

Preferential Judgment of Toiletpreneurs in Bauchi Smart Toilets Park

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Article DOI:
10.48028/iiprds/ijsreth.v10.i2.05

Keywords:
Achievement,
Curriculum,
Development,
Economic,
Management

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Abstract

Toiletpreneurship means building something of recognized value around perceived toilet opportunities towards reducing the agents/factors that could lead to local, national and global economic and health issues and challenges in relation to open defecation free built environment. As a result of the above, present concerns for the introduction of Toiletpreneurship have led to a revival on the rate of unemployed youths and also that of sustainable construction practices and sustainable solutions in smart toilets management to function effectively and efficiently in Smart Toilets park. This paper entails case study qualitative method of design and construction analysis using the typical six toilet design options for the construction stages, operations and procedures for the smart toilet samples. Thus, by using both compare and contrast method subjected to a thorough synthesis by looking at the design parameters for the selected Toiletpreneurs to at least with keen interest identify and select a particular prototype of the improved and healthy toilet options using their preferential judgement. Based on the physical visitations made to the case study area by the Toiletpreneurs, majority of them prefer Temporary single offset, TYPE 2 smart toilet while the least was Permanent double offset, TYPE 5 smart toilet, with special interest on hand washing facilities. Appropriate implementation of pragmatic approaches of collaborative and partnership efforts by Government, stakeholders and non-Government organization in order to safe guard and promote the sustainable solutions of Smart Toilet towards Toiletpreneurship will ameliorate open defecation menace in the built environment.

Background to the Study

Access to toilets give privacy and promote health. It helps you to save time and energy. It gives pride to family member and brings dignity'. In the recent past, open defecation (OD) remains a huge obstacle for people, Entrepreneurs, and especially tourists and is responsible for thousands of unnecessary deaths. Eradicating it is crucial to achieving Global Sustainable Development Goal number 6 on sanitation. Some Bauchi communities were triggered effectively with community led total sanitation (CLTS) and embarked on a journey of rapid collective behavioral change, achieving open defecation free (ODF) status and getting certified as such are important milestone in the process rather than the end of the journey. Toilet is a space for comfort zone, used for defecating which can be built from different materials chosen according to availability, cost of materials, skills available, and soil type (Abdulmageed, Musa, Henry and Kabiru, 2018).

According to the UNICEF/WHO (2012), 82% of the 1.1 billion people practicing open defecation live in 10 countries and Nigeria is one of them. The others are India, Indonesia, Pakistan, Ethiopia, Nepal, China, Sudan, Niger and Mozambique. It means that to continue with the use of un-improved pit latrines that become a reservoir of open defecation with flies in and out, cockroaches in multitudes, smell from kilometers, impossible to wash, maintenance is close to zero, easy to collapse, un friendly to children, adults skeptical to get injured we can to shift the paradigm. To overcome this challenge there is the need to shift from the use of local unimproved pit latrines to something innovative and have suitable latrine designs that would not only be cost-effective, environment-friendly and easy to construct but also would be acceptable to people especially less privileged arise the concept of low-cost but high-quality toilets called 'Smart Toilets, Sensitization and promotion of durable but affordable toilet facilities is very important. This is a situation of improved toilet designs that fits into all socio-economic standard of a household and at the end achieves an assured privacy, free from contamination and infections as well as total demarcation of faeces to human contact. Smart toilet is easy to clean and maintain, it uses less water to flush, free from cockroaches, houseflies, nesting ground for mosquitoes, smell and irritation to use. It is more of a comfort toilet and easy to use by all age groups. It ensures hygienic separation of human excrete from human contact. Is an array of latrine options that are of varying cost especially super structure to suit all financial status ranging from permanent to temporary but all have features of an improved latrine. The availability of a well fitted squat pan and a trap with a good substructure as collection point coupled with affordable privacy wall guarantees a sustainable, smart toilet for tourists. Looking critically at the present rate of progress, even reaching the goal of Open-Defecation-Free Nigeria by 2025 through 2030 seems to be a far cry unless there are drastic shifts in the approach and strategy at all levels. it is a fact that if Nigeria may not achieve the open-defecation-free target now set by the UN by 2025 unless certain strategic framework are established for implementation and sustainable development.

As a result of this, the Federal, State and Local governments should achieve safe hygiene practices for a collective responsibility, sustainable waste management which will benefit

the society especially in reference to train, design and construction, supervision and maintenance of toilets with hand washing facilities, sanitizers and disinfectants at public and private entities. Sanitation marketing is an approach to household sanitation promotion that aims to create sustained and effective sanitation by stimulating household demand for sanitation products and services (Scott, Jenkins and Kpinsoton, 2011). The Nigerian government and policy makers have come up with various strategies over the years on how the Nation's social and economic potentials can be harnessed (Isa and Jimoh, 2013). As a result, there is market in sanitation. Sanitation marketing (SanMark) and Sanitation finance (SanFin) are market and finance based approaches to household sanitation promotion, with the aim to create sustained and effective sanitation by stimulating household demand for sanitation products and services (Scott, Jenkins and Kpinsoton, 2011). In particular, governments contract out private providers to supply a specified service of a defined quantity and quality at an agreed price and memorandum of understanding for a specific period of time.

These contracts contain rewards and sanctions for non-performance and include situations in which the private sector shares the financial risk in the delivery of public services (World Bank, 2009). In most African countries, especially some states in Nigeria and particularly Bauchi have actually migrated to the next higher level in terms of hygiene as ODF area. The types of toilets are as a result of different spaces (open/close, public/private, internal/external, tangible/intangible) and levels (upper/lower, large/small, necessity/luxury) are: Traditional pit toilets, San Plat toilets, Conventional improved pit toilets, VIP toilets, Pour-flush toilets, Compost toilets, Mobile toilets, Smart toilets, Other toilets. Hence, the Federal, State and Local governments are presently in partnership with the Federal Government of Nigeria, Multinationals and stakeholders to achieve safe hygiene practices for a collective responsibility, memorandum of understanding and benefits to the society.

Objectives

The objectives of this paper are to:

1. Identify preference in building smart toilets (single direct pit, single offset pit and double offset pit) at an estimated cost price for Toiletpreneurs.
2. Showcase the various types of smart toilet Architectural options and solutions for Toiletpreneurs with their levels of aspirations.
3. Ascertain user preferential judgment based on design and construction of smart toilet park sectioned into components of 3 permanent Superstructure, Squatting Platform, Substructures and 3 temporary Superstructure, Squatting Platform, Substructures.
4. Analyze the user preferential judgment of smart toilet Architectural options and solutions for Toiletpreneurs.

Statement of the Problem and Justification

In 2017, only 35% of the population had access to improved sanitation which is not shared and 11 out of all the 774 local governments in Nigeria is open defecation free. Also, in 2015,

Nigeria was highlighted as the 3rd worst country in terms of access to sanitation. 71% of the population does not have access to toilets, especially tourists on their way to various destinations. Nigeria also has the highest rate of under-5 deaths caused by diarrhea – 11 children in every 1,000 die of diarrhea illnesses each year in Nigeria. Diarrhea is one of the three most common killers of young children globally yet 58% of these deaths could be prevented through access to clean water and sanitation. The removal of open defecation has wider implications too. It improves the education and safety of girls and women. In many schools there is a lack of toilet facilities for girls. This means, particularly when they reach puberty, girls often stop attending because they have nowhere to go to the toilet. There is also the darker side to this with reports of rape and attacks of women and girls venturing out into the bushes to go to the toilet. Often they go after dark for privacy – which leaves them vulnerable to attacks. Hence, we need solutions like the smart toilets in which tourists can appreciate and afford to build and use. If all these are revamped, it will therefore be necessary to create conducive environment for a healthy living in Nigeria, using a user experience survey of smart toilet design and construction in Bauchi for sustainability and tourism development. Considering the sanitation sector as a marketplace full of business opportunities, requires serious attention by the stakeholders in filling the gaps of toilets at various spaces and levels which leads to the various toilet types in the toilet park as a sampled model for the user preferential judgment by the Toiletpreneurs.

Literature Review

Nigeria is a country which places a great emphasis on cleanliness. A decree from the days of military government which is still in force mandates that the final Saturday of every month is Sanitation Day, meaning that travel is banned and a curfew enforced until 10 a.m. Families are told to use the time when they are confined to tidy the home. Unfortunately, once household waste is tidied, the problems begin. Nigeria's booming population, an asset in economic growth terms, is placing great pressure on Solid Waste Management (SWM) systems which are in many cases already either antiquated, informal or non-existent (Guardian News, 2016). About 70 million people, out of a population of 171 million, lacked access to safe drinking water, and over 110 million lacked access to improved sanitation in 2013. OD rates, at 28.5 per cent pose grave public health risks. Every year, an estimated 124,000 children under the age of 5 die because of diarrhoea, mainly due to unsafe water, sanitation and hygiene. Lack of adequate water and sanitation are also major causes of other diseases, including respiratory infection and under-nutrition (World Bank, 2009). As a result, Bio-Power Environmental Solutions Ltd says the establishment of high-quality public toilets can generate revenue, create 11,000 jobs and promote a healthier environment in the country (The Cable, 2017). There are ways in which the public and private sectors can join together to complement each other's strengths in providing education services and helping developing countries to meet the Sustainable Development Goals (SDG) waste management and to improve learning outcomes which can even be tailored and targeted specifically to meet the needs of low-income communities (World Bank, 2009). Recently, an interesting alternative to creating septic tanks with re-use materials has proven to help in controlling sanitation problems and regulate waste disposal at low cost (thedomesteadsurvival.com, 2015).

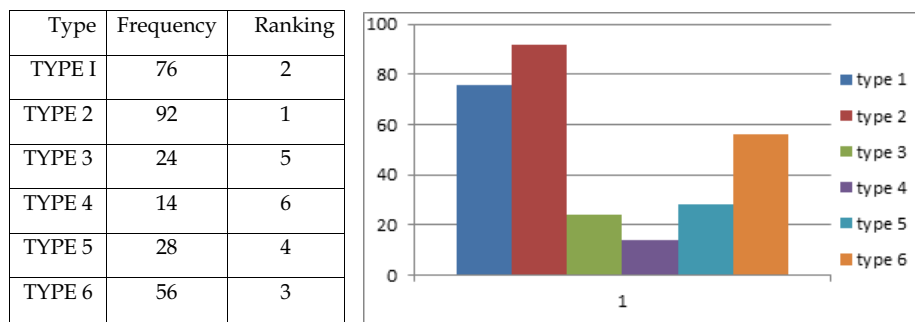
Methodology

The research methodology entails case study qualitative method of design and construction processes and procedures and quantitative analysis using the typical six toilet designs via a user's preferential judgment at the smart toilet park for tourists, using SPSS to generate percentage distribution outputs.

Users Preferential Judgment

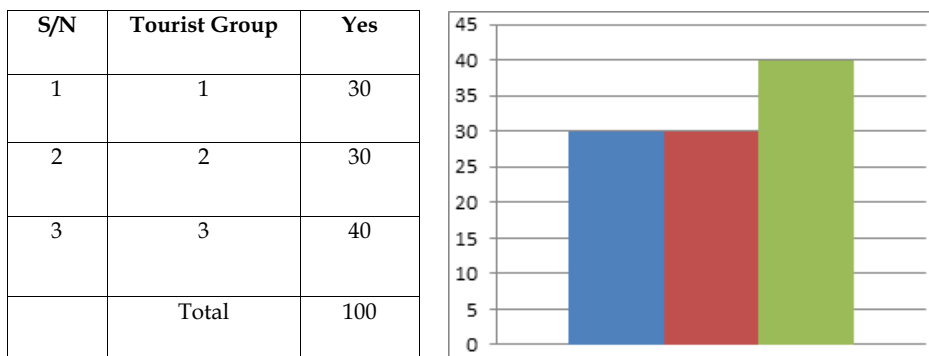
The analysis used case study approach to achieve its objectives as summarized in section 1 to Section 5 below:

Section 1: Type of Model Preferred



From the above SPSS generated percentage distribution output, the highest model preferred is Type 2 with 92 Frequency has the highest ranking of 1 while Type 4 with 14 Frequency has the lowest ranking of 6.

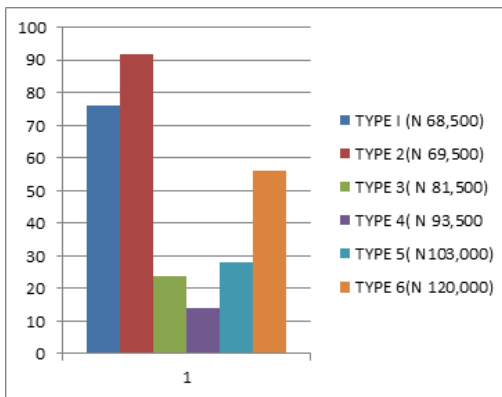
Section 2: Willingness to Construct the Type of the Smart Toilet Seen



From the above SPSS generated percentage distribution output, the highest Tourist Group 3 with 40 Frequency has the highest ranking while Tourist Group 1 and 2 with 30 Frequency has the lowest ranking.

Section 3: Williness to Pay for the types Seen

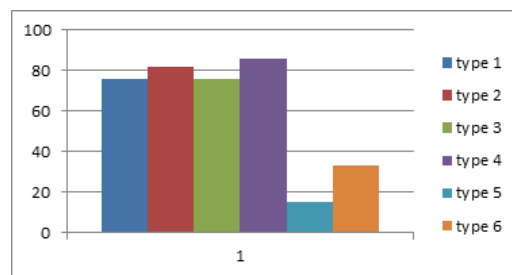
| Toilet Type | Number | Ranking |
|-----------------------|--------|---------|
| TYPE 1 (N 68,500) | 76 | 2 |
| TYPE 2 (N 69,500) | 92 | 1 |
| TYPE 3 (N 81,500) | 24 | 5 |
| TYPE 4 (N 93,500) | 14 | 6 |
| TYPE 5 (N103,000) | 28 | 4 |
| TYPE 6 (N 120,000) | 56 | 3 |



From the above SPSS generated percentage distribution output, the highest Toilet Type 2 with 92 Frequency has the highest ranking of 1 while Toilet Type 4 with 28 Frequency has the lowest ranking of 6.

Section 4: Williness to Obtain Loan for Desired Type of Smart Toilet

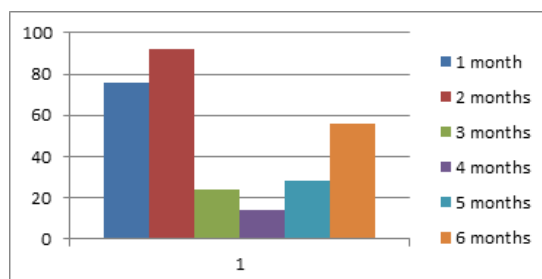
| Toilet Type | Frequency | Ranking |
|-------------|-----------|---------|
| TYPE I | 76 | 3 |
| TYPE 2 | 82 | 2 |
| TYPE 3 | 76 | 3 |
| TYPE 4 | 86 | 1 |
| TYPE 5 | 15 | 6 |
| TYPE 6 | 33 | 5 |



From the above SPSS generated percentage distribution output, the highest Toilet Type 4 with 86 Frequency has the highest ranking of 1 while Toilet Type 5 with 15 Frequency has the lowest ranking of 6.

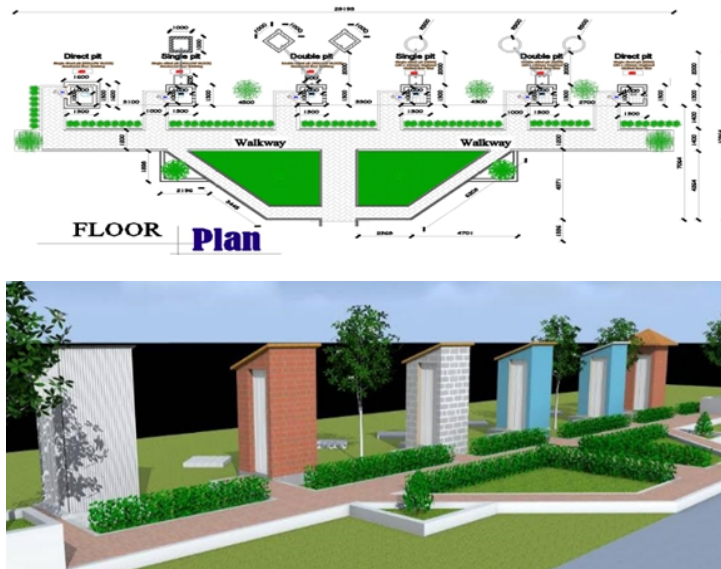
Section 5: Time to Construct Laterine

| Toilet Type | No | Ranking |
|-------------|----|---------|
| 1 MONTH | 76 | 2 |
| 2 MONTHS | 92 | 1 |
| 3 MONTHS | 24 | 6 |
| 4 MONTHS | 14 | 6 |
| 5 MONTHS | 28 | 4 |
| 6 MONTHS | 56 | 3 |



From the above SPSS generated percentage distribution output, Two Months (2) has the highest Frequency of 92 and the highest ranking of 1 while Four (4) Months has the lowest Frequency of 14 and the lowest ranking of 6.

Section 6: Presentation Plan & Three-Dimensional Drawing of the Toilet Park for Tourists at a Glance



Source: 3D Google Sketch up of the Toilet Park Developed by the Authors, 2022

Findings/Results

1. Physical visitations were made to the case study areas by tourists with interviews showed that some existing smart toilet facilities are aspirational.
2. Interviews carried out with the tourists to know how they perceive healthy living suggested that there is little awareness to the concept of sanitation marketing and sanitation financing.
3. Designs of various smart toilet features at the smart toilet park showcased that present conditions can be better improved upon to enhance sustainable, general community clean water and sanitation using indigenous construction materials and technology with organized finance system as illustrated in the design above.
4. Majority of the tourists' respondents prefer Temporary single offset, TYPE 2 smart toilet while the least was Permanent double offset, TYPE 5 smart toilet.
5. It is expected that this work will be able to create, facilitate and support smart toilet demands and supplies.
6. It will also provide the available technology options for healthy smart toilets with hand washing facilities in the North East states grass-root communities.
7. The viability of the established healthy smart toilets with hand washing facilities will prevent Covid-19 pandemic and other infectious diseases and for a source of revenue generation, economic planning, National development and sustainability which will be followed up and monitored for implementation.

Conclusion

The present low participation in smart toilet practices could be linked to lack of awareness, poverty, technical know-how, attitude, mindset of the people and non implementation of government policies. 'Toilet money does not smell shit' means that there is a huge amount of benefits in toilet design, toilet tourism, toilet construction and toilet promotion opportunities are lying down unaccessed. Also, the opportunities and the need to participate in waste management; of waste to wealth, useless to useful, unwanted to most wanted and nothing to something will ensure achievement on the National Tourism Health objectives means that there has to be a collaborative partnership efforts by Government, stakeholders and non-Government organization in order to safe guard the major parameters raised in this paper as majority of the household respondents mostly prefer Temporary single offset, TYPE 2 smart toilet while the least was Permanent double offset, TYPE 5 smart toilet.

Policy Recommendations

The recommendations of smart toilet park for Solutions to Toiletpreneurship, as follows:

1. The government of the day should provide enabling environment to allow for the private sector to inject funds into the Health sector which will in turn provide adequate job opportunities as the country can progress positively.
2. Stakeholders in Public and Private Participation should sponsor and organize massive enlightenment programmes, workshops, promotions, conferences, seminars and symposia in collaboration with all the media houses so that the Solutions to Smart toilet and Toiletpreneurship will be revamped.
3. Schools' toilet trade/Business as Entrepreneurship Education Development should be implemented as toiletpreneurship, so that youth empowerment through toilet related schemes and pedagogy could be spread to MDAs, Parastatals and Politicians.
4. Camps (IDP, Hajj, Christian Pilgrimage, NYSC), and Public Spaces (Hospitals, Motor parks, Market places, etc.) and stakeholders should be facilitated and supported to meet up the Sustainable Development Goal 2025-2030 targets on Sanitation and open defecation free deadline.
5. If all the above are well implemented to its fullest, such a system of opportunities in Sustainable Solutions to Toiletpreneurship would yield better sanitation markets, better toilet structures, and better communities in the built environment.

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