NON-REVENUE WATER

Examining performance-based contracting for non-revenue water

Nick Graham, Sophiya Gabier, Lelethu Bodlani and Victoria Johnson report on a potential solution to solve non-revenue water, involving the private sector.

The non-revenue water (NRW) situation in South Africa is dire. The 2023 No Drop Report found that the national NRW figure is 47%, up from 41% in 2018 and 37% in 2012. This means that almost half of the water that is extracted, treated and distributed is never paid for, and the situation is getting worse. The negative financial implications for municipalities are obvious and some of this wasted expenditure could be repurposed to pay private contractors to help address the NRW issues.

Performance-based contracts (PBCs), where the private sector takes risk in implementing NRW interventions in exchange for a portion of the savings, have been implemented successfully internationally and twice in South Africa. PBCs have multiple advantages and appear to be a win-win for both the municipalities and the private sector, but have not been applied at scale in South Africa, despite the growing NRW problem. Research funded by the Water Research Commission sought to answer the question: 'Why not?', and to propose a framework for successful implementation of these forms of contract in a South African context.

Causes of high NRW

There are two broad categories of NRW: technical losses (leaks) and commercial losses (inaccurate metering and billing, and illegal connections). The No Drop Report indicates that the bulk of the problem (70% of NRW) is in technical losses in the water networks. Apparent losses (meter inaccuracies and illegal connections) make up only 18% of NRW, while unbilled connections make up 12%.

Non-revenue water is an indication of inefficient water-supply networks and failing infrastructure, which in turn are symptoms of inadequate management of the systems. The Municipal Infrastructure Grant Framework in the Division of Revenue Act 2023, states that: "Where non-revenue water is in excess of 30% and not decreasing from year to year, the municipality shall be determined to be failing to manage its water supply". According to an analysis of the 2021/22 audited municipal financial statements, this would include 70 out of the 113 Water Services Authorities that reported NRW figures (62%).

Reasons for the high level of technical loss include historically poor maintenance and lack of adequate asset replacement leading to old, leaking infrastructure. To delve deeper, the reasons underlying poor asset management are fundamentally about poor management of the network, a lack of adequate funding or both, and the interaction between these two issues. Losses in excess of 30% of system input volume are likely to be attributable to some extent to a shortage of skills or capacity.

Reasons for commercial losses include insufficient funding to replace faulty meters, insufficient staff capacity / funding for meter reading, political resistance to installing meters, political / community resistance to removing illegal connections and poor billing systems.

Reasons why PBCs are not being implemented

The two main reasons why PBCs have not scaled in South Africa are: 1) that the risks to the private sector have been too high, leading to a lack of interest; and 2) that municipalities lack the skills and experience to design and implement these contracts. PBCs, by design, are intended to transfer performance and financial risk to the private contractor. However, there are several other non-performance risks that may be faced by potential contractors:

- Local political risks – including disruption by the 'construction mafia', community protest or community resistance to the contractor's presence in certain areas.
- Council political risk – that a Council will renege on the contract, or, given the long-term nature of the contract, a subsequent Council will challenge or reject the contract entered into by the previous Council.
- Payment risk – disputes over the remuneration calculation, delayed payment, or total non-payment of agreed amounts.
- Partnership risk – lack of cooperation by municipal officials to gain access to the network, to control impact on the network by third parties, or to collect billed revenue after metering and billing interventions.
- Data quality risk – if data quality regarding the baseline water consumption or the technical details of the network are poor, then this adds to the standard performance risk hat contractors must take.

PBCs are a new form of contract that have only been tested twice to address NRW in South Africa. As such, it may be unfamiliar to municipal officials, who may be reluctant to try this approach, or not know how to design such a contract. Reluctance to enter into a PBC is often linked to the bureaucratic inertia created by the regulatory environment. While a legal

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review found that there are no legal or regulatory prohibitions on PBCs, some forms of PBCs will trigger Section 33 of the Municipal Finance Management Act, the requirements of the Public-Private Partnership Regulations, or alternatively, the Municipal Asset Transfer Regulations.

PBCs can be designed to avoid these regulatory processes, but this negates some of the advantages of the risk transfer. Municipalities need to match their appetite for regulatory burden with the advantages of greater risk transfer. A lack of experience in these types of contracts can be addressed through external specialist technical support and tools, such as the ones currently being developed by the Water Partnerships Office.

Implications for the applicability of PBCs for NRW in South Africa

The reason for implementing a PBC is so that a private party can address NRW issues that a municipality is unable to address. However, the major underlying reasons for NRW, namely a lack of capacity and lack of money, are also likely to limit the applicability of NRW PBCs. Capacity is an issue because some technical and contract management capacity is needed to scope, engage with, and manage the contractor. Conversely, those municipalities that are well capacitated and can manage their network adequately may not need a PBC. PBCs will usually cost more than if a municipality undertook the same work itself because of the risk and profit that needs to be priced into these contracts. A lack of money is an issue because money is still needed to set up the contract and pay the contractor. While the savings achieved by a PBC are meant to cover the costs of the intervention, there are some up-front costs required, and the municipality still needs to have cashflow to pay the contractor when the incentive payments become due. Municipalities with severe financial issues may not be able to honour PBC contracts.

The implication of these dynamics is that PBCs are most appropriate where there is some, but insufficient internal technical capacity, low internal incentives for NRW reduction and the cost of NRW to the municipality is high, but where the municipality has sufficient financial liquidity and contract management capacity to honour these contracts. The number of municipalities in which these conditions are all true may be limited.

Preconditions for the implementation of PBCs

There are several preconditions that need to be in place to address the abovementioned risks to make PBCs attractive to the private sector and cheaper for the municipality:

- Correct diagnosis: The nature of the NRW problem needs to be correctly understood to specify the correct intervention.
- Credible baseline: Meter records, preferably of minimum night flow, are required to set a baseline against which to pay the contractor.
- Ring-fenced district metered area: The areas in which interventions are planned need to be discreet from other zones and all pipelines supplying the area must be metered.
- Political support: Council support will increase confidence that the contract will be honoured and assist with community engagement.
- Institutional support: Senior management needs to motivate the contract to the Council and to gain adequate and unrestricted access to the network.
- Community support: Benefits to the community need to be communicated to ensure support and develop longer-term assistance with NRW reduction.
- Municipal technical capacity: A minimum level of technical capacity is required to engage with the contractor and to manage the contract.
- Responsibility and accountability: Officials need to be designated as being responsible for the contract and accountable for its success.
- Adequate funding: Funding is required for project setup, fixed fee items and incentive payments when these are due.
- Commercial attractiveness: Preliminary work is required to calculate the potential savings and return on investment to ensure commercial attractiveness.

Conclusion

PBCs have been successful both locally and internationally and offer strong potential to address the rampant NRW in South African municipalities. However, there are reasons why PBCs have not been adopted at scale, which largely relate to municipal technical capacity and the complex and difficult context in which municipalities operate. PBCs should not be seen as an external 'quick fix' to a technical problem or a clever way to finance the fixing of leaks in old pipes. Rather, they are an initial mechanism for intervening in a failing municipal water system. They are one part of a larger, longer-term solution that needs to be found for the lack of adequate technical capacity and resources in municipal water services departments. Municipalities need to be supported to meet all the preconditions to address all the potential risks and to maximise the chances of success.

To access the report, ***Performance-based contracting for non-revenue water and its relevance in the South African context*** (**WRC report no. 3143/1/24**), Visit: https://bit.ly/3VflqdF