

We in Nelson Mandela Bay (NMB) remain in a serious drought situation. The volume of water we are allowed to draw from the local Eastern Cape dams located on the western side of the city has been restricted by between 50 and 85%. We are trying to balance the system with less water, but this means that more households are reporting low-pressure, no-water (intermittent water supply), or water quality concerns. The reduced ability to supply water is impacting on the reliability of water infrastructure, resulting in more frequent breakdowns and requirement for repairs.

Over the past year, Nelson Mandela Bay Municipality (NMBM) has released multiple notices to the media and on our website explaining that the local dam levels are critically low and that we have to adhere to restrictions imposed by the national Department of Water and Sanitation (DWS). With the real risk of dams running dry in the last quarter of 2021, we intensified our communication efforts in print and social media, as well as on radio and tv. In our releases we tried to explain the impact of the severe restrictions on our infrastructure, and our ability to keep reservoirs full while demand had not reduced to align with the restrictions. The metro should be using 230 million litres a day, but we have exceeded this volume by nearly 50 million litres every day. NMBM is regulated by DWS and we must comply to the restrictions. Our treatment capacity far outweighs the licensed volumes, meaning we can produce much more water than what we are allowed to abstract from local dams. The restricted availability of water from local dams has resulted in reducing our flexibility to provide water from alternative supply sources, should we require planned or unplanned maintenance on our infrastructure. As a result, the restrictions on our dams have caused more widespread outages recently than experienced in previous years.

NMBM has an extensive capital refurbishment program in which all major water utility infrastructures are upgraded and repaired as per the water master plan. If we hadn't been implementing this program, we would not have been able to provide as much water as we have been able to during the drought. For example, the low water levels of Churchill dam would mean that we would not have been able to access this water had it not been for refurbishment of the Churchill pump station. Similarly, multiple pump stations have been refurbished or newly built in the last decade and these continue to supply water to NMB. We continue to work on improving the reliability of our mechanical and electrical infrastructure to enable efficient system operations.

We are aware of numerous reports of discoloured water across the city. Mineral deposits build up inside water infrastructure over time. When flow rates change, such as caused by pipe bursts or reservoir emptying, this build up can be dislodged, causing discoloration. We regularly monitor the quality of potable water supply, and all tap water has been disinfected to ensure that it is safe to drink. Should your water discoloration be of concern, we suggest that you report it, and boil it for drinking purposes.

Collectively, Nelson Mandela Bay is STILL using too much water

Only if everybody reduces their water use, will water reach all areas. When we use too much water, reservoirs run dry as we cannot supply water in the volumes consumed. This affects the high-lying areas first, and often takes a couple of days for reservoirs to be replenished. If we continue to use too much water, this will continue to happen throughout summer.

Reducing water demand is not difficult, it requires some effort at individual, household and business level. Compared to the threat of not having running water or working toilets, it is certainly a minor inconvenience. Here are some tips to slash your water use. We will continue to run our communications campaigns but need your help to reach every person in the city.









How to use less water as an individual (target usage = 50 litres per person per day direct use):

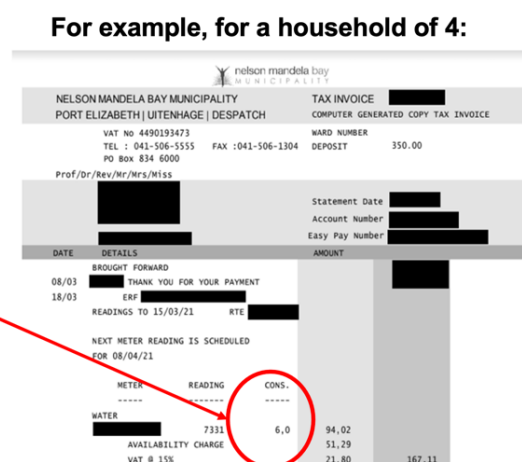
- Don't bath, instead, wash in a basin or have a 2 minute shower;
- Catch your shower water in a bucket and use this to flush the toilet, and don't flush the loo unless really necessary. Use grey/recycled water where possible;
- Don't ever leave the tap running unless absolutely critical;

- Talk about what you're doing to save water and share on social media, report water leaks, etc.

How to use less water as a household (target usage in kl/month = number of people x 50 litres x 30 days):

- Read your meter daily to see how much water you use and find leaks as soon as they occur;
- Reduce your water pressure by partially closing the tap at your meter;
- Don't water your garden, wash your car, or spray down hard surfaces. Cover your pool and don't fill it with potable municipal water;
- Put a plastic bottle filled with water in your cistern, install low-flow showerheads and tap aerators;
- Remember to close all taps after water outages;
- At 50 litres per day, each person should add no more than 1.5 kilolitres to the monthly bill. So multiply 1.5 by the number of people in your household to see how much your bill should be. For example, if 4 people live in your house, your water bill should reflect consumption of no more than 6.0 kl/month:

READ YOUR WATER BILL	
NUMBER OF PEOPLE IN HOUSEHOLD	MONTHLY WATER BILL VOLUME
 1	1.5
 2	3.0
 3	4.5
 4	6.0
 5	7.5
 6	9.0
 8	12.0
 10	15.0
(household size)	(kilolitres per household)



How to use less water as a business (target usage = 20% reduction in demand):

- Know what your historical and current consumption is so that you can make sure you meet your target reduction of 20%;
- Read your meter regularly and check your premises for underground leaks;
- Review all your processes which use water;
- Print your own signage (use city templates if you want to) and educate your visitors and staff to save water at work and at home;
- Provide hand sanitiser in bathrooms instead of soap, and install aerators in taps, etc.

Report Water Leaks in one of three ways:

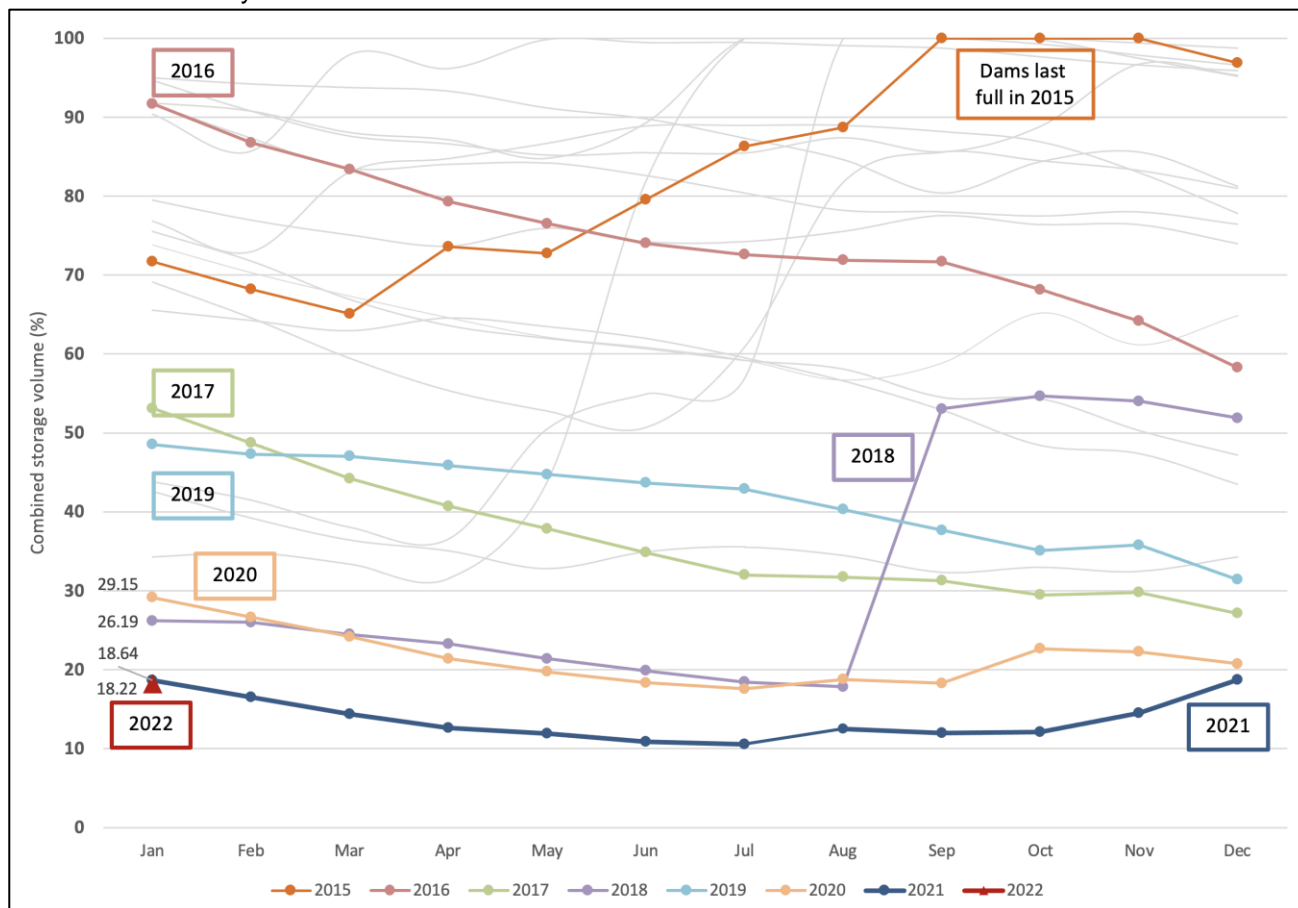
- Call Centre: 0800 20 5050
- Email: waterleaks@mandelametro.gov.za
- Smart phone: Download the NMBM App and log an incident.

For further communication material on how to reduce your demand, please see:

https://nelsonmandelabay.gov.za/DataRepository/Documents/watersavingtipsbooklet_JJvh0.pdf

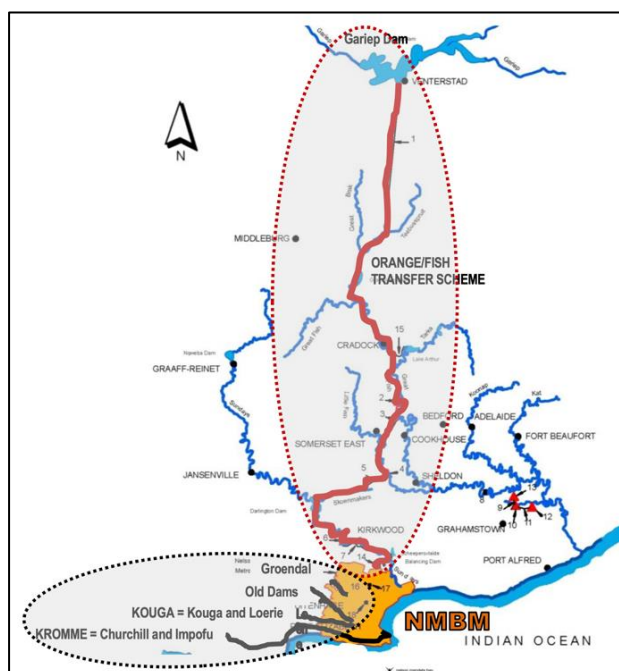
BACKGROUND AND TECHNICAL INFORMATION:

December rainfall and reduced demand resulted in an increase in local dam levels to 18.22%, but this is still a desperately low level of storage, slightly less than levels were a year ago, and more than 10% lower than at the same time in 2020. The South African Weather Services has reported that this past January was the second driest of the 122 years on record. We cannot afford to reduce our efforts now. In fact, restrictions will only be relaxed if storage increases to above 65% before July 2022. Combined storage volume of local dams serving Nelson Mandela Bay are shown here.



Taps running dry is not something any city wants to consider to be possible. But running dry remains a threat in NMB right now. The region has been classified as a drought disaster, and not without cause. If we don't act NOW to reduce our demand, large parts of the city may have to collect water from water tankers for weeks or even months. We are all in this together – even if some of our taps run dry, it will affect the entire economy and business confidence, potentially damaging NMB permanently. If the system fails before connecting infrastructure is complete, the municipality will not be able to restore water at all. The sanitation system will also fail. We have to avoid this at all costs.

Nelson Mandela Bay gets its water from two main sources. When supply is not restricted, just less than half the water is supplied through the Nooitgedagt scheme from the Gariep dam, which is currently over 100% full. Under non-drought conditions, the local dams



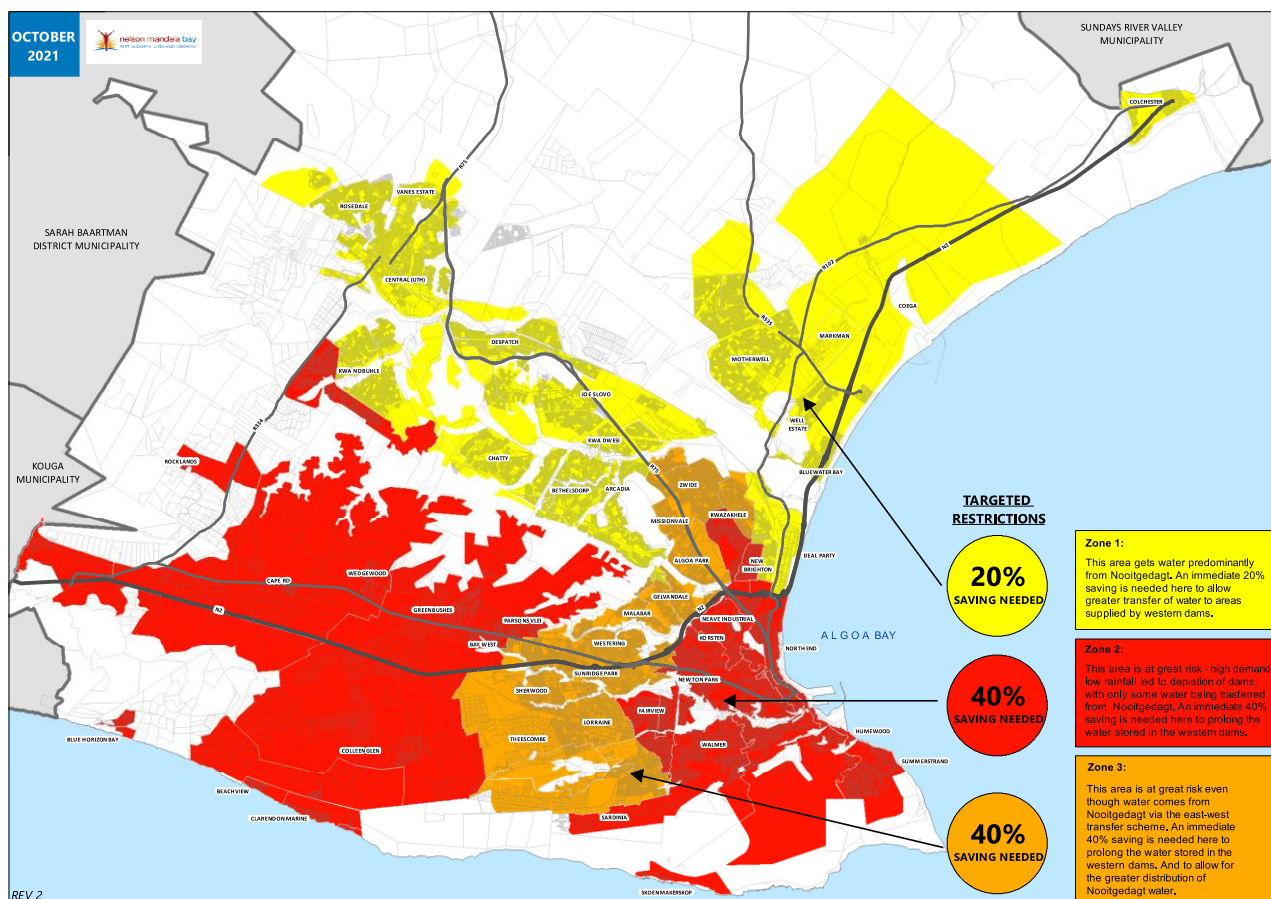
to the west of NMB provide just more than half of the city's water (i.e. unrestricted allocation). This supply is from the Kromme and Kouga sub-systems, the Groendal dam and a number of Older Dams. In the current drought conditions with restrictions on the local dams, Nooitgedagt provides around two-thirds, and the local dams only one-third of NMB's water. We need to stretch the available storage in local dams to last as long as possible while we connect infrastructure and reduce overall demand.

The National Department of Water and Sanitation (DWS) recently confirmed the restrictions on the system, as shown in the table and we *must* comply.

DWS Curtailment of Water Sources							
Component			Licenced Volumes		Restrictions		
Sub-system	Category	Consumer			2021/22		
			Mm3/a	MLD	Curt.%	Mm ³ /a	MLD
Kouga	Irrig.	Gamtoos IB	60.3	165.2	85%	9.0	24.8
	Loss	Canal	6.9	18.9	20%	5.5	15.1
	Urban	Hankey	0.5	1.4	65%	0.2	0.5
	Urban	Patensie	0.4	1.1	65%	0.1	0.4
Loerie	Urban	NMBM	23.0	63.0	85%	3.5	9.5
Kromme: Churchill+ Impofu	Urban	NMBM	38.1	104.3	70%	11.4	31.3
	Irrig.	Kromme	2.0	5.5	70%	0.6	1.6
	Env.	Release	2.0	5.5	100%	0.0	0.0
Groendal	Urban	NMBM	4.4	12.1	50%	2.2	6.0
	Irrig.	Release	2.4	6.6	70%	0.7	2.0
Uitenhage Springs	Urban	NMBM	2.2	5.9	0%	2.2	5.9
Old Dams	Urban	NMBM	3.3	9.0	0%	3.3	9.0
Sundays	Urban	NMBM	58.3	159.7	0%	58.3	159.7
Total for Existing Algoa System	All	All	203.8	558.2	52%	97.1	265.8
	Urban	NMBM only	129.3	354.1	37%	80.9	221.5

To avert disaster, we have developed an updated system optimisation plan that allows us to distribute water as far as practically possible across the metro so that everyone has access to water to meet their basic needs, even if the local dam catchments get no further rainfall. While *no* rainfall is unlikely, we have no control of how much, where or when rain will fall, but we *do* have control over other parts of our water cycle. One such area of control is in how water is distributed and how much we use. There is a complex network of reticulation mains fed from various supply sources and distributed by means of pump stations.

The system is not yet fully integrated. To date, system integration has been supported by extending Nooitgedagt water to other areas, including large portions of Kwanobuhle via the Bloemendal pipeline. Critical components of drought intervention projects will come online by end April 2022. We thus have to stretch the supply system to match, so that the local dams don't run dry before May 2022, at which point we will be able to better distribute the available water from Nooitgedagt across the entire NMB. Keep in mind that we need to reduce consumption to meet restrictions unless dam levels recover to exceed 65%.



We have divided Nelson Mandela Bay into three zones and the savings needed in each. We need to stretch the limited resource of water, and *everyone* needs to work together to make sure that our metro’s taps don’t run dry, irrespective of where you live. The areas already supplied through the Nooitgedagt scheme must reduce their consumption by 20%, highlighted in yellow as Zone 1. This is to have more water available to transfer to the rest of the metro through the existing connecting infrastructure. The balance of the metro must now reduce their consumption by 40%. Zone 2 is supplied by the local dams. Zone 3, even though partially supplied from Nooitgedagt, also has to reduce consumption by 40%. To date, due to high demand, Zone 3 households have also been drawing water from the local dams, thus accelerating their depletion.

The local dams supplying Zones 2 and 3 can provide ±190 MLD unrestricted. Under current restrictions, this is limited to ±60 MLD, leaving a shortfall of 130 MLD. Even with the transfer of 80 MLD from Nooitgedagt, it leaves a shortfall of ±50 MLD. We are trying to manage this shortfall daily, by balancing reservoirs and fluctuating flows into various areas. This creates volatility in the system, which inevitably results in further maintenance. These problems would largely be eliminated if the load is reduced on the demand side, but to date our pleas to consumers to reduce consumption have not had sufficient success.

We have been using just less than 280 million litres per day in total over the past weeks, of which approximately a third has been from the Kromme system. We have to reduce total abstraction from 280 to 230 million litres per day as soon as possible, with only about 30 million litres per day from the Kromme system and 9.5 million litres per day from Loerie. Due to demand not reducing as required, this has resulted in water outages, especially to high lying areas such as those served by Emerald Hill reservoir. We are reducing pressure where we can, to limit demand, but unless everyone reduces demand as required, the high-lying areas will continue to suffer outages. We need to reduce draw from Kromme further over the coming weeks so that we can achieve the restricted volume of 31 Ml/day.

In parallel to your saving water, the NMBM will do everything in its power to complete all the required projects so that taps don't run dry even if the local dams do. Groundwater projects across the metro will be coming on-stream to augment the water supply and we will continue attending to other maintenance matters such as bursts and leaks. We know that our customers have been complaining that our infrastructure is failing, and that the municipality is slow to fix leaks and reduce water loss. Since its establishment, the city's water infrastructure developed organically, in response to growing demand, under many different leaderships and ever-evolving legislation. Some of the infrastructure is old and competing demand on city budgets has often meant that we've not been able to maintain it as well as we would have liked. Our plan is dependent on infrastructure working, and we are committed to continue our repair & maintenance programs, but pipe bursts are still likely to happen, which could result in areas not having water for a couple of days, but water will be restored in terms of this plan.

We have worked hard to improve this and get additional capacity to shorten the length of time it takes, so that we lose less water. The impact of our efforts has been evident in reduced water demand, and will continue to show in the coming weeks.

Together we CAN avoid our taps running dry.