

## Assessment of Maintenance Needs in Public Educational Institutions Residential Facility

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### Abstract

Residential facilities of Public Educational Institutions (PEIs) encompass the immediate environment of the PEI, such as housing, recreational facility, sanitation, and others that provide shelter and make life worthwhile for its users. This study assessed the maintenance needs of residents of the PEI residential facilities. To collect data on their maintenance needs, structured questionnaires were distributed to ninety-eight (98) respondents within the PEI residential facilities in the study area through systematic random sampling techniques. Information gathered from secondary and primary data was used to analyse residents' maintenance needs of the PEI residential facilities assessed. The result showed that the major maintenance need of the residents of the PEI residential facilities is on services, especially toilet and water distributions facilities. It indicates further that most materials used to maintain toilet amenities and water distribution channels were substandard. There is a slow response to repairs on maintenance needs as requested by the residents on damaged components of the facility. The study suggested that in meeting the maintenance needs of residents of the PEI facilities, the maintenance unit should have a quality assurance unit that will certify materials required for maintenance activities before usage within the PEI residential facility.

### Keywords

Building Services, Maintenance Need, Public Educational Institutions, Quality Standard, Quality Assurance.

### 7. Introduction

The need to provide better management of PEI facilities is a matter of importance (Idrus, Khamidi, & Olanrewaju, 2009). Maintenance management (MM) should be innovative, strategically 98nstandar, and have positive planned maintenance activities (Karia, Asaari, & Saleh, 2014; Ogunbayo et al., 2022). Ogunbayo and Aigbavboa (2021) and Arditi and Nawakorawit (1999) state that the moment a building is being erected, its maintenance should start immediately to avoid early deterioration. Pļaviņa and Geipele (2013) and Ogunbayo and Aigbavboa (2019) opine that keeping every part of the building to an acceptable standard should be maintained to sustain its value. However, Puķīte and Geipele (2017) state that the aim of sustaining the value of any facility through a stable maintenance arrangement is to upgrade, improve, and refurbish the existing facilities constantly. Alsyof (2009) states that a viable maintenance policy is required in an institution to guide decision-making on managing resources toward keeping available facilities in good shape. Karia et al. (2014) state that the maintenance unit of an organization is responsible for maintaining and operating its physical facilities. Ogunde et al. (2018) observed that the maintenance unit of an institution deals with issues related to up keeping of institutional facilities and its component to meet the end-users needs. Owolabi et al. (2014) posit that the maintenance management of an institution is responsible for boosting residents' productivity and satisfaction through stable maintenance service delivery. Uma, Obidike, and Ihezukwu (2014) and Ogundipe et al. (2012) opine that the benefits of a well-maintained building to residents are overwhelming; it brings about utmost performance at a minimal cost and provides decency and comfort to the users. However, Nduka et al. (2018) posit that the lack of proper planning of maintenance assignments can lead to inefficient maintenance management practice. In increasing public facilities' economic value, including educational buildings, attention should be given to maintenance tasks (Ogunde et al., 2018; Ogunbayo et al., 2019). Miller (2007) argues that supporting services through contracting or an in-house staff system to develop a quality maintenance approach for public institutions, including PEIs, could

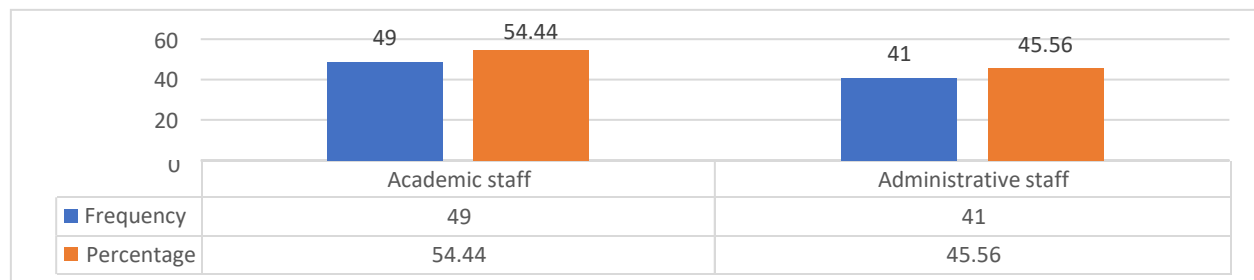
not be excluded. Asiyai (2012) posit that the standard of educational institutions depends on the quality of academics and the standard of its buildings. The responsibilities of managing PEI facilities effectively with minimum challenges depend primarily on the management of the educational institutions (Oluwunmi & Izobo-Martins, 2012). However, Okolie (2011) observed that overpopulation and expansion in student intake have increased pressure on the available PEI facilities. Kotzé and Nkado (2003) suggested that for PEI to meet its maximum output, in-house maintenance management staff should be trained on the technicality of their job. Asyai (2012) and Ogunbayo, Aigbavboa, and Akinradewo (2019) opined that the repair and maintenance work backlog has brought the building stock of different PEIs to an unacceptable level. Ogundipe et al. (2018) observed that a lack of on-job training for maintenance personnel on safety policies development and workable hazard management system within the axis of their duties affects the response time to the maintenance needs of the maintained buildings. Owolabi et al. (2014) asserted that governments worldwide had committed considerable expenditure to maintain their PEI and facilities. But Aina (2007) opined that the dwindling resources in the PEIs affect both academic and residential facilities of the PEIs due to cuts in maintenance budgets. Besides, Ogunbayo et al. (2018) state that in respect of construction design and method used, PEI facilities deteriorate with age due to delayed maintenance, vandalism, poor workmanship, and use of low-quality materials. However, Ajayi and Ekundayo (2008) assert that the challenge of satisfying the maintenance needs of the residents of PEI residential facilities are constrained by dwindling resources, lack of funding, and inadequate physical infrastructure. While Ojogwu and Alutu (2009) state that the challenges include overpopulation, poor workmanship, use of low-quality materials, and poor management. Based on this fact, this study assessed the maintenance needs of residents of the PEI residential facilities.

## 2. Research Methodology

To achieve the set objectives for this study, a quantitative research design was employed. In carrying out this, a systematic random sampling technique was adopted. The technique was used because it is more direct and evenly covers all the study elements. The technique was also used because there will be a low risk of data manipulation. The study used the residential facility of a public educational institution in Ota Ogun state Nigeria. The sampled residential facility of the educational institution consists of a total of 132 residents. Out of the number, 80 academic staff and 52 administrative staff reside within the study area. The choice of choosing this area for this study was based on respondents' knowledge, experience, and usage of available PEI facilities over the years within the study area. To ensure consistency of the data, 98 structured questionnaires were administered to both academic and administrative staff residing within PEI residential facilities. 50 of the questionnaires were administered to residents of academic staff blocks, while 48 were administered to administrative staff blocks. Out of all the administered questionnaires, only 90 copies were retrieved, representing 91.84% of the total questionnaire administered. This was found appropriate to achieve the study aim. The retrieved data were analysed using descriptive statistics, and the results were represented in figures.

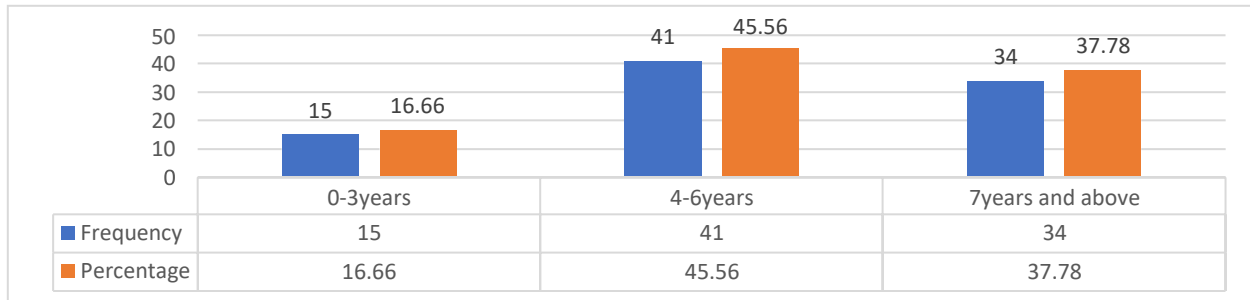
## 3. Result and Findings

Figure 1 shows that 54.44% (49) of respondents are academic staff, while 45.56% (41) of the respondents are the administrative staff of the PEI sampled.



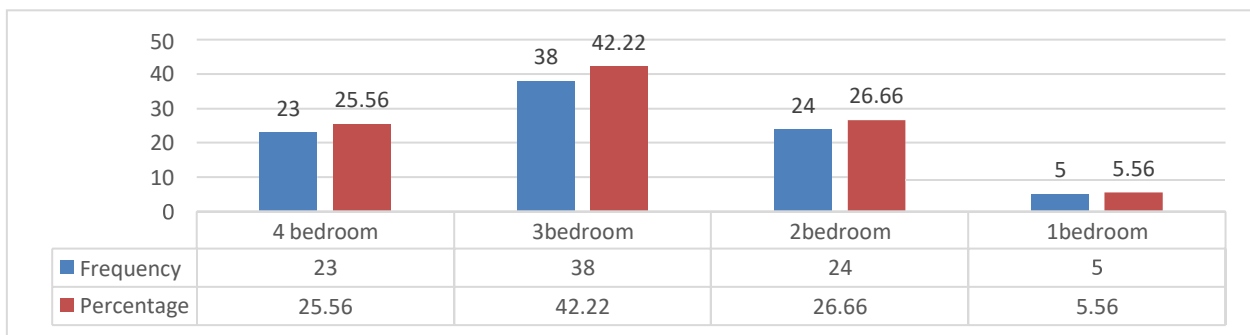
**Figure 1.** Designation of respondents

Figure 2 reveals the year of tenancy of the respondents. The result indicated that 16.66% (15) of the respondents have been residing within the residential facilities between 0-3years, while 45.56% (41) have been residing within the PEI residential facility for between 4-6years, while 37.78% (34) have a tenancy of seven years and above.



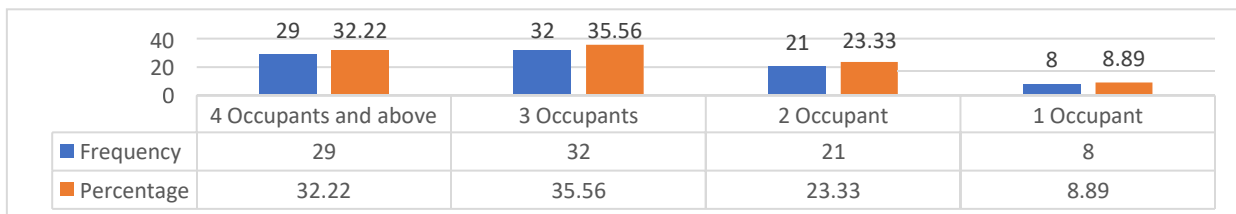
**Figure 2.** Respondent year of tenancy

Figure 3 indicates the type of apartment respondent resides within the residential facilities. The result shows that 25.56% (23) of the respondent lives in a four-bedroom apartment, 42.22% (38) resides in a three-bedroom apartment, and 26.66% (24) resides in a two-bedroom apartment, while 5.56% (5) resides in a one-bedroom apartment.



**Figure 3.** Type of apartment respondent resides within the residential facilities

Figure 4 revealed the number of occupants per apartment within the residential facilities. The result indicated that respondent residing in an apartment with four occupants and above is 32.22% (29), respondents living in an apartment with three occupants is 35.56% (32), while respondents residing in an apartment with a minimum of two occupants is 23.33% (21). Respondents living within an apartment occupied by a single occupant are 8.89% (8).



**Figure 4.** Number of occupants in an apartment within the PEI residential facilities

Table 5 indicated facilities that often need maintenance within the residential facilities. The result shows that toilet and its fittings 20% (18), water distribution pipe 17.79% (16) together with sewage system and pipe 17.79% (16) as the highest result in terms of facilities that often need repairs within the PEI residence, and it is followed closely by electrical installation and fittings 11.11% (10) and door and window locks 8.89% (8), while others such as floor and walls 4.44% (4), ward drop 4.44% (4), doors and windows 4.44% (4) roofing system 4.44% (4) together with furniture and bedding have the least result.

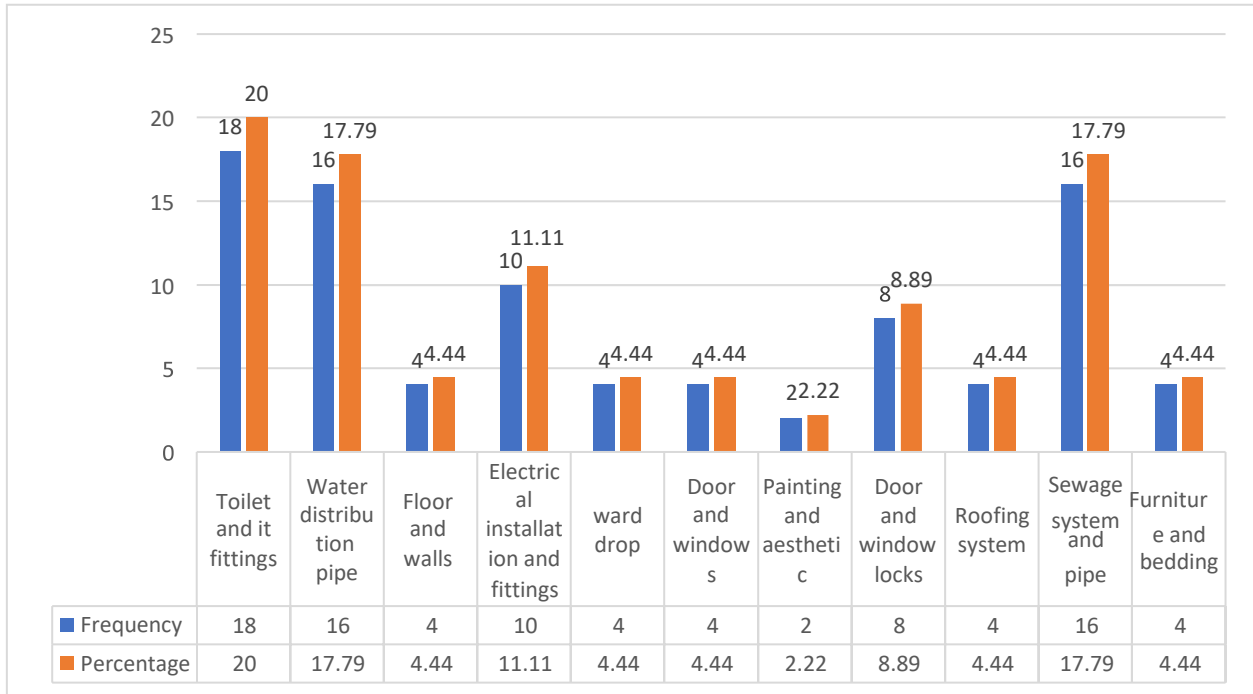


Figure 5. Facilities that need maintenance often

Figure 6 indicates the response to the maintenance needs of residents of PEI residential facilities. 5.56% (5) of the respondents indicated that inspect and abandoned were only carried out on reported faulty components, 25.56% (23) stated that the maintenance personnel inspected and fixed it immediately, while 46.66% (42) said that within two weeks, maintenance personnel inspects and fix it, and 22.22% (20) stated that it takes more than a month for the maintenance personnel to inspect and fix the faulty components.

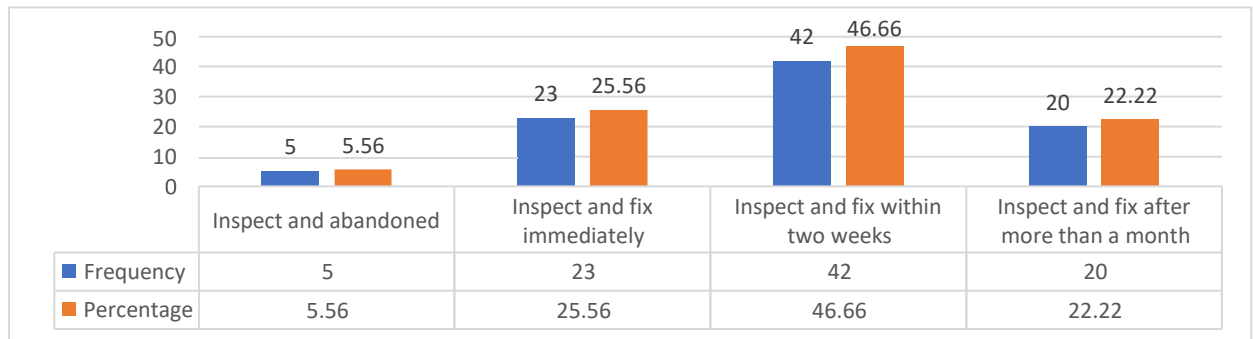
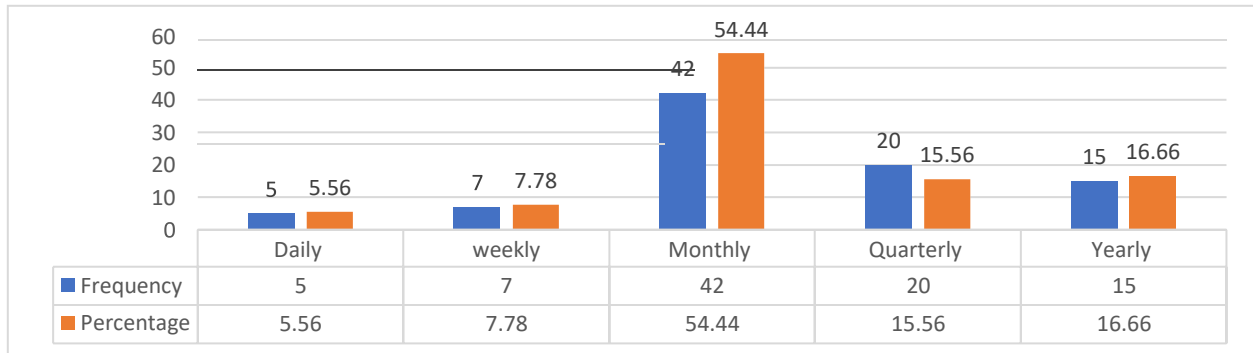


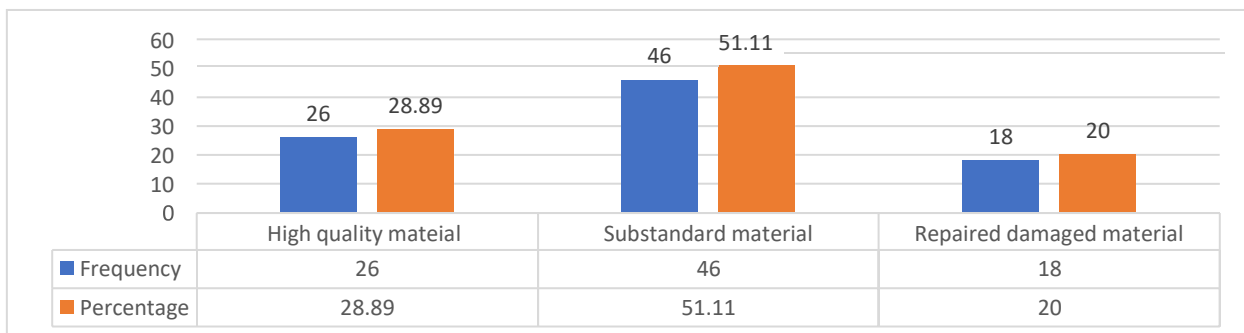
Figure 6. Response to the maintenance needs of residents of PEI residential facilities

Figure 7 shows the main maintenance period within the PEI residential facilities. 5.56% (5) of the respondent stated that the main maintenance is carried out daily, while respondent result with 7.78% (7) indicated that the main maintenance is carried out weekly, respondents 54.44% (42) agreed that main maintenance is carried out monthly, others with 15.56% (20) and 16.66% (15) stated that main maintenance is carried out within the PEI residential facilities on quarterly and yearly bases.



**Figure 7.** Main Maintenance period within the PEI residential facilities

Figure 8 shows the quality of material used for general maintenance work within the PEI residential facilities. 28.89% (26) stated that the material used is of high quality, 51.11(46) said the material is of low quality, while 20% (18) indicated that damaged material or component is repaired and reused for maintenance work within their residential facilities.



**Figure 8.** Quality of material used for maintenance work within the PEI residential facilities

#### 4. Discussion of Findings

The study assessed the maintenance needs of residents of the PEI residential facility. Findings from the survey indicate that the PEI residential facility residents in the study area were academic and administrative staff, with over eighty percent of them having above four years of tenancy. Also, the result shows that high numbers of the respondents reside in four-bedroom, three-bedroom, and two-bedroom apartments with an average of 3-4 occupants per apartment. Also, the finding indicates that the residents' maintenance needs are mainly on the toilet and its fittings, water distribution pipes, electrical installation and fittings, sewage system, and pipes. The finding is similar to the studies of Alsyouf (2009), Pławińska et al. (2013), Karia et al. (2014), and Ogunbayo et al. (2019) that showed that the majority of maintenance works carried out in residential buildings are on services, especially toilet and water distributions facilities. Likewise, the finding signifies that response to repairs on maintenance needs reported on damaged facilities within the PEI residence is slow and delayed. The result aligned with the studies of Uma et al. (2014), Ogunde et al. (2018), Owolabi et al. (2018), Nduka (2018), and Ogunbayo et al. (2018) that showed that a lack of proper planning of maintenance and technical personnel assignments together with the shortage of human resources and inexperience personnel could give rise to inefficient maintenance management practice.

Similarly, the finding shows that main maintenance activities are on a monthly schedule-based (corrective) maintenance plan. The finding is comparable to the studies of Kotzé et al. (2003), Okolie (2011), and Asyai (2012) that indicated that delay in carrying out maintenance activities through corrective measures as against proactive measures has led to backlogs of repair and maintenance work that has brought building stocks including PEI buildings to an unacceptable level. Equally, the finding from the study shows that low-quality materials were used in substantial maintenance work or replacement, while some fraction of the respondents indicated that maintenance personnel sometimes reused repaired damaged components for maintenance work within the PEI residence. The finding is in line with studies by Ogunbayo et al. (2019), Ajayi et al. (2008), and Ojogwu et al. (2009) that show that challenge of satisfying maintenance requests of the residents of PEI residential buildings is constrained by poor workmanship and

management. As shown in the study result, frequent maintenance needs on the residential facilities are primarily because of low-quality material usage, deterioration due to the age of components, pressure on facilities through use, and inexperience workmanship for maintenance work and vandalism. The finding is similar to the study of Owolabi et al. (2018), Nduka et al. (2018), and Ogunbayo et al. (2021) that building components deteriorate with age in respective of construction design and method used in their construction and maintenance.

## 5. Conclusion and Recommendation

This study appraised the maintenance needs in a residential facility of PEI in Nigeria. The study, however, indicated that to avoid frequent maintenance needs within PEI residential facilities, maintenance officers and personnel should respond to maintenance needs early through early inspection and repairs of damaged components reported by residents. The maintenance department of PEIs should employ enough well-trained maintenance personnel with the required skill needed for maintenance operations to avoid delays in carrying out the maintenance needs within the PEI residential facilities. The study also suggested that maintenance activities within residential facilities of the PEIs should be based on a planned maintenance system. The study further indicated that the maintenance management department should have a quality assurance unit with trained personnel to certify materials required for maintenance activities before usage within the PEI residential facility. The study concluded that provided residential facilities within PEIs should meet the residents' immediate economic, social, and academic needs. The replacement material during the maintenance stage should be of quality standard. The study contributes to the body of knowledge by making maintenance managers of educational institutions understand the facility requirement of users of residential facilities of educational institutions toward improving their academic and administrative performance.

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