

Efficient treatment works could lessen pollution burden on water sources: A case of Hartebeespoort Dam

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Photo by Felix Reinders

Climate change projections for South Africa up to 2050 and beyond include warming, wet and dry conditions (Climate Trends and Scenarios, 2013). The report indicates that this warming would be somehow reduced over coastal zones. It also reports a general pattern of a risk of drier conditions to the west and south of the country and a risk of wetter conditions over the east of the country. The country too, is a water scarce country, as it is subject to droughts and periodic floods. Water scarcity refers to the volumetric abundance, or non-abundance, of water supply, which is expressed as the ratio of human water consumption to available water supply in a given area (Mnisi, 2020). In November to December last year, a weekly dam levels report issued by the Department of Water and Sanitation (DWS) depicted a bleak reality that water levels were declining consistently week on week (Fourways Review, 2020), but currently with the Tropical Cyclone Eloise, there is flooding in the low lying areas and increasing levels of dams in some provinces of the country.

Climate variation coincides with economic contraction that is exacerbated by COVID-19 pandemic

era. The provision of safe water, sanitation and hygienic conditions enables the protection of human

health during such infectious disease outbreaks, including the current COVID-19 outbreak (WHO 2020). Water therefore forms part of the health routine of frequent hand washing, which is meant to curb a spread of this pandemic. The outbreak has shed light on the lack of access to water and sanitation services as temporary water tanks had to be made available in many rural communities and townships where there was no running water.

The Deputy Minister, Mr David Mahlobo of Human Settlements, Water and Sanitation explained that the water scarcity crisis is already having significant impacts on economic growth and on the well-being of everyone

in South Africa (DWS, 2020). He further stated that this is exacerbated by climate change related impacts and the Covid-19 pandemic. The department, through its National Water and Sanitation Master Plan Volume 1 (2018), made a call of action to address South Africa's water crisis caused by insufficient water infrastructure maintenance and investment, recurrent droughts driven by climatic variation, inequities in access to water and sanitation, deteriorating water quality, and a lack of skilled water engineers.

In response to some of these challenges, Mr. Mahlobo reported that while ensuring water security and mitigating scarcity, promotion of water re-use should increase

References

- Climate trends and scenarios (2013). https://scholar.google.co.za/scholar?q=CLIMATE+TRENDS+AND+SCENARIOS+Climate+and+Impacts+Factsheet+Series,+Factsheet+2+of+7&hl=en&as_sdt=0&as_vis=1&oi=scholar
- DWS (2018). National Water and Sanitation Master Plan. Version 10.1. Volume 1: Call to Action. Department of Water and Sanitation, Republic of South Africa.
- DWS (2020). Budget Speech for 2020/21, Department of Water and Sanitation. Pretoria. <https://www.gov.za/speeches/deputy-minister-david-mahlobo-debate-water-and-sanitation-dept-budget-202021-23-jul-2020>
- Fourways Review, (2020). Save Water Means Possible. <https://fourwaysreview.co.za/318863/save-water-means-possible/>
- Mnisi, H. (2020) water scarcity in South Africa: a result of physical or economic factors? Helen Suzman Foundation. <https://hsf.org.za/publications/hsf-briefs>
- Mudombi, S. and Montmasson-Clair, G (2020) A case for water and sanitation in South Africa's post lockdown economic recovery stimulus package. Working Paper. Pretoria, South Africa: Trade & Industrial Policy Strategies.
- The State of Rivers Report (2019). The State of Rivers Report: River Eco status Monitoring Programme 2017-2018, Department of Water and Sanitation. Pretoria.
- Venter, P. Personal communication 2021. Hartebeespoort Dam. South Africa.
- WHO (2020). Water, Sanitation, Hygiene and Waste Management for COVID-19. Technical Brief. World Health Organization.

the yield beyond the current 20% contribution (DWS, 2020). He indicated that many cities across the globe depend on re-use water and the quality is high and fit for use. However, he acknowledged that in our own country, the quality is impacted by poor or lack of operations and maintenance of many municipal wastewater treatment works. Mudombi and Montmasson-Clair (2020) indicated that in 2014, about 474 out of the 824 wastewater treatment works (58%) displayed high or critical risk, while only 135 (16%) faced a low risk.

While there is the possibility of the country's quality of water for re-use being impacted by deteriorated state of many municipal wastewater treatment works, this may also be worsened by the heavily polluted rivers flooding the dams. The State of the River Report (2019) confirmed that a below optimal water treatment service reduces the number of sites monitored.

The Hartebeespoort dam provides water for irrigation, leisure lifestyle and other socio-economic activities. This is one of the dams with heavy pollution caused by upstream rivers draining into it. Large quantities of litter and debris are transported along the Crocodile River (DWS, 2012). This is due to the fact that the catchment area of the Crocodile River includes various townships including informal settlements where large quantities of litter and debris enter the

river system. The other two rivers that are blamed for polluting the dam are Hennops and Jukskei. Venter (2021) confirmed that the proportional load of litter and debris from Jukskei and Hennops rivers is still the highest.

The Hartebeespoort dam is a valuable source of water and the Department of Water and Sanitation has put in place different remediation programmes such as litter traps to deal with water pollution.

Economic analysis studies of wastewater treatment works may serve as one of important tools to determine the potential benefits in monetary and non-monetary terms that can be realized from executing wastewater treatment works in the country. This may include an application of conventional economic analysis techniques such as determining the opportunity cost of not implementing wastewater treatment works, cost benefit analysis and net present value calculations to determine the feasibility of the treatment works. The results of such analysis can quickly inform relevant water sector stakeholders of the importance of keeping the wastewater treatment works operating at an optimal level.

Increased water treatment works and constant eco-status monitoring of rivers may also lessen the dam pollution. Dealing with water crises in this Covid-19 pandemic era could have significant impacts on economic growth and on the well-being of everyone in South Africa.



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