New Models for the Sustainable Operation and Maintenance of School Sanitation Facilities

Report to the Water Research Commission
Private Sector Brand Endorsement Model for Sustainable Financing of School Sanitation Operation and Maintenance

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This is the final report for WRC project no. C2020/2021-00141, titled 'Private sector brand endorsement model for sustainable financing of school sanitation operation and maintenance'.

EXECUTIVE SUMMARY

The lack of functioning school sanitation infrastructure at thousands of South African schools can be attributed to twin causes:

1) The backlog of new/replacement school toilets waiting to be built;
2) Existing toilets are, in many cases, not cleaned or maintained adequately and quickly fall into a state of disrepair and become completely unusable.

A destructive cycle exists of investment in infrastructure delivery, followed by unsuccessful management of that infrastructure, leading quickly to failed sanitation, which then requires further investment to replace that same infrastructure (in many cases only recently built).

School sanitation *Operation and Maintenance* (O&M) fails due to a variety of reasons. These can be summarised under the following categories, taken from Louton & Still's report (2016a):

1) '**Lack of WILL** – *the knowledge and values that produce vision which in turn generates drive and commitment*
2) **Lack of SKILL** – *the knowledge and expertise to be able to assess, plan, develop tools, implement, monitor and evaluate independently*
3) **Lack of means to pay the BILLS** – *inadequate funds and inadequate ability to manage funds'*

This study analysed in detail the reasons why there is often a lack of funding available to pay for operation and maintenance activities. It also looked at some of the 'Skills' issues, but did not address the 'Will' category. Although not covered under the scope of this study, solving the 'Will' issue is central to achieving lasting change in school sanitation O&M.

The study considered the overall *Department of Basic Education* (DBE) budget and the guidelines for budgeting for O&M at the provincial level and school level and compared these figures against actual reported spending on O&M. The real costs per learner to adequately maintain school sanitation systems were also estimated, and compared against PED and school budgets and reported spending.

The results of the study indicate that the principle issue, as far as school sanitation O&M is concerned, does not appear to be the overall size of the DBE budget, although the budget per learner has decreased in real terms over the last 12 years. The cost of adequately maintaining school sanitation systems is estimated to require only 0.5% of the total DBE budget. Note that this does exclude the cost of school cleaners' salaries and utilities which are clearly critical to well-functioning sanitation systems.

This study estimated that R47.90/learner/year is required to cover cleaning materials and some minor repairs, from a school's budget. This figure excludes the school cleaner's salary and utilities costs. An additional R50/learner/year is estimated to be required to cover further repairs, deep cleaning, pit or septic tank de-sludging, training and inspections, from *a Provincial Education Department's* (PED's) budget. These figures assume starting from a base of the sanitation facilities being in good condition.

The majority of the schools for which data was available were not spending an adequate amount to properly operate and maintain their sanitation systems. In the *KwaZulu-Natal* (KZN) province, the majority of the recommended school budget maintenance allocation (R69.50/learner/year) would be used on sanitation alone if spending was in line with the estimated required budget of R47.90/learner/year for properly maintained sanitation.

In KZN it was estimated that if an adequate amount was spent by the PED on sanitation maintenance, it would consume around 22% of the PED's budget allocation for all larger scheduled maintenance

(not just sanitation). An Estimated 22% is a significant proportion of the maintenance budget but is potentially manageable. Data on PED budget allocations for school maintenance for other provinces was not available, which may be because the budgets and expenditure for maintenance are not ring-fenced in those provinces or just that the information is not made public.

It appears that insufficient funds are allocated to sanitation maintenance, both at provincial and school level. There are several aspects to this:

- At provincial education department level, the reported proportion of funding allocated to general infrastructure maintenance seems low, although it was not possible to get this information for all provinces.
- There is no specific allocation in PED budgets to *sanitation* maintenance.
- Each province issues different guidance to schools on what proportion of their Norms and Standards grant should be spent on maintenance.
- Again, there is no specific guideline given on an allocation to sanitation maintenance.
- Schools are not spending on maintenance in line with the budget guidelines.

Sanitation should be one of the top priorities for schools. If there are no functioning toilets, how can the other activities of a school take place? Budget allocations for sanitation maintenance should be made mandatory at both provincial and school level and checks put in place to ensure that this happens.

A second issue with the funding for school sanitation maintenance is that funds are often not used as effectively as they could be. Maintenance work is not planned well and therefore small issues quickly become large, expensive issues to resolve. Poor maintenance results in high utility bills due to water leaks. The quality of maintenance work carried out by contractors is not always acceptable but schools have little capacity to check the quality of work and demand rectification – particularly when the contractor is appointed via the district office or PED rather than by the school directly. O&M systems need to improve and skills built at the school level for O&M work to be carried out more cost-effectively.

Thirdly, funds are often delayed in arriving where they are supposed to. Both schools and contractors report long delays in receiving payments from PEDs. This means schools are unable to pay for maintenance work and contractors that work directly for PEDs are put under severe financial strain or go out of business completely.

Systemic change within the DBE and PEDs is needed to solve these issues, but this will take time. **This study found there was a good case for raising external revenue from non-DBE sources to fund O&M activities at schools.** The use of external revenue to pay for O&M has several advantages, including the accessibility of the funding, avoiding delayed payments, supplementing budgets so that sanitation can be attended to properly without neglecting other areas of school life and presenting opportunities for ring-fencing funding and building performance clauses into contracts that is not possible with DBE funding.

Five different models for raising external revenue for sanitation O&M were developed under this study and reviewed with stakeholders working in the sector, including the DBE and representatives of private sector entities. The models were based on schools offering a product or service (for example advertising space and access to consumer data) in return for fees. The most promising model is based on a school hosting a free public Wi-Fi hotspot, with Wi-Fi access exposing the user to advertising and/or requiring them to complete a market research survey. A company would own the hotspot and pay for a capped free monthly data package. Additional data could be sold to the public with a small

mark-up to raise revenue for O&M activities. Companies benefit from advertising with guaranteed views and from collecting consumer data from hard-to-reach markets. Schools benefit from a free Wi-Fi allowance for their own use and from increase funding for O&M.

Other models were based on other forms of advertising on school property, increasing product sales, supporting firms with B-BBEE compliance and novel Corporate Social Investment opportunities. The majority of the models could be used as standalone revenue-raising models, with the income raised coming back into general O&M budgets. However, the revenue-raising models could also be implemented in combination with a new model for O&M. The O&M model is based on a managing contractor having overall responsibility for sanitation O&M at all schools in a district, and managing various small community-based contractors who would carry out the work at schools. The managing contractor could, in parallel, manage the revenue-raising activities – for example installing and maintaining Wi-Fi hotspots at schools.

Outsourcing O&M of school sanitation to the private sector and raising additional external revenue to pay for it could solve some of the issues that contribute to the current failure to maintain school sanitation systems. Outsourcing of O&M activities will, however, face procurement challenges, because of the nature of O&M work. Whilst a natural monopoly may exist for O&M (i.e. the most cost-effective solution being one managing contractor servicing an entire district of schools and overseeing a number of community-based contractors, rather than multiple contractors competing for maintenance work), this is not something that current procurement systems can easily grant and it does risk exploitation. Long or repeatedly renewed contracts are also challenging with current procurement rules, but are needed for efficient, cost-effective O&M. These issues need to be tackled at National Treasury level.

The following key recommendations are made from this study:

1) **The concept of raising external revenue to fund sanitation O&M should be further explored by running a pilot of the most promising model** – the public Wi-Fi model – at a school. Costs, logistics, take-up and revenue-raising potential can then be realistically assessed. It would also give a realistic idea of whether the activity could feasibly be implemented together with the O&M contracting model or whether the revenue-raising model should be kept separate to the on the ground O&M activities.
2) **There should be mandatory, realistic, allocations in both PED and school budgets specifically for sanitation O&M.**
3) **PED and school spending on sanitation O&M should be specifically audited**. Spending on sanitation cleaning and maintenance should be a mandatory category in expenditure reports.
4) **Mechanisms need to be found such that the salaries of school cleaners are guaranteed and in place for the long-term.** More cleaners could be funded through the *Expanded Public Works Programme* (EPWP), removing the burden from the *School Governing Bodies* (SGBs), however change would be needed to reduce the administrative burden and to guarantee that the EPWP would fund the positions continuously.
5) **The procurement issues that arise in relation to outsourcing O&M activities should be discussed with National Treasury and the *Government Technical Advisory Centre* (GTAC).** Ways would need to be found of modifying the existing procurement rules for legitimate reasons to enable O&M work to be contracted out efficiently.
6) **Consideration should be given to redirecting maintenance funding from schools and PEDs to a DBE-owned entity set up specifically to manage school maintenance**. The entity could be a *Programme Management Office* (PMO) of the DBE, potentially falling under the existing SAFE (*Sanitation Appropriate for Education*) programme. An external third party could be contracted

to manage the Programme Management Office, on a performance basis, for the DBE. This PMP could also be responsible for running programmes to generate external revenue to supplement DBE funding for O&M.

7) Although this study dealt primarily with the 'Bills' issues, and to some extent the 'Skills' issues that cause O&M to fail, the issue of lack of 'Will' – the knowledge and values that produce vision which in turn generates drive and commitment – is of critical importance**. Continued efforts are needed at all levels to instil a will and a sense of urgency to solve the failure of school sanitation O&M.**

This report is structured as follows:

PART I:	**Introduction and Methodology**
PART II:	**Issues with the operation and maintenance of school sanitation systems** A brief overview of the school sanitation operation and maintenance status quo and challenges in South Africa
PART III:	**Improving operation and maintenance and the case for raising additional revenue for it** Approaches for improving operation and maintenance, the potential roles for different private sector players and the case for raising additional 'external' revenue to fund operation and maintenance, outside of the funding provided by the Department of Basic Education
PART IV:	**Models for raising revenue for operation and maintenance** New models for raising additional external revenue to fund school sanitation operation and maintenance, incorporating ring-fencing of funds and skills-building for key players in the operation and maintenance system

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Partners in Development (PID) is specifically acknowledged for allowing data gathered through their other work to be drawn on for this study.

We thank Mr Akin Akinsete and the *Water Research Commission's* (WRC) *South African Sanitation Technology Enterprise Programme* (SASTEP) programme for sharing data on school sanitation operation and maintenance budgets gathered through a survey carried out by the SASTEP programme.

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ABBREVIATIONS

ASIDI	Accelerated School Infrastructure Delivery Initiative
CAB	Community Ablution Block
CSI	Corporate Social Investment
DBE	Department of Basic Education
DBSA	Development Bank of Southern Africa
DHET	Department of Higher Education and Training
ED	Enterprise Development
EIG	Education Infrastructure Grant
EPWP	Expanded Public Works Programme
ES	Equitable Share
EWS	eThekwini Water and Sanitation
GTAC	Government Technical Advisory Centre
LTSM	Learning and Teaching Support Materials
NEIMS	National Education Infrastructure Management System
NNSSF	National Norms and Standards for School Funding
O&M	Operation and Maintenance
PED	Provincial Education Department
PID	Partners in Development
PMO	Programme Management Office
SAFE	Sanitation Appropriate for Education
SASTEP	South African Sanitation Technology Evaluation Programme
SD	Skills Development
SED	Socio-economic Development
SETA	Sector Education and Training Authority)
SGB	School Governing Body
VIP	Ventilated improved Pit latrine

PART I. INTRODUCTION & METHODOLOGY

1 INTRODUCTION

Thousands of South African schools suffer from non-functional sanitation, resulting in threats to the health and safety of learners, loss of basic dignity, lower attendance rates at school and poorer educational attainment. Whilst some of the issues can be attributed to the need for new toilets to be built (Louton & Still, 2016a; NEIMS, 2020), a huge contributing factor is the lack of effective maintenance of sanitation systems that started out as functional (Louton & Still, 2016a; DBE, 2018). Louton and Still (Ibid.) describe a destructive cycle of investment in infrastructure delivery, followed by unsuccessful management of that infrastructure, leading quickly to failed sanitation, which then requires further investment to replace that same infrastructure (in many cases only recently built).

Poor management of school sanitation systems has ***both human and financial root causes***. Previous WRC projects have considered the human factors, and successfully piloted models for ***improved management*** of school sanitation (K5/2575 and K5/1952) through the formation of school sanitation teams and through social franchising partnerships (Neethling & Still, 2020; Wall & Ive, 2013; Shaylor et al., 2014). In a similar vein, the *Department of Basic Education* (DBE) recently published the *Guidelines for General Upkeep and Maintenance of Education Facilities* (DBE, 2018), which includes school sanitation facilities and provides a plan for implementation of the guidelines. This study takes a different angle and specifically considers ***if and how a lack of available funding*** contributes to the non-maintenance of school sanitation systems, and whether innovative private sector partnerships could be part of the solution. It also considers whether such partnerships could harness non-financial contributions from the private sector, such as management expertise.

In addition to the current issues with funding the proper upkeep of school sanitation facilities, the sanitation facilities of the future may have more complex and costly maintenance requirements. Emerging high tech non-sewered sanitation systems offer many benefits – an excellent user experience, water and energy savings and a reduction in environmental pollution – but are likely to be more expensive to install and to run than current technology. New sources and models of funding are likely to be needed.

Funding for school sanitation operation and maintenance comes in the majority from the DBE. The other sources of funding are school fees (for the higher-quintile schools that are permitted to charge fees) and voluntary donations to schools. This study analysed how the operation and maintenance of school sanitation facilities is theoretically funded: who is responsible for paying for what and how the money is supposed to flow to where it is required. The study in turn then looked at what was actually being spent on school sanitation operation and maintenance at the school level. The aim was to identify ***what causes there to be a lack of available funds*** to spend on operation and maintenance and to determine if private sector involvement could help to solve some of these issues.

The study specifically considered whether there was a need for additional funding for operation and maintenance, generated from sources external to the Department of Education. The rationale behind this 'external' funding is that it would be accessible when required, could be ring-fenced more easily to only be spent on operation and maintenance and could have conditions attached to it to ensure it included capacity-building for ongoing effective management of O&M. The research then considered potential models for how such external funding could be generated. These models looked at how private sector entities could invest in the operation and maintenance of school sanitation systems and reap benefits themselves from the partnership.

2 STRUCTURE OF THIS REPORT

This report is structured a follows:

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3 METHODOLOGY

The following activities have formed the basis of this research:

- Literature review of published and unpublished documents and data sets;
- Interviews with individuals from organisations key to these issues, spanning a range of sectors. The categories of organisations represented include:
    - School principals
    - DBE (national level)
    - *Provincial Education Department* (PED) representatives
    - District level Education Department representatives
    - The DBE's Implementing Agents for school sanitation infrastructure projects
    - Municipalities carrying out operation and maintenance activities as implementing agents for the PED
    - Private businesses carrying out operation and maintenance services for schools
    - Researchers and research funding bodies working in the field of school sanitation
    - Consultants working in the field of school and municipal sanitation
    - Corporate companies, some with previous philanthropic involvement with the education sector
    - Civil society organisations lobbying for improved school infrastructure;
    - Media companies
    - *Broad-Based Black Economic Empowerment* (B-BBEE) specialist
    - Sanitation partnership organisations
- Analysis of monitoring data and feedback collected from school personnel during a previous project by *Partners in Development* (PID) (Domestos Janitor programme, 2017-2020)
- Analysis of survey data on school sanitation operation and maintenance costs gathered by the Water Research Commission's (WRC) *South African Sanitation Technology Enterprise Programme* (SASTEP) programme and shared with the project team, courtesy of Mr Akin Akinsete.
- Two workshops where the project findings were presented and further feedback gathered from stakeholders.

Part II of this report provides an overview of the issues with operation and maintenance of sanitation systems at South African schools.

PART II. ISSUES WITH THE OPERATION AND MAINTENANCE OF SCHOOL SANITATION SYSTEMS

4 Overview of the issues with school sanitation

4.1 A Lack of School Sanitation Infrastructure

Though sanitation is a key part of creating an environment conducive to learning, South Africa still has a large backlog of schools with inadequate sanitation systems. According to the August 2020 NEIMS (*National Educational Infrastructure Management System*) report, 3,164 schools have only unimproved pit latrines[1] on their premises while 5,771 have a combination of undemolished pit toilets[2] and other sanitation infrastructure (NEIMS, 2020). In addition many schools have insufficient toilets for the number of learners enrolled.

The 2013 Regulations relating to minimum uniform norms and standards for public school infrastructure (DBE, 2013 – see Annexure G) set out the minimum requirements for school sanitation in terms of the minimum numbers of girls' and boys' toilets, basins and urinals required dependent on the numbers of learners enrolled at the school. The minimum ratio of toilets to learners varies by gender and by enrolment range but the maximum permitted number of toilets to learners is between 5 learners per toilet at the smallest primary schools and 40 learners per toilet at the largest primary schools (aggregated figures for both genders, unisex Grade R and unisex disabled toilets). The middle of the range ratio of toilets to learners at the largest primary schools is 35. Permitted ratios at secondary schools are slightly higher.

PID worked with 425 schools between 2017 and 2020 as part of the Domestos Janitor Programme. Table 1 shows the number of schools visited in each province at that time and the total number of each type of toilet.

Table 2 shows the number of schools visited within each band of learner to toilet ratios, based on the total number of toilets at the school. It can be seen that 34% of schools exceeded a ratio of 30 toilets to learners and 12% of the total exceeded a ratio of 50 toilets to learners.

[1] There as an important distinction between an **unimproved pit latrine** (which in terms of government policy is unlawful and to be replaced with something better) and a **ventilated improved pit (VIP) latrine**, which is acceptable. A VIP latrine is a pit toilet which has been properly designed and constructed. It should be structurally sound, the pedestal should be of a type that is relatively easy to keep clean, and it must be fitted with a suitable ventilation pipe and fly-screen. The whole structure should be well drained and easy to keep clean, and handwashing facilities should be provided.

[2] Numerous schools have old, sub-standard pit toilets still in place on the school grounds even though they have been replaced by new toilets. In many cases these old pit toilets are dangerous and they need to be demolished.

Table 1 Schools visited by PID 2017-2020 (Neethling, Kubheka & Still, 2020)

	No. of schools visited
Overall	**425**
By province:	
Eastern Cape	113
Gauteng	61
KwaZulu-Natal	100
Limpopo	101
Northern Cape	50
By toilet type:	
Flush	373
Pit (VIP)	50
Both	2

Table 2 Toilet to learner ratios at schools visited by PID 2017-2020 (Neethling, Kubheka & Still, 2020)

		TOTAL toilets-learner: toilet ratio			
	Number of schools	**<30**	**30<x<50**	**>50**	**>30**
Overall	425	278	95	52	147
Eastern Cape	113	93	16	4	20
Gauteng	61	39	22	0	22
KwaZulu-Natal	100	33	30	37	67
Limpopo	101	69	23	9	32
Northern Cape	50	44	4	2	6
Flush	373	257	80	36	116
VIP	50	21	14	15	29
Both	2	0	1	1	2

In addition, although many schools have toilets, often some or all of those toilets are non-functional. At the time of PID's visits, 71% of schools had some toilets that were out of order. Figure 1 shows the proportion of schools with some non-functional toilets, presented by province and by toilet type. A previous study found that approximately 54% of schools had some toilets that were no longer in use (Louton & Still, 2015).

Table 3 presents the toilet to learner ratios at the same set of schools, but this time calculated from the toilets that were functional at the time of visiting. 54% of schools exceeded the ratio of 30 toilets to learners and 25% exceeded a ratio of 50 toilets to learners. Toilets often remain unrepaired for long periods of time. 10% of the schools PID visited had no functional toilets at the time of the visit (Neethling, Kubheka & Still, 2020).

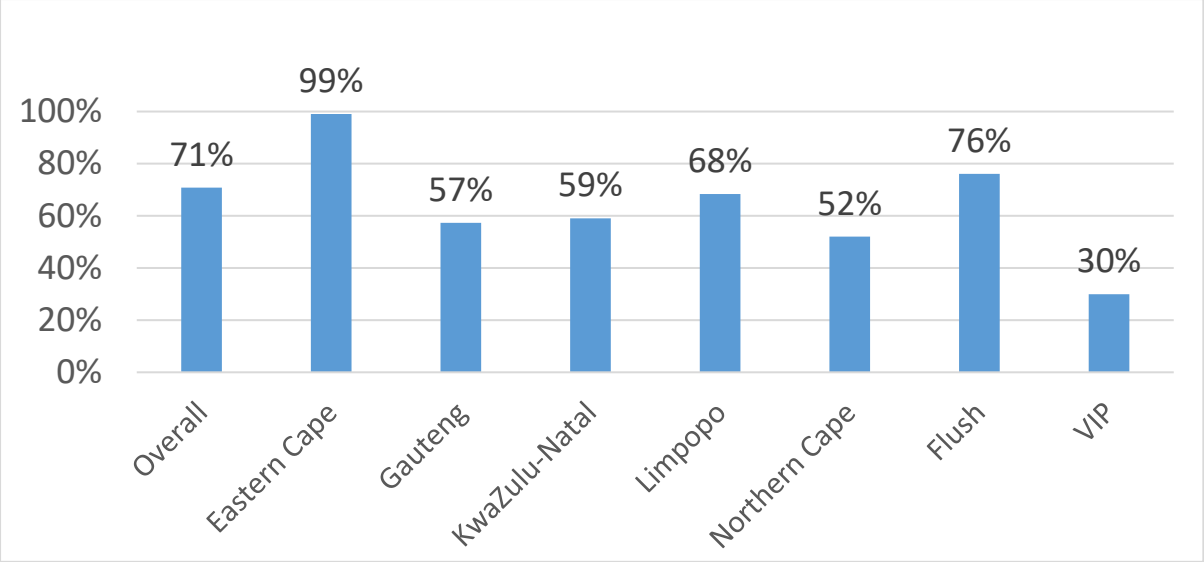


Figure 1 Schools visited by PID 2017 to 2020: proportion of schools with some non-functioning toilets (Neethling, Kubheka & Still, 2020)

Table 3 Toilet to learner ratios at schools, based on number of functional toilets, visited by PID 2017-2020 (Neethling, Kubheka & Still, 2020)

		FUNCTIONAL learner:toilet ratio			
	Number of schools	**<30**	**30<x<50**	**>50**	**>30**
Overall	425	197	116	112	228
Eastern Cape	113	29	26	58	84
Gauteng	61	27	26	8	34
KwaZulu-Natal	100	40	27	33	60
Limpopo	101	60	30	11	41
Northern Cape	50	41	7	2	9
Flush	373	179	101	93	194
VIP	50	18	14	18	32
Both	2	0	1	1	2

There are therefore two main issues with regard to a lack of school sanitation infrastructure:

1) **The backlog of new/replacement school toilets waiting to be built;**
2) **Existing toilets are, in many cases, not cleaned or maintained adequately and quickly fall into a state of disrepair and become completely unusable.**

4.2 The Impact of a Lack of Quality Sanitation on Learners

A lack of quality sanitation impacts on learners and the rest of the school community in the following ways (Louton & Still, 2016a; Section27, 2018):

- Diarrhoeal diseases and intestinal worm infections are easily spread when toilets are not clean;
- Learners may go the whole day without using the toilet:
    - This can lead to other health issues, such as bladder infections

    - Learners drink less to avoid having to go to the toilet at school – dehydration leads to reduced concentration;
- Sickness leads to reduced attendance and potentially longer-term health issues (e.g. untreated intestinal worm infections can lead to malnutrition, impairing physical and cognitive growth);
- Unpleasant and unmonitored toilet environments encourage the flourishing of bullying and abusive behaviour from learners;
- Defecating and/or urinating outside, causing environmental and health hazards to the community as well as putting learners' safety at risk (particularly for girl learners going away from the school grounds alone);
- Learners walk home long distances to use the toilet, and in some cases do not return to school that day;
- Female learners stay away from school for several days when they are menstruating;
- Anxiety about poor toilet conditions and frustration that the 'basics' don't work damages morale and distracts pupils from learning;
- Poor school infrastructure discourages good teachers from teaching at these schools;
- In the worst managed situations, use of unsafe toilets can (and has) lead to fatal accidents.

It is thus clear that a lack of quality sanitation has a major deleterious impact on the health and safety of learners and on their educational outcomes.

4.3 Lack of Management and Maintenance Causing Infrastructure to Fail Prematurely

Where school toilets exist, poor management and maintenance can cause infrastructure to fail prematurely. The photos that follow (Figure 2, Figure 3 and Figure 4) illustrate the seriousness of the issue.

Figure 2 A KZN high school's sanitation system 4 years after it was built in 2010 (Source: PID)

Figure 3 A KZN primary school's sanitation system 2 years after it was built in 2013 (Source: PID)

Figure 4 A KZN primary school's toilets with little evidence of regular cleaning & maintenance (Source: Khanyisa Projects)

School toilets quickly become completely unusable and, in some cases, the only remedy is to demolish them and rebuild. This perpetuates a vicious cycle of investment in new infrastructure, unsuccessful management and failed sanitation.

The next section of the report outlines the reasons for the widespread failure in the operation and maintenance of school sanitation systems in South Africa.

5 UNDERSTANDING WHY SCHOOL SANITATION MAINTENANCE FAILS

Louton & Still (2016a) present a helpful summary of the reasons why the management of school sanitation is so poor. The following is a direct quote from their report:

4) '**Lack of WILL** – ***the knowledge and values that produce vision which in turn generates drive and commitment***
5) **Lack of SKILL** – ***the knowledge and expertise to be able to assess, plan, develop tools, implement, monitor and evaluate independently***
6) **Lack of means to pay the BILLS** – ***inadequate funds and inadequate ability to manage funds'***

The DBE recognises the same challenges and provides an excellent analysis of the general challenges of the upkeep and maintenance of school infrastructure in their 2018 publication, *Guidelines for General Upkeep and Maintenance of Education Facilities* (DBE, 2018).

The specific reasons for failed operation and maintenance of school sanitation facilities include the following, categorised under the Will, Skills and Bills headings:

Lack of **WILL** (summarised from Louton & Still (2016a)):

- Toilets can easily be forgotten or ignored as they are often physically distant from the rest of the school and decision-makers too often do not inspect them;
- Lack of understanding as to learners' rights and the impact of inadequate sanitation on the safety, health and dignity of learners and on their educational outcomes;
- The school experiences as a child of the current-decision makers may have been so poor that they accept the same experience in the school they now manage;
- Lack of accountability processes for keeping toilets in good working order;
- Discouragement due to destructive behaviour of learners – e.g. destructive vandalism of the school toilets;
- Decision-makers feel helpless to take any action to improve the situation due to the numerous challenges they face in multiple areas of school life.

Lack of **SKILLS,** at both school and departmental levels:

- Poor initial construction quality of infrastructure – toilets fall into disrepair quickly;
- Lack of skills at school level to budget for and organise maintenance – small issues quickly become big, insurmountable issues;
- Ineffective or non-existent cleaning of toilets, even if a cleaner employed, which could be for a number of reasons:
    - Cleaner has not been trained how to properly clean toilets;
    - Cleaner unwilling to clean the toilets (in some cases does not consider it to be in their job description) and not held to account (managed and supervised) by school management;
    - Cleaner has insufficient time to cover the whole school, and toilets fall to the back of the queue;
- Lack of clarity about what maintenance issues that the schools should be resolving themselves and what should be reported to the district – or a school lacks funding/skills to resolve minor issues and just reports everything to district;
- Long lines of communication to PED to report and resolve maintenance issues;

- Delay of at least one year for larger maintenance items that go up to district level, and limited district budget for maintenance.

Lack of means to pay the **BILLS**:

- Lack of available funds at school level to pay for the day to day cleaning and maintenance, which is supposed to be covered by the school;
- Available funds are divided among many needs – e.g. maintenance of classrooms, toilets, school grounds, offices. Toilets can easily be forgotten or ignored as they may be physically distant from the rest of the school and decision-makers too often do not inspect them;
- No provision of a school cleaner in some schools by the PED – thus, the salary for a cleaner has to be covered from the school budget that has many demands on it;
- When a school cleaner is employed, cleaning materials provided are often inadequate and/or of low quality.

Several publications offer a comprehensive analysis of the reasons why the maintenance of school sanitation systems fails. Louton & Still (2016a) discuss the typical obstacles to effective management of toilets: values, knowledge, vision, capacity, follow-through and resources. Their *Guidelines for School Sanitation* and accompanying *School Sanitation Management Handbook* (Louton & Still, 2016b) unpack the key issues in relation to successful management of school sanitation and provide detailed guidance on the way forward.

The DBE's publication, *Guidelines for General Upkeep and Maintenance of Education Facilities* (2018), pp 24-27 provides further detail on the general challenges of upkeep and maintenance of school infrastructure. It also clarifies the roles and responsibilities at schools and in the Provincial Education Departments in relation to maintenance.

Wall & Ive (2013) also point out many of the same issues, based on their experience as a contractor providing operation and maintenance services to school toilets in the Eastern Cape. One of the items they highlight is the financial difficulties faced by small maintenance contractors, in the face of delayed payments by schools or the PED.

Previous reports have highlighted how a lack of available funding contributes to the operation and maintenance problem, but have not looked in detail at what funding is allocated to maintenance and how it compares to actual spend. **This study specifically considered this 'Bills' issue in more detail** – **the apparent lack of available funding to pay for school sanitation operation and maintenance activities.** It also considers to some extent the 'Skills' issues, but it does not look at 'Will'. The issue of 'Will' (knowledge and values that produce vision) is however absolutely critical to resolving the school sanitation O&M crisis. Concerted effort is needed to ensure commitment by all role-players.

The following section of the report explores how budgets for school infrastructure maintenance work, the different categories of maintenance that exist, how maintenance of school toilets is supposed to happen and what is actually happening at the school level.

6 THE FAILURE TO PAY FOR OPERATION AND MAINTENANCE: 'FOLLOWING THE MONEY'

The primary source of funding for the operation and maintenance of school infrastructure is the DEB. Schools may supplement the funding they receive from PEDs through fees (if they are a school permitted to charge fees) and through voluntary donations. Although specific budget allocations are made at various levels to operation and maintenance, spending frequently does not reflect these allocations. In addition, payments by PEDs to schools and to contractors are often delayed. This section of the report considers three questions in relation to why there frequently appears to be insufficient funding available to pay for school sanitation operation and maintenance activities:

- Is the DBE overall budget sufficient to reasonably cover school operation and maintenance requirements?
- Is there sufficient budget allocated to operation and maintenance activities, at provincial and school levels?
- Are the budgeted allocations getting spent on operation and maintenance?

The first section considers how funding is allocated to Provincial Education Departments and then to schools.

6.1 Budget for School Sanitation Operation and Maintenance

This section of the report summarises how funding is allocated to schools generally and then specifically what the sources of funding are for infrastructure operation and maintenance activities.

6.1.1 The Department of Basic Education budget

Government revenue is divided 'vertically' between the three spheres of government: national, provincial and local. The provincial share must cover all of the activities and functions of provincial governments, including DBE (which is all education prior to tertiary education). The provincial sphere's share of revenue is then divided 'horizontally' between the nine provinces, in accordance with the 'equitable share' formula. The *Equitable Share* (ES) formula takes into account six components (McLaren, 2017):

- Education (48% weighting)
- Health (27% weighting)
- Basic (16% weighting)
- Institutional (5% weighting)
- Poverty (3% weighting)
- Economic output (1% weighting)

The weightings above determine how much of the total provincial share is allocated to each component. For example, in 2020/2021 the total ES allocated to the provinces was R524 billion (National Treasury 2021). Of this, 48% – R251 billion – was then distributed among the provinces based on the number of learners in each province. The amount that each province receives for the *Education* component is based on the number of school-age persons in each province and on the number of learners enrolled in public ordinary schools, with each of those factors given equal weighting in the calculation (Ibid.). It is important to note that each province then decides how much of the ES funding to allocate to education.

Further detail on how the provincial ES is calculated for each province, as well as a discussion on the difficulties with the formula and how it does not always result in equitable distribution of revenue for basic education among the provinces can be found in McLaren (2017).

The total basic education budget can be broken down into the following main funding streams (Ibid.):

- National DBE expenditure: covers national level activities such as teacher training, planning, assessment, monitoring, curriculum policy and administration costs;
- Conditional grants: funds are allocated to the DBE but then transferred to the PEDs. These grants are:
    - Dinaledi Schools Grant
    - Technical Secondary School Recapitalisation Grant
    - Occupation-Specific Dispensation for Education-Sector Therapists Grant
    - *Education and Infrastructure Grant* (EIG)
    - HIV and AIDS Life Skills Programme Grant
    - National School Nutrition Programme Grant
- Provincial ES expenditure by PEDs (discussed above)

The total nominal DBE budget for the 2021/2022 financial year was R272.3 billion, funding the education of 13.2 million learners (McLaren et al., 2021). This is a spend of R20,636 per learner.

As an example of a typical year, Figure 5 shows how the total basic education budget was split between national DBE expenditure, conditional grants and provincial ES expenditure for the 2016/2017 year (figures taken from McLaren (2017)). The total allocated budget for DBE for this year was R218.8 billion (Ibid.).

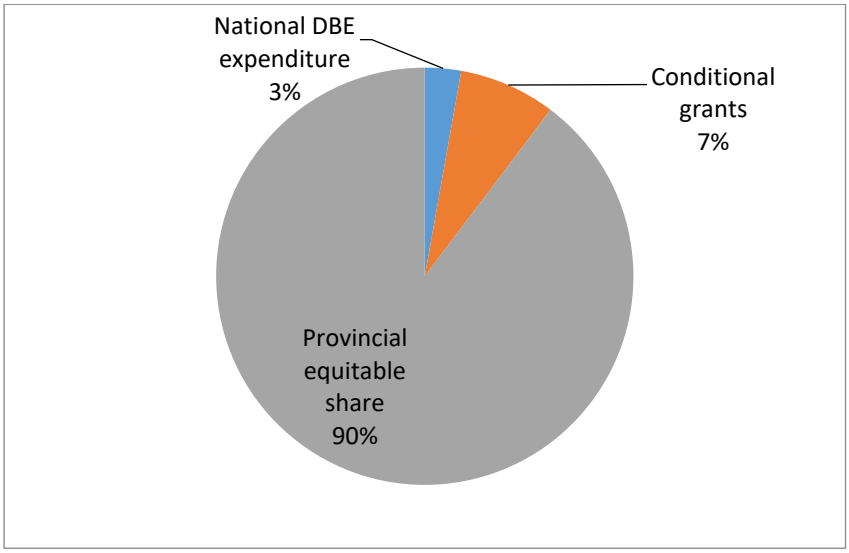


Figure 5 Division of total basic education budget between national DBE expenditure, conditional grants and provincial equitable share for 2016/2017 (McLaren, 2017)

The provincial ES accounts for around 90% of the education spending by provinces (Ibid.). Conditional grants supplement this income. Provinces have control over how they spend their ES funding, whereas national government defines how conditional grant funding may be used.

The value of the provincial ES allocated to education (across all provinces) in 2016/2017 was R194 billion (overall 47% of the ES funding received by the provinces). On average across the country, this

was equivalent to R15,148 per learner. This value ranged between R14,058/learner in Limpopo and R16,488/learner in the Northern Cape (McLaren, 2017).

The value of conditional grants allocated to provinces for education in 2016/2017 was R15 billion (Ibid.). These figures were reported by McLaren (2017) in Section27's 'Basic Education Rights Handbook'. It was not possible under the scope of this study to find the spend per learner per province for the most recent financial year, but the 2016/2017 figures give a good sense of the range of spending on education seen across the different provinces.

PEDs must cover personnel and non-personnel basic education costs from the income received from provincial ES funding and conditional grants. The next section considers how much of the total PED budget is allocated to operation and maintenance of infrastructure.

6.1.2 The PED budget for operation and maintenance of infrastructure

Each PED receives ES funding and conditional grants and from this income must cover the personnel and non-personnel costs of their schools. Personnel costs include salaries for teachers, school support staff and provincial and district office staff. PEDs employ and pay teachers directly from their ES funding[3]. After covering personnel costs, PEDs have between 10 and 20% of their ES funding left to spend on non-personnel costs (McLaren, 2017).

The conditional grants relating to school infrastructure are as follows:

- The DBE's EIG was established in 2011 under the DBE's Programme 4 Planning, Information and Assessment, to support maintenance, upgrading and construction of education infrastructure, both existing and new. This includes buildings, water supply, sanitation and electricity supply, amongst other aspects. The total value of the EIG for the 2019/2020 year was R10.5 billion[4]. EIG funds are transferred to PEDs but may only be used as stipulated by the national government regulations relating to the grant.
- In addition, the **School Infrastructure Backlogs Grant** funds the *Accelerated School Infrastructure Delivery Initiative* (ASIDI). These funds do not go to PEDs but are transferred to the DBE's implementing agents to carry out projects defined by the DBE. The ASIDI programme is targeted at eradicating infrastructure backlogs in schools, but has faced challenges of underspending since its inception (Section 27 undated). ASIDI will not be discussed further in this report as it does not relate to ongoing operation and maintenance costs incurred by schools.

The *National Norms and Standards for School Funding* (NNSSF) policy, an amended version of which came into effect in 2008, exists to 'achieve redress and equity in school funding' (Mestry, 2014). The NNSSF regulate PEDs' non-personnel funding. The regulations give a target ratio of 80:20 for a PED's personnel to non-personnel costs (expended from the total of ES and conditional grant funding – see Figure 6). Non-personnel costs include *Learning and Teaching Support Materials* (LTSM), furniture, stationery, **school maintenance and repairs and utilities costs**.

Schools are ranked into quintiles, based on the characteristics of the community that the school is located in, including average income and wealth. Quintile 1 schools are the fifth of schools located in the poorest communities, whilst Quintile 5 schools are those in the wealthiest areas. PEDs carry out

[3] School Governing Bodies (SGBs) are also permitted to hire additional teachers and pay them from funds collected through fees (if it is a school which is permitted to charge fees) and other routes such as fundraising.
[4] The original value of the EIG for 2020/201 was R11 billion but R6.6 billion was either cut from the grant or re-prioritised as a result of the COVID-19 crisis (Section27 2020).

the quintile classification of schools, but the classification is at a national level – therefore each province has a different proportion of schools in each quintile compared to other provinces. All schools in quintiles 1 to 3 are classified as no-fee schools: the SGBs are not permitted to charge fees, although voluntary donations may be accepted and fundraising may be carried out.

Schools in different quintiles receive different proportions of a PED's total available funds for non-personnel costs. Each of quintiles 1 to 3 receives 27% of the PED's non-personnel budget, in recognition of the fact that the schools are receiving no income from fees. Quintile 4 receives 14% and Quintile 5 receives the remaining 5%.

Figure 6 summarises how each PED's budget is made up and the proportion of the budget that can be directed towards non-personnel items, which includes maintenance.

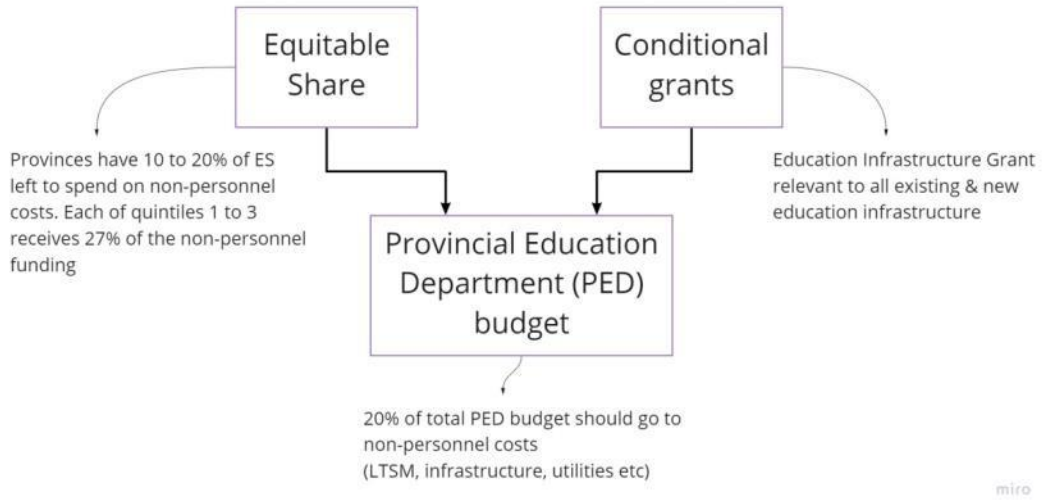


Figure 6 Provincial Education Department budget make-up and proportion available for non-personnel spending

6.1.3 The Sanitation Appropriate for Education (SAFE) Initiative

The Government's *Sanitation Appropriate for Education* initiative was launched in August 2018. The primary objective is 'to replace basic pit toilets with appropriate sanitation in accordance with the Norms and Standards for school infrastructure' (DBE, 2021). The SAFE initiative has attracted millions of Rand in donations from the business community. It appears to be primarily focused on the construction of new toilets. At this stage, though maintenance issues may be addressed by implementing agents during handover to schools, there does not appear to be long-term funding for operation and maintenance directly arising from the SAFE initiative.

6.1.4 Sources of school funding for maintenance

No-fee schools (schools in quintiles 1 to 3) are supposed to receive a minimum amount of funding from their PED to ensure that their non-personnel costs are adequately covered. This 'no-fee threshold' of minimum funding was set at R1,466/learner for the 2020 year (DBE, 2019). It should be noted that PEDs have not always been able to fund schools at this minimum level: in 2017 the no-fee threshold was R1,243/learner and five provinces did not meet this level of funding. For the 2019/2020 financial year, one of the schools interviewed for this study received an allocation of only R1,026.20/learner, compared to the threshold of R1,466/learner. This funding is known as the Norms and Standards Grant and is regulated under the National Norms and Standards for School Funding

(NNSSF). Note that the Norms and Standard Grant has to cover all non-personnel items, not just maintenance – this includes LTSM (textbooks and stationery), furniture, electricity, water, etc.

No fee schools may also carry out fundraising and accept voluntary donations to be used towards school activities, including maintenance.

The other funding for school maintenance, which is not transferred directly to schools, consists of:

- District Maintenance Funding: funding provided to each school district from the PED, specifically for maintenance needs. This was R3 million/district/yr in KZN for the 2019/2020 year (Mrs Hlophe (Zululand District) 2020 pers. comm., 9 Nov);
- PED Implementing Agent Maintenance Funding: funding from the PED provided to implementing agents to carry out maintenance projects at schools.

Figure 7 summarises the sources of funding available to no-fee schools for maintenance work.

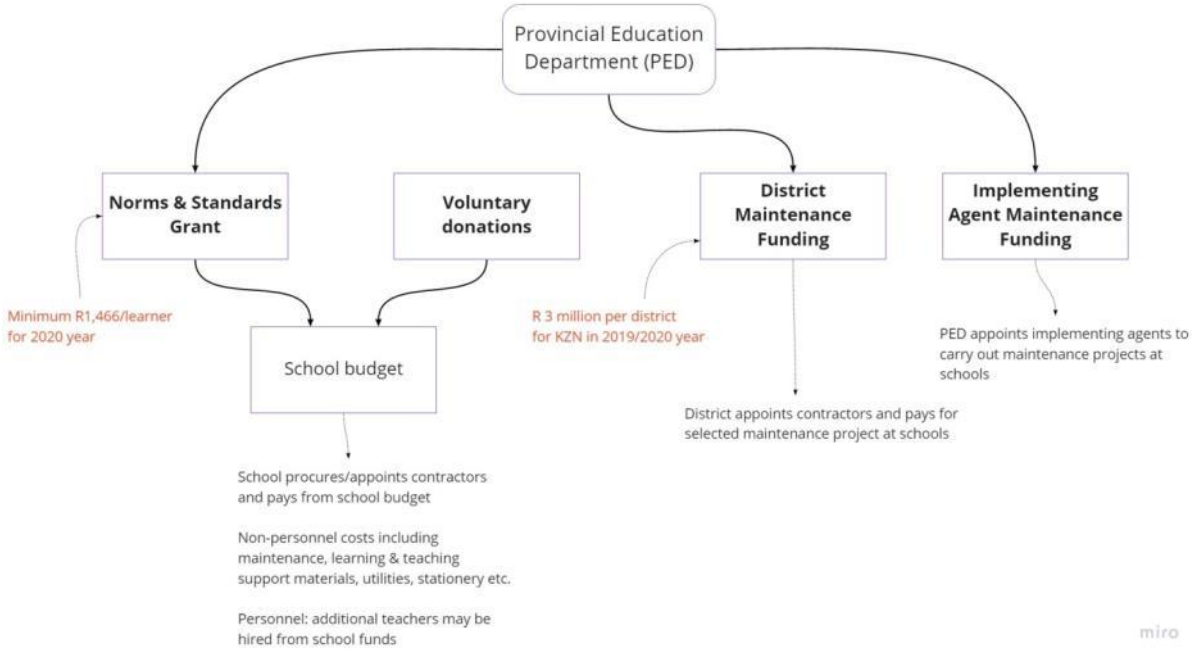


Figure 7 Sources of funding available to no-fee schools for maintenance work

The following sections consider the different categories of operation and maintenance that exist, the budget allocations that are made to these and the responsibilities of the different stakeholders shown above in Figure 7.

6.2 Categories of School Sanitation Operation and Maintenance

It is helpful to define the different categories of operation and maintenance of school infrastructure, as the funding and management of activities varies between categories. The operation and maintenance activities for school infrastructure can be divided into the following groups:

- **Day to day costs:** daily cleaning and consumables
- **Utilities costs:** includes water, electricity, and sewerage;
- **Minor repairs, replacements and improvements:** e.g. repairing a leaking tap, replacing broken doors;
- **Scheduled infrequent larger operation and maintenance**: e.g. annual deep clean of the toilet facilities, emptying toilet pits;

- **Major repairs or building work:** e.g. repairs after storm damage, repairing or replacing facilities after multiple years of no maintenance

The next section summarises who is responsible for managing and funding each of these categories of maintenance as it relates specifically to school sanitation systems and the logistics of how operation and maintenance is carried out.

6.3 How Does Operation and Maintenance of School Toilets Happen?

6.3.1 Day to day costs

Daily cleaning

Figure 8 summarises who is involved and what materials are required for the day-to-day cleaning of school toilets. The mechanism for employment of school cleaners is not consistent – in some instances they are employed directly by the PED, in other cases by the school (funded by SGB)) and in other cases a school cleaner is provided through the EPWP. Safety equipment, including protective clothing, cleaning materials and consumables such as toilet paper and soap are meant to be paid for by the SGB from the Norms and Standards Grant.

Figure 8 How day to day cleaning of school toilets is managed and funded

A number of issues are reported with the day-to-day cleaning of school toilets (Neethling & Still, 2020, and interviews with schools carried out as part of this study):

- At some schools no cleaner is employed. If the cleaner is not employed by the PED or the EPWP the most commonly cited reason for the school not employing a cleaner is lack of funds. It is unclear how the funding of school cleaner positions works and why it is different for different schools[5];
- At some schools a cleaner is employed, but does not clean the school toilets regularly or at all;
- Cleaning is ineffective (e.g. no disinfection of surfaces) due to multiple reasons:
    - Lack of knowledge about how to clean properly
    - Lack of proper cleaning materials (reason cited by schools is lack of funds to buy)
    - Lack of time: school property too large for one person to clean regularly enough

[5] Employment of cleaners by the EPWP is in principle a good idea, but the funding must be uninterrupted. Stop/start funding of the school cleaner/janitor position by the EPWP could lead to SGBs not budgeting for the post but then discovering that EPWP funding for it has also ceased. It is critical that funding for the school cleaner's salary is guaranteed to be in place year on year.

- Learners (particularly early stages of primary school) do not know how to use the school toilets, or the toilets are the wrong size for them. Unless properly taught and supervised this leads to distressed learners and toilet facilities that need a lot of cleaning;
- Learners do not take care of the toilet facilities, in some cases deliberately vandalising them. The situation is worse once the facility has started to fall into disrepair ('broken-window syndrome'). This is also related to the level of supervision of learners using the school toilets, which is in turn dependent on the available time and willingness of school staff to supervise;
- At some schools, the toilets are in such a condition of disrepair that it is impossible to clean them properly;
- Unreliable water supply to some schools, making cleaning very difficult;
- No solid waste collection from some schools leading to accumulation of rubbish on the school site and blockages of sanitary fixtures and drains;
- Community vandalism of school infrastructure, including school toilets.

Utilities

In addition to daily cleaning, schools are responsible for paying their municipal utilities bills, including water, electricity, and sewerage. In schools with dry sanitation systems, the cost of utilities for sanitation will be very low. In schools with flush toilets, sanitation may make up the majority of water cost, particularly where toilets are leaking. In fact all it takes is for a few seemingly minor leaks to remain unattended for long enough and the entire annual budget for sanitation maintenance will be literally lost down the drain. If a school has on average just one leaking toilet at any one time, it could be wasting an average of 5,000 L of water per day. This is equivalent to 1800 kL/year, at a cost of around R54,000 (depending on location). This could easily be a school's entire planned sanitation budget for the year. Unsurprisingly, many schools struggle to pay their utility bills.

6.3.2 Minor repairs, replacements and improvements

Minor repairs, replacements and improvements include items such as repairing leaks, unblocking toilets and pipes, replacing a broken door or missing plumbing fixture, renewing existing paintwork, etc. All of these activities are supposed to be managed and paid for by the SGB, from the Norms and Standards Grant – see Figure 9.

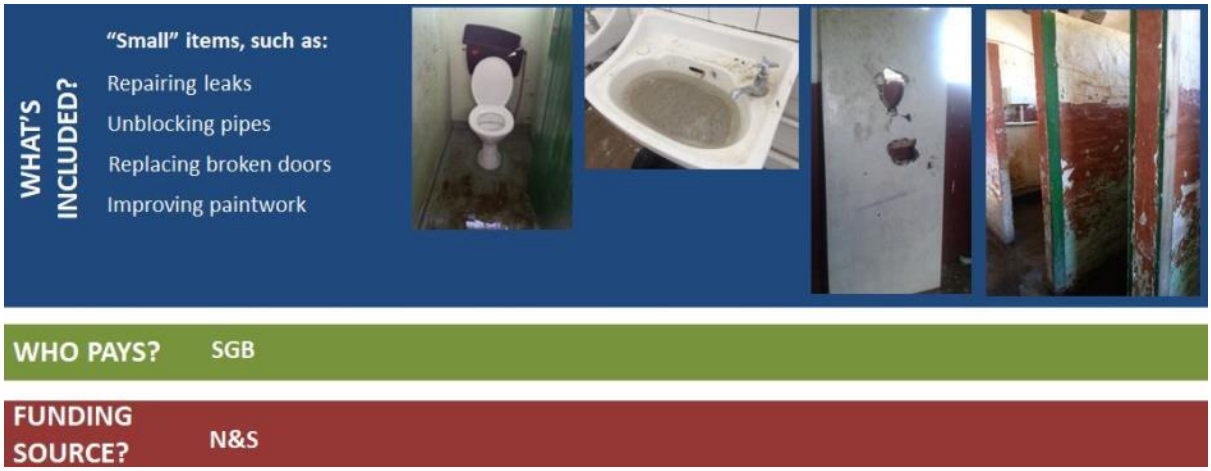


Figure 9 How minor repairs, replacements and improvements to school toilets are managed and funded

The issues encountered include:

- A lack of management by the school of minor maintenance, such that it quickly escalates into a major maintenance need. The reasons for this are multiple:
    - No staff member is given the responsibility for making sure maintenance needs are recorded and resolved;
    - Even when there is a designated staff member responsible for infrastructure maintenance they often don't have the time or the skills to attend to this responsibility.
- Many schools lack a staff member with basic plumbing/handyman skills – therefore an external contractor has to be called in even for minor issues (e.g. a leaking tap), making it far less likely that the issue will be resolved;
- Schools cite a lack of funds available to carry out maintenance – there are higher, competing priorities for the Norms & Standards grant funding;
- Because of the previous two points, schools report minor maintenance items to the school district office or PED for action by an implementing agent with a service level agreement for routine maintenance: requests either do not get approved and actioned because the item is deemed to be the school's responsibility to resolve, or the turnaround time is long and minor maintenance issues rapidly become major.

Figure 10 and Figure 11 summarise the guidance given by the KZN and Western Cape PEDs on the proportion of the Norms and Standards Grant that should be allocated to maintenance, to cover both the minor repairs and improvements discussed in this section, and the costs of materials for day-to-day cleaning covered in the previous section. The resulting recommended maintenance allocations are very different for the two provinces – R69.50/learner for KZN and R347.50/learner for the Western Cape. Later sections of this report will consider how these figures compare both to what schools actually report to be spending on maintenance, and what reasonable figures are for the actual costs of effective maintenance.

While some provinces may require schools to reserve a certain percentage of their budget for maintenance generally, there is no standard guidance on how much money should be ring-fenced for sanitation specifically. As a result, budgets for sanitation vary widely among schools, often reflecting the prioritisation (or not) of sanitation by SGBs.

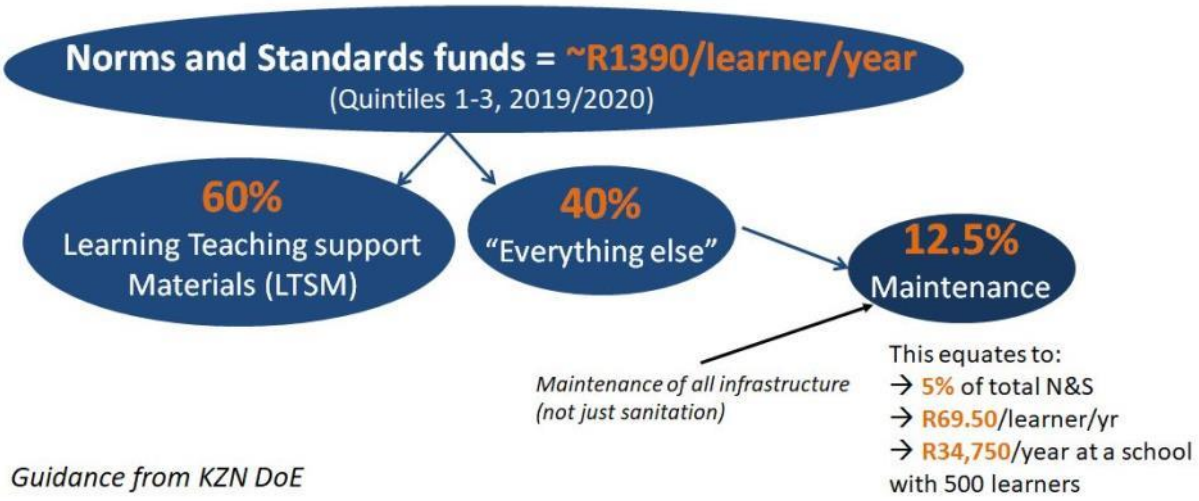


Figure 10 KZN PED guidance on proportion of Norms & Standards funding to be allocated to maintenance

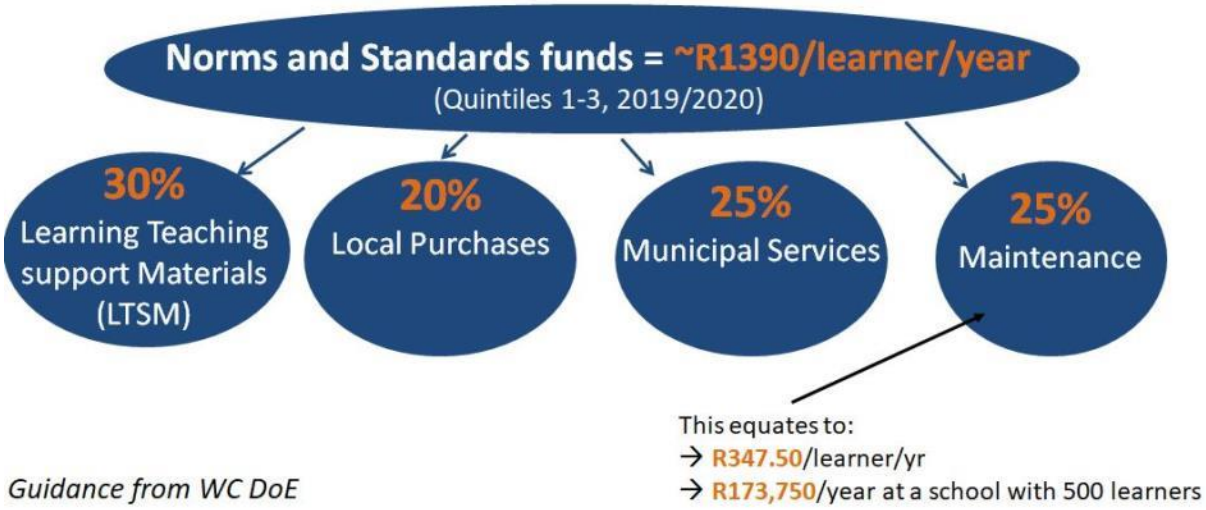


Figure 11 Western Cape PED guidance on proportion of Norms & Standards funding to be allocated to maintenance

The next section considers the final two categories of maintenance: major repairs and larger maintenance interventions, both planned and unplanned.

6.3.3 Scheduled and unscheduled major repairs and maintenance

Figure 12 summarises how major repairs and maintenance to school toilets are managed and funded. Planned major maintenance for school sanitation systems could include:

- Annual deep clean of the toilets;
- Emptying of toilet pits;
- Desludging of septic tanks;
- Repainting of an entire toilet block;

Unscheduled major repairs and maintenance could include:

- Repairs or rebuilding after storm damage;
- Major work to rehabilitate sanitation systems that have fallen into a bad state of disrepair.

Figure 12 How major repairs and maintenance to school toilets are managed and funded

These categories of maintenance are not organised or paid for directly by the school, but are referred to either the district education department or the PED. Districts have a limited budget from PEDs for maintenance (this was R3 million per district in KZN for the 2019/2020 year (Mrs Hlophe (Zululand District) 2020 pers. comm., 9 Nov)). District directors are able to approve projects up to the value of R300,000; projects above this value are referred to the PED (Ibid.). In the case of KZN school districts this effectively means the district can directly implement around ten maintenance projects per year – the rest are either referred to the PED or postponed for implementation in future financial years.

PEDs have various Implementing Agents that carry out larger maintenance projects at schools. Funding for this comes from the PED's ES funding and the Educational Infrastructure Grant (see Figure 6).

The process for getting major maintenance work carried out at a school involves various stages of reporting and assessment. This varies between districts and provinces. An example flowchart from Zululand district in KZN is shown in Figure 13.

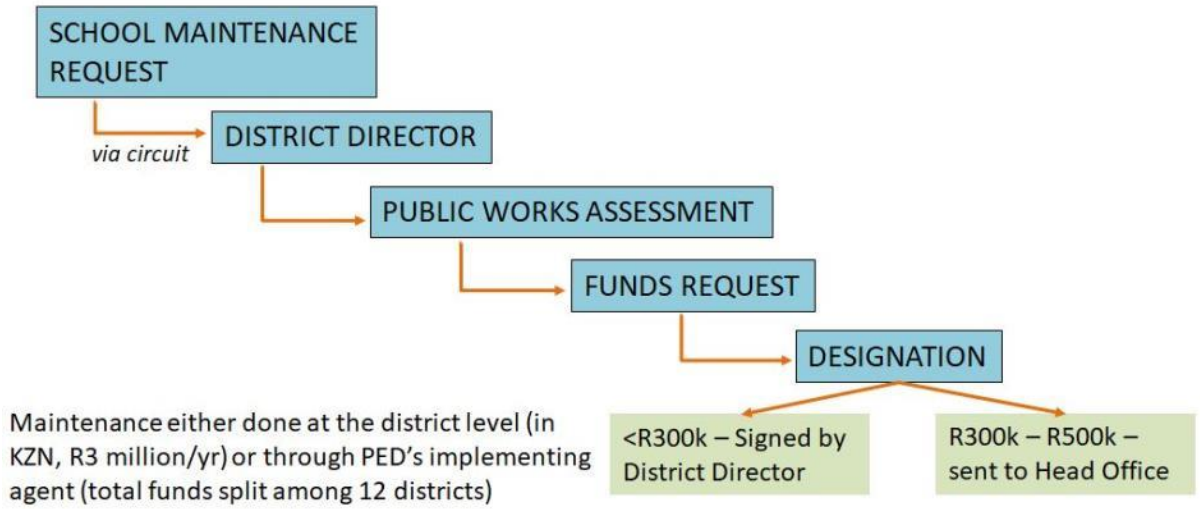


Figure 13 Process for implementing major maintenance at schools – example from Zululand district, KZN

The issues encountered with these major maintenance items include:

- The time lag between the school reporting an issue and work being carried out. Part of this seems to be due to there being a backlog of maintenance work, and the majority of budget for the current financial year already having been allocated to projects, both at district level and provincial level. Work relating to new requests is therefore only planned for the next financial year. Existing maintenance issues become substantially worse during the waiting period. The exception is for some emergency repairs (Mrs Hlophe (Zululand District) 2020 pers. comm., 9 Nov).
- Long reporting lines make it challenging for schools to get feedback on maintenance requests – confirmation that the request will or will not be acted on and when.
- The lack of direct accountability between the contractor carrying out the work and the school, because the contractor is appointed by the District or the PED. This makes quality control more challenging and there is little chance of a long-term relationship between the school and maintenance service provider.

The budget allocated to infrastructure, and also specifically maintenance, was analysed for the KZN, Limpopo and Gauteng PEDs, from publicly available documents. Table 4 shows varying proportions of

budget allocated to infrastructure for the three provinces shown – with KZN allocating 3.4% of its total education budget to infrastructure and Limpopo 10.1%. KZN was the only province of the three to show the specific allocation to maintenance: 24% of the infrastructure portion, **equivalent to just over R80,000 per school in the province.** It should be noted that this is for all the annual maintenance needs of the school, not just the sanitation system.

Table 4 Selected PED budgets and allocations to infrastructure and maintenance

PED	No. of public schools	Budget	Budget item	Amount (R)	% of total	R/school	R/district
KZN	5821	2020/2021	KZN DoE budget	57,247,000,000		9,834,565	4,770,583,333
			Infrastructure portion	2,377,679,000	4.2	408,466	198,139,917
			Maintenance	**467,459,000**	**19.7**	**80,306**	**38,954,917**
			Education Infrastructure Grant	2,187,162,000		375,736	182,263,500
		2020/2021 Adjusted	KZN DoE budget	57,729,625,000		9,917,476	4,810,802,083
			Infrastructure portion	1,950,218,000	3.4	335,031	162,518,167
			Maintenance	**467,459,000**	**24.0**	**80,306**	**38,954,917**
			Education Infrastructure Grant	1,689,944,000		290,319	140,828,667
LIMPOPO	3773	2020/2021	Overall budget	33,793,648,000		8,956,705	3,379,364,800
			Infrastructure projects	3,400,000,000	10.1	901,140	340,000,000
			Maintenance	Unknown			
			Education Infrastructure Grant	1,258,291,000	3.7	333,499	125,829,100
GAUTENG	2071	2019/2020	Overall budget	49,809,000,000		24,050,700	3,320,600,000
			Infrastructure projects	1,952,000,000	3.9	942,540	130,133,333
			Maintenance	Unknown			
			Education Infrastructure Grant	1,475,000,000	3.0	712,216	98,333,333

Sources: Department of Education KZN, 2020; Gauteng Provincial Government, 2019; Limpopo MEC, 2020

Figure 14 compares the total budget available for infrastructure for the three provinces – the sum of the ES allocation to infrastructure and the Education Infrastructure Grant. It also shows the infrastructure budget available per school district. For KZN (the only province to specify the spend on maintenance) it is indicative of the low proportion of the budget spent directly by districts as compared to the Implementing Agents: R3 million in the district budget for the district to spend, compared to a total of almost R39 million available per district for maintenance.

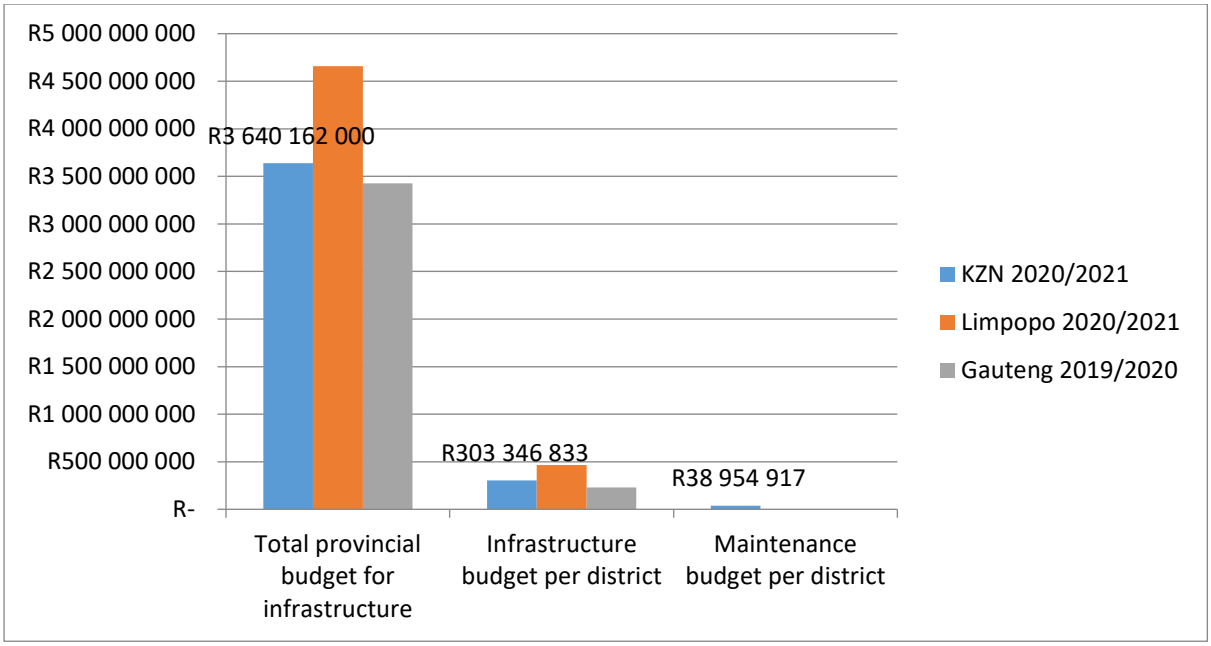


Figure 14 Selected provincial budgets for infrastructure (numbers shown for KZN)

Figure 15 shows the wide variations between provinces in the budget per school allocated to infrastructure – Gauteng was spending over double per school on infrastructure in 2019/2020 than KZN planned to spend in 2020/2021 (although it should be noted that the COVID-19 pandemic had an impact on budgets for the 2020/2021 year).

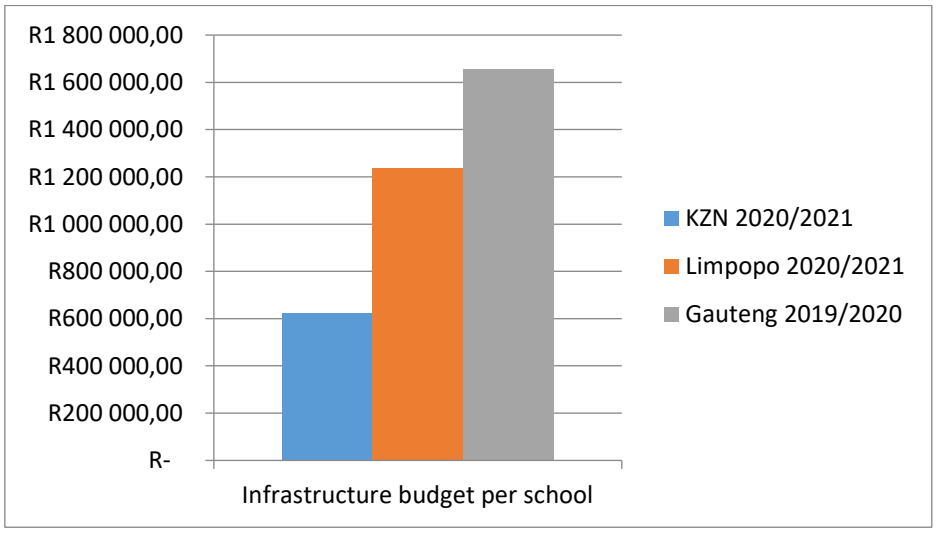


Figure 15 Infrastructure budgets per school for three provinces

The key points relating to the budget for scheduled and unscheduled large repairs and maintenance can be summarised as follows:

- The reporting and implementation process is long, and implementation normally only occurs in the following financial year, at the earliest;
- Contractors that carry out the larger maintenance projects are not necessarily from the local area and there is unlikely to be much accountability between the school as the end user and the contractor carrying out the work;

- In KZN for the 2020/2021 year, the allocation by the PED for large maintenance items worked out to around R80,000 per school. Another way of looking at this is to consider that each school in KZN could have a semi-major maintenance item dealt with approximately every 4 years, assuming an average cost of R300,000 per major maintenance event. This is not a large amount of money given it is to cover **all** infrastructure maintenance needs at schools. If one used a benchmark such as 1%-2% of the capital value of the school infrastructure per annum, which does not seem high in terms of asset management norms, the resulting maintenance budgets would undoubtedly be considerably larger. For a school costing R20 million to build (a reasonable estimate for a 500-learner school), this would be equivalent to R200,000 to R400,000 per year to be allocated to repairs and maintenance.
- In KZN most of the funds spent directly by the PED on maintenance are paid to implementing agents, with only a small proportion (less than 10%) going to the Districts to spend on maintenance projects.
- The amount allocated to infrastructure per school varies greatly across the three provinces considered.

The next section of the report will consider what adequate operation and maintenance of school sanitation facilities actually costs.

6.4 The Cost of School Sanitation O&M

It is difficult to arrive at a figure for the actual costs of regular, effective operation and maintenance of school sanitation systems, due the large variations in the situation on the ground in schools. Managing school sanitation includes cleaning the toilets daily, providing hygiene supplies, and conducting minor and major repairs, but the budget to achieve these tasks varies based on the school's specific needs. Some schools have flush toilets, while others have VIPs. Some schools have many toilets, while others have far too few to meet the needs of their learners. Some schools have old toilets that have not been upgraded since the school was first built while others have recently built new toilets.

Various sources were drawn on to get indicative figures for comparison for this study. These were:

- The 'Healthy Toilets are Possible!' (HTAP) Handbook written by PID for a School Sanitation Management project, commissioned by the WRC (Report TT 699/16);
- Data from Impilo Yabantu's operations in the Eastern Cape. Impilo Yabantu (IY) are a social franchise operation carrying out maintenance of school toilets for the Department of Education;
- Data from eThekwini Water and Sanitation's Community Ablution Block programme. Whilst these are sanitation facilities for informal settlements, not schools, useful insights can be drawn from the well-documented costs of operation and maintenance of these facilities.

6.4.1 WRC 'Healthy Toilets are Possible!' Manual

The "Healthy Toilets are Possible" (HTAP) manual produced by the WRC came out of research conducted in 130 schools in the Eastern Cape, KZN, and Limpopo provinces by PID. The manual and management model were piloted in eight schools, which led to a refined model. A budget was prepared as part of this manual to provide schools with an example to begin ring-fencing funds for school sanitation. This budget was updated based on findings from the initial pilot as well as work done by PID on behalf of Domestos in over 400 schools across the country. The proposed budget is reproduced below (Table 5) with permission and assumes that the school has 500 learners with two toilet blocks each for boys and girls. Further, this budget assumes that the school has two school cleaners requiring safety equipment. Overall, the suggested budget is R43,950 per year for sanitation

overall, including all consumables as well as a fund for minor infrastructure repairs and saving for facilities improvements. **Note that this budget excludes the cleaners' salaries and utilities costs**, both of which are critical to effective O&M.

Table 5 Healthy Toilets are Possible – example sanitation maintenance budget for a school of 500 learners (Louton & Still, 2016)

EXAMPLE school sanitation budget and costing model for 500 learners (assuming 2 girls' and 2 boys' blocks)							
	Item	Calculation	Cost (R)	Unit	Quantity/yr	Amount/yr	
CONSUMABLES							
Cleaner Safety	Gloves	2 pair / cleaner/ month	R 30	pair	40	R	1,200
	Boots	1 pair/cleaner/yr	R 150	pair	2	R	300
	Mask	1 pack/month	R 200	pack	10	R	2,000
	Overalls	1 pair/cleaner/yr	R 250	shirt/pant	2	R	500
	Deworming tablets	2 times /cleaner/ year	R 20	dose	4	R	80
					Cleaner subtotal	**R**	**4,080**
Cleaning supplies	Bleach cleaner	5 litres / month	R 15	litre	50	R	750
	Soapy cleaner	5 litres / month	R 15	litre	50	R	750
	Cleaning cloths	Pack of 4 / month	R 20	pack	10	R	200
	Mop	4 / year	R 20	mop	4	R	80
	Bucket	4 / year	R 25	bucket	4	R	100
	Scrub brush	8 / year	R 5	brush	8	R	40
	Toilet brush	4 / block / year	R 50	brush	16	R	800
	Bin bags	1 / day	R 2	bag	200	R	400
					Cleaning supplies subtotal	**R**	**3,120**
Hygiene supplies	Liquid hand soap	25 litres per month	R 300	25ℓ	10	R	3,000
	Toilet paper	0.5 roll per learner per month	R 1.5	roll	2500	R	3,750
					Hygiene supplies subtotal	**R**	**6,750**
					CONSUMABLES SUBTOTAL	**R**	**13,950**
INFRASTRUCTURE							
Maintenance	Minor repairs	Monthly amount	R 1,000		10	R	10,000
Improvements	Fund for better facilitie	Per year amount	R 20,000		1	R	20,000
					INFRASTRUCTURE SUBTOTAL	**R**	**30,000**
					TOTAL BUDGET PER ANNUM	**R**	**43,950**

6.4.2 Impilo Yabantu Social Franchising

In 2013, Ive and Wall published a report on behalf of the WRC, which described a social franchising model for the maintenance of school toilets in the Eastern Cape through Impilo Yabantu (the franchisor) (Ive & Wall, 2013). The activities carried out by Impilo Yabantu teams included the "A Service" and the "B Service". The "A Service" included inspection of the toilets, deep cleaning, minor repairs, educating learners and staff, and all administrative tasks. The "B Service" included inspection of the toilets, emptying of pit contents (*Ventilated Improved Pit* (VIP) latrines), and disposal on site. In the pilot project in 2013, the charge for emptying pits serving ten toilets was R3,200. Adjusted for inflation, this comes to approximately R4,400 in 2020. Assuming the same cost for an "A Service" and that each school receives 1 "A service" and 1 "B service" each year, the cost for the Impilo Yabantu service would be approximately R8,800 per year. This is close to the allowance of R10,000 for minor repairs in the "Healthy Toilets are Possible" budget model.

In addition, Impilo Yabantu calculated an allowance of R5/learner/month would be sufficient for maintaining a well-functioning sanitation system (O Ive 2020 pers. com., 30 Oct 2020). This would be equivalent to R25,000 for a 10 month school year at a school with 500 learners.

6.4.3 eThekwini Municipality Community Ablution Block Servicing Budget

eThekwini Water and Sanitation (EWS) provides *Community Ablution Block* (CAB) facilities free of charge to the residents of informal settlements in the municipality. A typical pair of CABs consists of four female and three male toilets, along with four handwashing basins, four laundry basins, two male urinals and four showers. Although the CABs and school toilets are different types of facilities located

in different contexts, the costs of maintaining the CABs are well-documented and can provide a helpful comparison to the school toilet maintenance figures from other sources.

Figures provided by EWS have been used as guide to provide an additional estimate of the costs of maintaining school toilets. The cost of maintaining CABs is R12,000 per month (T Gounden, 2020, pers. com., 23 Oct 2020). This figure includes all running costs such as consumables (cleaning materials and toilet paper), minor repairs, caretaker costs and water costs but excludes electricity costs. For the purposes of this estimate, caretaker costs have been removed based on the assumption that costs for employing school cleaners are covered by the Department of Education. A caretaker is employed at R1,750 per month (N Ramsuran, 2018, pers. com., 13 Dec 2018), excluding this brings the cost of running the CAB to R10,250 per month. Assuming ten months operation at the school level, this is equivalent to R102,500 per year. A pair of CABs containing a total of 4 female and 3 male toilets serve approximately 250 people. Assuming a user-to-toilet ratio of 30:1 (a good ratio for school toilets) and that the maintenance burden of the entire CAB is equivalent to 12 school toilets, it is assumed that an equivalent school sanitation facility could serve 360 learners. Thus, the cost per learner per year is R285/learner. This is much higher than the figures estimated in the HTAP and Impilo Yabantu reports, which is potentially due to procurement processes at the municipal level as well as the fact that CABs are flushing systems, while the Impilo Yabantu services are based on dry systems (VIPs). Minor repairs of flushing systems can be excessive, as these systems are vulnerable to blockages, leakages, and breakage of various components such as flushing handles, valves, and taps. The CABs value also included water charges (which can be significant with leaking toilets and taps). The other factor is that CABs are the main source of sanitation for the people using them, and therefore receive much higher usage than school toilets.

6.4.4 Comparison of cost estimates for school sanitation maintenance

Table 6 compares the costs of regular operation and maintenance of toilet facilities drawn from these three sources. These figures all assume that the sanitation facility starts out in good condition, and that maintenance is happening regularly and is carried out effectively. The estimates include providing cleaning materials, toilet paper, and cleaner safety equipment, carrying out minor repairs and carrying out some major repairs such as annual pit emptying and deep cleaning. These values do not however include any saving for future facility upgrades. They also do not include unplanned major maintenance such as storm damage repairs or replacing dilapidated facilities.

It should be noted that the costs will be dependent on the types of toilet installed, with flush toilets having more mechanical parts that need regular repairs and maintenance than pit toilets. The eThekwini CABs contain only flush toilets, whilst the school toilets considered under the HTAP project were a mixture of toilet types and the Impilo Yabantu toilets were pit toilets. Therefore a good average figure for the cost of school sanitation operation and maintenance is likely to be somewhat above the R98/learner/year figure but well below the R285/learner/year figure extrapolated from the servicing of the CABs.

Table 6 Comparison of estimated real costs of school sanitation operation and maintenance from different sources

Source	Budget (R/yr)	Assumed no. learners	Budget (R/learner/yr)	Notes
WRC/PID "Healthy toilets are possible!" (HTAP)	23,950	500	47.90	Cleaning materials + minor repairs **Excludes salary cost of school cleaner(s) and fund for facilities' improvements**
Oliver Ive (2020) – based on invoicing from Impilo Yabantu (IY) services	25,000	500	50.00	Minor repairs + deep cleaning (2x per year) + inspections + health and hygiene training + pit emptying **Full cost of external contractor carrying out these items**
HTAP + IY servicing	45,950	500	97.90	Cleaning materials + minor repairs + deep cleaning + pit emptying + training + administration
eThekwini Water and Sanitation Community Ablution Block (CAB) service (see notes)	102,500	360*	284.72*	Cleaning material + minor repairs (flush toilets), excludes caretaker salary NOTE: these figures apply to community ablution blocks (toilets, showers, laundry facilities) in informal settlements, not to toilets a school context, but maintenance costs are well-documented and therefore useful for comparison.

**CAB consists of 4 female + 3 male toilets, along with 4 handwashing basins,4 laundry basins, 2 male urinals and 4 showers. Assume a user-to-toilet ratio of 30:1 and maintenance burden equivalent to 12 school toilets, the equivalent school sanitation facility would accommodate 360 learners – however it is not possible to directly compare CAB maintenance costs to school toilets maintenance costs as the facilities and contexts are different.*

6.5 School Cleaners and Janitors

Cleaners

O&M will fail if schools do not have adequate cleaning staff for the size of their premises. Cleaners are employed through several possible routes:

- Direct employment by the school, funded by the SGB;
- Employed by the PED, paid for through the PED's personnel funding;
- Employed by and funded through the Expanded Public Works Programme.

It is not clear what determines how a cleaner is employed at a particular school. The important issue for schools is knowing if they need to set aside budget for a cleaner's salary or if it is guaranteed to be covered long-term by the PED or the EPWP.

This cost has been excluded from the recommended sanitation O&M budget figures for schools given in this report because it is not always required to be an element of this budget. Ideally there would be

consistency in the way that school cleaners' salaries were budgeted for. The EPWP would in theory be a good route for supplying cleaners to all schools, provided that the funding for posts was consistent, reliable and required minimum administration – which is not necessarily the case currently. Stop/start funding for cleaners' positions could be extremely detrimental to schools.

The important point is that the salaries of cleaning staff must be budgeted for somewhere for O&M of sanitation systems to have any chance of success.

This is an issue which requires further work to both understand and resolve.

6.6 School Utilities Costs

The costs of water, sewerage and electricity per learner for school sanitation are again difficult to estimate as they will depend greatly on the type of sanitation system in operation. VIP toilets use only the water required for cleaning, flush toilets clearly consume a lot of water. As discussed above, leaking flush toilets can easily use up a school's annual sanitation maintenance budget in water charges.

Water costs will either be municipal charges or the costs of installing and running an on-site borehole. Schools connected to sewer will pay sewerage charges in proportion to the quantity of water used. Electricity costs will normally be municipal charges as few schools have access to off-grid power.

As seen in Figure 6, utilities costs are meant to be covered under the minimum of 20% of PED funding allocated to non-personnel costs. This funding goes to schools as the Norms and Standards grant. Each PED issues different guidance to schools in its province on how the Norms and Standards grant should be allocated between LTSM costs, maintenance, municipal services, etc. (see Figure 10 and Figure 11).

There are two critical issues with regards to utilities:

- Ensuring that utility costs are minimised:
    - This starts at the design stage of the school sanitation system, and incentivising the designers to specify systems that minimise utilities costs (including prevention of water loss through leakages). Construction contractors need to be incentivised to use robust fittings and materials that again minimise maintenance issues and thus utilities costs. One way of doing this, as discussed above, is to use Design-Build-Operate contracts for new facilities, such that the incentive to minimise operational costs is built into the entire process.
    - The long-term operators (cleaners, janitors and school decision-makers) and users (learners) of the system also need to be incentivised to save on utilities, particularly water. Maintenance needs to be managed effectively, to prevent leaks. Water-wise behaviour needs to be taught and other creative incentives introduced.
- Ensuring that utilities are paid for:
    - As with school sanitation maintenance, utilities costs need to be specifically and adequately budgeted for by schools. The guidance from PEDs on allocation of Norms and Standards funding needs to be specific in this regard, and expenditure reports by schools need to be audited.

It is critical that utilities costs are adequately budgeted for so that school sanitation systems run effectively. Utilities costs have not been included in the recommended school sanitation O&M budgets given above as under the scope of this study it was not possible to get reasonable cost figures per learner per year. Note however that utilities costs do come out of the same school budgets that

maintenance costs come out of and therefore the recommended figure of R47.90/learner/year for the school sanitation maintenance budget is in fact higher when accounting for utilities.

6.7 How Much Do Schools Spend on Sanitation?

Spending on school sanitation varies widely from school to school. Furthermore, it is not always clear from school budgets how much is actually spent on sanitation, as this will be nested within "infrastructure maintenance" and "cleaning materials" budgets more broadly. While working with over 400 schools since 2017, PID has periodically asked schools directly how much they budget or spend on sanitation. Nineteen responses, mostly from KZN province, were collected and analysed. All 19 of these schools are no fees schools. In addition, data collected by the WRC's SASTEP programme through an online survey has been analysed. In this survey, 74 schools from across the country were asked to report how much they spent in 2019/2020 on sanitation and how much they had budgeted for 2020/2021. This included private schools and public schools in various quintiles. A summary of the data collected and analysed is provided in Table 7, with a graphical representation in Figure 16.

Table 7 Comparison of amounts schools report spending on sanitation

	Quintiles 1-3 (n=30)	Quintiles 4-5 (n=15)	Private schools (n=11)
Average R/learner	R22.65	R38.39	R100.66
Median R/learner	R19.21	R18.05	R73.53
Minimum R/learner	R0.23	R3.73	R7.53
Maximum R/learner	R70.83	R172.56	R325.38

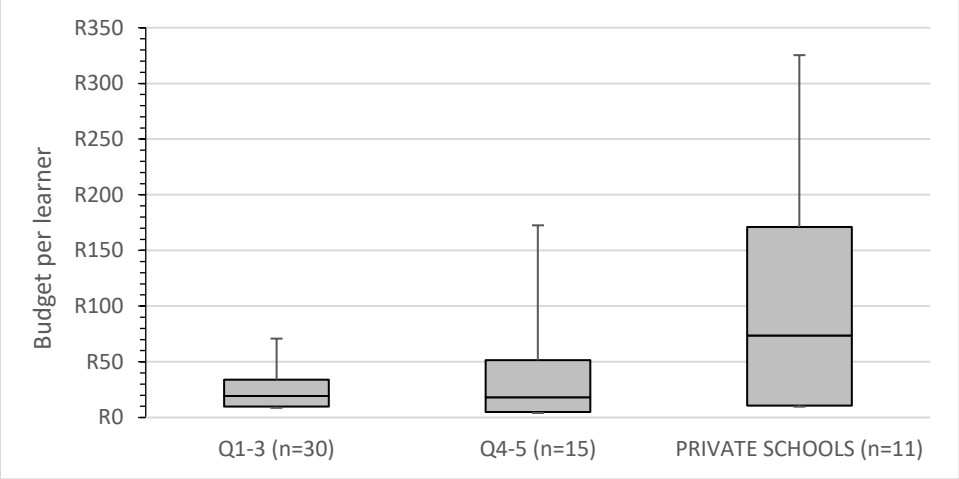


Figure 16 Self-reported sanitation budget per learner for public and private schools

The median figures for spending on sanitation per learner were similar for public schools in the lower three quintiles compared to quintiles 4 and 5, although the spread of values was greater for quintile 4 and 5 schools. Private schools reported spending almost four times as much per learner on sanitation compared to public schools, based on median values.

6.8 Comparison of Estimated Costs of Sanitation against School Spending On Sanitation

When comparing budgetary requirements with data on school spending on sanitation, only no fees schools are considered in this report. If no fees schools can afford to manage their sanitation adequately, those in higher quintiles and private schools should also be able to do so. Figure 17 compares the median sanitation spending by no fees schools with the suggested budget as per the "Healthy Toilets are Possible" (HTAP) manual by PID and the WRC. As can be seen here, the median spending is just under the suggested budget for cleaning materials, which includes safety equipment

for the cleaner, toilet paper and hand soap. Spending is not sufficient to meet the projected requirement for minor repairs. This is consistent with the situation observed on the ground, where many schools do not carry out minor repairs such as unblocking toilets, replacing broken taps, repairing leaks, replacing locks on doors, etc. Inability of schools to respond to minor issues can lead to entire toilet blocks becoming unusable and failing to protect the safety, health, and dignity of learners.

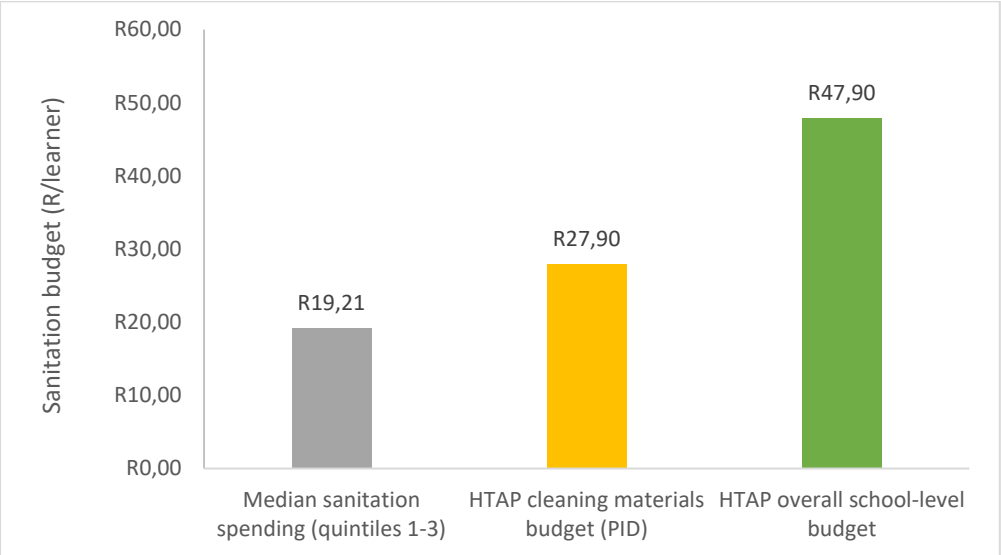


Figure 17 Comparison of median sanitation spending by no fees schools against estimated required budgets

It is also helpful to compare the values in Figure 17 against the suggested budget for maintenance per learner from the Norms and Standards funding, discussed earlier in this report. For KZN this value, for the maintenance of the entire school, was R69.50/learner/year. For the Western Cape this value was R347.50/learner/year. It can be seen that the majority of the KZN Norms and Standards maintenance funding would be used on sanitation alone if spending was in line with the estimated required budget for properly maintained sanitation.

In addition to considering the median spending on sanitation, it is useful to look at the overall spread of data collected.

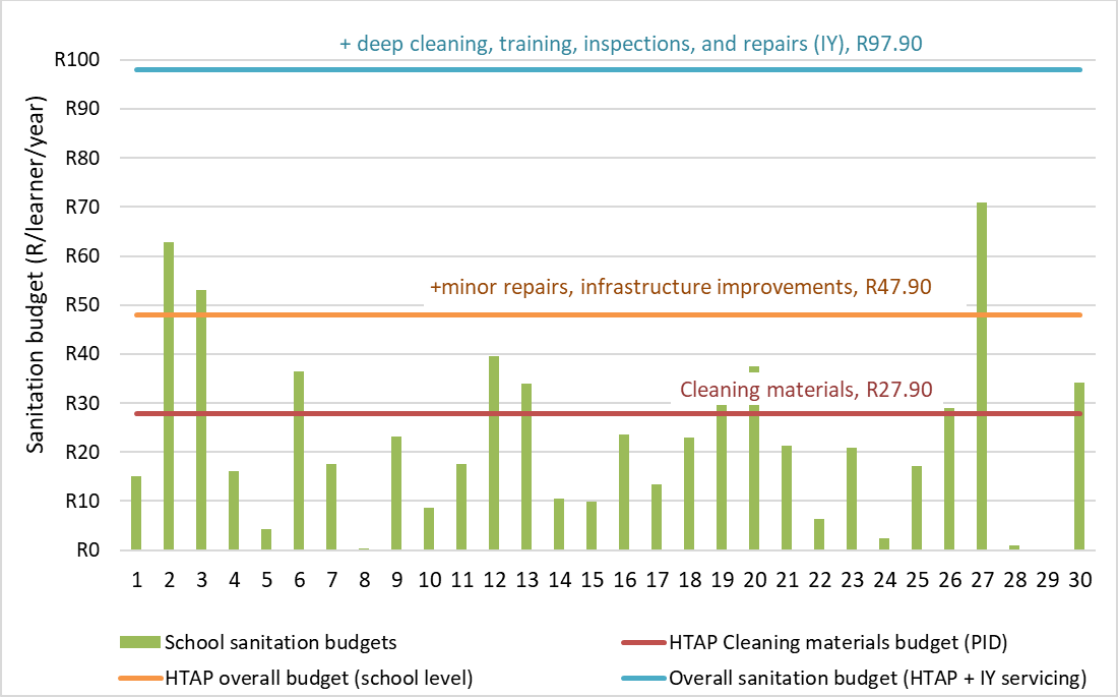


Figure 18 compares the self-reported spending on sanitation from 30 no fee schools with the estimated budget requirements for i) cleaning materials only, ii) cleaning materials and minor repairs (i.e. everything that the school would be expected to cover from the Norms and Standards funding) and iii) cleaning materials, minor repairs, training, inspection and some major scheduled maintenance.

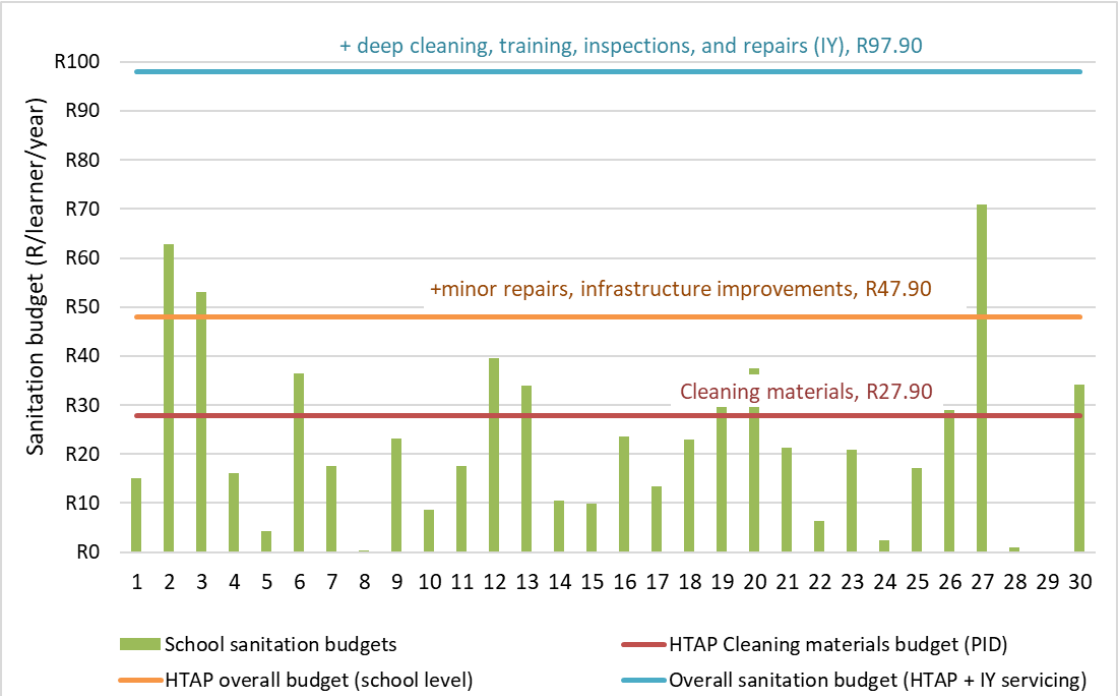


Figure 18 Comparison of self-reported sanitation budgets from 30 no fee schools compared against estimated required budgets

All 30 data points are presented in Figure 18, demonstrating that three of the no fees schools included here have a budget above the suggested R47.90/learner/year for sanitation. An additional seven schools effectively meet the suggested cleaning materials budget of R27.90. Considering each of these schools receive the same norms and standards funding per learner each year, this outcome is encouraging. It demonstrates that with some planning and prioritisation, schools can manage to meet school sanitation O&M needs with their existing funding (however, it should also be noted that no fee schools raise varying additional amounts of funding from voluntary donations and fundraising). The reality is also that 20 of the schools included in this data set do not meet the minimum cleaning materials budget, highlighting the need for support.

6.9 Comparison of Estimated Costs of Sanitation against National and Provincial Education Budgets

The value of R97.90/learner per year includes both the contribution from the school's budget (R47.90) and the amount paid directly by the PED to Districts or Implementing Agents (R50/learner/year) for larger sanitation-related maintenance. This value of R50/learner/year can be compared against the figures reported in a previous section of the amounts that the KZN PED allocated to maintenance in the 2020/2021 financial year. Spreading the maintenance allocation of R467 million across all public schools in KZN gives an allocation of R80,000/school/year or R168/learner/year. If instead it is assumed that fee-paying schools (quintiles 4 and 5) cover their own maintenance costs, the allocation becomes R223/learner/year. On that basis sanitation maintenance would be consuming just over a fifth of the KZN PED's maintenance budget. This is a significant proportion given all the other school maintenance demands that exist, but is potentially manageable. School toilets should arguably be the highest-priority item for schools to maintain.

The value of R97.90/learner per year can also be compared to the total DBE budget figures reported above. The total nominal DBE budget for the 2021/2022 financial year was R272.3 billion, funding the education of 13.2 million learners (McLaren et al., 2021). This is a spend of R20,636 per learner. The recommended spend of R97.90/learner/year on sanitation maintenance would amount to 0.47% of the total DBE budget.

6.10 Conclusions about the Failure to Pay for Operation and Maintenance

The sections above have explored the financial situation relating to school sanitation operation and maintenance. It is difficult to arrive at a figure for the actual costs of regular, effective operation and maintenance of school sanitation systems, due the large variations in the situation on the ground in schools. This study estimated that R47.90/learner/year is required to cover cleaning materials and some minor repairs, from a school's budget. This figure excludes the school cleaner's salary and utilities costs, although both these elements are critical to achieving effective O&M. An additional R50/learner/year is estimated to be required to cover further repairs, deep cleaning, pit or septic tank de-sludging, training and inspections, from a PED's budget. These figures assume starting from a base of the sanitation facilities being in good condition.

The majority of the schools for which data was available were not spending an adequate amount to properly operate and maintain their sanitation systems. This is consistent with the situation observed on the ground, where many schools do not carry out minor repairs such as unblocking toilets, replacing broken taps, repairing leaks, replacing locks on doors, etc. PEDs provide differing guidance to schools on what proportion of their Norms & Standards funding should be spent on maintenance. In KZN, the majority of the recommended Norms & Standards maintenance allocation (R69.50/learner/year) would be used on sanitation alone if spending was in line with the estimated required budget of R47.90/learner/year for properly maintained sanitation.

In KZN it was estimated that if an adequate amount was spent by the PED on sanitation maintenance it would consume around 22% of the PED's budget allocation for all larger scheduled maintenance (not just sanitation). 22% is a significant proportion of the maintenance budget but is potentially manageable. Data on PED budget allocations for school maintenance for other provinces was not available, which may be because the budgets and expenditure for maintenance are not ring-fenced in those provinces or just that the information is not made public.

The recommended total spend on sanitation maintenance of R97.90/learner per year can also be compared to the total DBE budget figures. The total DBE budget for the 2021/2022 financial year was equivalent to R20,636 per learner. The recommended spend of R97.90/learner/year on sanitation maintenance would amount to 0.47% of the total DBE budget. This does not seem unreasonable, given the vital importance of having properly functioning school toilet.

A lack of spending on sanitation maintenance is a complex issue to understand. The following questions are worth considering:

- Is the overall DBE budget not sufficient to cover all the maintenance needs of schools?
- Do the allocations to maintenance at PED and school level need to be increased (i.e. funding diverted away from other, competing, priorities)?
- Do budget allocations need to be more specific, and accountability increased so that funds for maintenance are protected from being used for other things?
- Is the overall DBE budget and allocation to maintenance sufficient, but the funds need to be managed better, at all levels? – i.e. maintenance work being carried out more cost-effectively, which means a combination of better assessment and planning, better quality control of work carried out, potentially changing who carries out the on-the-ground work and making sure there is continuity of work and thus maximum utilisation of resources.

The recommended spending on school sanitation maintenance would amount to under 0.5% of the total DBE budget and therefore the overall national budget does not appear to be the principal issue. However, government spending on basic education per learner is reported to have decreased in real terms by 2.3% between 2009 and 2018, and further cuts were made due to the COVID-19 pandemic (Section27, 2020). Although DBE may be under-funded overall it should still be possible to adequately fund school sanitation maintenance from current budgets.

It is difficult to answer the other three questions conclusively from the limited data sets of school spending and PED budgets available during this study, but there are indications that the answer may be at least a partial yes to all of these. Provincial Education Department budget allocations to maintenance need to be more specific – specifying the allocation to sanitation maintenance as opposed to only general maintenance. In some cases it appears that the budgeted amounts for maintenance at both PED and school level need to increase. This suggests there is a need for making maintenance budget allocations mandatory, with accompanying mechanisms to ensure this occurs.

The other factor in paying for operation and maintenance services is money flows through the system: the money needs to arrive where it is needed, *on time*. Both schools and maintenance contractors report late payments of funds due from PEDs (Wall & Ive, 2013; Neethling and Still, 2020)

In summary, to make sure there is sufficient *available funding* to pay for O&M services the following is necessary:

Expectations of maintenance costs need to be realistic and these costs need to be planned for:

- Specific, mandatory, allocation needs to be made to sanitation maintenance in the Provincial Education Department budget. The amount budgeted must be adequate and in line with realistic estimated costs;
- There must be processes in place to ensure this happens – both checking of proposed budgets and auditing of actual expenditure reports, with penalties if the rules are not complied with. This ties in with the proposal to create a separate entity within the DBE to manage maintenance (see Section 7.2.2.2

PART III. IMPROVING OPERATION AND MAINTENANCE AND THE CASE FOR RAISING ADDITIONAL REVENUE TO PAY FOR IT

7 IMPROVING THE OPERATION AND MAINTENANCE OF SCHOOL SANITATION

7.1 General considerations

General considerations for improving operation and maintenance are discussed under each of the headings used by Louton and Still (2016a) to categorise the problems with O&M: Will, Skills and Bills. A number of previous studies have looked closely at the 'Will' and 'Skills' issues and these are summarised below.

Dealing with the lack of **WILL** – instilling the 'knowledge and values that produce vision which in turn generates drive and commitment' (Louton & Still, 2016a) in decision-makers to adequately maintain sanitation systems:

- This is a long term effort that will require systemic change within the Department of Education and within schools.
- Louton and Still (2016a and 2016b) address this comprehensively in the Guidelines for School Sanitation publication. They detail the need firstly for decision-makers to have a sound understanding of the 'needs and rights of learners and how sanitation can either support or undermine that'. Secondly, decision-makers must have a value system which drives them to make sure the needs of learners are met. Thirdly, decision-makers need to own a vision of transformed sanitation and be able to transmit this vision to their community. Louton and Still propose a number of practical measures for addressing the 'will' issue and provide templates for supporting documentation.

Dealing with the lack of **SKILLS** – instilling the 'knowledge and expertise to be able to assess, plan, develop tools, implement, monitor and evaluate independently' (Ibid.):

- Several previous studies and publications address the need to build the skills of school and Department of Education personnel to manage maintenance more effectively. These include the Guidelines for School Sanitation (Ibid.), the Healthy Toilets are Possible! School Sanitation Management Handbook (Louton & Still, 2016b), the school sanitation management model developed and piloted by Neethling and Still (Neethling & Still, 2020), and the DBE's Guidelines for General Upkeep and Maintenance of Education Facilities (DBE, 2018).
- Skills-training is also needed for school personnel who carry out the cleaning of toilets and minor maintenance tasks (e.g. fixing a leaking tap).
- External contractors who carry out maintenance work at schools need to be able to carry out quality work and to run a financially viable business (Ive & Wall, 2013; Shaylor et al., 2014).

Dealing with the lack of means to pay the **BILLS** – ensuring that adequate funding is available when needed, that the skills exist to manage the funds properly and that work is carried out cost-effectively.

- These issues were the focus of this study and are discussed further in this report.

The next section discusses different practical approaches for improving operation and maintenance, firstly considering how to improve the work carried out on the ground and secondly, how make sure that work is paid for on time.

7.2 Approaches to Improving O&M

Multiple previous publications, policies and programmes have set out to improve the operation and maintenance of school infrastructure but unfortunately with few significant results (DBE, 2018 p.12). This section does not repeat previous work, but provides context to the different ways of approaching changes to the school O&M system.

7.2.1 Making sure the work gets done

The research carried out for this study revealed a spectrum of opinion amongst stakeholders as to how the O&M situation could be improved, particularly in relation to the roles that schools and the Department of Education should take on. One approach is to retain the current roles and responsibilities for maintaining school infrastructure, with the management and decision-making responsibilities resting with individual schools for the day-to-day items and the PED for more major items. The converse approach is to relieve schools of the responsibility for managing and paying for maintenance, and possibly also the PED, instead outsourcing maintenance as much as possible.

Approach 1: Building capacity in the current system: retaining existing roles and responsibilities

The roles and responsibilities, as they relate to school maintenance, of the national DBE, Provincial Education Departments and schools are fairly well-defined and are discussed in Section 6.3 above. The broad issues appear to be:

- Lack of will and vision;
- Lack of the specific skills required to manage infrastructure maintenance. It should be noted that this is a very different skills-set to that required to manage a once-off construction project;
- Lack of practical skills to carry out effective cleaning and maintenance;
- Lack of ring-fencing of maintenance budgets;
- Lack of accountability: school toilets are not inspected by either school decision-makers or PED staff. Budget allocations for maintenance and actual spending on it do not appear to be checked.

The DBE's publication, the 'Guidelines for General Upkeep and Maintenance of Education Facilities' (DBE, 2018) sets out in detail the issues with the current system and the responsibilities of the different stakeholders (see p 73, pp 76-77 and p 109 of DBE, 2018). It also includes a proposed high-level implementation plan for reforming the system, but it is not clear if this implementation has actually started. It is clear that a huge amount of capacity-building will be required to make the current system function effectively.

Approach 2: Link operation and maintenance to the construction of new toilets

The DBE's current contracting model for the construction of new toilets for schools is somewhat segmented, with separate contracts being awarded for Project Management, Architectural Design, Engineering Design and Construction and the assumption that maintenance will be picked up by the schools themselves, which all evidence shows is unrealistic. In many cases designers do consider O&M and attempt to design facilities accordingly. Often however, designers have little experience of implementing O&M and do not have access to advice from people who are experienced in this field. The separation of the different elements of the project also makes it difficult to maintain a consistent approach to O&M and to keep it central to the design at all stages. One solution to this problem could be to use Design-Build-Operate contracts, so that the responsibility for operation and maintenance of the sanitation system for the first few years rested with the same company that designed and built the system. There would then be in-built motivation to design and build systems that could be easily and cheaply operated and maintained. It would also allow payment-linked performance clauses to be

built into the contract, to ensure the toilets were kept in good working condition. A requirement for maintenance training for school personnel would also be built into the contract, in preparation for full handover of responsibilities to the school and PED at the end of the contractual operation period.

Approach 3: Outsourcing operation and maintenance

The opposite approach to retaining the current roles and responsibilities is to take the responsibility for O&M activities away from schools and PEDs and outsource these activities as far as possible, for the long-term (i.e not just for a fixed period after completion of a construction project). Maintenance management contracts would be issued to the private sector, with a maintenance management contractor responsible for an optimal number of schools to ensure continuity of work and full utilisation. Contracts would ideally be multi-year, so that good working relationships and accountability could be built between the school and contractor. Performance measures would be built into the contracts. Critically, for such a system to deliver value it would be essential that the contracts are well structured, transparently procured and well managed (see Section 7.2.3).

The question remains over what entity would manage the issuing of the maintenance contracts and performance monitoring. This could be the PEDs or potentially a new DBE-owned entity, set up specifically to manage maintenance (see Section [illegible] below).

Outsourced operation and maintenance activities need to be carried out in the most cost-effective way possible. The following should be noted:

- Schools need to start out from a good base for a maintenance programme to be effective. Major repair work to toilets needs to be completed, toilets beautified and a significant event made of instituting the new regime of proper care for and O&M of the toilets.
- All schools need a cleaner on their staff who has been trained to clean the toilets properly or this function also needs to be outsourced;
- Ideally, all schools should have someone on their staff who can carry out minor maintenance tasks (this might be the same person as the cleaner). This avoids the need for a call-out to a service provider for a minor issue such as a leaking tap;
- Costs need to be reduced as much as possible. This includes:
    - Minor maintenance items being carried out by an appropriately-skilled school cleaner or caretaker, rather than calling out a service provider;
    - For items that do require an external service provider, the services provided need to provide value-for money;
    - Reducing the price that schools have to pay for cleaning materials and consumables, for example through bulk-buying schemes;
- It must be recognised that management of O&M is very different to managing the implementation of capital projects:
    - Maintenance should be carried out promptly and regularly – issues should be tackled whilst they are small rather than being allowed to escalate;
    - O&M costs can be kept low if maintenance is carried out regularly and contractors are kept fully utilised;
    - Scheduled maintenance (e.g. deep cleans, pit emptying) should be planned, to maximise the utilisation of service providers;
    - Direct and long-term relationships between local service providers (maintenance contractors) and schools are beneficial to both the school (accountability and quality control) and the contractor (financial sustainability of business).

    - O&M contracts can produce procurement challenges, such as repeated extension of contracts (see Section 7.2.3).
- O&M services need to be delivered at the appropriate scale, so that the businesses providing the on-the-ground services are fully utilised, bringing costs down and making businesses viable. School district level (several hundred schools) is probably the minimum scale that O&M services should be delivered at for cost-effectiveness (T Gounden, 2020, pers. com., 23 Oct 2020). This could translate to multiple local maintenance contractors serving clusters of schools within each district, overseen by a managing contractor who would have responsibility for one or more school districts;
- Effective quality control of work carried out and auditing of spending needs to be in place;
- Prompt payments are needed to schools and to service providers;
- Even if O&M is outsourced as far as possible, there will still be a need for a person on the school staff with responsibility for oversight of maintenance, to report when issues arise and to check the quality of work carried out by contractors. They need to have the appropriate skills to do this.

Many of the above principles were put into practice by Impilo Yabantu, a school sanitation maintenance social franchise operating in the Eastern Cape (Wall & Ive, 2013, WRC project K5/1952). The O&M model and the scale at which it operates are keys to its success. The following section describes in further detail a potential maintenance contracting model based on their work.

7.2.2 Contracting model for outsourced school sanitation operation and maintenance

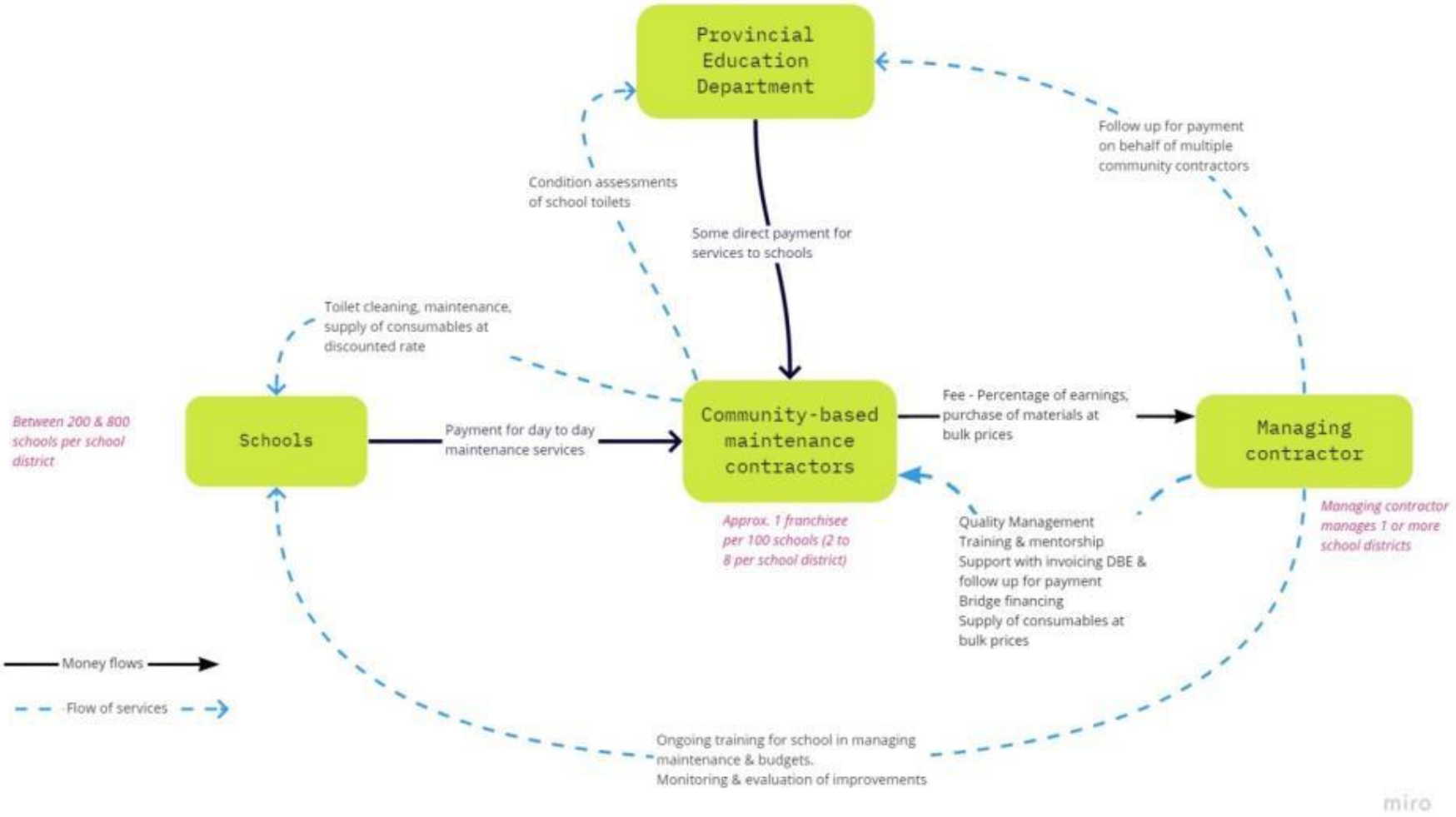
Impilo Yabantu's social franchise model for school sanitation maintenance has successfully operated in a number of Eastern Cape school districts since 2008 (Shaylor et al., 2014). Franchisees – small maintenance businesses based in the communities they serve – are supported by a franchisor who provides business mentorship, business systems support, training and quality assurance. The model is described in detail in the Water Research Commission report: 'Social Franchising Partnerships for Operation and Maintenance of Water Services: Lessons and Experiences from an Eastern Cape Pilot' (Wall & Ive, 2013). The contracting model and the scale at which it operates are keys to its success.

Figure 19 was developed for this study based on Impilo Yabantu's model. The primary focus of this study was to consider how to ensure O&M work is paid for, but this needs to be considered in the context of how the O&M services are delivered on the ground and who makes and receives payments. Therefore it is helpful to lay out an example contracting model which shows the flows of money and services. This model assumes that the DBE funding for operation and maintenance services still flows through schools and PEDs, as it does currently. An alternative would be for that funding to flow through a separate entity, specifically set up to manage school infrastructure maintenance (refer to discussion in Section 7.2.1 above).

Figure 19 shows a proposed outsourced O&M contracting model for school sanitation, operating at school district level (or greater), involving the following entities:

- **Schools** pay community-based maintenance contractors for day-to-day maintenance services. They benefit from having a long-term, direct relationship with local businesses, who are familiar with their infrastructure, who feel a high level of accountability to provide quality services and who can provide services at a reasonable price because they have continuity of work and are fully utilised;

- Small **community-based maintenance contractors** (one contractor serving around 100 schools), from the same communities as the schools they serve, carry out minor repairs and maintenance for schools as required. They also carry out scheduled larger maintenance tasks such as deep cleans, pit emptying, septic tank emptying, etc., but in these cases would probably be paid directly by the PED. They would also carry out condition assessments of schools and report back to the PED, with whom it would be agreed what work needed to be carried out. The community contractors could also supply schools with cleaning materials and consumables at discounted prices (they would buy at bulk price from the managing contractor). Community contractors would pay the managing contractor a percentage fee from their earnings (equivalent to a royalty fee in a franchise arrangement);
- A **managing contractor**, overseeing all the community-based maintenance contractors in a district or several districts. The managing contractor performs several functions:
    - Recruiting and establishing the community-based contractors during the set-up phase;
    - Training and mentorship of the community-based contractors, both in the practical maintenance skills required and the business skills in planning work and managing budgets. Costs of O&M can only be kept down if contractors are fully utilised and work is planned well;
    - Setting up of work systems and quality assurance processes for the community-based contractors to adopt;
    - Overseeing quality management: spot check and audits of work carried out by the community-based contractors;
    - Support with invoicing, particularly with following up with the DBE for payment on behalf of multiple small contractors;
    - Providing bridging finance to the community-based contractors to protect them in case of late payments by clients;



Source: Diagram developed for this project, based on the social franchising model developed & implemented by Amanz' abantu / Impilo Yabantu in the Eastern Cape – refer to WRC project K5/1952

Figure 19 Proposed outsourced O&M model for school sanitation

    - Purchasing materials and consumables in bulk and selling to community-based contractors at bulk prices;
    - Provide training to schools in managing maintenance work and budgets;
    - Monitoring and evaluating improvements in sanitation at schools and the financial sustainability of the community-based contractors.
- The **Provincial Education Department** would benefit from the arrangement by:
    - Having an assurance of quality maintenance work being carried out;
    - Receiving detailed condition assessments of schools and ongoing monitoring and evaluation of the schools;
    - Supporting local job creation and *Skills Development* (SD);
    - Paying less overall for operation and maintenance as the system for maintenance would run more efficiently and cost-effectively

The previous two sub-sections considered how to ensure operation and maintenance work on the ground at schools was carried out well and cost-effectively. For outsourced O&M activities, the procurement processes involved are also a major factor in the quality of service delivered. This is explore in the following section.

7.2.3 Procurement challenges with O&M

The outsourcing of O&M work presents specific procurement challenges that are linked to the nature of the work. O&M is clearly an ongoing activity with no end date. It also benefits from there being consistency and continuity in the organisations and people that carry out the work, which in turn means granting long contracts or repeated extensions of contracts. O&M work is therefore vulnerable to being exploited by companies wanting to exploit the system to their advantage. Many of the checks and balances that are part of current procurement processes can work against what the outsourcing of O&M is trying to achieve (consistent quality service over a long period of time). Specific challenges include:

- The reluctance of government officials to grant natural monopolies. In this case it would be most efficient to have one managing contractor overseeing the maintenance of a group of schools in specific geographical area, rather than have multiple contractors competing for each maintenance job at individual schools. It will require careful strategy to convince decision-makers of the mutual benefits to schools, the DBE and maintenance contractors of this arrangement and to develop the checks and balances needed to make sure such a natural monopoly situation is not exploited.
- Protecting the system from exploitation: the Impilo Yabantu social franchising model described above works because the companies and officials involved are driven by professional values. This is certainly not always the case.
- O&M work will function most effectively when there is a long term-relationship between the customer (the school) and the contractor (the community-based maintenance contractor) and also between the community-based contractors and the managing contractor overseeing them. This then requires the granting of long contracts – several years – or repeated extensions of contracts that are guaranteed if performance has met targets. Both of these scenarios are problematic under current procurement rules. Ways would need to be found of modifying the rules for legitimate reasons to enable O&M work to be contracted out efficiently. This would require close liaison with National Treasury and the *Government Technical Advisory Centre* (GTAC).

- Community-based contractors are unlikely to have the skills or capacity needed to handle complicated and administrative-intensive procurement processes. The administrative burden placed on them needs to be minimised in order to keep their O&M services efficient and cost-effective. Although the contract would be between the DBE/PED and the managing contractor, there need to be sufficient checks in place to ensure that the community-based contractors being used do satisfy the regulations and conditions of the contract.

For an outsourced O&M system to deliver value it would be essential that the contracts are well structured, transparently procured and well managed. Many of the challenges above can only be dealt with at a national level.

The next section of the report considers how to ensure that O&M work is paid for.

7.2.4 Making sure O&M work gets paid for

Funding to pay for O&M work at schools comes primarily from the DBE. The DBE funds PEDs, who in turn transfer a portion of that funding to schools as the Norms & Standards Grant (see Section 6 and Figure 7). Part of the Norms & Standards Grant is supposed to be used by schools to pay for operation and maintenance of facilities. The other sources of income for schools are fees (for quintile 4 and 5 schools) and voluntary donations. The PEDs also directly pay contractors or implementing agents to carry out maintenance at schools.

Section 6.10 explored the reasons behind the current failures to pay for operation and maintenance services at schools. The work carried out for this study suggests two approaches for improving the payment situation. These are outlined below and could be complementary to each other.

Approach 1: Structural change to ensure existing DBE funding is spent on maintenance

One potential way to ring-fence funding for O&M (for sanitation and other school infrastructure) would be to create a separate entity with sole responsibility for management of school O&M activities. Funding for maintenance would be paid directly from the DBE to this entity, instead of to PEDs and schools. This same entity would then be responsible for issuing maintenance contracts and for performance monitoring. The aim would be to enable a faster flow of funds to where they were needed and greater control over what they were spent on.

The entity could be a 'Programme Management Office' (PMO) of the DBE, potentially falling under the existing SAFE (Sanitation Appropriate for Education) programme. An external third party could be contracted to manage the Programme Management Office, on a performance basis, for the DBE. This approach has been used successfully elsewhere, for example with the procurement of student accommodation for the *Department of Higher Education and Training* (DHET). The DHET owns the programme, but the programme management was contracted to the *Development Bank of Southern Africa* (DBSA). The DBSA was then responsible for preparing and packaging student accommodation projects at universities and TVET colleges, procuring and appointing contractors and O&M providers, and raising the funding for the projects (J. Lubbe, pers. comm. 24 March 2021).

This PMO would be responsible for a number of tasks. The following bullet points are taken from a draft Schools Sanitation Operation and Maintenance Strategy document authored by B Jackson (2019):

- Enhancing the Government Funding and Accountability framework
- Mobilising other arms of Government in support
- Mobilising non-governmental agencies in support

- Clarifying potential for involvement of the private sector in delegated management of O&M
- Nation-wide training of relevant personnel
- **Developing and activating a hierarchy of reports, complaints, and redress**
- Reinforcing political will and buy-in.

The PMO entity could also take responsibility for managing the generation of external revenue to fund O&M activities, as described in the next section.

Approach 2: Generate external revenue to fund O&M activities

A second approach is to generate additional, external, revenue to fund O&M activities, separate to the funding provided by the DBE. The benefits of generating external revenue to pay for O&M are:

- The delayed payments from PEDs currently experienced by schools and maintenance service providers would be avoided;
- Contractual conditions could be placed on the use of the revenue generated, to ensure it was ring-fenced for O&M activities and for capacity building of school personnel. Ring-fencing of external revenue might be more achievable than ring-fencing of the DBE funding;
- It would supplement existing O&M budgets, ensuring sanitation could be properly funded without making sacrifices in other equally important areas of school life. It would mean there was guaranteed income to fund items such as the school cleaner's salary and utility bills, for example;
- Supplemental income would particularly assist during the initial years of reforming O&M systems, which will incur setup costs. For example, for the implementation of the O&M model discussed above (Figure 19) the managing contractor will incur significant initial costs in training community contractors and setting up business and quality management systems, before the community contractors are well established as self-sustaining businesses;
- Supplemental income could fund training of school staff in how to manage maintenance work and how to budget for it;
- Additional income could be used to support the EPWP maintenance programme, to enable it to provide more workers to schools to carry out cleaning and maintenance services. It could also be used to continue the COVID-19 employment initiative, which aims to provide a janitor for each school, funded separately by the DBE.

Possibilities for generating ongoing streams of external revenue include:

- Schools hosting and/or providing some kind of service or product and receiving payment in return. **These possibilities were the focus of this study and are discussed further in the sections that follow;**
- Circular economy solutions: sanitation systems that generate revenue from the waste by generating energy, clean water and/or fertiliser products. These solutions are not the focus of this study, but must be a critical point of focus for the future of school sanitation systems, where a relatively large amount of waste is generated in one location. It is also important to note that many of these systems are still in the process of value-engineering to reduce capital and operational costs to a point where net profit is generated from processing the waste.

The private sector has roles to play in both of these avenues for generating revenue for school sanitation O&M. The next section of the report considers the different roles that the private sector is already playing in the school sanitation space, or that they could step into.

8 PRIVATE SECTOR INVOLVEMENT IN THE OPERATION AND MAINTENANCE OF SCHOOL SANITATION

This study focused on the possibility of 'private sector investment in sanitation' in the sense of private sector entities paying for services hosted by schools, and that revenue being used to fund the operation and maintenance of sanitation systems. It was apparent from this study that different stakeholders had different understandings of what 'private sector investment' in sanitation looked like. It is therefore useful to list the different ways that the private sector could be involved in school sanitation. These include:

- As a philanthropic donor: historically this has constituted much of the involvement by the private sector with school sanitation, specifically in the form of once-off donations to fund capital projects such as the building of new toilet blocks. The Unilever Domestos Janitor programme is an exception, which aims to build capacity in schools to improve their management of school toilets. It should be noted though that charitable donations are unlikely to be a sustainable or desirable source of income for ongoing costs;
- As investors of funds looking for a competitive rate of return, for example in the form of loans for capital projects;
- As investors through novel investment models such as Development Impact Bonds. Investors receive a return (from a third-party donor) for the performance of delivering a development income, in this case safely managed sanitation;
- As service providers for sanitation operation and maintenance services, for example cleaning companies and maintenance contractors;
- As suppliers of sanitation consumables looking to increase market share;
- As companies producing technologies generating resources from sanitation waste;
- Companies willing to pay fees for services or data provided by schools – the subject of this study.

The following sections of this report now consider in detail the options for schools providing services and/or data in return for ongoing payments, and that revenue being used to fund school sanitation operation and maintenance activities.

PART IV. NEW MODELS FOR RAISING EXTERNAL REVENUE TO PAY FOR SCHOOL SANITATION OPERATION AND MAINTENANCE

9 HOW THESE MODELS FIT INTO THE BIG PICTURE OF SCHOOL SANITATION O&M

Before considering the models in detail, it is helpful to summarise the rationale for looking at ways to generate additional funding to pay for school sanitation operation and maintenance services:

- The DBE annual budget is large, and it is estimated that the recommended spending on school sanitation operation and maintenance would amount to under 0.5% of it, annually. Even when adding on the costs of school cleaners' salaries and utilities (which are not always being budgeted for) the size of the overall DBE budget does not appear to be the principal issue;
- There are serious issues with the budget allocations made to maintenance at both PED and school level, and also with actual spending not matching the budget commitments made. Systemic change is needed before spending on sanitation operation and maintenance reaches adequate levels;
- **That systemic change is necessary and desirable, but is unlikely to happen quickly;**
- Raising funding from other sources allows for better possibilities to ring-fence the funds for spending on O&M as (i) conditions can be written into contracts and (ii) the chains of accountability (between schools/maintenance contractors and the sources of the funds) will be shorter;
- Using funding raised from other sources also allows more opportunity for quality control of O&M work carried out as performance clauses can be written into contracts and funds set aside for monitoring and evaluation;
- The models developed through this study therefore include the following aspects:
    - Generating funds for on-time payment of O&M services
    - Mechanisms for ensuring the funds are spent on O&M
    - Mechanisms for training personnel involved in O&M
    - Quality control of O&M work carried out
    - Harnessing the potential non-financial contributions of big companies, including training and mentorship for small businesses

The following sections describe the models developed through this study.

10 HOW SCHOOLS COULD BENEFIT BUSINESSES AND WHAT BUSINESSES COULD OFFER IN RETURN

10.1 What Services or Benefits Could Schools Offer to Companies?

This study aimed to look at how relationships between companies and schools, with the purpose of funding school sanitation O&M, could be mutually beneficial for the school, the surrounding community, the Department of Education and the companies themselves. The following are possible services or benefits that schools could offer companies, in return for payment in some form – these are explored further in the business models described in Section 11 below:

- Advertising space in high-traffic locations;
- Consumer data – particularly from 'untapped' lower-LSMs[6];
- B-BBEE[7] compliance points;
- Corporate Social Investment opportunity with a difference
    - Linked to tangible, measurable outcomes
    - Good publicity opportunity
    - Aligned with SAFE initiative, resulting in additional publicity/status
    - A package made easy to invest in
- Long term relationships with schools in their area, with benefits including:
    - Pool of students for apprenticeships
    - Boost to community relations and Net Promoter Score (NPS)

10.2 What Could Companies Contribute in Return for these Services?

The following are potential types of payments or contributions the private sector could make, in return for the services supplied by the schools:

- Cash payments;
- Supply of products – sanitation-related and otherwise:
    - Cleaning supplies
    - Parts and materials for maintenance of infrastructure
    - Menstrual hygiene products
    - Consumables: toilet paper, soap, paper towels
    - Unrelated to sanitation: data for internet access
- Time:
    - Business mentoring to small maintenance contractors;
    - Training for school staff in maintenance and budget management.

The following section of the report describes the potential business models, developed through this study, for generating external revenue to fund school sanitation O&M. The benefits to all the different stakeholders are described.

[6] LSM = Living Standards Measure: a tool used in South Africa to classify standard of living and disposable income

[7] B-BBEE = Broad-Based Black Economic Empowerment: "In 2003, the Broad-Based Black Economic Empowerment (B-BBEE) Strategy was published as a precursor to the B-BBEE Act, No. 53 of 2003. The fundamental objective of the Act is to advance economic transformation and enhance the economic participation of black people in the South African economy" (Department of Trade, Industry and Competition 2021)

11 NEW REVENUE-RAISING MODELS TO FUND SCHOOL SANITATION O&M

Table 8 summarises the five business models developed through this study. The basis of each of them is a school providing some kind of service or product in return for payment by a business or other entity. Each model carries different sets of benefits for each of the stakeholders involved.

Table 8 Business models considered for private sector investment in school sanitation O&M

Model	Benefits to private sector brand
1. Advertising and/or branding 1a) Advertising – rental payment for signage on school property 1b) School branding packages	Advertising Advertising; Access to school community for getting consumer data; build good community relations
2. Free Wi-Fi – advertising & data collection	Advertising + build community relations Consumer data collection
3. Product sales to community	Sales Consumer data
4. B-BBEE Compliance	Achievement of B-BBEE compliance status, with meaningful results
5. *Corporate Social Investment* (CSI) – donations	Good publicity and community relations Donation linked to tangible, measurable outcomes

The models could be implemented by the DBE (or an entity of the DBE responsible for the management of maintenance programmes – see Section 10) or schools as standalone revenue-generation models, with dedicated contractors responsible for the implementation of the advertising, Wi-Fi or other relevant component. The revenue raised would supplement the general maintenance budget. Alternatively the revenue-generation models could be implemented together with the operation and maintenance models, with the managing contractor responsible for implementing both the revenue-raising and O&M activities.

The following sections consider each of these models in turn.

11.1 Model 1: Advertising and/or Branding

The original concept behind this study was to investigate whether spaza shop branding could be applied in the school context to raise advertising revenue for schools – this is considered under Model 1b below. A stage before complete school branding would be hosting of individual adverts on school property – this is considered under Model 1a.

11.1.1 Model 1a: Advertising hosted by the school

Examples of advertising on school sites are shown in Figure 20 and Figure 21.

Figure 20 Billboard located on school property. Note political advertising is not permitted on school property in South Africa (Source: https://www.iol.co.za/capetimes/anc-billboard-removed-from-school-1605154)

Figure 21 Painted advertising on wall of school in Mozambique (Source: https://www.designcrowd.com/design/2678122)

The model concept is as follows:

- Brand pays regular rental for advertising space on school property
- Types of advertising could include:
    - Advertising on visible external walls
    - Small billboards (4 x 3 m) on school property
    - Smaller signboards (reference 1 m x 30 cm branding boards in shops)
- Target audience: local community, not learners
- Advertising infrastructure installed and maintained by school maintenance contractors
- Relatively high initial cost of billboards & wall painting
    - Spaza shop renovation ~R12 000 fee per spaza
    - Stencil work on walls ~R4 000

11.1.2Model 1b: Branding of the school

Examples of spaza shop and school branding are shown in Figure 22, Figure 23 and Figure 24. The concept of school branding is as follows:

- Different tiered 'branding package' options, to suit various budgets
- Could include:
    - Paintwork on high visibility walls, similar to spaza shop branding
    - School signage endorsed with brand
    - Branded products for schools (e.g. stationery)
    - Sports field branding

- Team sponsorships, where applicable (branding on clothes, etc.)

- Brand benefits:
  - Advertising exposure to school & local community (learners, teachers, parents, passing traffic)
  - Opportunity to gain consumer data from this market through focus groups and surveys within the school community
- Association with the school will only be desirable if school looks visibly well-maintained

Figure 22 Spaza shop before/after branding (Source: https://megavisionmedia.co.za/township-branding)

Figure 23 School bus with advertising on the side (Source: https://www.nytimes.com/2012/02/17/education/texas-schools-turn-to-ads-in-search-of-needed-money.html)

Note there are restrictions on what brands can advertise on school property in South Africa – soft drinks/junk food brands would not be permitted.

Figure 24 School sports field scoreboard with branding. (Source: http://www.herinst.org/BusinessManagedDemocracy/education/commercialism/index.html)

11.1.3Branding of the maintenance contractors

In addition to advertising on school property, or branding the school, the school toilet maintenance contractors themselves could also be 'branded' – e.g. 'Company A Clean Team'. This would provide advertising exposure for Company A – branded vehicles, clothing, paperwork, etc. – and also boost brand image with the clear link to supporting school sanitation. It would also mechanisms to be built in to guarantee the performance of the maintenance contractors – they would lose the branding and funding if they performed sub-standard work.

11.1.4Business model

The advertising model could be implemented as a standalone revenue-generation model by the DBE with specialist contractors employed for implementation, and the revenue raised supplementing maintenance budgets. Alternatively, the revenue-raising model could be joined to the O&M model in a particular school district. This is explore further in this section. Figure 25 takes the basic O&M model described above (Figure 19) and adds to it to show the additional stakeholders of the private sector brand and advertising agency and how the money and services would flow between all stakeholders.

The managing contractor would be responsible for enabling access to a cluster of schools, for coordination with schools and the PED, and for installing and maintaining advertising on school premises. For these services they would receive a fee from the brand, or a rebate from the marketing company if the brand was using one.

The school would benefit from subsidised operation and maintenance and capacity building, but part of the fee/rebate might also go to the school as a payment for hosting the advertising space.

The branding model may provide additional benefits to the brand compared to the simple advertising model, as it would enable more of a relationship between the school and the brand, and part of the agreement could be access by the brand to the school community to carry out focus groups to gather consumer data.

Table 9 provides an indication of costs and potential income for schools for the advertising/branding models. The spaza shop model does not appear to hold great potential, as spaza shops do not normally receive regular revenue from the arrangement. For a brand to justify paying a school a monthly fee for being branded, the school branding would have to offer demonstrably greater benefits to the brand than the branding of a spaza shop in the same community.

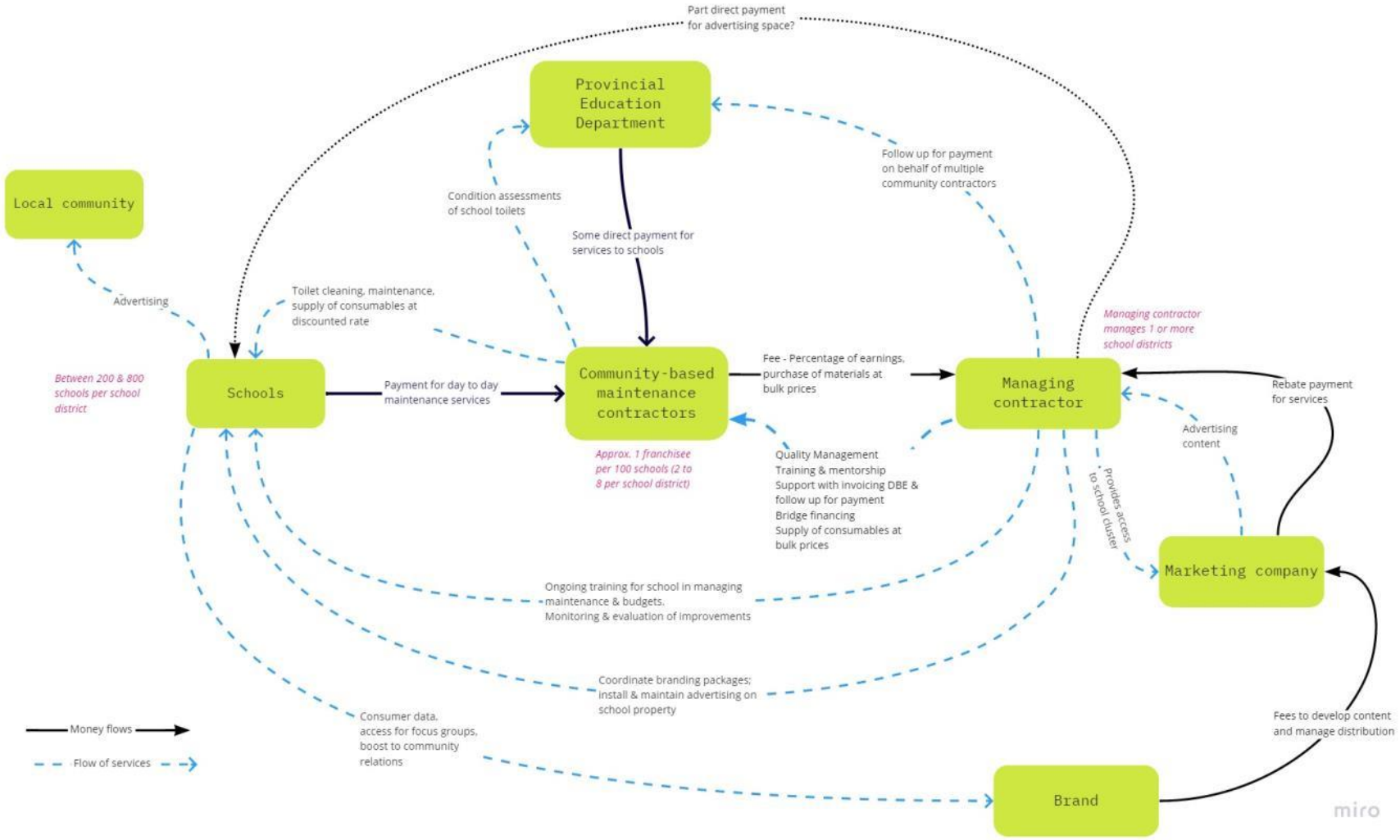


Figure 25 Model 1: Advertising and/or branding

Paying rental for discrete forms of advertising – e.g. a billboard on school property in a high traffic location – does seem to have some potential. The legislation surrounding what brands are allowed to advertise in a context where learners are exposed to the adverts, and the DBE's position in general on school-hosted advertising still need to be clarified. This issue was discussed with the DBE and a representative from the private sector, but we were unable to resolve the issue in the time available for this study.

Table 9 Cost indications and potential school income for the advertising/branding models

Media	Cost to brand	Rebate	Possible income for school
4 x 3 m billboard	~R6 000/month rental paid to company that owns the billboard	10-20% of rental goes to owner of property hosting billboard	R600-R1200/month per billboard
1 m x 30 cm branding board in store (e.g. Makro)	R130/month/board rental to the store/school	5-25% of rental goes to media agency managing the boards	Question over if would be applicable for a school R50/month/board?
Spaza shop branding – paintwork & signs	~R12 000 once-off fee to media company, per spaza	Spaza receives renovation + ~R500 once-off cash payment, no monthly income	Limited, unless school offering far higher Return on Investment compared to spazas

11.1.5Benefits to stakeholders

Table 10 summarises the benefits of the advertising/branding models to the different stakeholders involved.

Table 10 Model 1: Benefits to different stakeholders

School	Local community	Brand	Managing contractor	Community contractor	Marketing company
• Subsidised quality maintenance of toilets • Relationship with a business • Additional benefits from branding packages (e.g. free branded products)	• Job creation – community maintenance contractor	• Advertising in a high traffic area • Opportunity for consumer data via focus groups at school • Relationship with school • Builds community relations	• Income to subsidise school toilet maintenance • Business diversification	• Additional income from advertising maintenance work • Additional skills training	• Fees for creating advertising content & managing distribution

11.1.6Additional considerations

The following should also be taken into account in relation to the advertising/branding model:

- Billboards and wall painting have relatively high up-front costs

- Spaza branding model (paintwork only) does not result in regular advertising income for spaza – the school branding model needs to offer additional benefits to brand to justify a monthly income from it
    - The school branding model offers more opportunity for consumer data collection (via focus groups with parents) than spaza branding model, but this is unlikely to justify a monthly fee to the school
    - Note that carrying out focus groups including school staff members would definitely require permission from the DBE, and potentially permission would also have to be sought for carrying out focus groups with parents, if hosted by the school.
- Advertising audiences will vary substantially by school – depending on the size of the school and its location – and it is difficult to measure the impact of the school-hosted advertising
- The brand's association with school will only be desirable if school looks visibly well-maintained
- Ethical considerations:
    - Legislation that governs what advertising is permitted when a high proportion of the audience is children needs to be further investigated;
    - The impact on learners, even if a particular brand is theoretically allowed to advertise on school property?
- The Department of Education's view on school advertising / branding needs to be ascertained

11.2 Model 2: Wi-Fi – Advertising and Consumer Data Collection

Mobile data is relatively expensive in South Africa. Consumers realise that free data means they can then afford to spend more on other things – for example, consumers have been known to pay for a more expensive gym membership because they compensate by making sufficient savings through using the free Wi-Fi available at the gym (K. Power, pers. comm. 26 Nov 2020). The opportunity exists for a brand to 'own' a public free Wi-Fi hotspot and use the platform for advertising and consumer data collection. The model is well-established, e.g. Google Station's free public Wi-Fi hotspots in South Africa (now sold to Think Wi-Fi), but has not been implemented in the school context.

11.2.1 Wi-Fi model

Figure 26 and Figure 27 give an idea of the customer's experience when accessing the free public Wi-Fi. The initial access page would be branded. On clicking through to access the free Wi-Fi, the customer would watch a short advert, or series of adverts. Alternatives could include inserting a short customer survey, a poll, *Corporate Social Investment* (CSI) message or public health announcement in place of the advertising. Wi-Fi access could also be made contingent on having purchased a product from a particular brand, with a Wi-Fi access code granted after purchase.

Figure 26 Access page to free public Wi-Fi with brand's logo

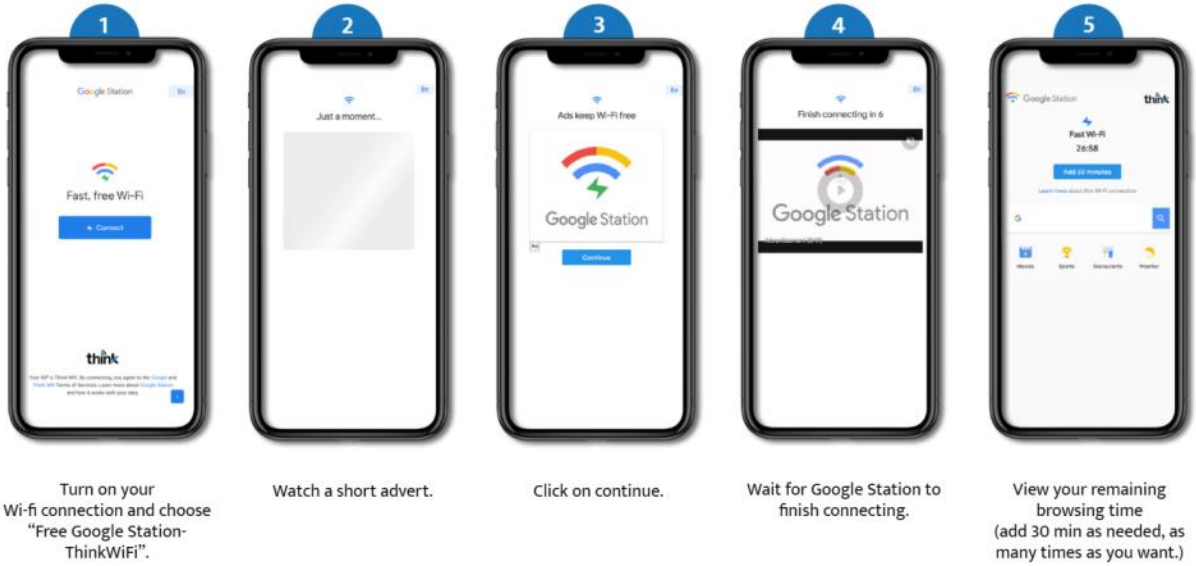


Figure 27 Example customer experience logging into free public Wi-Fi (Source: Think Wi-Fi)

The concept of the Wi-Fi model for schools is as follows:

- Wi-Fi hotspot hosted by a school – high speed LTE
- Plug & play solution
- Hardware cost: approx. R2000
- Free Wi-Fi for the school (capped)
- Free public Wi-Fi (daily cap on data and no. of users)
- No registration/passwords required – frictionless access
- **Advertising** on public Wi-Fi access screens
- Option of completing a survey/poll to access Wi-Fi – **gathering consumer data from hard-to-reach markets**

11.2.2Business model

The Wi-Fi model could be implemented as a standalone revenue-generation model by the DBE with specialist contractors employed for implementation, and the revenue raised supplementing maintenance budgets. Alternatively, the revenue-raising Wi-Fi model could be joined to the O&M model in a particular school district, using the same contractors to implement both. This is explored further in this section. Figure 28 takes the basic O&M model described above (Figure 19) and adds to it to show the additional stakeholders involved in the Wi-Fi model and how the money and services would flow between all stakeholders.

The key points are as follows:

- The brand would pay for the hardware costs and pay for a capped monthly data package. The brand would either develop and distribute their own advertising content or pay a marketing company to do this;
- The managing contractor would be responsible for liaison with schools and the PED, the installation and maintenance of the Wi-Fi hardware, and for purchasing and distributing the monthly data packages. They would receive a fee for these services from the brand, which would subsidise their sanitation operation and maintenance activities;
- The school would receive free Wi-Fi with no advertising and a capped monthly data allowance;
- The general public would be able to access free Wi-Fi (capped) with advertising;
- The public could also have the option to purchase more data from the school tuckshop (or a spaza shop located adjacent to the school). The managing contractor would make a small commission on purchasing and re-selling data to the shop, creating additional revenue to subsidise the O&M activities;
- The inclusion of a shop of some kind in the model – school shop accessible to the public or a spaza shop – would have multiple benefits:
    - A place for Wi-Fi users to sit and use the free Wi-Fi;
    - Opportunity to make Wi-Fi access contingent on purchasing a product from the brand (purchase would give the customer an access code for a certain amount of data);
    - Opportunity to sell additional data and increase revenue for the managing contractor.

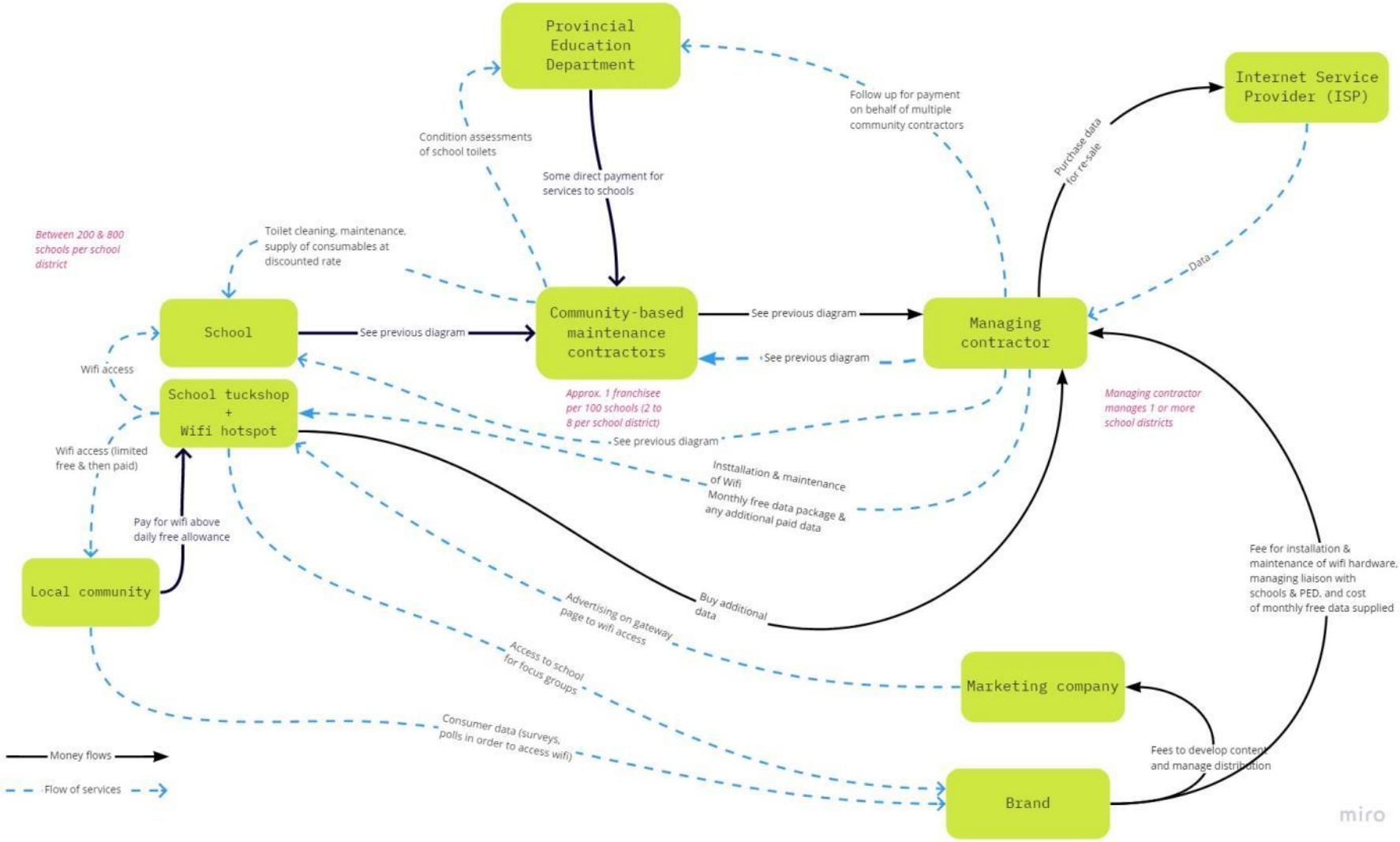


Figure 28 Model 2: Wi-Fi – advertising and consumer data collection

11.2.3Benefits to stakeholders

Table 11 summarises the benefits of the advertising/branding models to the different stakeholders involved.

Table 11 Model 2 Wi-Fi: Benefits to different stakeholders

School	Local community	Brand	Managing contractor	Community contractor	Marketing company

• Free wifi
• Subsidised quality maintenance of toilets
• Relationship with business
• Opens up possible partnerships with tech firms
	• Free wifi
	• Job creation
	  • School tuck shop
	  • Community maintenance contractor
	• Greater likelihood of caregivers bringing learners to school?
		• Advertising on own branded platform, with guaranteed, measurable view numbers
		• Consumer data
		• Good publicity: increased Net Promoter Score (NPS)
		• Relationship with school
		• Builds community relations
			• Income to fund school toilet maintenance:
			  • Income from brand for managing wifi installations
			  • Percentage income from resale of data
			• Business diversification
				• Additional income from wifi work
				• Additional skills training
					• Fees for creating and managing advertising content
					• Potential for replication at scale

11.2.4Additional considerations

The following should also be taken into account in relation to the Wi-Fi model:

- Learners' access to and use of Wi-Fi would have to be managed
- Free Wi-Fi will mean the public will congregate around school: how to manage this?
    - School shop, open to public: additional income for school from sales of products and data
    - Brand's products could be sold at discounted prices (e.g. on condition of filling in a survey)
    - Security implications of general public congregating around the school
- Brand's association with the school will only be desirable if school looks well-maintained
- Alternative option to Wi-Fi hotspot – Wi-Fi tower, 2km radius of coverage. Sell data for in-home use: wider audience but higher up front equipment costs. This model is already implemented at rural spaza shops.

The Wi-Fi model offers much more targeted advertising than the basic advertising model described earlier in the report. It avoids the issues of learners being exposed to advertising on school property. Advertising views are guaranteed and are measurable. The consumer data collection opportunity from hard-to-reach markets is huge. The Wi-Fi model could also be used in combination with one or more of the other models described in the sections that follow.

11.3 Model 3: Increasing Product Sales to the Local Community

A number of possibilities exist in the school context to boost a brand's product sales. All the options listed below could be add-ons to the other models described here. The possibilities include:

- Supplying the brand's cleaning products and consumables (e.g. toilet paper, soap) to schools: the managing contractor buys in bulk at a discounted price and sells on to schools as part of maintenance package at a better rate than they could get elsewhere

    - Schools benefit from reduced costs
    - Brands benefit from exposure, potential creation of brand loyalty and good public relations
- Add-on to the Wi-Fi model: offer Wi-Fi vouchers if the brand's products are purchased by public at the school/local shop;
- The school or local shop could stock only brand's products and offer a discounted rate for them, thus encouraging the creation of local community brand loyalty;
- Supply some free initial product to the school to foster brand loyalty – this was part of the Domestos Janitor programme but the outcomes in terms of creating brand loyalty are unknown.

The next model, relating to Broad-Based Black Economic Empowerment (B-BBEE), could also be used in combination with another model.

11.4 Model 4: B-BBEE Compliance

An analysis was carried out of whether a brand could work with the outsourced school sanitation O&M model to achieve meaningful outcomes relating to their B-BBEE scorecard, as this might be an added motivation for investment. As part of this work a BEE Consulting firm was engaged with, to advise on specific aspects of the model. Entities are measured against five elements to determine their B-BBEE level. These are summarised in Table 12. The elements that are relevant to the school sanitation O&M model are SD, Enterprise and Supplier Development and Socio-Economic Development.

Table 12 B-BBEE Elements (Source: Pascal Lagesse, BEE Compliancy)

ELEMENT	Description
Ownership	Who owns the business – Shareholders / Members
Management Control	Black managers at Executive, Senior, Middle and Junior management
Skills Development	Training of Black people
Enterprise & Supplier Development	Who you buy from? Assisting 51% Black owned small entities
Socio Economic Development	Assisting charity organisations with Monetary and Non monetary contributions

11.4.1Skills Development

To earn points under *Skills Development* (SD), entities are required to spend 3.5% of their total annual salary and wages bill on learning programmes for Black people. This includes external training expenditure on unemployed Black[8] people.

The possible application to the school sanitation O&M model is as follows:

- Train unemployed community members, who can then seek employment with the school community maintenance contractors (and/or start their own business);
- The managing contractor could implement the training and receive the SD funds from the brand;

[8] 'Black' is as defined in terms of the B-BBEE Act:
"Black people is a generic term which means Africans, Coloureds, Indians and Chinese –
- Who are citizens of the Republic of South Africa by birth or descent; or
- Who became citizens of the Republic of South Africa by naturalization before 27 April 1994; or
- On or after 27 April 1994 and who would have been entitled to acquire citizenship by naturalization prior to that date"

- Option for Learnerships (must be accredited with SETA (*Sector Education and Training Authority*) and Apprenticeships;
- 12 out of 20 points available;
- B-BBEE 'Package' offered to the brand – easy to invest in and genuinely meaningful outcomes;
- Managing contractor designs and runs training programme, recruits candidates;
- Managing contractor provides all documentation required to certify SD spend:
    - Agreement between learner, training entity and brand
    - List of SD spend and learnerships
    - Copies of certificates, invoices and payments
    - ID of learners and signed learnership agreements
    - Proof of registration of student for learnership/apprenticeship
- Pathway to job opportunity with community O&M contractor
- The training programme could be **branded** – good advertising & community relations (see Section 11.1.3 above).

11.4.2Enterprise and Supplier Development

The objective of *Enterprise Development* (ED) is the development, sustainability, financial and operational independence of the beneficiaries. Beneficiaries must not be suppliers of the entity being measured for B-BBEE compliance. To earn points, entities are required to spend 1% of their Net Profit after Tax, in order to earn 5 points.

Opportunities include:

- Grants
- Direct costs incurred in support of beneficiary
- Discounts (in addition to normal business practice)
- Overhead costs incurred in supporting the beneficiary
- Loans to the beneficiary
- Professional services rendered at no cost / at discount
- Time of employees of entity, productively employed in assisting beneficiaries

The option for Learnerships exists, but they must be accredited with SETA, and Apprenticeships. 5 out of a possible 42 or 33 points are available (the total number of points depends on the entity's turnover).

The considerations and possible opportunities for the school sanitation O&M model are:

- The Enterprise Development beneficiary must be a business, 51% black-owned and turnover of <50 million;
- The brand pays for the training of community contractors on how to run a business;
- The brand pays for community contractor job-specific employee training;
- The managing contractor to carry out the training (again could be branded training programme);
- The brand donates school cleaning products/consumables (or sells at a discount) – they can claim the (retail) value of the donation/discount as ED spend;
- The brand pays the managing contractor to develop business plans for community contractors and for business mentorship;
- The brand could also contribute business mentorship time from own staff;
- Note: ED funding is more applicable to assist with the setup costs of the O&M model, rather than ongoing support to school O&M.

11.4.3 Socio Economic Development (SED)

Socio Economic Development (SED) contributions consist of monetary or non-monetary contributions implemented for communities or persons where at least 75% of beneficiaries are Black people. The objective is the promotion of sustainable access for beneficiaries to the economy. To earn points, entities are required to spend 1% of their Net Profit after tax on qualifying SED beneficiaries, in order to earn 5 points.

Projects supporting development of educational infrastructure do qualify (they fall under the list of project types that have been approved by Government) – this would include the school sanitation O&M model.

The possible opportunities for the school sanitation O&M model include:

- The school could be recipient of SED funds, or potentially the managing contractor if it was set up as a non-profit;
- If the school was an SED beneficiary:
    - More than 85% of scholars should be deemed as Black South African, as defined by B-BBEE codes
    - Independent report by authorised & competent person to confirm percentage of Black beneficiaries
    - School to issue letter of thanks to sponsoring entity
    - SED Affidavit
- School could use SED funds to pay for maintenance services
    - Require documentation to show funds used for that purpose
    - **Spending must be traced**
- Greater potential for ongoing subsidising of maintenance costs, after initial start-up

11.4.4 B-BBEE summary

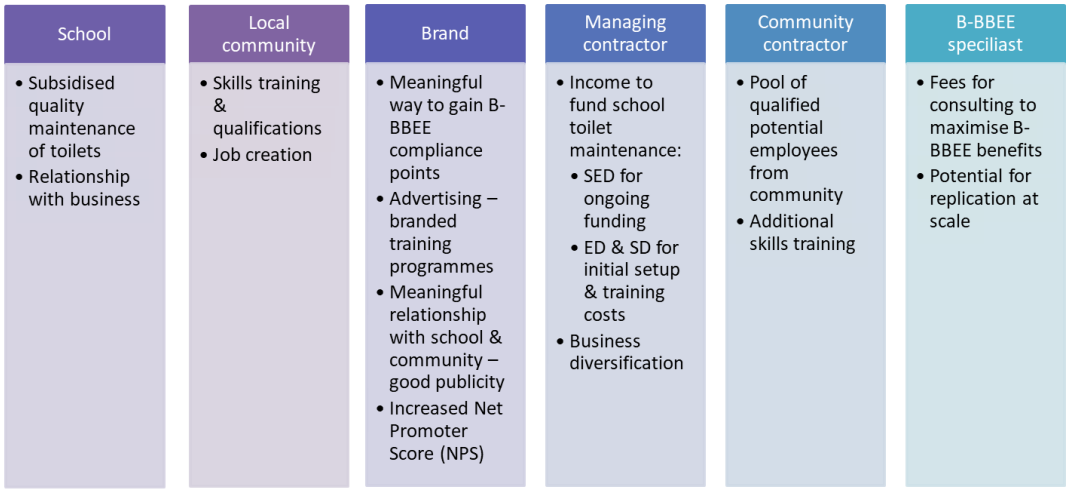
The managing contractor could potentially offer an attractive B-BBEE 'package' to firms:

- **Skills Development (SD):** training for unemployed community members;
- **Enterprise Development**: business training & mentorship; donation/subsidised cleaning products;
- **Socio Economic Development**: ongoing funding for schools to pay contractors for toilet maintenance;
- Provide an easy option to invest in;
- Outcomes verified and measurable: both the direct beneficiaries and the knock-on impact on the schools;
- Branded training programmes – additional publicity and good feeling generated about the brand;
- All paperwork checked by verification firms to confirm that all funds used as per legislation.

11.4.5Benefits to stakeholders

Table 13 summarises the different possible benefits to each stakeholder from a brand working with the school sanitation O&M model to gain B-BBEE compliance points.

Table 13 Model 4: B-BBEE benefits to different stakeholders



11.5 Model 5: Corporate Social Investment (CSI)

CSI or charitable giving is the final model that was considered. In the past, CSI associated with school sanitation has consisted primarily of once-off donations to fund the building of new toilets. This section considers how CSI could be used to support O&M activities instead.

11.5.1 Legislative aspects

The King Report on Corporate Governance, also known as the King Code, consists of guidelines for the governance structures and operation of companies in South Africa and is issued by the King Committee on Corporate Governance (copyright owned by Institute of Directors in Southern Africa).

Compliance with specific aspects of the King Code is a requirement for companies listed on the Johannesburg Stock Exchange (including a requirement for social and ethics committees), the rest of the Code is on an 'apply or explain' basis.

Firms are required to implement a 'six capitals' / 'triple-bottom line' approach – i.e. companies should focus as much on social and environmental concerns as they do on profits. However, there are not specific regulations on charitable donations under the King Code.

11.5.2 CSI and the school sanitation O&M model

CSI does not require tracking of spend in the same way that SED spend for BEE compliance does. The following factors may influence a brand's choice of beneficiary:

- Personal link to someone at the company;
- Biggest reportable 'impact' for a given investment (e.g. high numbers of schools impacted on a little bit, rather than one school impacted a lot);
- Can the giving be linked to tangible, measurable outcomes (e.g. textbook supply to improved pass rates)?
- Opportunities for good publicity.

Examples of measurable outcomes for improved school sanitation include:

- Improved school attendance (especially girls beyond puberty);
- Improved learner/educator satisfaction with infrastructure;
- Number of toilets in a suitable condition for safe & hygienic use;
- Additionally it can be emphasised that increased numbers of available toilets have been achieved without building new toilets

It might be possible to combine an element of CSI with another of the models discussed which generates some return for the brand. In general though, a more sustainable model would seem to be where the private sector gets some kind of commercial return for its investment in school sanitation, in addition to just good publicity.

The recognition of the investment or donation needs to be packaged cleverly – the private sector needs to show impact for their CSI spending and/or return on investment (e.g. rise in sales from advertising).

CSI was included for consideration under this study as it is a significant way that the private sector currently supports education generally and school sanitation specifically. However, the sustainability of CSI in relation to O&M activities, which have no end point, is questionable. CSI could potentially be used to provide support for a fixed-term period, in order to establish O&M systems which are ultimately self-sustainable without external support.

12 CONCLUSIONS, KEY RECOMMENDATIONS & FURTHER WORK

12.1 Conclusions

This study investigated in detail just one of the factors that contribute to the failure of sanitation operation and maintenance at South African schools – the lack of available funds to pay for O&M activities. The study considered the overall DBE budget and the guidelines for budgeting for O&M at the provincial level and school level and compared these figures against actual reported spending on O&M. The real costs per learner to adequately maintain school sanitation systems were also estimated, and compared against PED and school budgets and reported spending.

The results of the study indicate that the principle issue, as far as school sanitation O&M is concerned, does not appear to be the overall size of the DBE budget, although the budget per learner has decreased in real terms over the last 12 years. The cost of adequately maintaining school sanitation systems is estimated to require only 0.5% of the total DBE budget. Note that this does exclude the cost of school cleaners' salaries and utilities, which are clearly critical to well-functioning sanitation systems.

The more serious issue appears to be that insufficient funds are allocated to sanitation maintenance, both at provincial and school level. There are several aspects to this:

- At provincial education department level, the reported proportion of funding allocated to general infrastructure maintenance seems low, although it was not possible to get this information for all provinces.
- There is no specific allocation in PED budgets to *sanitation* maintenance.
- Each province issues different guidance to schools on what proportion of their Norms and Standards grant should be spent on maintenance.
- Again, there is no specific guideline given on an allocation to sanitation maintenance.
- Schools are not spending on maintenance in line with the budget guidelines.

Sanitation should be one of the top priorities for schools. If there are no functioning toilets, how can the other activities of a school take place? Budget allocations for sanitation maintenance should be made mandatory at both provincial and school level and checks put in place to ensure that this happens.

A second issue with the funding for school sanitation maintenance is that funds are often not used as effectively as they could be. Maintenance work is not planned well and therefore small issues quickly become large, expensive issues to resolve. Poor maintenance results in high utility bills due to water leaks. The quality of maintenance work carried out by contractors is not always acceptable but schools have little capacity to check the quality of work and demand rectification – particularly when the contractor is appointed via the district office or PED rather than by the school directly. O&M systems need to improve and skills built at the school level for O&M work to be carried out more cost-effectively.

Thirdly, funds are often delayed in arriving where they are supposed to. Both schools and contractors report long delays in receiving payments from PEDs. This means schools are unable to pay for maintenance work and contractors that work directly for PEDs are put under severe financial strain or go out of business completely.

Systemic change within the DBE and PEDs is needed to solve these issues, but this will take time. This study found there was a good case for raising external revenue from non-DBE sources to fund O&M activities at schools. The use of external revenue to pay for O&M has several advantages, including

the accessibility of the funding, avoiding delayed payments, supplementing budgets so that sanitation can be attended to properly without neglecting other areas of school life and presenting opportunities for ring-fencing funding and building performance clauses into contracts that is not possible with DBE funding.

Five different models for raising external revenue for sanitation O&M were developed under this study and reviewed with stakeholders working in the sector, including the DBE and representatives of private sector entities. The models were based on schools offering a product or service (for example advertising space and access to consumer data) in return for fees. The most promising model is based on a school hosting a free public Wi-Fi hotspot, with Wi-Fi access exposing the user to advertising and/or requiring them to complete a market research survey. A company would own the hotspot and pay for a capped free monthly data package. Additional data could be sold to the public with a small mark-up to raise revenue for O&M activities. Companies benefit from advertising with guaranteed views and from collecting consumer data from hard-to-reach markets. Schools benefit from a free Wi-Fi allowance for their own use and from increase funding for O&M.

Other models were based on other forms of advertising on school property, increasing product sales, supporting firms with B-BBEE compliance and novel Corporate Social Investment opportunities. The majority of the models could be used as standalone revenue-raising models, with the income raised coming back into general O&M budgets. However, the revenue-raising models could also be implemented in combination with a new model for O&M. The O&M model is based on a managing contractor having overall responsibility for sanitation O&M at all schools in a district, and managing various small community-based contractors who would carry out the work at schools. The managing contractor could, in parallel, manage the revenue-raising activities – for example installing and maintaining Wi-Fi hotspots at schools.

Outsourcing O&M of school sanitation to the private sector and raising additional external revenue to pay for it could solve some of the issues that contribute to the current failure to maintain school sanitation systems. Outsourcing of O&M activities will, however, face procurement challenges, because of the nature of O&M work. Whilst a natural monopoly may exist for O&M (i.e. the most cost-effective solution being one managing contractor servicing an entire district of schools and overseeing a number of community-based contractors, rather than multiple contractors competing for maintenance work), this is not something that current procurement systems can easily grant and it does risk exploitation. Long or repeatedly renewed contracts are also challenging with current procurement rules, but are needed for efficient, cost-effective O&M. These issues need to be tackled at National Treasury level.

Systemic change is required to address the problems of ‘Will’, ‘Skills’ and ‘Bills’ that plague the O&M of school sanitation systems. The following section lists the key recommendations arising from this study.

12.2 Key Recommendations

The following key recommendations are made from this study:

1) The concept of raising external revenue to fund sanitation O&M should be further explored by running a pilot of the most promising model – the public Wi-Fi model – at a school. Costs, logistics, take-up and revenue-raising potential can then be realistically assessed. It would also give a realistic idea of whether the activity could feasibly be implemented together with the O&M contracting model or whether the revenue-raising model should be kept separate to the on the ground O&M activities.

2) There should be mandatory, realistic, allocations in both PED and school budgets specifically for sanitation O&M.
3) PED and school spending on sanitation O&M should be specifically audited. Spending on sanitation cleaning and maintenance should be a mandatory category in expenditure reports.
4) Mechanisms need to be found such that the salaries of school cleaners are guaranteed and in place for the long-term. More cleaners could be funded through the EPWP, removing the burden from school SGBs, however change would be needed to reduce the administrative burden and to guarantee that the EPWP would fund the positions continuously.
5) The procurement issues that arise in relation to outsourcing O&M activities should be discussed with National Treasury and the GTAC. Ways would need to be found of modifying the existing procurement rules for legitimate reasons to enable O&M work to be contracted out efficiently.
6) Consideration should be given to redirecting maintenance funding from schools and PEDs to a DBE-owned entity set up specifically to manage school maintenance. The entity could be a *Programme Management Office* (PMO) of the DBE, potentially falling under the existing SAFE programme. An external third party could be contracted to manage the Programme Management Office, on a performance basis, for the DBE. This PMP could also be responsible for running programmes to generate external revenue to supplement DBE funding for O&M.
7) Although this study dealt primarily with the 'Bills' issues, and to some extent the 'Skills' issues that cause O&M to fail, the issue of lack of 'Will' – the knowledge and values that produce vision which in turn generates drive and commitment – is of critical importance. Continued efforts are needed at all levels to instil a will and a sense of urgency to solve the failure of school sanitation O&M.

12.3 Areas for Further Work

There are a number of areas where further work was indicated as needed by this study. These include:

- Determining better estimates of the actual costs of school sanitation O&M and refining the R97.90/learner/year figure proposed by this study. One approach to this would be to interview well-resourced and well-maintained schools to understand the demands on the maintenance budget and actual spending on different areas.
- Further analysis of PED budgets to improve understanding of how budget allocations are made across different provinces and why the minimum no fee threshold is not always met.
- Understanding the DBE's position on any form of advertising on school property, and the legalities of this.
- Development of the Wi-Fi model into a costed proposal for a pilot at a school.
- Researching how the employment and funding of school cleaners works, and why there is a lack of consistency about who employs them.
- Determining typical utilities costs per learner per year for school sanitation, for different sanitation types.

It is the project team's sincere hope that this study will contribute to improving the operation and maintenance of sanitation systems in South African schools.

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