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CHANGING LONG DROPS INTO GREEN DROPS –

Authorities work to save sewage treatment sector from crisis

Assessment of the country's municipal wastewater services has revealed that almost half of our wastewater treatment plants are posing a critical risk to human health and the environment. Now authorities are racing against time to prevent the situation from reaching catastrophic levels. Lani van Vuuren reports.

***Above**: Minister of Water & Environmental Affairs Buyelwa Sonjica released the Green Drop report in Pretoria in April.*

South Africa has more than 850 wastewater treatment works treating on average 7 589 Mℓ of sewage every day. These range from small works in rural areas treating less than half a megalitre a day (73% of works) to macro works in metropolitan areas treating more than 25 Mℓ/day. More than R3,5-billion is spent a year on the operation of these sewage treatment plants.

Despite the importance of effective wastewater treatment in safeguarding human health and preventing environmental degradation, it is still considered an unsexy municipal service in many areas. This results in inadequate operation and maintenance, poor management, and severe understaffing. While mayors prefer to cut red ribbons on new community centres and sports fields, even basic maintenance remains a luxury for most sewage treatment works around the country.

Last year the Department of Water Affairs (DWA) launched its Green Drop certification process – an incentive-based regulatory approach to evaluate the performance of municipal wastewater services. A little over 7% of wastewater treatment plants achieved Green Drop status, mostly situated in and around Pretoria, Johannesburg, Cape Town, and Durban. Apart from these 'pockets of excellence' the report generally described the state of the bulk of the plants as 'poor to non-functional'. It said that in many cases extensive refurbishment and expansion of the current plants were required. Serious concerns were expressed over 55% of works, which scored between 0% and 49%.

"We acknowledge the shortcomings in the management of wastewater treatment works as revealed by this [Green Drop] report," said Minister of Water & Environmental Affairs Buyelwa Sonjica. Speaking at the launch of the report in April she said: "This programme forced the

management of wastewater treatment into the foreground of many municipal discussions..it was far too long neglected, under-funded and under-maintained."

However, this voluntary process only saw 449 municipal wastewater systems (53%) being assessed, with municipalities citing their lack of 'confidence in their levels of competence' and lack of management information as reasons for not participating in the process.

Consequently, a risk-based assessment was carried out in 848 wastewater treatment works across the country. Information collected to assess the potential risk of these plants included data on plant design capacity and receiving flows, licence status, effluent quality and permitted limit/standard, technical skills, as well as occupational health and safety appointments compared with legal requirements. This has become a base for intervention plans that are geared towards improving municipal technical proficiency and legal compliance with effluent discharge specifications.

Results of the risk-based assessment correlated largely with that of the Green Drop assessment, with 46% of sewage works assessed regarded as 'priority cases' as they are failing to comply with national legislation and good practice. Worryingly, in 37% of cases municipalities did not have information on the wastewater treatment plants they are responsible for.

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This was especially the case in the Free State, Eastern Cape, Limpopo and North West, where more than 50% of wastewater treatment works had insufficient data. "In situations were no information or data is available, a municipality may not even be aware of its status and is most probably not complying as a result of this lack of flow and quality measurement," noted Acting Director: Water Services Regulation Leonardo Manus.

The majority of wastewater treatment works fail to meet at least three or more of the respective effluent discharge standards (determinants), most notably *E. coli*, faecal coliforms and ammonia. South Africa's water sources are clearly being contaminated by municipal effluent.

According to Manus, a further challenge is the fact that as many as 20% of (mostly smaller) sewage works are currently operating at or over their

Daspoort Wastewater Treatment Works in Pretoria was one of a few sewage plants which obtained a Green Drop.

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design capacity. Where the plants are well managed this is not so much of a problem. Manus cited Johannesburg's Northern Works, for example, a macro wastewater treatment plant which operated well over capacity for quite some time, yet still managed to operate within legal limits.

Of course, these competent technical and management skills are hard to come by. Not surprisingly, the DWA found that non-compliance is often underpinned by the lack of technical and management skills. Assessors found a dearth of all skills at many wastewater treatment plants, from junior operator level through to supervisors and management staff. The department is now working with tertiary institutions such as the Technical University of Tshwane to train competent staff and find ways of incentivising them to work on especially smaller sewage works.

Other challenges identified include funding constraints to upgrade or refurbish or augment the works, the age of some of the works, limited or restrained operations and maintenance budgets and inappropriate type of technology. The risk-based assessments has identified priority areas for urgent regulatory attention while, at the same time, presented municipalities with tangible targets to reduce the risk of their wastewater treatment plants. "We have already communicated the findings with the municipalities and have advised them how to reduce their risk – in many cases this does not involve investment of millions of Rands," noted Manus.

However, in many cases a sizeable financial investment is required to make up for years of neglect. At least R23-billion is required to overhaul the country's wastewater treatment plants. The DWA is currently in discussion with Treasury and other departments to formulate a bulk infrastructure and refurbishment grant, which is to include funds for wastewater treatment infrastructure improvements.

Litigation is seen as a last resort and is only initiated where other avenues have failed. The DWA has issued around 400 directives and instituted 11 court cases, including charges against the local municipalities of Machabeng in the Free State and Madibeng in the North West.

Sonjica has denied that the situation has reached crisis levels. "It is not a crisis yet, but we do not want it to become a crisis, which is why we are doing everything we can. It will not become a crisis."

To access the *Green Drop Report 2009* Visit: www.dwaf.gov.za/Documents/GreenDropReport.pdf ❑

South Africa has around 390 small and micro wastewater treatment plants, most of which are overloaded and under-resourced.