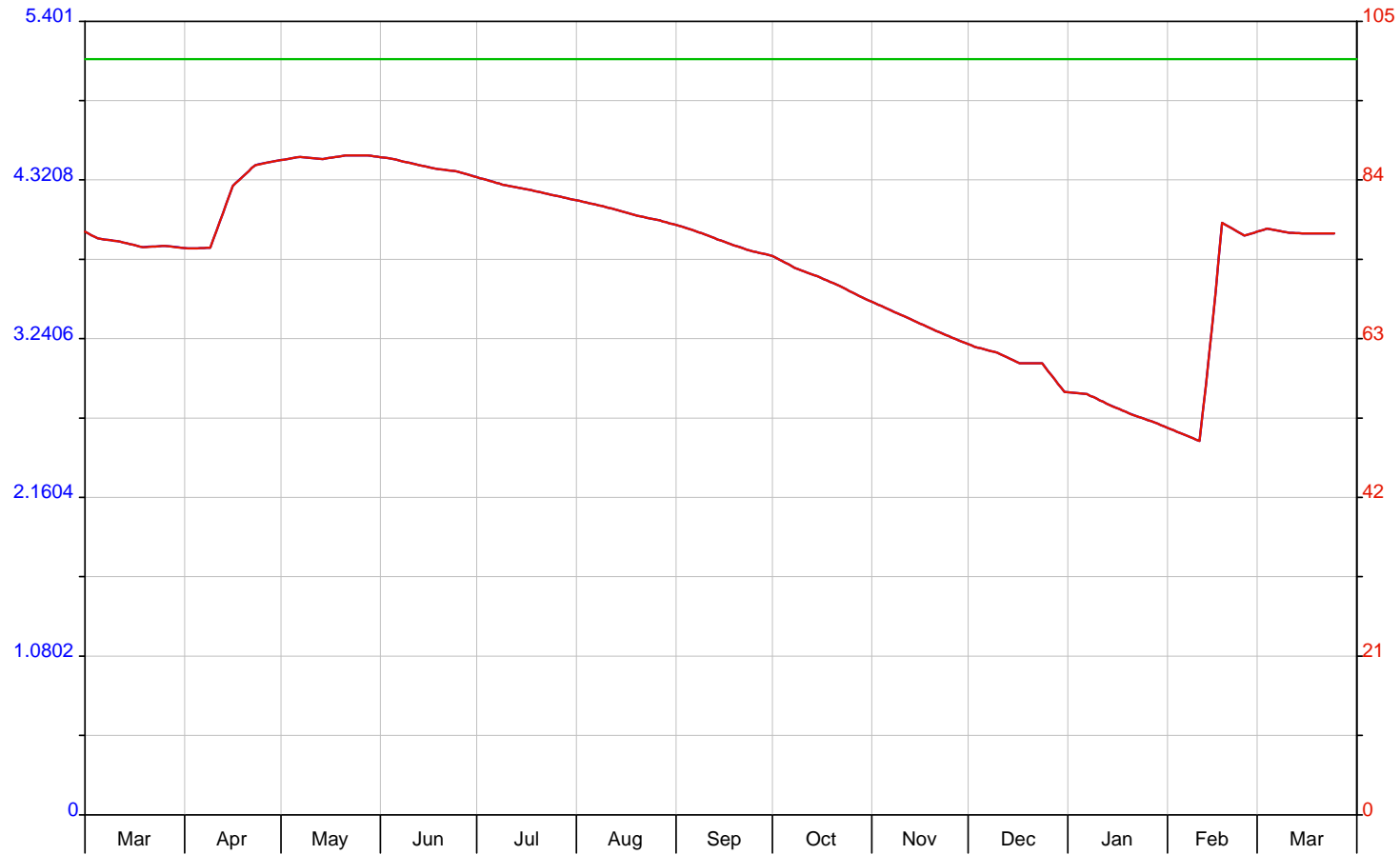
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HYPLOT V133 Output 26/03/2019

Period 13 Month 01/03/2018 to 01/04/2019

2018-19

— A8R003	Nwanedzi Dam	198.00	Res Nett Cap (MCM)	Weekly Reading	WB
— A8R003	Nwanedzi Dam	210.00	% Full (nett)	Weekly Reading	WB
— A8R003	Nwanedzi Dam	210.00	% Full (nett)		TT

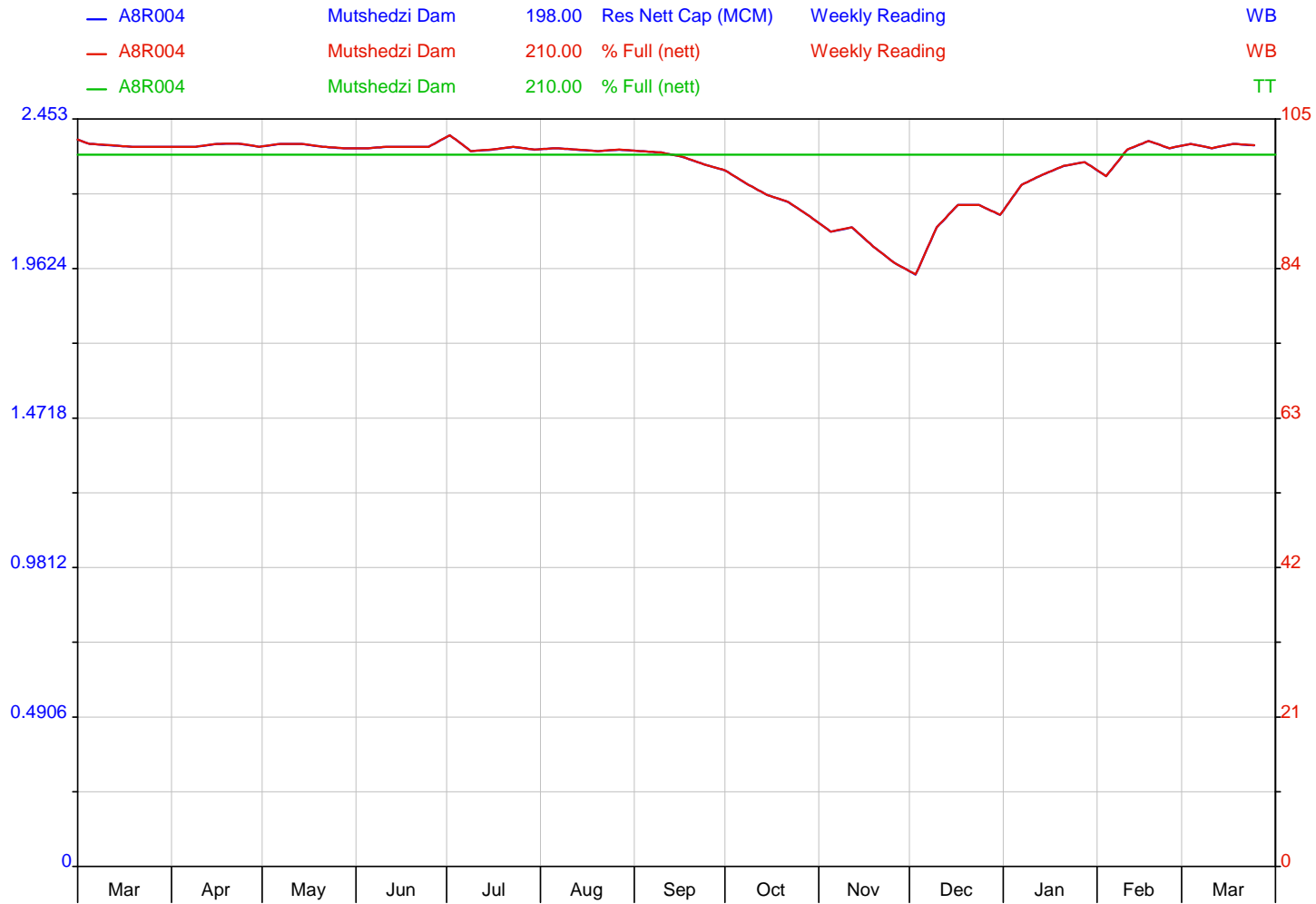


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HYPLOT V133 Output 26/03/2019

Period 13 Month 01/03/2018 to 01/04/2019

2018-19



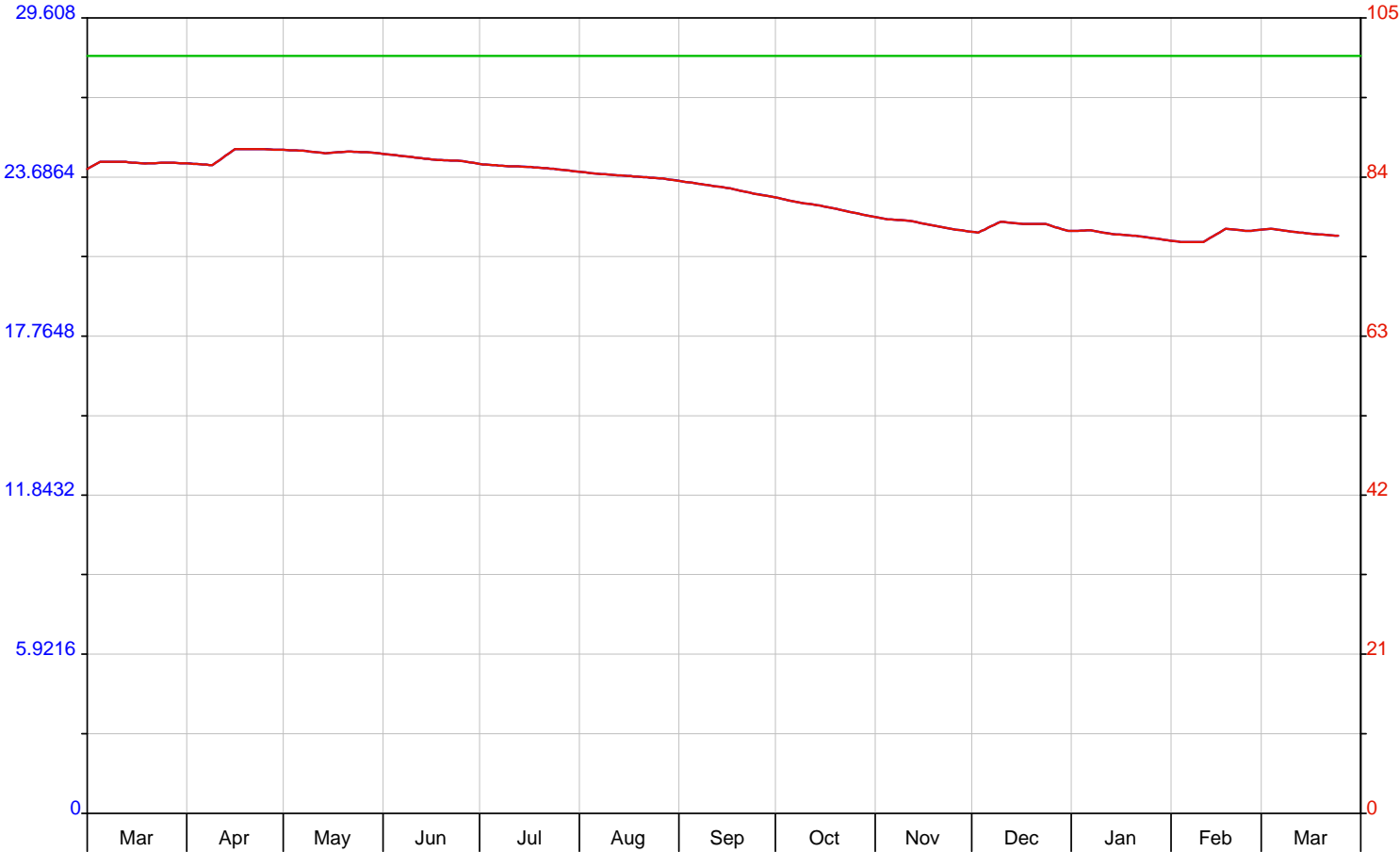
Department of Water and Sanitation

HYPLOT V133 Output 26/03/2019

Period 13 Month 01/03/2018 to 01/04/2019

2018-19

— A9R001	Albasini Dam	198.00	Res Nett Cap (MCM)	Weekly Reading	WB
— A9R001	Albasini Dam	210.00	% Full (nett)	Weekly Reading	WB
— A9R001	Albasini Dam	210.00	% Full (nett)		TT



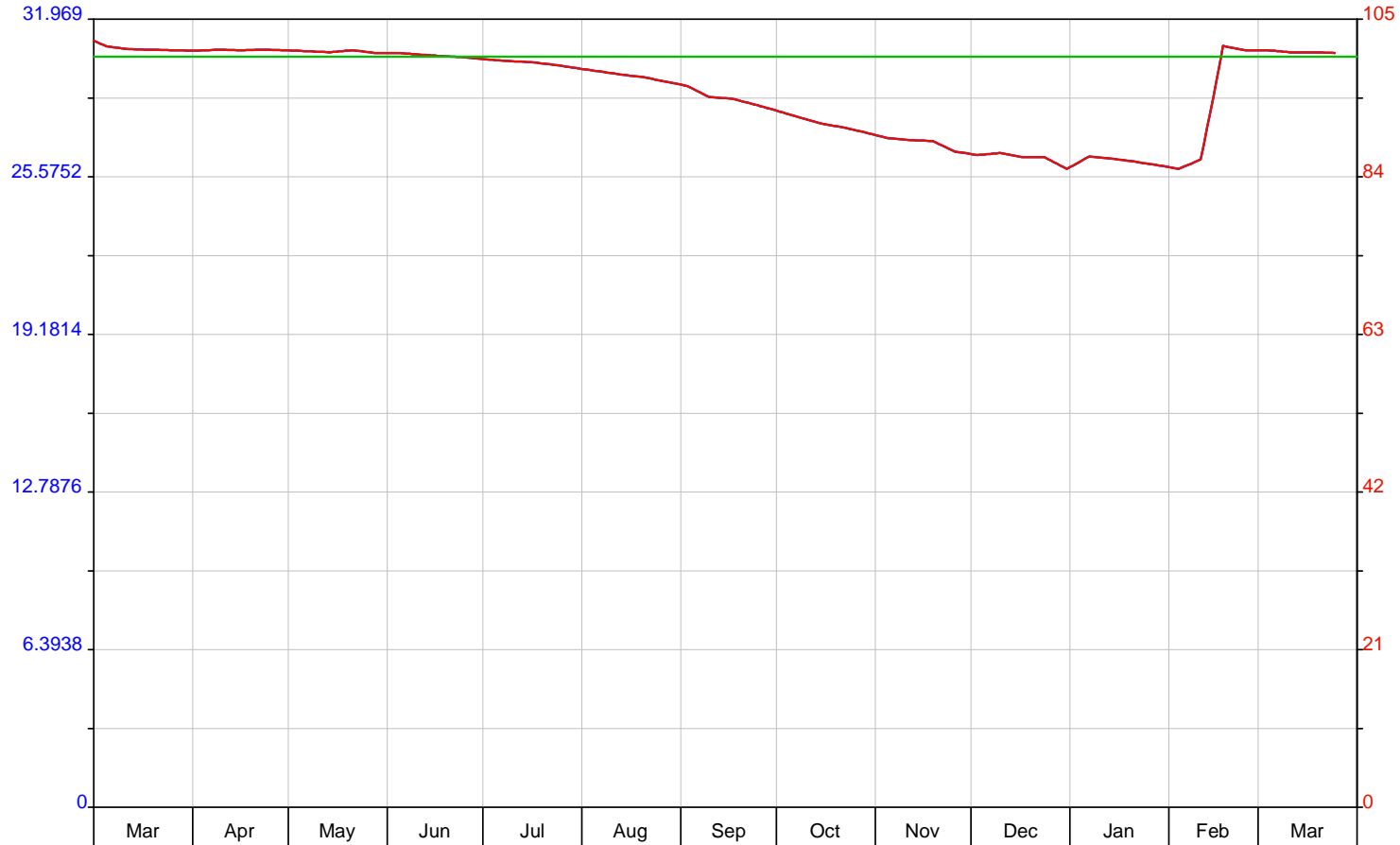
Department of Water and Sanitation

HYPLOT V133 Output 26/03/2019

Period 13 Month 01/03/2018 to 01/04/2019

2018-19

— A9R002	Vondo Dam	198.00	Res Nett Cap (MCM)	Weekly Reading	WB
— A9R002	Vondo Dam	210.00	% Full (nett)	Weekly Reading	WB
— A9R002	Vondo Dam	210.00	% Full (nett)		TT



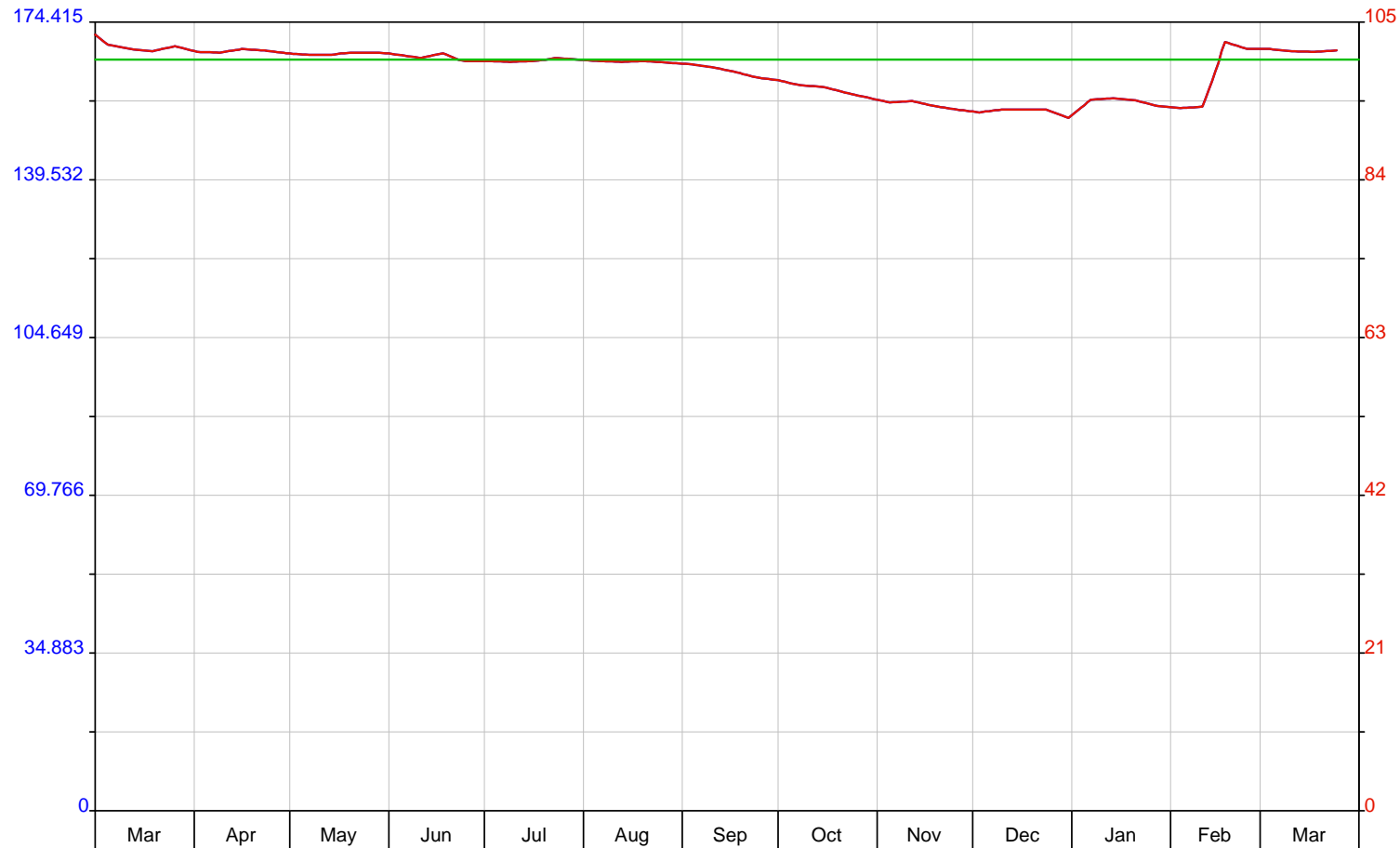
Department of Water and Sanitation

HYPLOT V133 Output 26/03/2019

Period 13 Month 01/03/2018 to 01/04/2019

2018-19

— A9R004	Nandoni Dam	198.00	Res Nett Cap (MCM)	Weekly Reading	WB
— A9R004	Nandoni Dam	210.00	% Full (nett)	Weekly Reading	WB
— A9R004	Nandoni Dam	210.00	% Full (nett)		TT



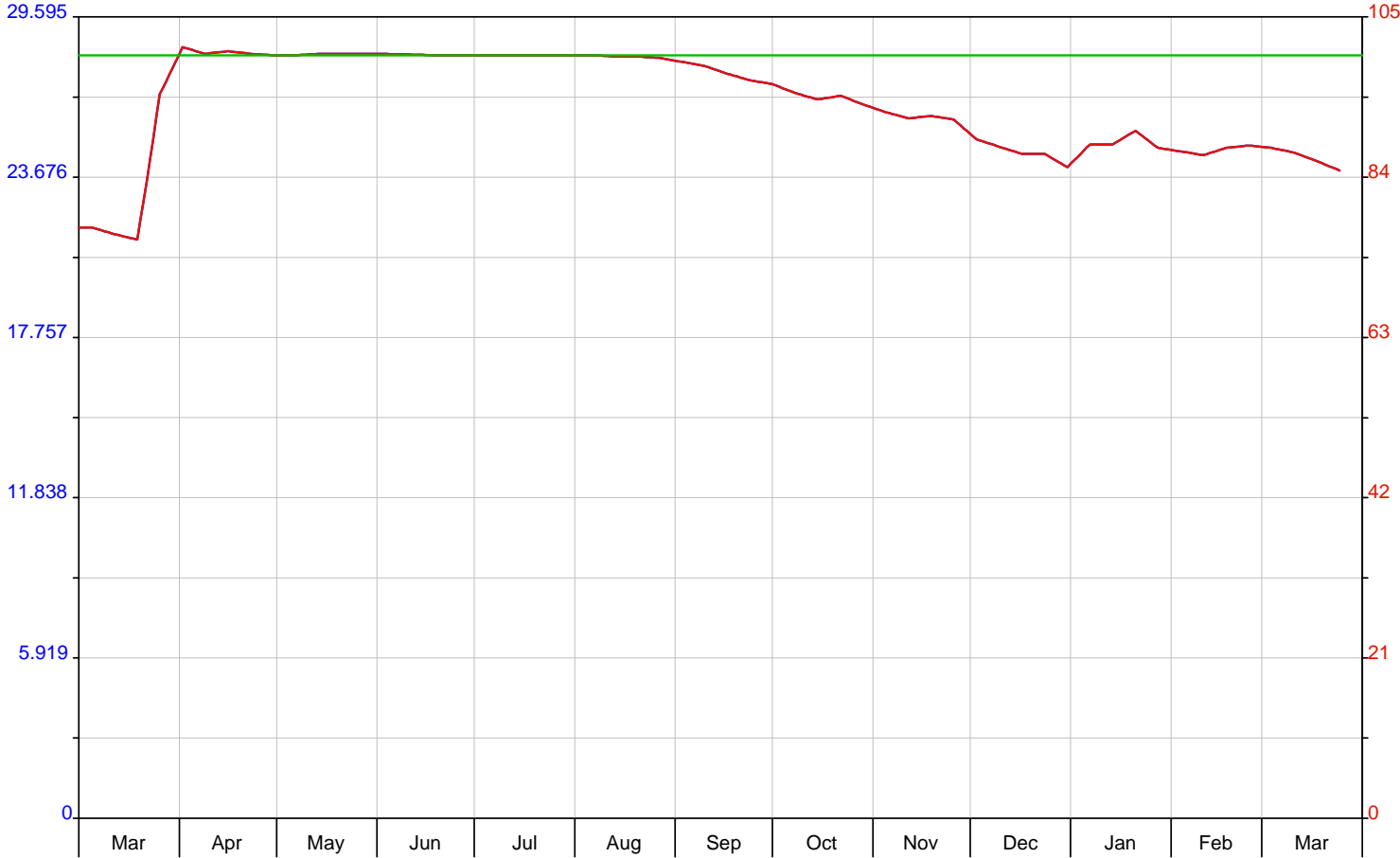
Department of Water and Sanitation

HYPLOT V133 Output 26/03/2019

Period 13 Month 01/03/2018 to 01/04/2019

2018-19

— B3R001	Rust De Winter Dam	198.00	Res Nett Cap (MCM)	Weekly Reading	WB
— B3R001	Rust De Winter Dam	210.00	% Full (nett)	Weekly Reading	WB
— B3R001	Rust De Winter Dam	210.00	% Full (nett)		TT



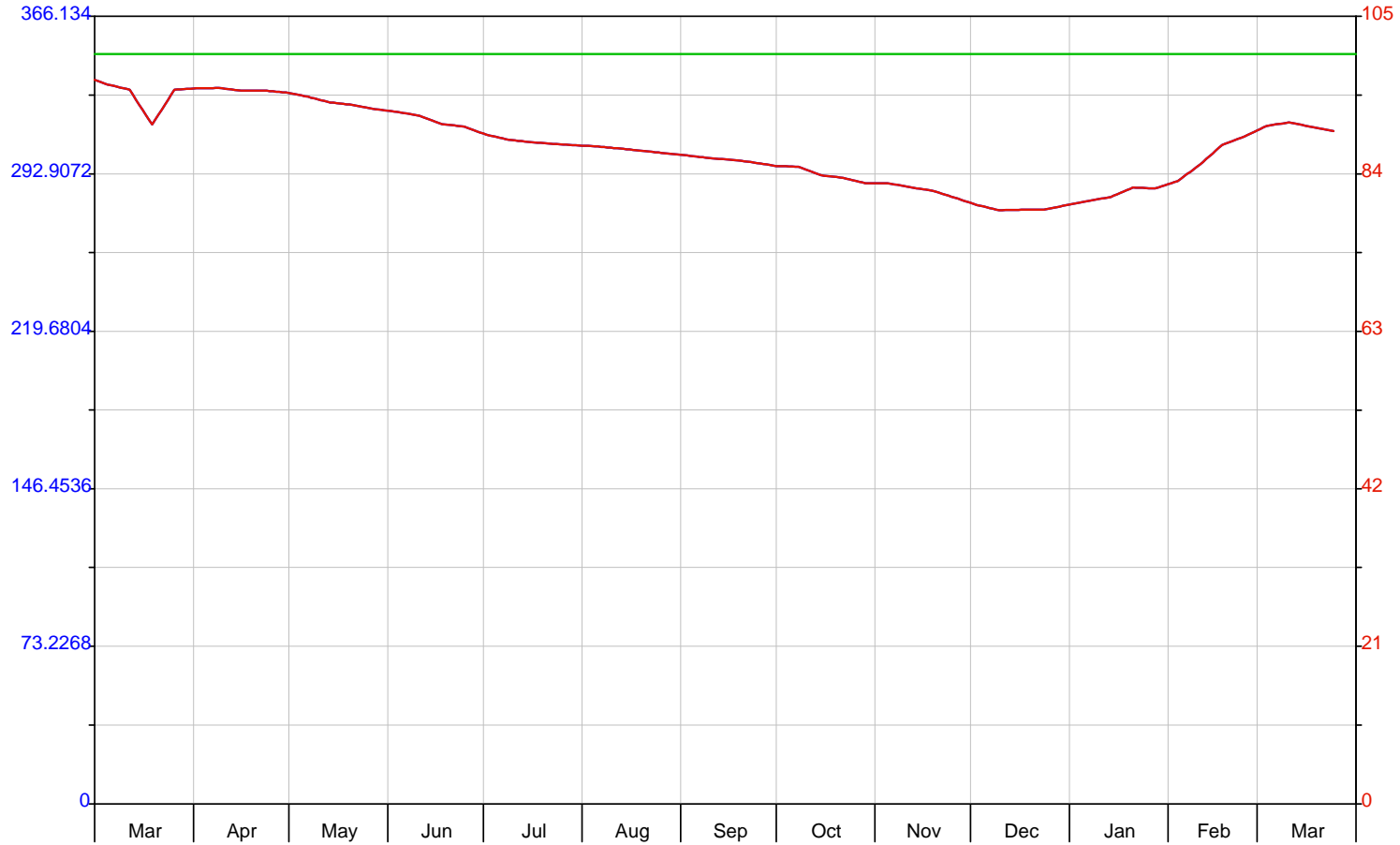
Department of Water and Sanitation

HYPLOT V133 Output 26/03/2019

Period 13 Month 01/03/2018 to 01/04/2019

2018-19

— B4R007	De Hoop Dam	198.00 Res Nett Cap (MCM)	Weekly Reading	WB
— B4R007	De Hoop Dam	210.00 % Full (nett)	Weekly Reading	WB
— B4R007	De Hoop Dam	210.00 % Full (nett)		TT



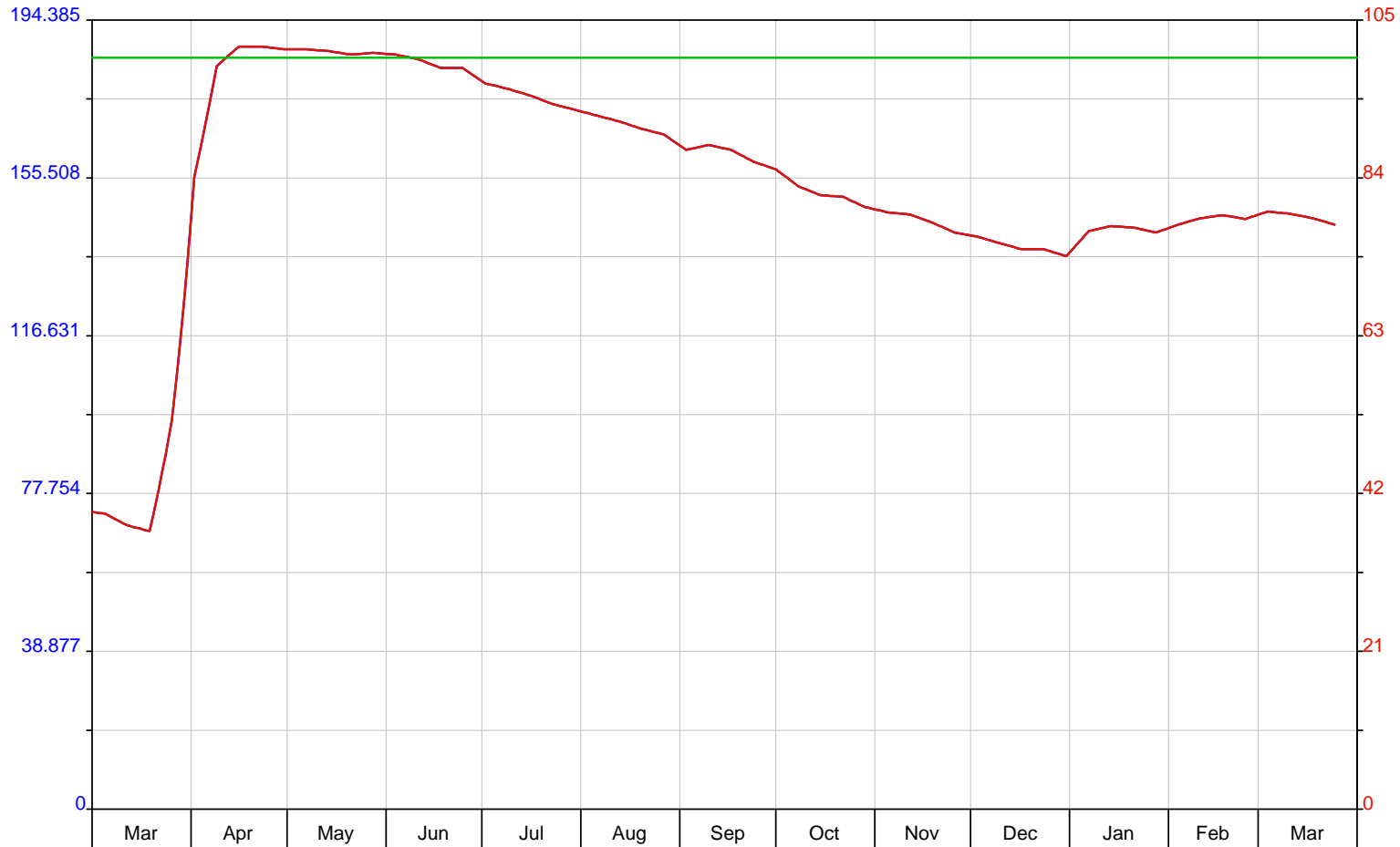
Department of Water and Sanitation

HYPLOT V133 Output 26/03/2019

Period 13 Month 01/03/2018 to 01/04/2019

2018-19

— B5R002	Flag Boshielo Dam	198.00	Res Nett Cap (MCM)	Weekly Reading	WB
— B5R002	Flag Boshielo Dam	210.00	% Full (nett)	Weekly Reading	WB
— B5R002	Flag Boshielo Dam	210.00	% Full (nett)		TT



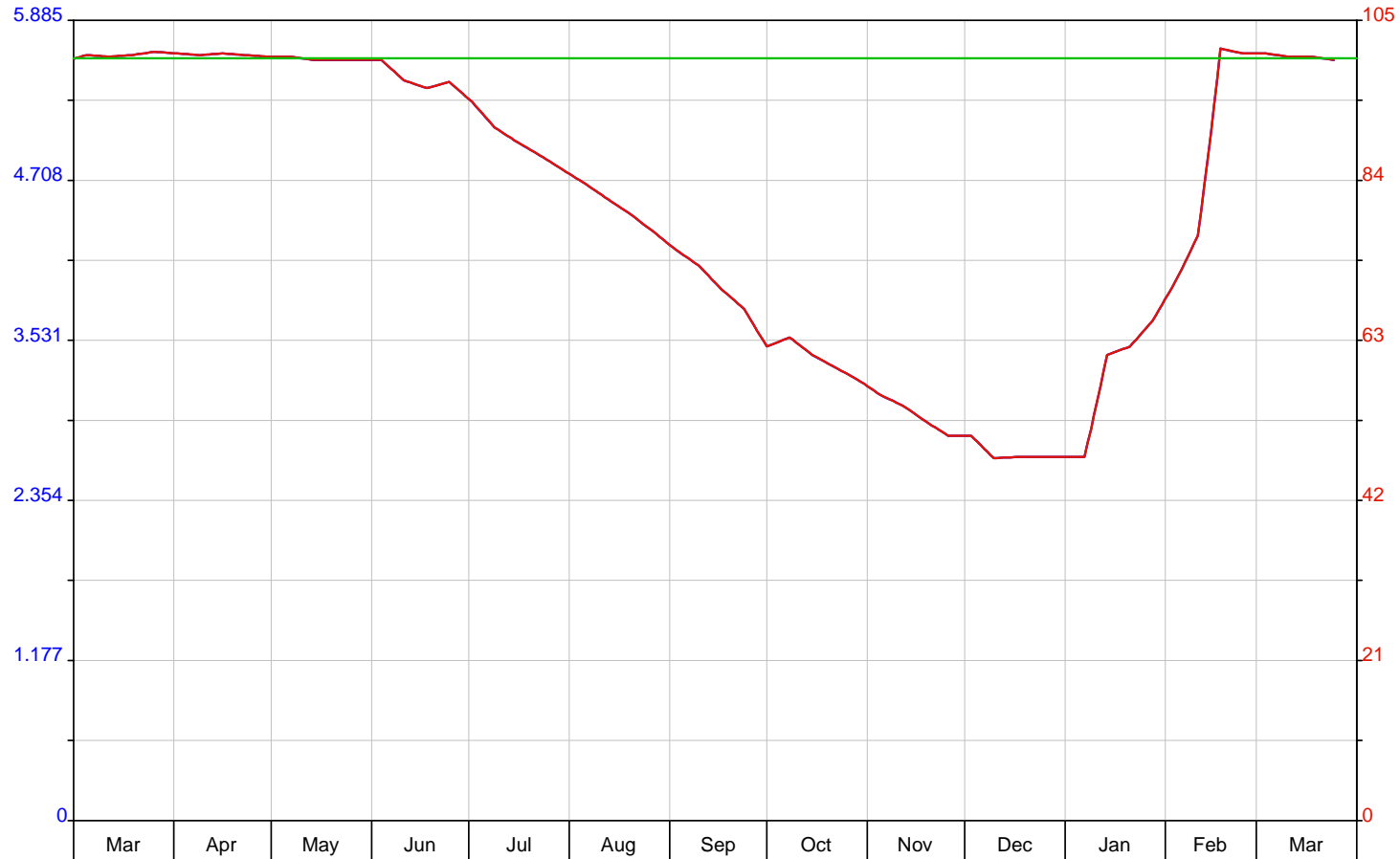
Department of Water and Sanitation

HYPLOT V133 Output 26/03/2019

Period 13 Month 01/03/2018 to 01/04/2019

2018-19

— B7R001	Klaserie Dam	198.00	Res Nett Cap (MCM)	Weekly Reading	WB
— B7R001	Klaserie Dam	210.00	% Full (nett)	Weekly Reading	WB
— B7R001	Klaserie Dam	210.00	% Full (nett)		TT



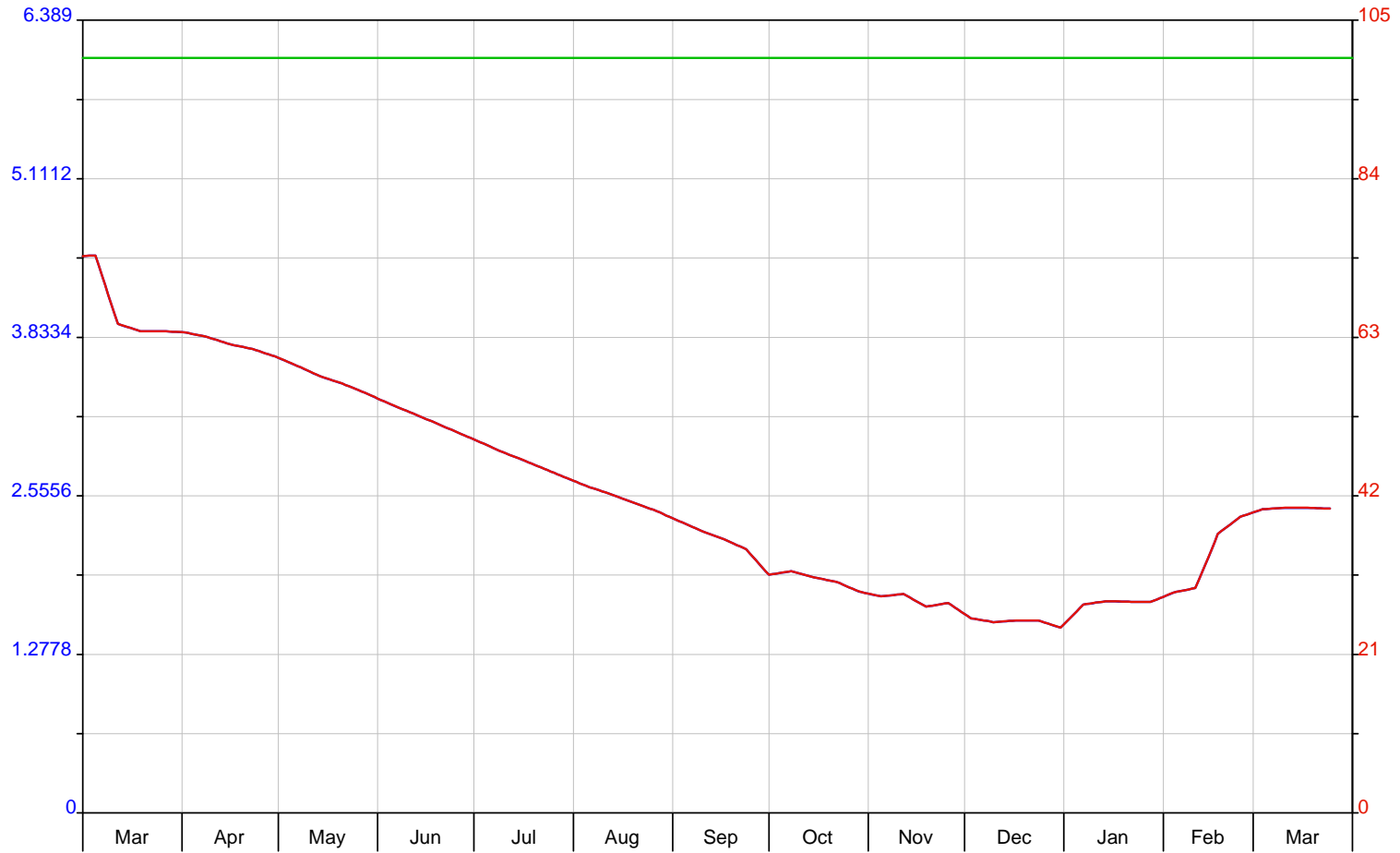
Department of Water and Sanitation

HYPLOT V133 Output 26/03/2019

Period 13 Month 01/03/2018 to 01/04/2019

2018-19

— B7R003	Tours Dam	198.00	Res Nett Cap (MCM)	Weekly Reading	WB
— B7R003	Tours Dam	210.00	% Full (nett)	Weekly Reading	WB
— B7R003	Tours Dam	210.00	% Full (nett)		TT



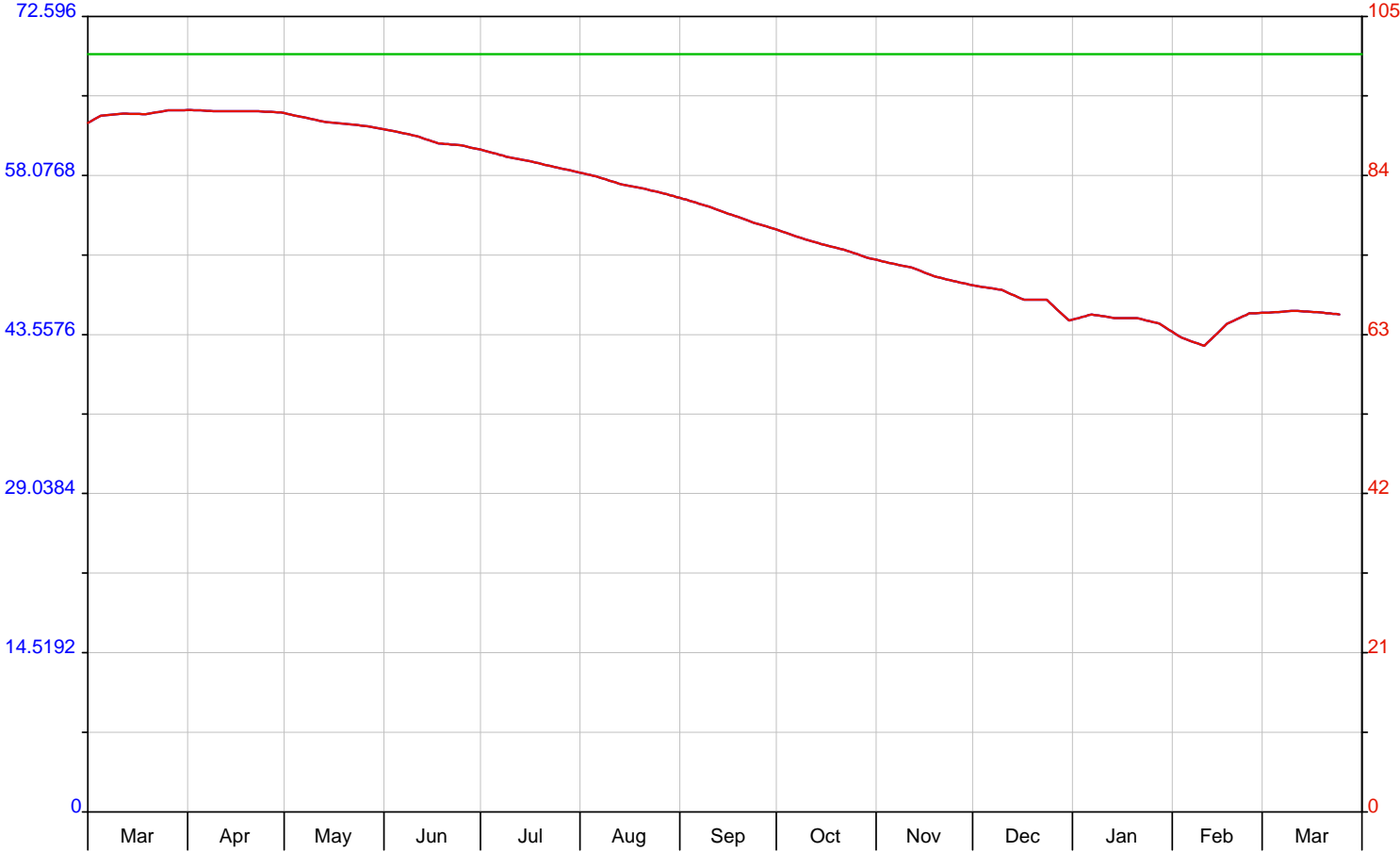
Department of Water and Sanitation

HYPLOT V133 Output 26/03/2019

Period 13 Month 01/03/2018 to 01/04/2019

2018-19

— B8R001	Ebenezer Dam	198.00	Res Nett Cap (MCM)	Weekly Reading	WB
— B8R001	Ebenezer Dam	210.00	% Full (nett)	Weekly Reading	WB
— B8R001	Ebenezer Dam	210.00	% Full (nett)		TT



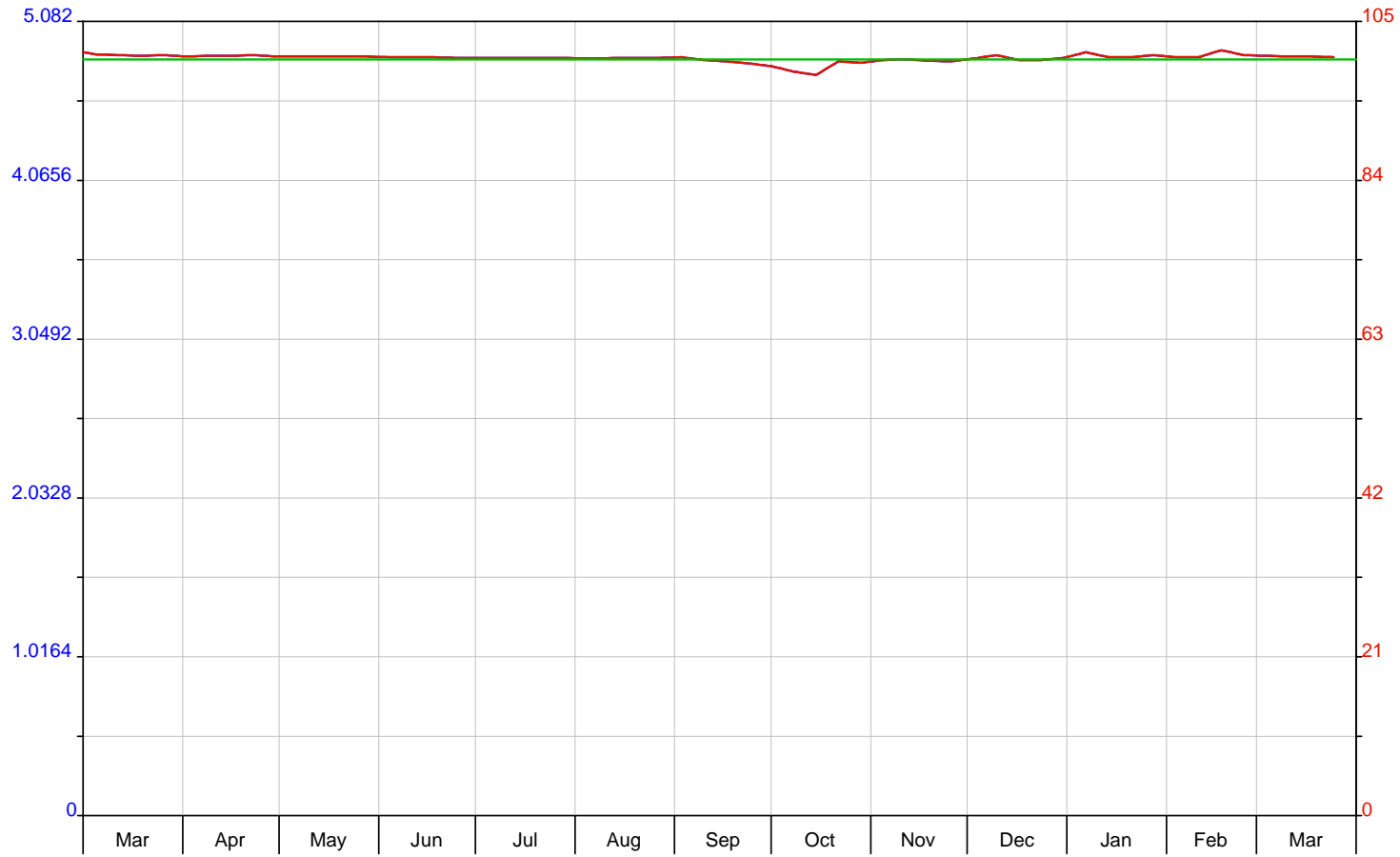
Department of Water and Sanitation

HYPLOT V133 Output 26/03/2019

Period 13 Month 01/03/2018 to 01/04/2019

2018-19

— B8R003	Magoebaskloof Dam	198.00	Res Nett Cap (MCM)	Weekly Reading	WB
— B8R003	Magoebaskloof Dam	210.00	% Full (nett)	Weekly Reading	WB
— B8R003	Magoebaskloof Dam	210.00	% Full (nett)		TT



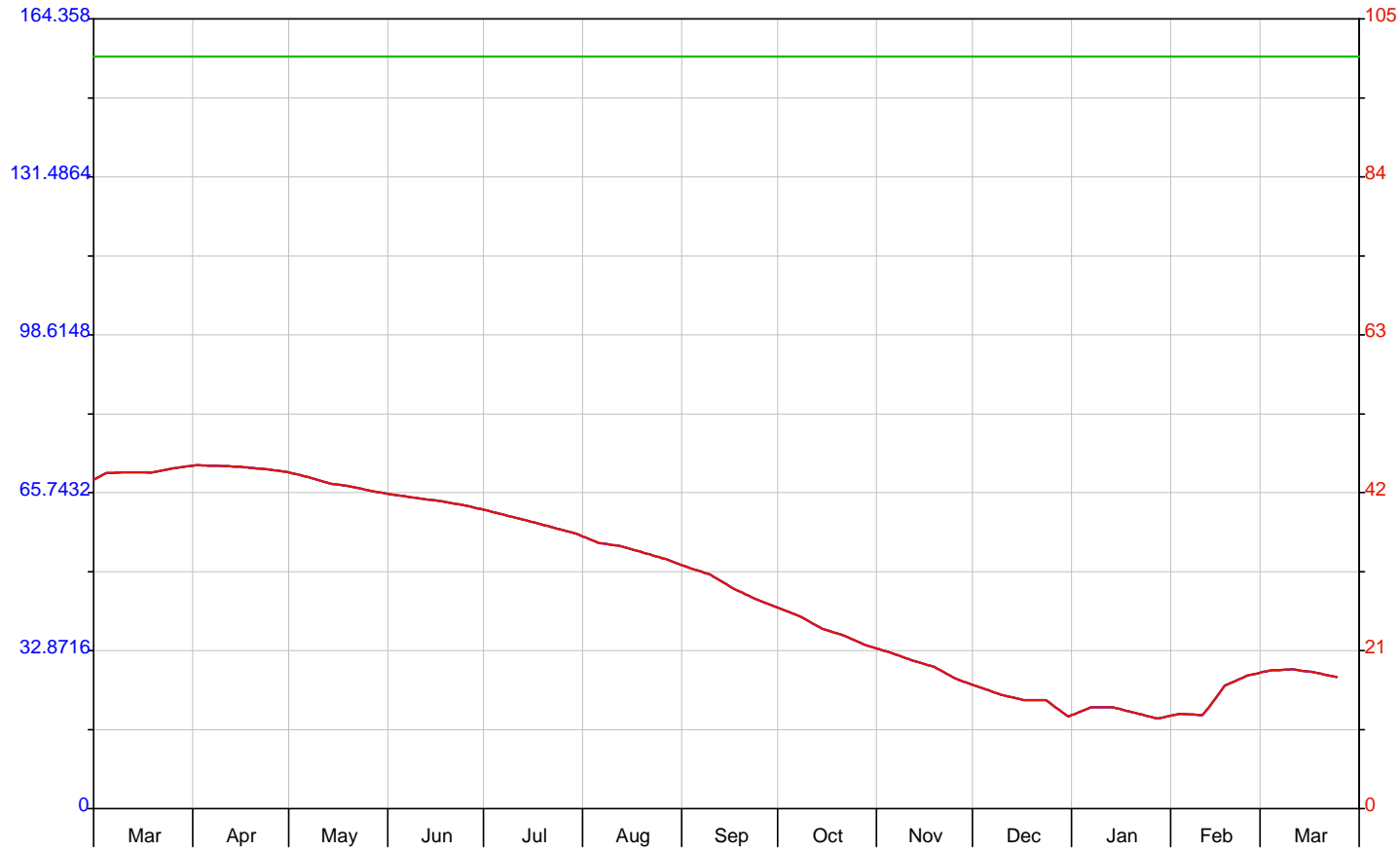
Department of Water and Sanitation

HYPLOT V133 Output 26/03/2019

Period 13 Month 01/03/2018 to 01/04/2019

2018-19

— B8R005	Tzaneen Dam	198.00 Res Nett Cap (MCM)	Weekly Reading	WB
— B8R005	Tzaneen Dam	210.00 % Full (nett)	Weekly Reading	WB
— B8R005	Tzaneen Dam	210.00 % Full (nett)		TT



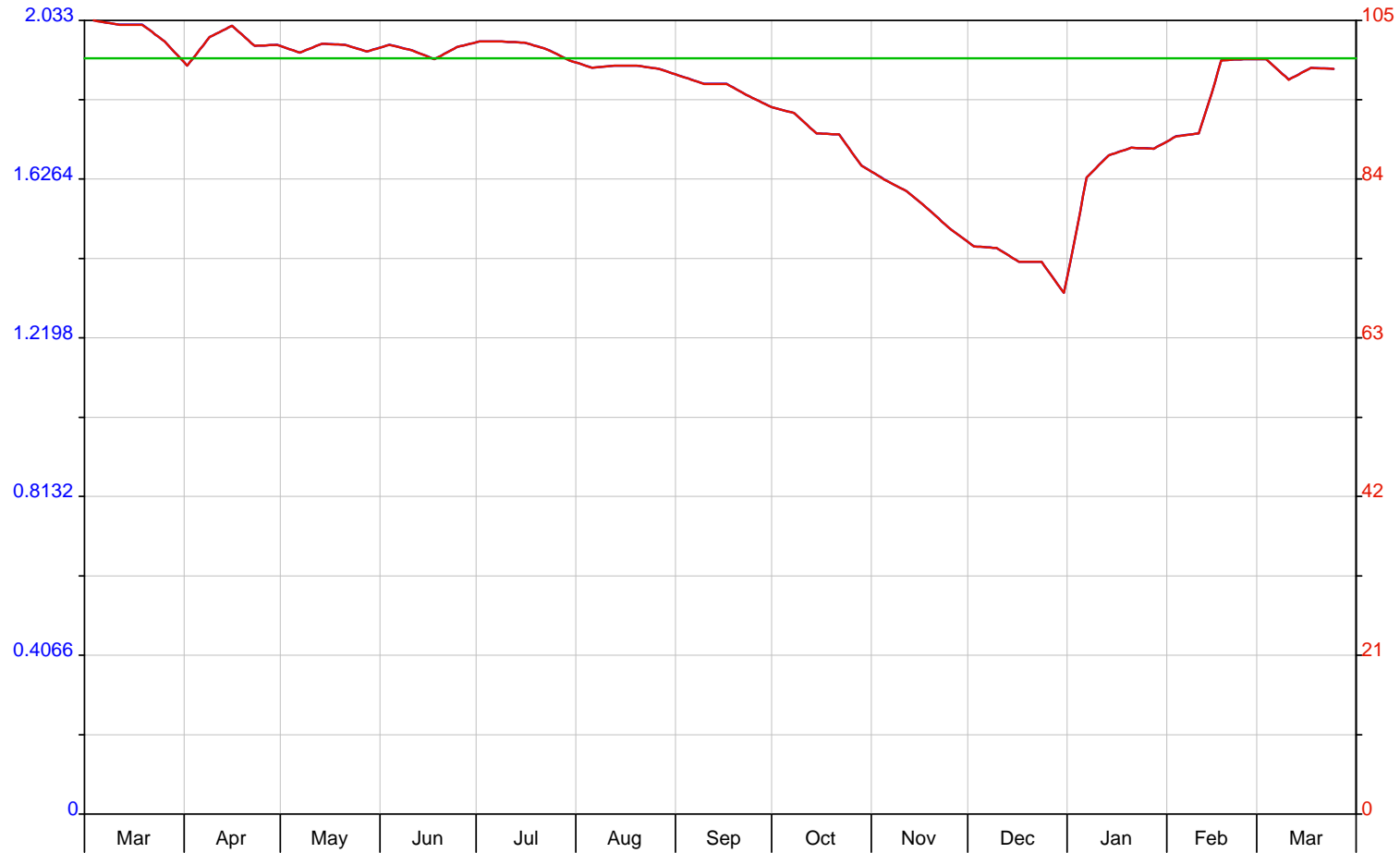
Department of Water and Sanitation

HYPLOT V133 Output 26/03/2019

Period 13 Month 01/03/2018 to 01/04/2019

2018-19

— B8R006	Dap Naude Dam	198.00	Res Nett Cap (MCM)	Weekly Reading	WB
— B8R006	Dap Naude Dam	210.00	% Full (nett)	Weekly Reading	WB
— B8R006	Dap Naude Dam	210.00	% Full (nett)		TT



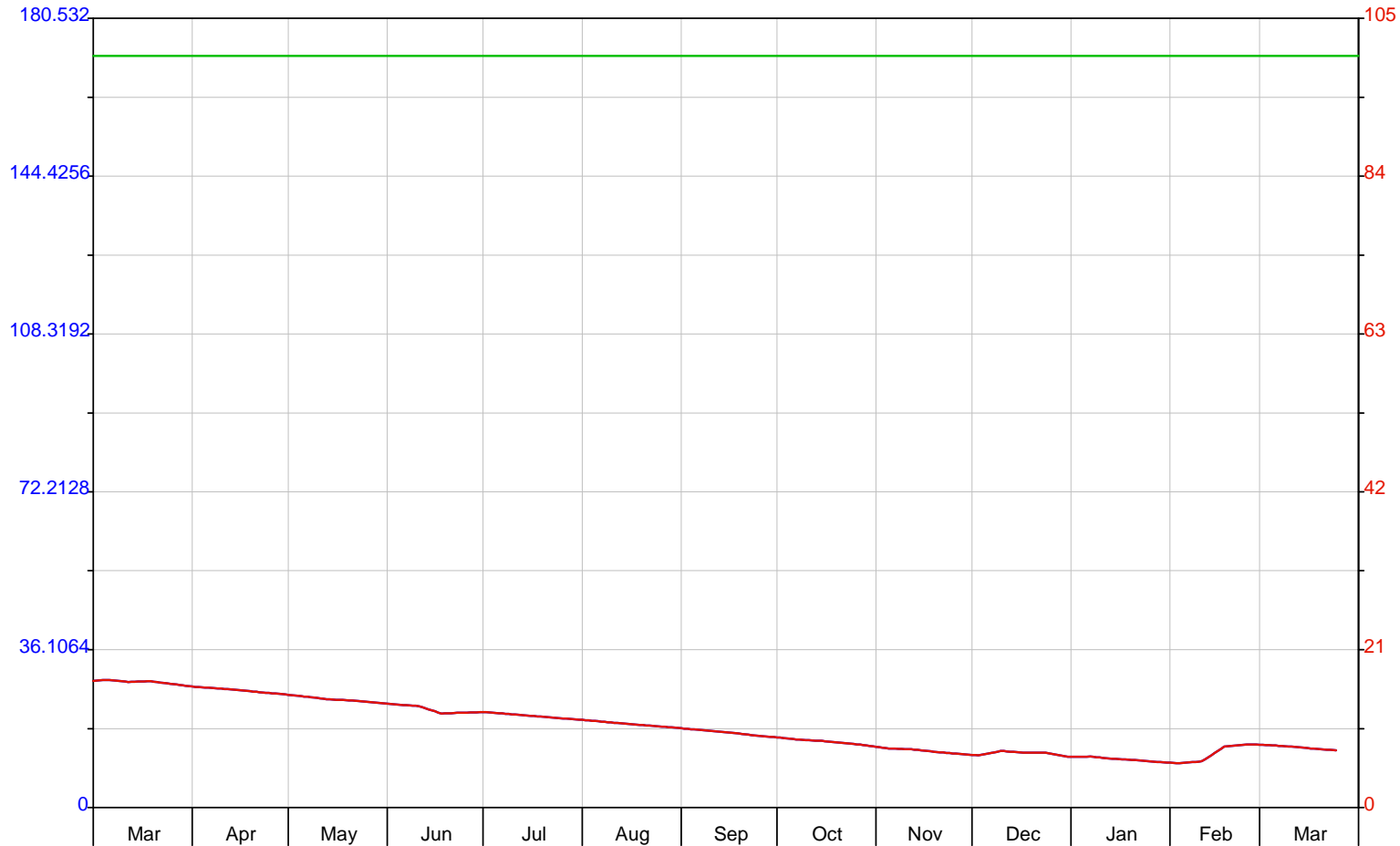
Department of Water and Sanitation

HYPLOT V133 Output 26/03/2019

Period 13 Month 01/03/2018 to 01/04/2019

2018-19

— B8R007	Middel-Letaba Dam	198.00 Res Nett Cap (MCM)	Weekly Reading	WB
— B8R007	Middel-Letaba Dam	210.00 % Full (nett)	Weekly Reading	WB
— B8R007	Middel-Letaba Dam	210.00 % Full (nett)		TT



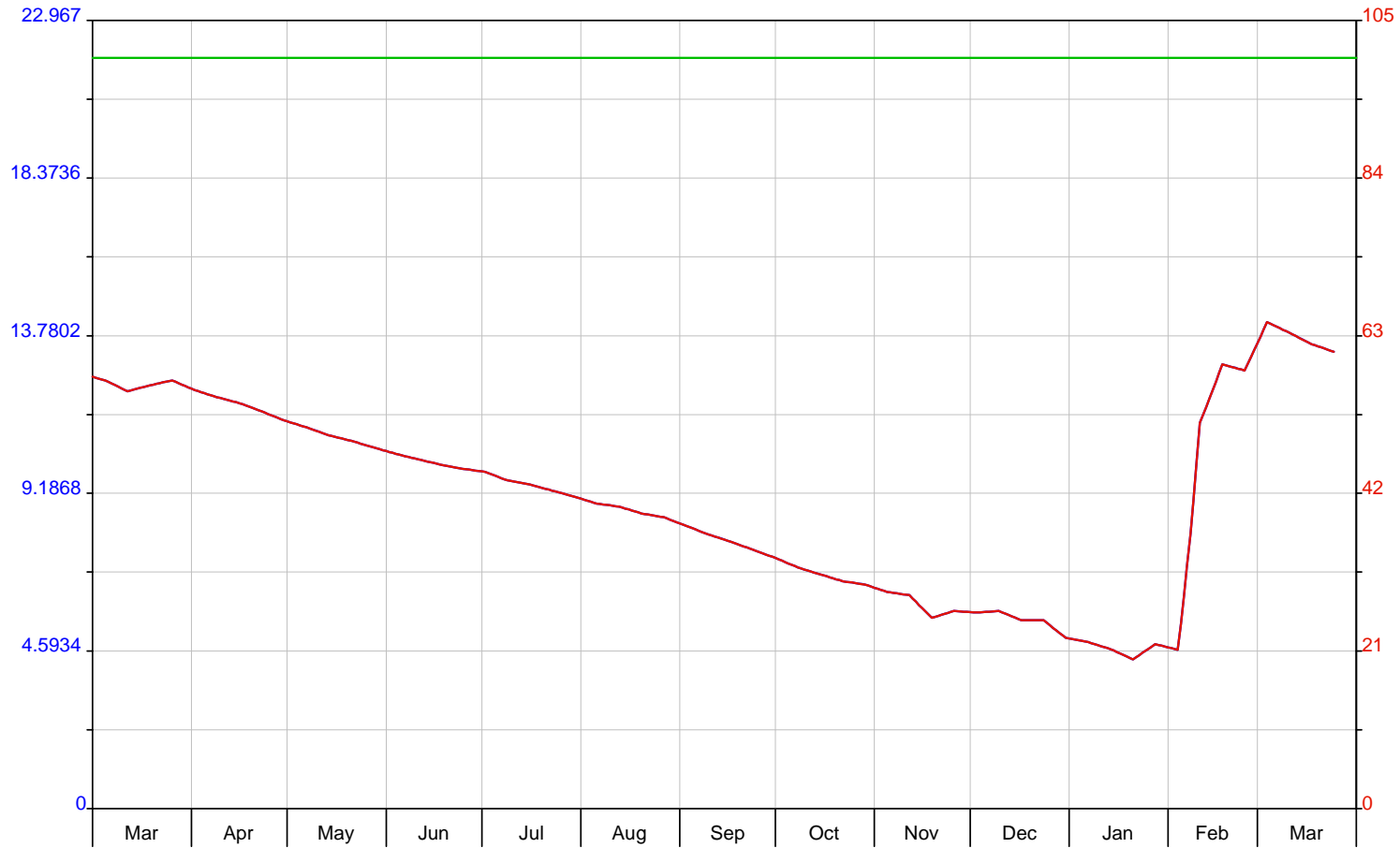
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HYPLOT V133 Output 26/03/2019

Period 13 Month 01/03/2018 to 01/04/2019

2018-19

— B8R009	Nsami Dam	198.00	Res Nett Cap (MCM)	Weekly Reading	WB
— B8R009	Nsami Dam	210.00	% Full (nett)	Weekly Reading	WB
— B8R009	Nsami Dam	210.00	% Full (nett)		TT



Department of Water and Sanitation

Period 13 Month 01/03/2018 to 01/04/2019

2018-19

— B8R011	Modjadji Dam	198.00	Res Nett Cap (MCM)	Weekly Reading	WB
— B8R011	Modjadji Dam	210.00	% Full (nett)	Weekly Reading	WB
— B8R011	Modjadji Dam	210.00	% Full (nett)		TT

