Sanitation

The crusade for sufficient school sanitation

A current Water Research Commission (WRC) study is exploring the status of sanitation in rural schools, and reviews best practice for infrastructure design.

Article by Sue Matthews.

All photographs courtesy PID

"Six-year-old Michael Komape drowned in excrement in a pit latrine at his school in Limpopo in January 2014, just a week after he had started his school career."

This is the opening sentence of a WRC report entitled *Exploring the Issues around Rural On-Site School Sanitation in South Africa*, and its shock value is unquestionable. Michael's tragic death came less than two months after the first legally binding norms and standards for school infrastructure were published under the South African Schools Act. These regulations outlawed so-called 'unimproved' pit latrines, but the provincial education departments have been given a three-year grace period to replace them.

Sickening accounts of school toilets are not confined to pit latrines though. Earlier this year, the *Sowetan* ran a front-page article headlined 'School toilets of shame', reporting on the newspaper's three-week investigation of the state of toilets at 25 schools in nine townships in the vicinity of Johannesburg. It described appallingly filthy conditions, with surfaces smeared with faeces and blood, and toilets often blocked and overflowing.

Other news outlets picked up the story after Equal Education, which had marked World Toilet Day on 19 November 2013 by launching its Gauteng Sanitation Campaign, released its findings from a social audit of township schools conducted in March and April. The NGO had been instrumental in getting the infrastructure norms and standards published as regulations, resorting to court action when Minister of Basic Education, Angie Motshekga, dragged her heels. The audit revealed that, of approximately 150 schools surveyed, nearly 70% had no soap in the bathrooms and 40% had no toilet paper, while 18% had more than 100 students sharing a single working toilet.

Yet these are schools in urban settings, and the situation at rural schools – the subject of the WRC report – is generally far worse. The report represents a preliminary exploration for the WRC-funded project *Evaluating the design*

of existing rural school sanitation infrastructure and developing a model and guidelines for optimal design, which is being conducted by Partners in Development, a Pietermaritzburg-based research and engineering company working primarily in the water and sanitation field, particularly in rural areas.

The report focuses on rural schools in the Eastern Cape, Limpopo and KwaZulu-Natal because the National Education Infrastructure Management System (NEIMS) Report, published by the Department of Basic Education in May 2011, showed that these provinces had the highest percentages of schools with inadequate sanitation. About 73% of schools in Limpopo had unimproved pit latrines, while more than 500 Eastern Cape schools – mostly in the former Ciskei and Transkei homelands – had no toilet at all.

The WRC report includes case studies from the three provinces that make for uncomfortable reading. The Limpopo case studies were from 10 schools visited in 2013 by the public interest law centre, Section27, while the Eastern Cape examples were provided by Impilo Yabantu Services, which provides operation and maintenance services for sanitation blocks in four of the province's educational districts. Partners in Development visited a small number of peri-urban schools in KwaZulu-Natal in 2013, but is conducting a more comprehensive assessment of rural schools in all three provinces for the broader WRC study.

The case studies document toilets that looked like they had never been cleaned, toilet stalls with no doors, full pit latrines and schools with no hand-washing facilities. In one example, the superstructure around the boys' latrines had been destroyed in a storm. In another, a primary school with 520 learners, there were only two pit latrines for girls and two for boys, giving a ratio of 1 toilet to 130 learners. Recommendations for the number of children to be served per toilet typically range from 1:20 to 1:50. According to the norms and standards, a school of this size should have eight toilets for girls and four toilets plus four urinals for boys.

Toilets with missing doors offer learners no privacy when using the toilet.

Too few toilets mean that learners queue to use the toilet at break time and may be forced to miss lessons if they don't get their turn. Filthy, smelly facilities and full pit latrines prompt learners to walk home if they live nearby, or relieve themselves in the veld, where they may be vulnerable to rape. Missing doors on toilet stalls result in a lack of privacy that is an affront to human dignity. And, of course, contact with faecal matter and the absence of hand-washing facilities is a serious health threat.

Diarrhoeal diseases from bacteria, viruses or protozoa – which in South Africa account for 3% of deaths and are the third largest cause of death among children under five – are almost always transmitted via improper sanitation and hygiene, while parasitic worm infections cause nutritional deficiencies and impaired physical and mental development in children.

Government is aware of such problems, and has taken steps to address them. Minister of Finance, Nhlanhla Nene, announced in his Budget Speech in February that R29.6-billion had been allocated to the Education Infrastructure Grant for the next three years to help schools meet the minimum norms and standards, and a further R7.4-billion to the school infrastructure backlogs programme, which funds the Accelerated Schools Infrastructure Delivery Initiative (ASIDI).

ASIDI aims to replace 510 sub-standard schools, including so-called mud schools and other 'inappropriate structures', and provide sanitation, water and electricity to schools that don't have access to these services. In August, the Department of Basic Education reported that – as of 30 June 2015 – 116 schools had been completed, 439 of 741 targeted schools had been provided with sanitation facilities, 518 of 1120 schools provided with water and 295 of 914 schools provided with electricity.

So progress is being made, but unfortunately it's often a case of one step forward, two steps back.

Broken pedestals over pit toilets cause dangerous conditions for learners, especially those in primary school.

Adequate construction and maintenance of toilet facilities is a significant issue at many schools.

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"What the findings of our research show is that it doesn't stop with building new toilet blocks," says David Still of Partners in Development. "There's a whole lot more that needs to be done around the value of hygiene and sanitation at schools – who looks after it, how it's managed, who is accountable – because otherwise you can spend millions on new facilities and you'll come back in a year and they're either trashed or locked."

Indeed, follow-up visits to schools provided with new toilet blocks frequently reveal that their condition has reverted to a state little better than before. This is sometimes due to shoddy workmanship, leading the Auditor-General to recommend in the education sector report released in August that provincial education departments cease appointing contractors that don't meet the Construction Industry Development Board's requirements. But – as highlighted by the WRC report – it's also caused by user behaviour, which has an enormous impact on the wear and tear of facilities and their cleanliness, as well as deliberate acts of vandalism and inadequate maintenance.

Roles and responsibilities for school maintenance are spelled out in the South African Schools Act. By default, the education district or provincial department are responsible for maintenance and repairs, and for managing the necessary budget. However, Section 21 of the Act allows provincial education MECs to allocate this responsibility to the school governing body if it is considered capable of performing the role.

For these 'Section 21 schools', a budget allocation is transferred from the provincial department into each school fund. They are expected to pay for municipal and contractual services, conduct day-to-day maintenance and perform repairs in the event of minor emergencies. The Province remains responsible for more complex maintenance projects and major repairs.

In Gauteng, in response to Equal Education's damning audit, the provincial education department identified 472 schools with sanitation problems, and paid for remedial work that was expected to be completed by the end of August. Education MEC, Panyaza Lesufi, reported at a news briefing in July that he had converted all schools in Gauteng to Section 21 schools and made R750-million available to them so that they would be able to buy their own toilet paper, soap and cleaning material. He also said he was in discussions with the Department of Correctional Services to use prisoners to clean school toilets!

Of course, the MEC could be accused of simply passing the buck, because converting under-capacitated schools to 'Section 21s' is unlikely to solve the litany of problems. And judging by the comments on news websites, the concept of having convicted criminals on school property does not enjoy wide support.

Besides, neither of these solutions would be suitable for rural schools in the Eastern Cape, Limpopo and KwaZulu-Natal. In striving to develop a model for improved sanitation management, the WRC project team is in the process of doing an assessment of sanitation at 100 rural schools in the three provinces. The assessment involves an inventory of sanitation stock and its condition, interviews with the principal and cleaner (where there is one), and a focus group with learners allowing some triangulation of viewpoints between different stakeholders.

Following dialogue with the Department of Basic Education, the research findings will be used to develop guidelines on management issues, which the project team hopes can be tested in future projects. Another set of guidelines will focus on the design of sanitation facilities and the choice of systems and technologies. The preliminary document explores these aspects, which are important in ensuring that the sanitation options selected will be safe, suitable and sustainable.

For example, providing gender-segregated toilets helps prevent harassment of girls by boys, but since younger children may be bullied by older children in single-sex toilet blocks, facilities may need to be provided for different age groups too.

With regard to technology, standard flush toilets are not possible in many rural settings because – apart from using more water than is sustainable in our water-scarce country – installing sewage pipelines and pump stations is prohibitively costly, and may pose a threat to health and the environment if leaks are not readily detected. At the other end of the scale, Ventilated Improved Pit (VIP) latrines comply with the minimum norms and standards, but are regarded by many as inferior, smelly and sometimes unsafe.

Pour-flush or low-flush toilets potentially offer the best of both worlds, bridging the gap between the convenience of flush systems and the sustainability of VIP systems. With a pour-flush toilet, one to three litres of water is poured into the bowl to flush the toilet, pushing the excreta through the water-seal and into the collection chamber. With a low-flush toilet, a cistern dispenses three litres of water around the pan with each flush. Both types cost significantly less than a full-flush toilet, although about 20% more than a VIP, and greywater can be used for flushing.

With WRC funding, Partners in Development developed a pour-flush prototype in 2010, which was modified into a low-flush system in 2013. Both types terminate in a simple soakaway or leach pit, which is relatively small compared to a septic tank. Ideally, twin pits should be installed, so that when one becomes full the other can be used instead. The full pit is allowed to dry out for two to four years and then emptied, ready to be used again once the operational pit reaches its capacity.

The toilets were successfully tested in townships in KwaZulu-Natal and the Western Cape, and by June 2015, more than 80 pour-flush and six low-flush units were in operation in 14 schools.

The project team is under no illusion that rectifying the woes of rural sanitation will be a simple task, because they recognise the multi-faceted nature of the problems. Summing up their findings from their initial investigation of the issues, they state in the WRC report:

"What this exploration revealed was the fact that the failure or success of infrastructure is fundamentally linked to the needs, resources, attitudes and beliefs of management and the users of school sanitation, and that any attempt to improve the status quo must come from a perspective of a 'total solution' which addresses all of these elements coherently."

"While this document touches on how infrastructure interfaces with user needs and the implications for management, a careful review of models for management and user education is planned as the study progresses. It is clear that addressing these three elements – infrastructure, management and education – together is vital in order to expect that any intervention might succeed."

The WRC is funding a project to construct pour flush toilets at six Limpopo primary and secondary schools. The toilets are housed in timber frame units, with the timber coming from removed alien invasive vegetation.