International Journal on Management Education & Emerging Technology
ISSN: 2583-9438

Poor Infrastructure Maintenance In Public Schools: Twenty-Eight Years Into Democracy In South Africa

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Abstract

The South African Government's Comprehensive Rural Development Programme (CRDP) was launched in August 2009 by government with the specific aim of assisting rural communities realise their socio-economic livelihoods through government support. Bushbuckridge Municipality was identified by former president Thabo Mbeki in 2009 as an area that qualified for CRDP intervention by government due to its high poverty levels. This implied that even provision of educational resources by the government was going to be informed by the status of the municipality. The research focused on the poor state of school infrastructure in Ximhungwe Circuit, Bohlabela district, Mpumalanga province.

Article Info

Keywords:
Management, Maintainance, CRDP, School

Date of Submission: 16/1/2024
Date of Review: 22/02/2024
Date of Acceptance: 3/03/2024
IJMEET / Volume 2, Issue 1, 2024

INTRODUCTION

School infrastructure creates and defines the milieu of the learning and teaching processes. According to Daramola, Olutola & Ogunjimi (2017), the school environment is an essential factor to be considered in a child's ability to learn. The school environment comprises of the staff and learners, and physical resources, also referred to as education infrastructure which comprises of items such as the school buildings; playgrounds; social amenities such as tennis courts, soccer and netball fields and other sports amenities; facilities like laboratories, libraries, ablution blocks, school halls and assembly areas, among others. According to Ngailo (2019), school setting, which includes classrooms, libraries, technical labs, and laboratories, as well as teacher quality, school administration, teaching methods, and peers, are all factors that influence a student's academic success. Shuaibu (2016) points out that it has been established that school infrastructure which includes, buildings; furniture; and equipment have quite an impact on the teaching and learning process, which ultimately leads to the achievement of stated objectives. It can therefore be argued that there is a relationship between school infrastructure and learner attainment levels.

The focus of the article is poor maintenance of school infrastructure in public schools, with specific reference to the prevalence of this problem in Ximhungwe Circuit in Bohlabela District in Mpumalanga province. According to the Bohlabela District Infrastructure Priority List for 2020/21 (2020), a number of indicators of poor maintenance of school infrastructure can be identified in the schools in the circuit. Among the indicators are broken window glass that is left unrepaired for very long periods; dilapidated classrooms; dirty classrooms floors and walls; dirty windowpanes; unkempt buildings

surroundings; poorly maintained school yards and broken furniture. The Department of Basic Education (DBE) conducts oversight annually on the functionality of school Governing Bodies (SGBs) by means of a tool, entitled the SGB Functionality Tool (2020), to ascertain if SGBs are meeting the expectations of the department on their obligations towards schools. Section C of the SGB Functionality Tool (2020), deals with assets and requires each school to have a maintenance plan which should address the areas identified above as possible indicators of poor maintenance of school infrastructure. The maintenance plan adopted by each school is supposed to have time frames for implementation of the various activities. The time frames indicated in the school's maintenance plan are an important determinant of whether maintenance is overdue or not. For this reason, this article will also establish if there are any contextual factors that may be contributing to delays in effecting repairs or upgrades to school infrastructure where and when they are needed.

The purpose of this article is to identify factors that contribute to poor infrastructure

maintenance in public schools in Ximhungwe Circuit and investigate the impact it has on learning and teaching. Barrett, Treves, Shmis, Ambasz, & Ustinova (2019), argue that the condition of school buildings has a direct impact on teaching and learning. They looked at the relationship between school infrastructure and teaching and learning processes. According to Barret et al. (2019: 13), a school building that is disintegrating due to the absence of restoration impairs both teaching and learning, making it even more difficult to achieve the highest level of academic outcomes attainable.

LITERATURE REVIEW

The NMNSSI are a product of section 5A (1) (a) of the South African Schools Act (1996). Regulation 8 (1) of the NMNSSI speaks of an enabling teaching and learning environment which consists of three essential areas, namely: education areas; education support areas and administration areas. The National Minimum Norms and Standards for School Infrastructure are meant to prescribe the specifications, for example: space sizes, design, and quality, of the facilities that must be available at school in order to ensure an enabling environment. The facilities referred to in this paragraph are the ones identified in the paragraph above as identified by SASA (1996). According to the NMNSSI the following are the minimum standards per category of school infrastructure identified under section 5A of SASA:

Classrooms

The minimum operating space for a learner in grade R is set at 1.6m2 while a teacher in the same

grade should have 7m2 working space. This implies that the number of learners has to be limited to the available classroom space which should also accommodate the teacher. For grades 1 to 12 classes, each learner should have 1m2 space while the teacher should have 7m2 working space. Learners with disabilities are allocated 2m2 operating space. The prescribed maximum number of learners in a grade R class is 30 learners or less while in all other grades the maximum learner-classroom ration should be 1:40.

Electricity

The most important consideration in the NMNSSI is that all schools should have some form of power supply (electricity) which can be obtained through connection to a power supply grid, using a generator, solar or wind power. According to a report by the United Nations Department of Economic and Social Affairs (UNDESA), electricity can have a number of benefits for schools, such as enabling schools to operate during the dark hours of the day and offering access to ITC

equipment in the classrooms such as computers and television sets. The report notes that one of the notable impacts of school electrification has been the reduction of illiteracy and improving the quality of education (UNDESA: 2014). However, the report notes that there are some challenges that come with the supply of electricity to schools.

Water

The NMNSSI (2013) stipulate that every school should have sufficient water supply for drinking, personal hygiene and cooking, where applicable, which could include a variety of sources such as municipal reticulation, boreholes, reservoirs, rain water harvested by means of a system installed at the school or mobile tankers.

In order to ensure continued supply of water to the school community, the local reticulation system on the school premises has to be maintained by the school. Failure to carry out proper maintenance of the water supply system could result in loss of valuable water due to leaking pipes and badly connected installations.

Sanitation

According to the NMNSSI (2013), the minister has to ensure that all schools have a sufficient number of sanitation facilities that are accessible to all learners and educators and offer privacy and security and promote health and hygiene. It is further indicated that the most suitable sanitation technology must be selected for a school, based on an assessment conducted prior to the provision of such facilities. It is important to note that pit toilets and the bucket system are not allowed at any school in South Africa, they are banned by Regulation 12 (4) of the NMNSSI (2013).

Library

The norms and standards prescribe that all schools must have a library that must be replenished regularly with the necessary library materials according to the needs of a particular school. The library can be any or more of the following; a mobile library, a classroom library, a central or cluster library or a school community library.

Laboratories for science, technology, mathematics and life sciences

It is a requirement that all schools that offer science subjects have laboratories that are designated for those subjects. Given the potential hazardous nature of the materials that are kept in laboratories, it is expected that apparatus be kept in lockable facilities within that laboratory. According the NMNSSI (2014) the laboratory can either be a mobile laboratory, a classroom, a container or a special building for that purpose.

Sport and recreational facilities

It is contemplated in the norms and standards that all schools should have sports and recreational facilities as well as amenities for physical education. The facilities that a school must have should depend on the type of sporting activities undertaken by the school.

Electronic connectivity

In order to enhance communication within the school and between the school and the outside world, the NMNSSI dictate that all schools should have one or more forms of electronic connectivity which can be wired or wireless in nature. The connectivity can include, among others; internet (including email), fax, telephone and intercom.

Perimeter fencing

It is expected that the premises of all schools should be surrounded by a perimeter fence of appropriate material; and which must be at leaste1.8 meters high. It is further expected that all school buildings must be installed with some form of security measures such as burglar proofing, a security guard arrangement or an alarm system. In order to comply with quality and safety standards the NMNSSI (2013) prescribe that all school buildings must meet the standards set by the National Building Regulations.

Having described in some detail what the National Minimum Norms and Standards for School Infrastructure are about, it is reasonable to conclude that all the facilities identified in the NMNSSI require maintenance for them to stay relevant for the purposes that they are meant. Lack of, or poor maintenance can result in compromised service delivery and also shorten the lifespan of the facilities.

The National Education Infrastructure Management System (NEIMS): launched in 2007

NEIMS (DBE, 2007) is an electronic infrastructure monitoring system developed by the Department of Basic Education in 2005 and came into operation in 2007. Its development followed a nationwide audit of education infrastructure in every single public school in South Africa. The audit was carried out in 2006 to determine the exact condition of education

facilities in each public school nationally. The NEIMS is a computer based planning and monitoring tool that enables DBE to plan for and monitor the condition of school infrastructure in all public schools in the whole country. It provides DBE with an eagles' eye view of the condition of all public schools in the country, per province, district and circuit. Through the NEIMS, the department has collected detailed information about every school, including the geographic location of the school with photos of the school premises showing the buildings and their condition (DBE: 2007). The electronic national database also provides information about the numbers of teachers and learners in each school and this information is updated continuously and annually as infrastructure projects are implemented to determine progress in implementation and need for development of new school infrastructure.

The relevance of NEIMS in this article can be explain with two reasons, namely; it is a national system and therefore it also captures the conditions of schools in Ximhungwe circuit and secondly, the system should be able to indicate where attention is needed for maintenance of school amenities in the circuit. However, the function of actual infrastructure maintenance does not rest with the National Department of Education. The Facilities Maintenance Guidelines for Public Schools (DBE: 2012) identifies three different levels at which maintenance should be carried out. These will be clarified under the next sub-heading of this chapter. The NEIMS can, therefore, be considered as a coordinating mechanism to assist provincial departments and schools to ensure that maintenance of school infrastructure takes place.

Facilities Maintenance Guidelines for Public Schools of 2012

The Facilities Maintenance Guidelines for Public Schools (DBE: 2012) present a comprehensive set of measures that should be followed by different role-players at different levels of the Department of Basic Education (DBE) to maintain school infrastructure. DBE acknowledges that the frequency of maintenance of school infrastructure is general unacceptable, leading to continuous deterioration in the long run. The South African Schools Act (1996) recognises two categories of schools for the purposes of the function of maintenance of school infrastructure, namely; section 21 schools and non-section 21 schools. Section 21 schools are schools that have applied for and been granted the function to "maintain and improve the school's property, and buildings and grounds occupied by the school, including school hostels, if applicable" (SASA: 1996). These schools receive funds from the department annually to execute this specific function which may include embarking on large projects. The SGB is responsible for the management and administration of the finances received from the department. On the other hand, non-section 21 schools are all the public schools whose role relating to school property maintenance is limited to administering and control of school property and buildings, as well as the grounds on which the school is established (SASA:1996). Maintenance at such schools happens on a small scale and is done by the school principal and the SGB form funds allocated to the school through the Norms and Standards for School Funding

According to SASA (1996), the role of the Department of Education is distributed among five important role-players, namely; the provincial department of education, the district office, the circuit, the School Governing Body and the school principal. The Act enjoins these role-players to "maintain and improve the school property and buildings occupied by the school" (DBE:2012). In reality, it is recognised that maintenance of school facilities is executed under the authority of functionaries at three levels, which are: the school principal and the SGB, the circuit and district management and the provincial directorate responsible for school infrastructure.

Maintenance management tools for both section 21 and non-section 21 schools

DBE (2012) provides that all schools have a number of choices that they can follow to carry out maintenance of school facilities. SGBs and school principals can use a number of service suppliers to carry out repairs and maintenance, including: • Choice 1: The local Public Works cost centre inspects the school and prepares a quote for approval; the school orders the materials; the Public Works cost centre provides labour, project management, and supervision to complete the repairs and maintenance;• Choice 2: The school obtains three quotations and hires a service provider to complete the work, which is funded by the school; Choice 3: Parents, students, or community members offer to do unpaid work to complete the work. • Choice 4: In situations where the provincial department has a term service contract in effect for maintenance services, the contracted service contractor performs the work and is paid either from the school's fund or from the provincial budget.

School maintenance managed by either circuit, district or provincial officials: Non-Section 21 schools

The Circuit, District, or Provincial management is responsible for the norms and standards expenditure allocation and functions, including maintaining and upgrading the land, facilities, and grounds occupied by the school, when the MEC has not delegated full responsibility to the school governing body under Section 21 of the South African Schools Act. To address the long-term neglect of school land, buildings, and grounds, Provincial Departments are expected to allocate a budget equal to 10% of the gazetted norms and standards allocation per learner for facility repairs and maintenance (DBE: 2012).

Mpumalanga Infrastructure Maintenance Plan (MIMP) of 2017

The Mpumalanga Infrastructure Maintenance Plan 2018/2019 provides a broad outline of the approach that the Mpumalanga Department of Education (MDE) would follow during the 2018/2019 financial year to maintain school infrastructure. The MDE (2017) outlines the purpose of a maintenance plan as being "to ensure optimum availability of a facility to enable service delivery". According to MDE, in order for a maintenance plan to meet its purpose, it has to consist of the following important aspects:

- It must enumerate all the components of the structure oramenity.
- It must show the intensity and maintenance priority of each component.
- The plan must indicate the maintenance approach to each component
- The plan must specify the actions required for each component to either:restore, repair, prevent failure or deterioration of the component.
- It must give an estimate of resources needed and the cost thereof.
- It must contain a schedule of maintenance actions based on the priority and importance of the component. It must also provide a budget for maintenance based on the priority and importance of the component.

Another purpose with maintenance is to sustain the reliability of a facility so that it can continue to deliver the service for which it was designed. Reliability means the availability of a facility for its purpose. For MDE, ascertaining the reliability of facilities is a matter of critical importance, hence a condition rating tool has been developed to assist the officials of the department to assess and rate the conditions of school facilities. The rating scale, shown in the Table 1 below, ranges from C1 to C5, with C1 indicating that the condition of a facility is at the worst level while C5 represents the best condition a facility can be in.

Table 1: Infrastructure condition rating scale

CONDITION AND RELIABILITY RATING FOR A COMPONENT				
Rating	**Condition**	**Reliability**	**Status**	**Action required**
C1	The component is unfit for use. There is immediate high risk to security, health and safety of property.	The component is unavailable	Very poor	Planned preventative maintenance
C2	The component has deteriorated badly. General appearance is poor with eroded protective coatings; elements are broken; significant number of major defects exists. Many disruptions to service capability, some risk to health and safety or property.	The component has limited availability and is impeding service delivery and performance of other components even when it is available	Poor	Condition based maintenance
C3	The component is in average condition, deteriorated surfaces require attention; services are functional, but require attention, backlog maintenance work exists. Frequent inconvenience to operations. Some risk to health and safety or property	The component's availability is limited. Unavailability is impeding service delivery and performance of other components	Fair	Repairs required

C4	The component has minor defects. The component exhibits superficial wear and tear and minor signs of deterioration to surface finishes. Intermittent, minor inconvenience to operations. Probability of risk to health and safety or property is slight.	The component is mostly available. Unavailability is not influencing service level and is not impeding service levels of other components	Good	Rehabilitation required
C5	The component has no apparent defects. Appearance is as new.	The component is always available	Excellent	Replacement required

Source: MDE (2017)

With a plan such as the one developed by the MDE, it is a cause for concern to see schools in Ximhungwe Circuit continue to be in a state of disrepair. While conditions in the different schools in Ximhungwe Circuit are not exactly the same, it has been noted that the level maintenance varies significantly from one school to another.

National SGB Functionality Tool: updated in 2017

Following the introduction of the South African School's Act 84 of 1996 the Department of Basic Education developed a tool to strengthen its monitoring of the efficiency of SGBs around the country. The instrument is titled SGB Functionality Tool. This is universal tool that monitors the general functionality school governing bodies in the country. section C of the tool The tool points the SGB to its function to develop a maintenance plan for the school (DBE: 2017). It is the expectation of the department that the SGB of each school should carry out maintenance activities in line with the maintenance plan adopted for the school. The SGB is mandated by SASA to adopt a number of policies for the school it governs and among the policies that each school should have is the Maintenance Policy.

The SGB support instrument is intended to give direction to School Governing Bodies in satisfying their jobs and duties as far as SASA is concerned regarding supporting education and learning in schools. For the purposes of this article, the area of focus that is also part of the functionality tool is "Maintenance and procurement of school assets" (DBE: 2017).

RESEARCH METHODOLOGY

This article will assume both the exploratory and descriptive approaches to research. In this research, the exploratory research approach will be useful because it will help establish the factors that lead to poor maintenance of infrastructure in Ximhungwe Circuit. Gerring, Elman & Mahoney (2018), state that Swedberg (2020) explains that exploratory research involves attempting to find out something new and fascinating by working through a research topic. He points out that this type of research is risky in its nature because the researcher does not really know what they will come across.

On the other hand, descriptive research is an investigation that gives a picture of a situation as it occurs naturally. According to Tavakoli (2012) this research approach involves describing a problem as it manifests itself without interpreting or analysing it. While this research seeks to establish factors that cause poor maintenance of school infrastructure in Ximhungwe Circuit, it is unavoidable that the state of the school assets will be looked at or described. In this sense, while reasons for poor infrastructure maintenance in Ximhungwe Circuit are explored, the extent of the problem will also be described. The quantitative research approach will be used since the data will be collected through self-administered questionnaires. In this research, convenience/purposive, stratified and random sampling will be used.

The population for this article will be schools in Ximhungwe Circuit, both primary schools and secondary schools. The sample will comprise sixteen schools. Research questionnaires will be distributed for completion by the following categories of people in the sampled schools: principals, educators, supervisors of support staff, members of the Learner Representative Council (LRC) and members of the School Governing Body (SGB). The sample is composed of seventy-two (72) respondents.

PRESENTATION OF RESULTS

The initial identified sample representation comprised of 72 respondents, the final response rate was 58 respondents, owing to the non-return of research questionnaires by some respondents. The article sample comprised of 58 respondents from five categories of participants, made up of 14 (24.1%) school principals; 11 (19%) educators; 14 (24%) members of School Governing Bodies; 7 (12.1%) Learner Representative Council's members and 12 (21%) supervisors of support staff. The discussion below will focus on the presentation of the findings.

Question: Does lack of funds cause of poor maintenance of school infrastructure?

The respondents were asked whether they believed lack of funds was the main cause for poor maintenance of infrastructure. 78% of the participants indicated that they believed lack of funds was the primary reason for poor maintenance of infrastructure at their school while 22% indicated that lack of funds was not the primary cause for poor maintenance of school infrastructure at their school. The challenge with funding for school infrastructure purposes is well captured in research findings by Marishane (2013) who states that several predicaments hinder efficient management of school infrastructure owing to four identified factors.

According to Marishane (2013), the first obstacle is that schools that have been designated as no-fee charging schools are not permitted to collect any school fees as revenue. Even when parents are willing to financially support their children's schools, they are not encouraged by this policy to make payments. The second impediment noted is the limitations placed on the funds provided to schools through the National Norms and Standards for School Funding. This means that even if the school has adequate cash to fund building costs in an emergency, such funds could be spent for the construction of buildings. The third obstacle was the absence of fund-raising skills among school managers. This means that, despite the fact that the government alone cannot support school needs, many school principals do not have fundraising skills to generate funds to supplement what the government gives to schools. The final stumbling block is a lack of infrastructure management competence. The examination of these barriers reveals that, while the no-fee school policy adopted in the education system relieves impoverished parents of the financial burden of paying school fees, it does not relieve schools of the pressure they face in managing their infrastructure (Marishane: 2013).

Question: What are the other potential causes of poor maintenance of school infrastructure?

While it is evident from the discussion above that funds play a major role in the maintenance of school facilities, thirteen (13) out of the fifty-eight (58) respondents, 22%, did not think that lack of funds was the primary cause of poor maintenance of school infrastructure. Instead, they cited other factors that they believed led to the problem. 7% of the participants attributed the problem to the absence of maintenance plans. An equal percentage, 5%, among the thirteen respondents, believed lack of skills (5%) and absence of maintenance policies (5%) were the factors responsible for the problem. 2% of the 13 respondents attributed the problem to lack of interest, while another 2% thought negative attitude was the cause and, lastly, 2% thought lack of accountability was the cause of the problem.

From these findings it can be concluded that poor maintenance of school infrastructure is a result of a combination of factors, with some of the factors taking more prominence over others.

Question: Rank the factors that lead to poor maintenance of school infrastructure.

The respondents were asked to rank a list of possible factors that contributed to poor maintenance of school infrastructure. The majority of respondents, 78%, believed Insufficient funds was the major cause of poor maintenance of school infrastructure. Interestingly, it was noted that 43% of the respondents believed the age of buildings was a cause of poor maintenance of school amenities. It is not clear why the respondents would have thought that there was a causal link between the age of the buildings and poor maintenance. To the contrary, it can be argued that lack maintenance allows buildings to deteriorate quickly as they age. Further investigation might be necessary in future to probe this matter. 28% of the respondents blamed the problem on the absence of maintenance plans at the schools, followed by Weak SGB identified by 14% of the respondents. There were 3% of the respondents who believed Teacher strikes contributed to the problem. The impact of teachers' strikes on maintenance is not clear but makes for an interesting observation from the respondents. This area would be afforded justice if further investigation was carried out to probe this view as given by some of the respondents. Another 3% of the respondents attributed the problem to the Principal's lack of maintenance skills. This means that even though school principals did not carry out the actual tasks of maintenance at their schools, if they had relevant skills, they would be able to guide the personnel responsible for maintenance at their schools.

Question: What is the impact of the attitude of users on the deterioration and lifespan of school infrastructure?

The participants were asked if they believed the attitude of the users played a role in the durability of school facilities. The majority of the respondents, 43%, believed the attitude of users was a serious factor that affected the lifespan of school facilities. 31% indicated that user attitude was, to a great extent a factor contributing to the lifespan of school facilities while only 23% felt user attitude was a factor contributing to the lifespan of school facilities but only to a lesser degree. Olasemojo & Owoeye (2020) concur in a article on infrastructure conditions in the Akure city in Nigeria that one of the major causes of deterioration of infrastructure was the attitude of misuse. A tiny percentage of the respondents, 3%, believed the attitude of users was a negligible factor in relation to the lifespan of school facilities. The findings show that human behaviour is an important element that contributes to the durability of school facilitiesIt means if the users took care of the facilities and avoided misusing them, the lifespan of the facilities would be prolonged while bad attitude such as neglect and abuse would lead to the shortening of the lifespan of school infrastructure.

Question: What is the impact of building of new school infrastructure on the maintenance of existing facilities?
Sixty-nine percent of the respondents (69%), believed building new school infrastructure had a negative effect on maintenance of the existing (old) facilities while 31% held a view to the contrary. To support this view, it has been established by Olasemojo & Owoye (2020) that in the city of Akure in Nigeria government at all levels had developed a culture of implementing new infrastructure projects at the expense of existing amenities, yet these facilities were allowed to deteriorate without attention. This finding can be interpreted as emphasis for the need to keep up the good condition of existing school infrastructure even when new facilities are procured as time goes. Taking care of existing facilities would diminish the need for replacement at a later stage, yet replacement without proper care would lead to a vicious cycle where new facilities are procured only to be left to deteriorate due to lack of maintenance and having to be replaced again later.

Question: Does the school principal have a role in the maintenance of school infrastructure?
All respondents agreed that the school principal had a role to play in the maintenance of school infrastructure. According to the Personnel Administrative Measures (DBE:1999) the school principal has to do regular inspection of school surroundings and the physical facilities to identify areas that need attention. The respondents varied on the roles they believed the school principal had in maintenance of school infrastructure. 78% of the respondents indicated that the school principal must conduct regular inspection of school infrastructure. 59% of the respondents indicated that the school principal should lead all maintenance efforts at the school, 55% believed that the school principal should make maintenance his/her priority. 38% of the participants suggested that the principal can involve parents to do repairs. 19% of the respondents stated that the principal should spend sufficient time on maintenance activities. These findings suggest that indeed the school principal has important activities to perform towards maintenance of school facilities. It is also important to note that, by law, school principals have to do some oversight over school infrastructure in order to inform themselves if there might be a need for maintenance.

Question: Is there a need for training of school principals in maintenance management?
Eighty-four percent (84%) of the respondents believed training would help school principals improve their skills of management of maintenance. 16% of the respondents thought training would not make any difference.
According to Marishane (2013) training is undertaken with the purpose to address specific organisational objectives and skills gaps. It is further stated that while training improves the image of the organisation, it also strengthens development and boost employee performance and productivity. Maintenance of school buildings and furniture is a special task that requires relevantly skilled persons such as electricians, bricklayers, carpenters and plumbers. It can be suggested that the view of the majority of the respondents highlights the importance of skills in any task that a person has to carry out. Training itself is expected to improve skills and equip the person involved with new knowledge information required to perform the specific task (Khan: 2021). The prevalence of poor maintenance of school infrastructure in Ximhungwe Circuit can be partly attributed to lack maintenance management skills among school principals.

Question: What is the importance of the role of the School Governing Body (SGB) in the maintenance of school infrastructure?
The respondents were asked if they believed the role of the SGB was important in the maintenance of school infrastructure. The majority of the respondents, 53%, stated that the role of the SGB was very important; 33% felt the role of the SGB was critical. In other words, this latter group strongly believes the SGB has a pivotal role to play in the maintenance of school infrastructure. Only 1% of the respondents indicated that the SGB's role was important without any qualification whereas 13% indicated that the role of the SGB was not important. The distribution of responses to this specific question among the respondents means that the SGB does have an important role to play in the up-keeping of school infrastructure. It is reasonable to expect the SGB to play an important role in the maintenance of school amenities because this function forms part of the functions of the SGB that are prescribed in the South African Schools Act (DBE: 1996), therefore the SGB has statutory obligations in that regard. The poor state of the school infrastructure in Ximhungwe Circuit suggests that the majority SGBs are not performing their prescribed statutory function towards school infrastructure. It also suggests that there is not enough oversight over this function of the school governing bodies.

Question: How can the Circuit Office assist schools implement their maintenance projects?
Seven respondents, 12%, suggested that the Circuit Manager should do regular inspection of schools. According to the Education Labour Relations Council (ELRC), one of the key performance areas of a Circuit Manager is to "evaluate the physical infrastructure of schools and communicate to the relevant section of the Department in terms of the needs of the schools" (ELRC: 2017). The Head of the Circuit Office is the Circuit Manager, and therefore any interventions to assist

schools should be initiated by the circuit manager in line with the provisions of the ELRC Collective Agreement 4 of 2017. Forty percent (40%) of the respondents were able to suggest some ways in which the circuit office could assist schools with implementation of their maintenance plans. 60% of the respondents did not provide any suggestions. This suggest that this group of respondents were unsure about the responsibilities of the Circuit Office towards schools due to lack of information or exposure to the operations of the office.

Seven percent of the respondents suggested training of personnel by the Circuit Office, including the school principal, as one of the measures that can improve maintenance of school facilities. Training can assist with acquisition of new skills and knowledge that could be used by the employees responsible for maintenance at the schools.; appointment of circuit monitoring task team; assist schools with policy development; regular reporting by school principals on infrastructure maintenance and regular inspection by the circuit manager.

Five percent (5%) of the respondents suggested that the circuit manager should appoint a monitoring task team to assist with the task related to school infrastructure. This recommendation can be very helpful to the circuit manager because the circuit is a vast area with a lot of schools. Therefore, a task circuit team can be one way of decentralising the function of the circuit manager of evaluating the physical infrastructure of schools.

It was revealed by this research that one of the contributing factors to poor maintenance of school infrastructure was the absence of maintenance policies at some of the schools. Seven percent of the respondents suggested that the Circuit Office should assist school with development of policies. A policy can be defined as a set of rules that have to be adhered to in dealing with a specific situation. Indeed, if some schools do not have maintenance policies, it can be expected that this function will not be effectively handled by the schools concerned.

Five respondents, 9%, suggested that the Circuit Manager should compel school principals to report regularly on school infrastructure maintenance in their various schools. This imperative can ensure that school principals are constantly reminded of the duty to do maintenance work in their schools and this can improve the state of maintenance in the public schools in Ximhungwe Circuit.

Question: What is the impact of the condition of school facilities on teaching and learning?

Fifty-six respondents out of fifty-eight, 97%, indicated that they believed the condition of school facilities has an impact on teaching and learning while 3% did not agree. Those who agreed cited motivation, 40%; focus, 24%; and concentration, 33% as direct effects of good school infrastructure. It should be mentioned that while some respondents chose to use the word ‘focus’, others preferred the word ‘concentration’ whereas the two words in this context refer to one thing, namely; attention. Aworemi, Abdul-Azeez, & Durowoju (2011) established through research that a good working environment was considered the best motivator for workers. It is further argued that when the workplace is conducive for working, people in that environment tend to bring out their best. According to Aworeni, et.al. (2011), good working conditions included the physical conditions, which include things like good ventilation, adequate workplace, lighting, etc… This proposition implies that if school infrastructure is well-maintained, the benefit would be increased motivation for teachers and learners. It means while teachers would be motivated to bring out their best, learners too would equally benefit as they would be encouraged by the environment to also bring out their best.

What is the effect of well-maintained school facilities on motivation levels of both learners and teachers?

Ninety percent (90%) of the respondents strongly agreed that well-maintained school infrastructure had an effect on the motivation levels of both teachers and learners while 10% indicated that they merely agreed. Respondents also had the choice to select either neutral, disagree or strongly disagree but none selected any of the three choices. A conclusion can be drawn from the responses that all respondents actually agreed that well-maintained school facilities increase the motivation levels of both teachers and learners, the only difference was that while some (90%) strongly agreed others (10%) merely agreed. Gopalan, Abu Bakar, Zulkifli, Alwi & Mat (2017) found that there is a strong link between motivation and learning. They also argue that human aspirations and accomplishments are based on motivation and as a result, motivation was equally essential for academic success, and nothing is possible without motivation, not only in school but also in real life. This means that, if all respondents believed motivation of learners and teachers was tied to well-maintained school infrastructure, it is important for schools in Ximhungwe Circuit to ensure that maintenance of facilities is improved in order for them to improve learner performance.

Question: Rank the critical school facilities that have a direct impact on learning and teaching.

Seventy percent (70%) of the participants were able to identify what they considered critical school facilities. The following items were identified, which they believed had a direct impact on learning and teaching: classrooms, laboratories, libraries, ablution facilities, furniture, equipment and technology. Classrooms ranked number 1, identified by all 41 respondents (the 70%). This means that a classroom is the basic facility that should be available for teaching and learning to take place. Furniture was ranked second, identified by 38 respondents (93%), coming closer to the

classroom. This means that furniture also plays an important role in the creation of a conducive teaching and learning environment. Laboratories ranked 3rd, identified by 37 respondents (90%), ranking 4th was libraries, identified by 35 respondents (85%). Ablution facilities were listed by 30 respondents (73%), ranking number 5. Equipment and technology ranked number 6 and 7, identified by 61% and 51% of the respondents respectively.
The critical school facilities that have been identified by the respondents can serve as indicators of what all relevant role-players should focus on to make schools attractive. If these facilities were well- maintained and kept in a good state, then schools in the circuit could become centres of excellence as both teachers' and learners' motivation would be kept high.

Question: What measures can schools implement to improve the maintenance of school infrastructure?
Question: Is there a need for schools to have full-time maintenance officers to implement the schools' maintenance plans?
When asked whether they believed each school should have a full-time paid maintenance officer, 53% strongly agreed, 21% agreed while 9% were neutral. Those who disagreed made up 14% of the participants and 4% strongly disagreed. It has been observed that the majority of the respondents felt that schools should have full-time paid maintenance officers to do maintenance at the schools. If implemented, this suggestion will have some implications for schools and the Department.
Firstly, SGBs will have to prepare themselves to recruit, select and appoint suitable people into the positions and also raise funds to pay them directly from the school coffers. With the unemployment rate standing at 34.4% in the second quarter on 2021, according to Statistics South Africa (Stats SA) (2021), this would create jobs for those who would be appointed and help reduce the rate of unemployment. Secondly, the Department would have to issue a vacancy list, advertising the jobs, followed by selection and appointment. In this case the Department would have to allocate a budget for salaries of the maintenance officers. While this will relieve unemployment, it may lead to budgetary constraints for the Department.
Despite the shortcoming identified, the appointment of maintenance officers for schools would lead to improvement in maintenance of school facilities.

Question: Is Insufficient funding an obstacle to school infrastructure maintenance projects?
Fifty-two percent (52%) of the respondents strongly agreed that insufficient funds can be an obstacle towards maintenance of school infrastructure while 41% agreed, 3% were neutral, 2% disagreed and another 2% of the participants strongly disagreed. The distribution of responses indicates that the majority of the participants believed that insufficient funding was an obstacle to maintenance in schools. Currently, public schools in South Africa are funded by the Department according to the National Norms and Standards for School Funding (NNSSF) (DBE: 1998). While it has been revealed in this research that insufficient funding was a contributing factor to poor maintenance of school infrastructure, it can be stated that the current funding model for schools is also problematic. According to the NNSSF schools are categorised into five levels called quintiles. Quintile 1 represents the poorest schools while quintile 5 represent the most affluent schools. White & Van Dyk (2019) noted that an amendment to the NNSSF was effected with the effect that the school serving the most impoverished communities would receive more funding. However, it was established that there was a challenge regarding the implementation of the system and the calculation for funds for maintenance in particular. According to White & Van Dyk (2019) some inaccuracies were found in the quintile ranking and this resulted in unfair funding of schools. This suggests that the Department should pay close attention to funding, specifically for maintenance of school infrastructure as the current funding model has been proven to present some challenges.

Question: Which steps can the Department of Education use to increase the capacity of school principals to enable them to carry out maintenance projects?
When asked to suggest steps that could be taken to improve the capacity of school principals to help them implement maintenance projects, sixty-two percent (62%) of the respondents suggested training as a measure that could address the problem. Rodriguez & Walters (2017) contend that training and development enable organisations and their employees in achieving a wide range of goals such as increasing the morale of employees and improving the skills that are needed to perform a particular job. This means that if school principals were afforded training, they would be able to implement maintenance projects effectively. Twenty- six percent of the respondents (26%) indicated that provision of sufficient funds to schools would address the problem. The importance of funding has been covered in previous sections of this report.
Four percent (4%) of the participants suggested support from the municipality. While intervention by the municipality can assist schools the current state of many municipalities in South Africa might prove inadequate for them to be of any help to schools. In a report by the Auditor-General South Africa (AGSA) it has been revealed that most municipalities are debt-ridden and unable to pay for water and electricity; revenue collection that is inaccurate and lacklustre;

unauthorised, irregular, unproductive, and wasteful expenditure; and a significant reliance on subsidies and support from the national government (AGSA: 2020). In a state like this, most municipalities are unlikely to be able to assist schools. Therefore, this form of intervention can only happen if municipalities are eventually able to correct their status.
It has been suggested by three percent (3%) of the respondents that maintenance activities carried out by schools be reviewed regularly. This form of intervention was proposed as one of the steps that the Circuit Office could employ to assist schools improve their implementation of maintenance projects under section 5.3.2.5 above.

Question: Which interventions can the department can make to support maintenance of school facilities?
Thirty-six (36) respondents, 62%, were able to suggest some interventions that can be made by the department to improve maintenance of school infrastructure while 22 did not offer any suggestions. The reasons the 22 participants did not make any suggestions are not known to the researcher. It might suggest that they were not knowledgeable enough on the subject and therefore could not venture into it, or it might be because they did not understand this section of the questionnaire and did not want to give unreliable information. Nonetheless, 21 respondents, 58%, proposed sufficient funding of schools; nine of them, 25%, suggested appointment of maintenance personnel and lastly, six respondents, 17%, offered regular inspection of schools for maintenance compliance as a measure to improve maintenance.
Question: Is there a need for schools to have trained general assistants to improve maintenance of school infrastructure?
An overall 93% of the respondents were in agreement that schools needed to have trained general assistants to improve maintenance of school infrastructure. It was noted that public schools in Ximhungwe Circuit have support staff who include general assistants. However, from the overwhelming responses received in favour of training, it can be concluded that these general assistants lack the required skills to carry out a wide range of maintenance work that has to be done in schools. For the same reasons that it was suggested that school principals be trained, general assistant should be trained in a variety of jobs related to maintenance. This will equip them with the skills and knowledge they need to execute maintenance tasks.

RECOMMENDATIONS

The article acknowledges that the Department of Education has a central role to play in maintenance of school infrastructure, either directly or through the established bureaucratic structures of the Department which include the Provincial Department, the District Office, the Circuit Office, the School Governing Bodies and School Management Teams. It is for this reason that recommendations of this article will be addressed to those structures of the Department.
Recommendations to the Provincial Department
It was revealed that the funding of schools through the National Norms of School Funding has inherent challenges, in some cases leading to unfair allocations to school, particularly funding for maintenance purposes. It is suggested that the Department investigate the matter further and develop a model that would ensure schools are properly funded according their needs.

Recommendations to the District Office

The District Office is expected to update school infrastructure needs annually and initiate projects in schools to address challenges experienced by schools. An important activity that the District Office performs before updating the list of infrastructure needs for schools is prioritisation. This should be done fairly and equitably according to the level of need per school.

Recommendations to the Circuit Office

The Circuit Manager (CM) has to ensure that each school's SGB has developed and adopted a maintenance policy. The CM should conduct regular inspection of schools and compile reports on the infrastructure status of each school. The CM should establish a circuit infrastructure monitoring task team to monitor maintenance in schools and compel school principals to present regular reports on their maintenance activities.

Recommendations to the School Governing Bodies (SGBs)

The SGBs should develop and adopt maintenance plans for their schools. They should also ensure that the funds allocated for maintenance are prioritised for such an activity and implement the maintenance plans.

Recommendations to the School Management Teams

The principal, is the head of the SMT and should ensure that the SMT adopts decisions on maintenance of school facilities which should be attended to by the SGB or the Department where applicable. The SMT should be able to prepare and present minutes of meetings where such decisions are taken for inspection and audit purposes. The SMT should assist the SGB to implement the school maintenance plan.

CONCLUSION

Proper maintenance of school infrastructure is a function that should be carried out by all schools in the country. The problem that was identified for this article affects a number of schools, even outside Ximhungwe Circuit. The research problem in this article was Poor maintenance of school infrastructure in public schools in Ximhungwe Circuit. The article was undertaken to investigate factors that account for poor maintenance of school infrastructure in public schools in Ximhungwe Circuit. The focus of the investigation was on school internal dynamics and the school's obligations towards the maintenance function as necessitated by various imperatives such as legislation; the role of the school principal; the function of the School Governing Body and availability of funds. The article identified factors that contribute to poor maintenance of school infrastructure in Ximhungwe Circuit and suggested steps that could be taken to ensure improvement in the maintenance of school infrastructure in the circuit.

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