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Appraisal of Existing Sanitation Technology in Nigeria; A Critical Review

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Abstract- The research was carried out in ten states of the country and the results from the communities revealed the backwardness in the provision of sustainable sanitation technology which indicates the whole Nigeria is still having great problem of sustainable sanitation. There should be serious enlightenment campaign about sustainable sanitation technology within Nigeria, while the provision of water by the government to all communities at considerable and affordable cost should be intensified. There should be re-introduction of Public Health Workers in ascertaining provision of good sanitary technology just as in the 70's. Pre-site and post-site visit by the planners before and after given approval for any building to be constructed in Nigeria generally, (especially when the building is to be used for commercial or residential purposes).

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I. Introduction

According to the World Health Organisation (WHO) "Sanitation generally refers to the provision of facilities and services for the safe disposal of human urine and faeces. Inadequate sanitation is a major cause of disease world-wide and improving sanitation is known to have a significant beneficial impact on health both in households and across communities. The word 'sanitation' also refers to the maintenance of hygienic conditions, through services such as garbage collection and wastewater disposal.

The term 'sanitation' can be applied to a specific aspect, concept, location, or strategy, such as:

1. Basic sanitation refers to the management of human faeces at the household level. This terminology is the indicator used to describe the target of the Millennium Development Goal on sanitation;
2. On-site sanitation is the collection and treatment of waste is done where it is deposited. Examples are the use of pit latrines and septic tanks. Food sanitation refers to the hygienic measures for ensuring food safety; and,
3. Environmental sanitation is the control of environmental factors that form links in disease transmission. Subsets of this category are solid waste management, water and wastewater treatment, industrial waste treatment and noise and pollution control.
4. Ecological sanitation is a concept and an approach of recycling to nature the nutrients from human and animal wastes.

II. Water, Sanitation and Hygiene Practice in Nigeria

The current population of Nigerians with access to safe drinking water is estimated at 58% while those with access to sanitation facilities was put at 32%. This is a far cry from the MDG Target of 75% and 63% for 2015(See table below:

III. MDG Target: the Journey So Far

	Situation in Nigeria in 2008	MDG 7 target for 2015
Population with access to safe drinking water	58%	75%
Population with access to basic sanitation	32%	63%

Source: NDHS, 2008

Adult females collect drinking water more often than adult males (26 and 21 percent, respectively). Results also show that both male and female children below age 15 are involved in collecting drinking water. Most households (85 percent) do not treat their water; about 10 percent of households use an appropriate method to treat their drinking water. Alum, boiling, straining through cloth, and bleach or chlorine are the most common methods used by households for water treatment (NPC, 2009).

IV. Sanitation

Safe disposal of excreta and hygienic behaviours are essential for the dignity, status and wellbeing of every person, irrespective of whether they are rich or poor, live in rural or urban areas, small towns or cities. The primary direct impact of sanitation and hygiene promotion is on health, and it's impacts; the most significant is probably the prevention of diarrhoeal disease. The primary barriers to the transmission of diarrhoeal and other water-related diseases include both infrastructure (such as household sanitation) and hygiene practices (washing of hands with soap or a local substitute at critical times) (WSSCC and WHO,

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2005). It is in the light of this the International Community (of which Nigeria is part), committed itself at the World Summit on Sustainable Development that held in Johannesburg in 2002, to 'halve by 2015 the proportion of people without safe sanitation'.

V. The Status of Sanitation in Nigeria

Unless Nigeria fast tracks, it may not meet the MDG target for sanitation of 63 percent access by 2015. United Nations sources estimate that in the last fifteen years, globally rural sanitation access rates have risen just by 3%, from 33% in 1990 to 36% in 2004, while urban sanitation access has gone from 51% to 53% (WHO/UNICEF, 2006). While these access and progress rates are comparable to sub-Saharan Africa averages, Nigeria's large population means that more people are living without sanitation (72 million in 2004) than in any other country in Africa. And at these progress rates, the MDG target for sanitation will not be met. If Nigeria does not meet the target, neither will Africa as a whole (Federal Ministry of Agriculture and Water Resources).

But more important than targets is the impact of the lack of improved sanitation on Nigerian communities. Poor sanitation causes diarrhoea, and the prevalence rate in Nigeria stands, at 18.8% (include source). This contributes to high child mortality rates due to direct deaths from diarrhoea (diarrhoea is the second largest killer of children in the country, after malaria) Poor sanitation is also a major contributing factor to low education enrolment and achievement rates, malnutrition, lagging economic and social development, and poverty as a whole.

VI. Household Sanitation Facilities

A household is classified as having an improved toilet if the toilet is used only by members of one household (i.e., it is not shared with other households) and if the facility used by the household separates the waste from human contact (WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation, 2004).

Table 8 shows that almost three in ten households in Nigeria (27 percent) use an improved toilet facility (31 percent in urban areas and 25 percent in rural areas), while seven in ten households (73 percent) use non-improved facilities (69 percent in urban areas and 75 percent in rural areas). Among households with improved toilet facilities, flush toilets (pipe sewer system, septic tank, or pit latrine) are mainly found in urban areas and are used by 18 percent of households (4 percent in rural areas). Ventilated improved pit (VIP) latrines are more common in the schools in rural areas (14 percent) than in urban areas (9 percent). Overall, 13 percent of households use VIP latrines. Six percent of households use a pit latrine with a slab (6 percent rural and 5 percent urban). Among households with a non-improved toilet facility, 26 percent use facilities that are shared with other households (44 percent urban and 16 percent rural). Less than 1 percent use a flush toilet (not to sewer/septic tank/pit latrine). Overall, 32 percent of households in Nigeria have no toilet facilities. This problem is more common in rural areas (42 percent) than in urban areas (14 percent).

Sanitation practices

Percentage distribution of household and dejure population by type of toilet/latrine facilities, according to residence, Nigeria 2008

Type Of Toilet/Latrine Facilities	Households			Population		
	Urban	Rural	Total	Urban	Rural	Total
Improved, not shared facilities Total	81.4	24.6	27.0	37.5	28.1	31.2
Flush/Pour flush to Piped Sewer System	5,3	1.0	2.5	5.9	1.0	2.6
Flush/Pour flush to septic tank	10.9	2.8	5.8	11.1	1.9	5.0
Flush/pour flush to pit latrine	1.5	0.6	0.9	2.0	0.6	1.1
Ventilate improved pit (VIP) latrine	9.0	14.4	12.5	11.6	17.2	15.3
Pit latrine with slab	4.6	6.4	5.7	6.8	7.2	7.1
Composting toilet	0.0	0.0	0.0	0.0	0.0	0.0
Non-improved facility Total	68.6	75.4	78.0	62.5	71.9	68.8
Any facility shared with other household	44.2	15.7	25.8	89.8	18.0	21.6
Flush/pour flush not to sewer/septic tank/pit latrine	0.4	0.1	0.2	0.4	0.1	0.2
Fit latrine without slab/open pit	7.8	14.2	11.9	9.2	15.7	18.5
Bucket	0.1	0.1	0.1	0.1	0.0	0.1
Hanging Toilet/hanging latrine	1.7	1.7	1.7	1.2	1.4	1.4

No facility/bush/field	13.5	42.2	32.1	11.8	40.2	30.5
Other	0.5	0.8	0.7	0.4	0.8	0.7
Missing	0.5	0.6	0.6	0.6	0.6	0.5
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number	12,100	21,970	84,070	51,147	100,442	150,589

VII. Situation Evaluation

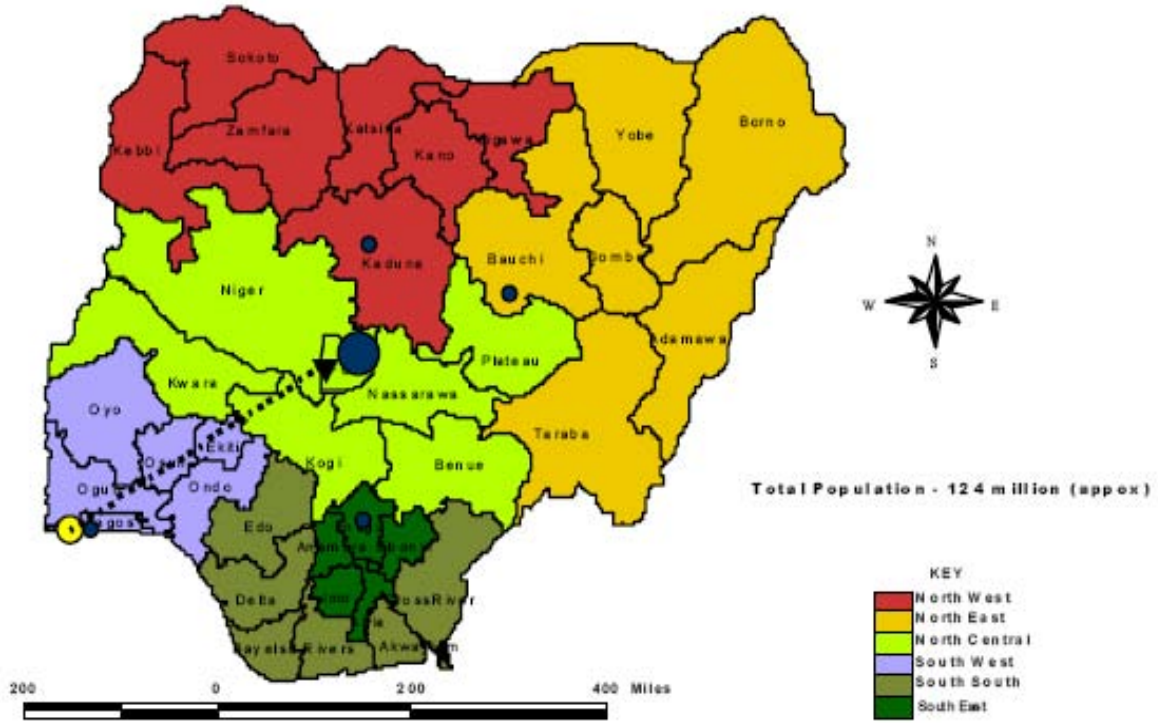
The Water, Sanitation and Hygiene (WASH) sector in Nigeria is faced with substantial policy, institutional and financial challenges. Water and sanitation has recently slipped from the federal government's top priorities. Although Nigeria has a comprehensive water and sanitation policy in place, safe excreta disposal is not any institution's primary responsibility,? (Pls check the Sanitation policy produced by the Federal Ministry of Environment) and hygiene remains an afterthought. Many states do not have WASH policies. The linkages between the Federal Ministry of Agriculture and Water Resources (FMAWR) – responsible for WASH programmes - and state Ministries of Water Resources, are weak. Problems across states include poor functionality, badly-designed tariff structures for sanitation? and underfunding of software such as community mobilization, sanitation and hygiene promotion, and operations and maintenance activities to support hardware facilities installed (WaterAid, 2009).

Water and sanitation services have been devolved to Local Government Agencies (LGAs) in every state. LGAs are solely responsible for ensuring access and use of these services. However, lack of autonomy, budget limitations; and poor capacity, have hampered their ability to carry out these duties effectively. The LGA WASH Units in donor-assisted states, tasked with management and implementation of various projects, are dynamic, energetic and display a higher capacity to deliver quality services than the LGAs in states where donors are not present. Civil society participation is limited and sector capacity is weak. Competing resource demands, partly caused by the consolidation of government ministries, has led to underfunding of water and sanitation in Nigeria. Expenditure has decreased in recent years and is inadequate to enable Nigeria to meet its MDG targets on water and sanitation. A lack of government–led donor harmonization further exacerbates the paucity of funding, resulting in disparate projects, duplication, and lack of lesson learning (WaterAid, 2009).

Nigeria has 12 million more people without access to safe water and another 40 million people without access to improved sanitation than it had in 1990.sixty five million out of an estimated population of 150 million do not have access to safe water supply. Also, over 100 million people do not have access to improved sanitation like latrines or toilets, and a large population practice open defecation. However, it not sufficient to provide communities with a supply of safe water and latrines, hygiene promotion is essential if people are to use the facilities properly and avoid water- and sanitation-related diseases. Lack of sanitation is not just a health issue; it affects girls' education and security (UNICEF, 2010).

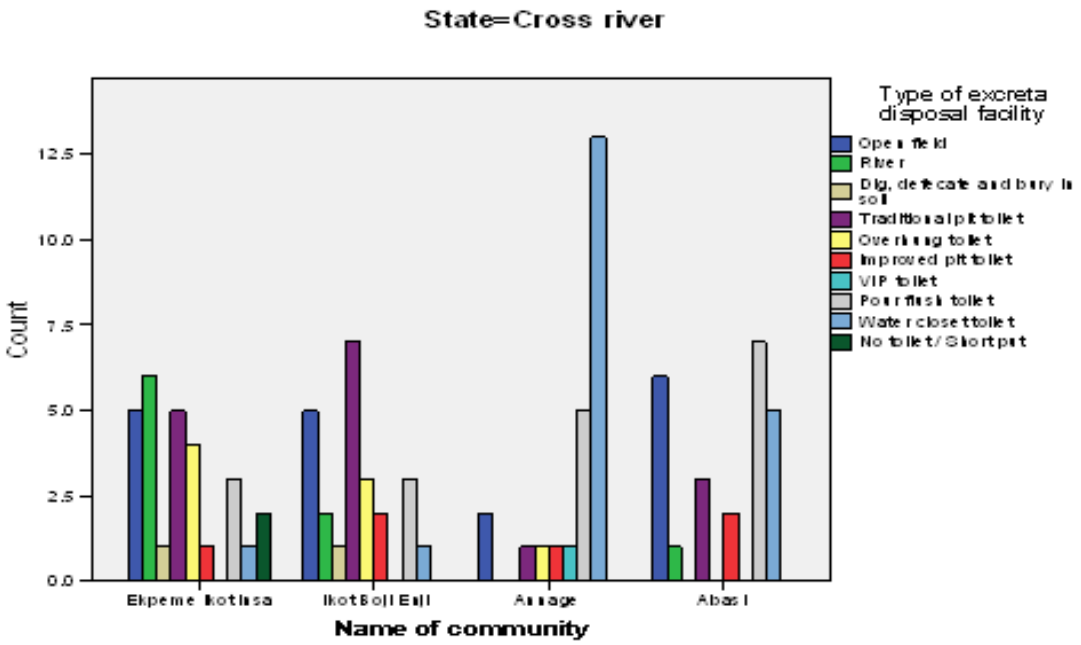
According to WaterAid (nd?), provision of water and sanitation services without being demanded is like a support offered to an unwilling recipient. In many communities in Nigeria today, water and sanitation services are delivered not on demand but on assumption that people in such areas need them. Facilities provided in this manner are hardly used and often abandoned or vandalized.

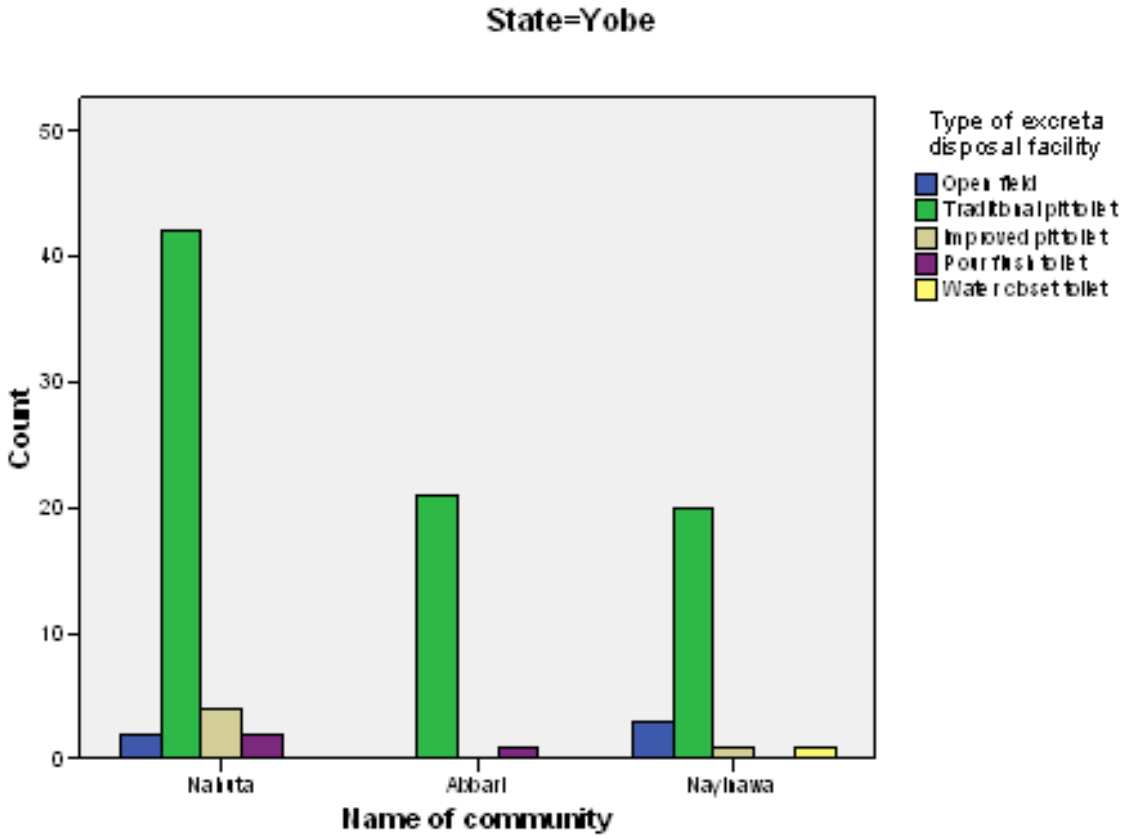
The study locations

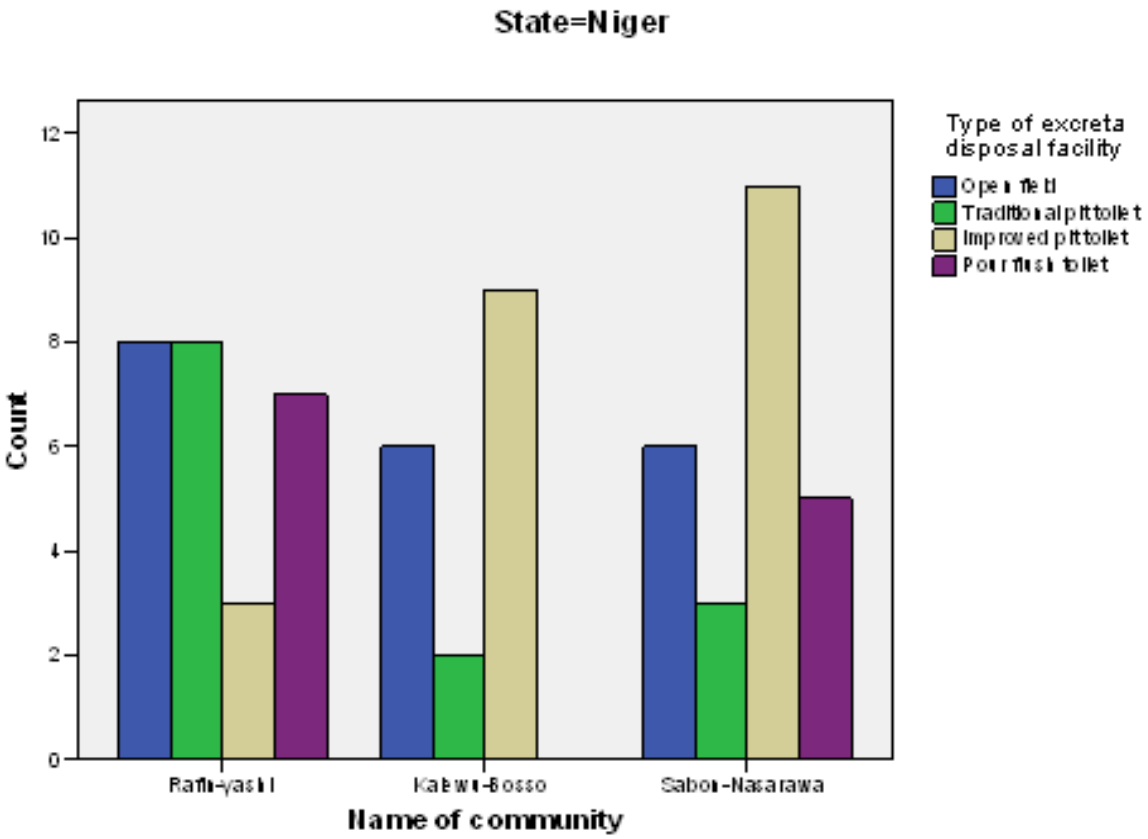


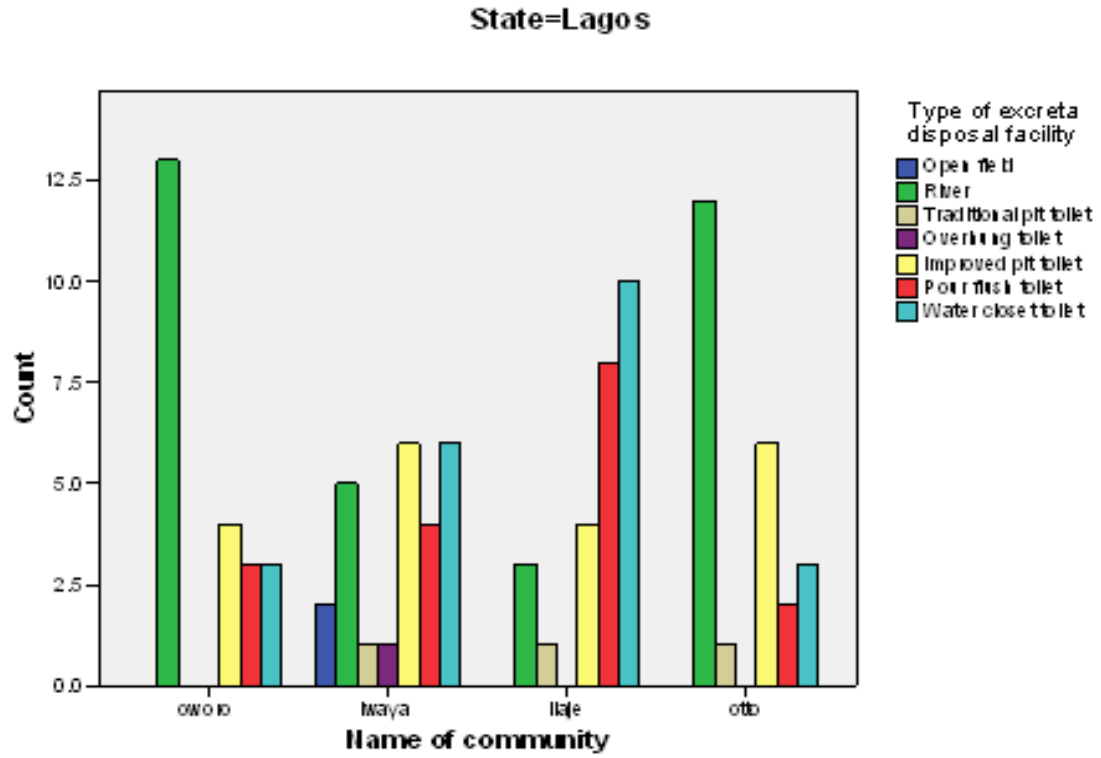
States with Sanitation Problems (Based On Soils)

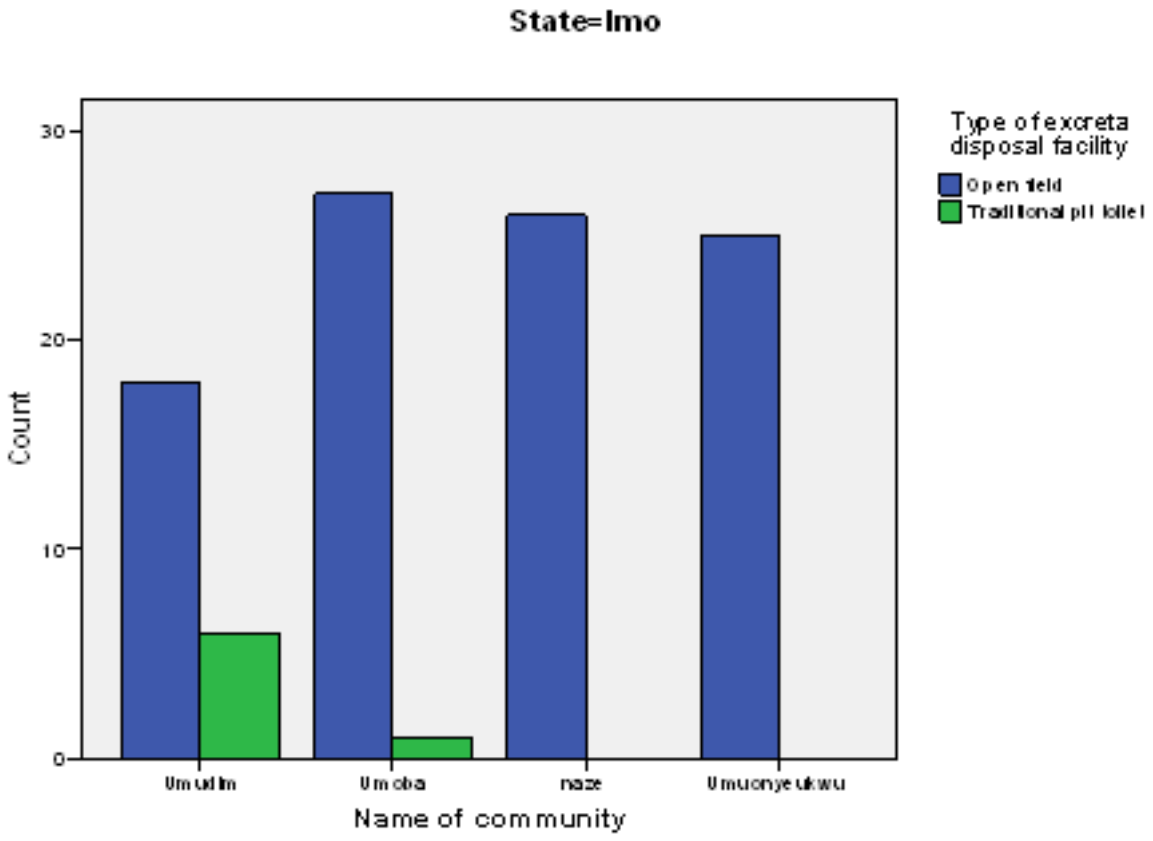
State	Predominant Soil Type-	Rank
Bayelsa	Hydromorphic soils	1
Rivers	Hydromorphic soils	2
Delta	Hydromorphic soils	3
Lagos	Hydromorphic soils	4
Borno	Hydromorphic with weakly developed soils	5
Yobe	Hydromorphic with weakly developed soils	6
Benue	With significant amount of Hydromorphic soils	7
Kebbi	With significant amount of Hydromorphic soils	8
Nasarawa	With significant amount of Ferrisols soils	9
Niger	With significant amount of Ferrisols soils	10
Sokoto	With significant amount of weakly developed soil	11

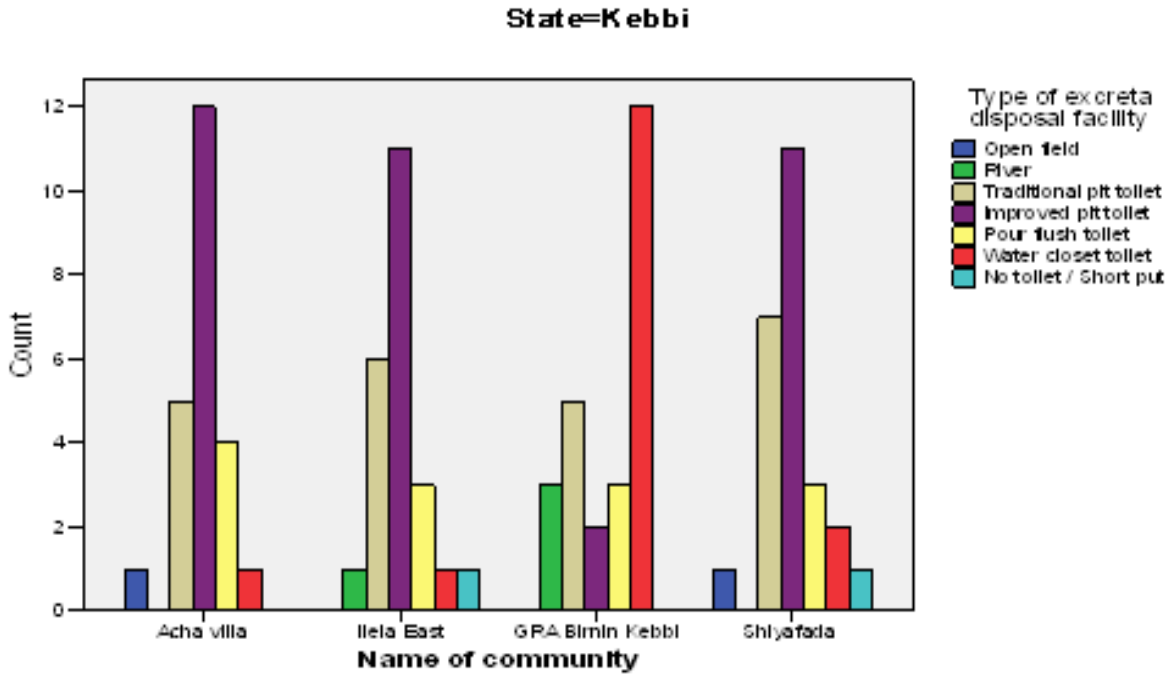


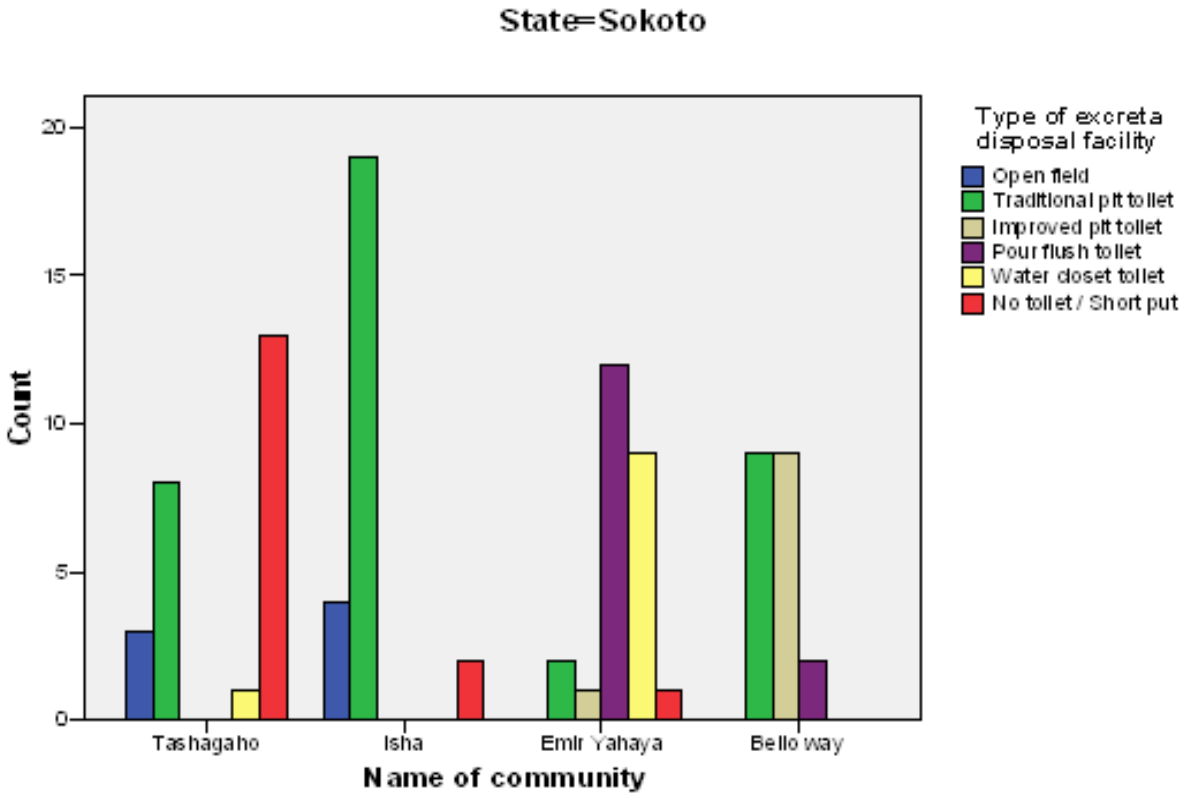


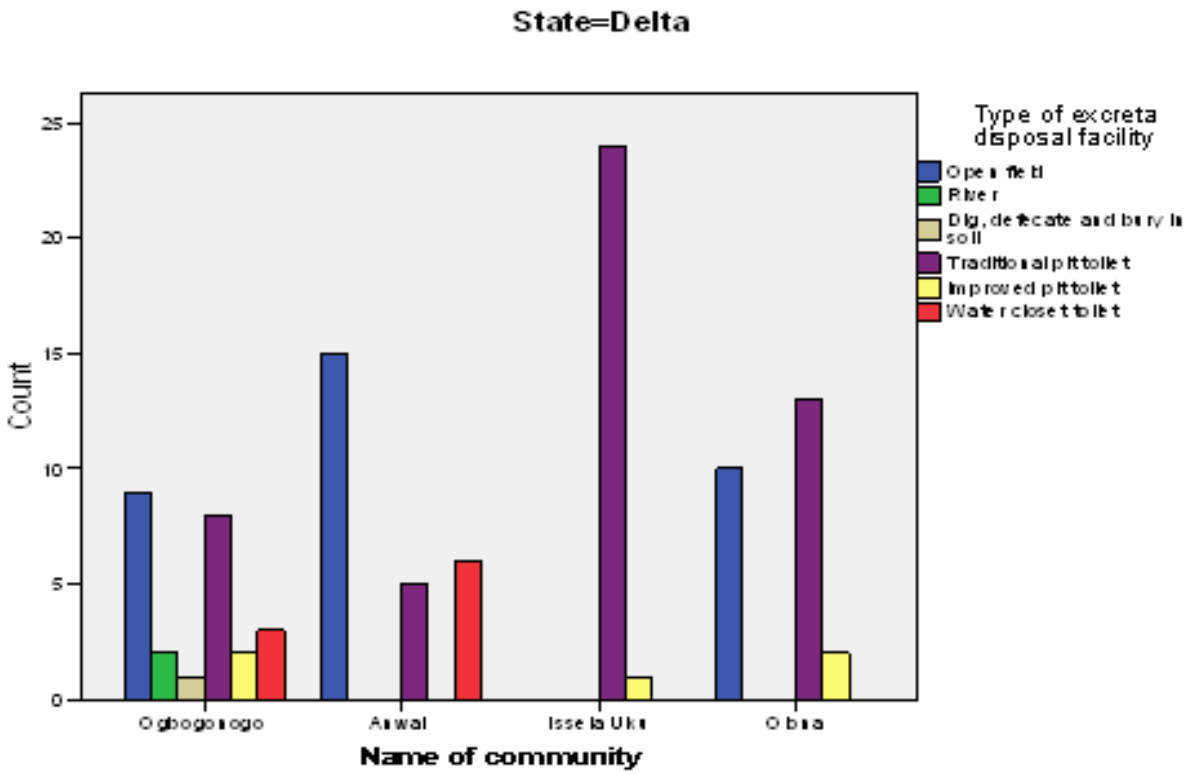


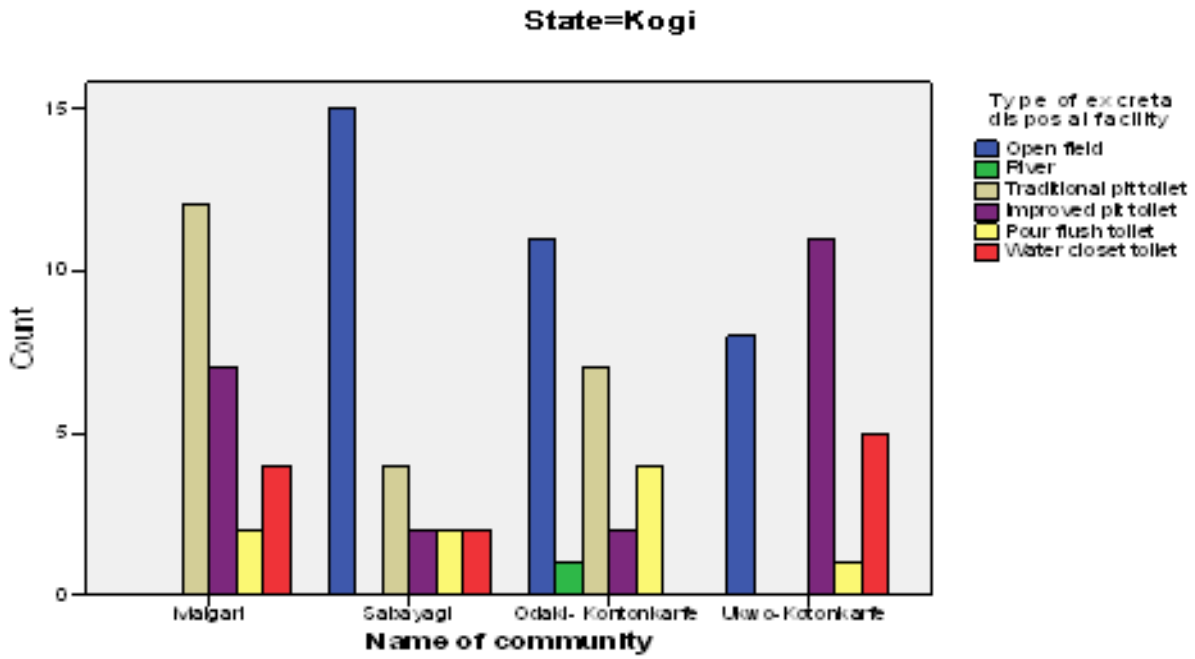


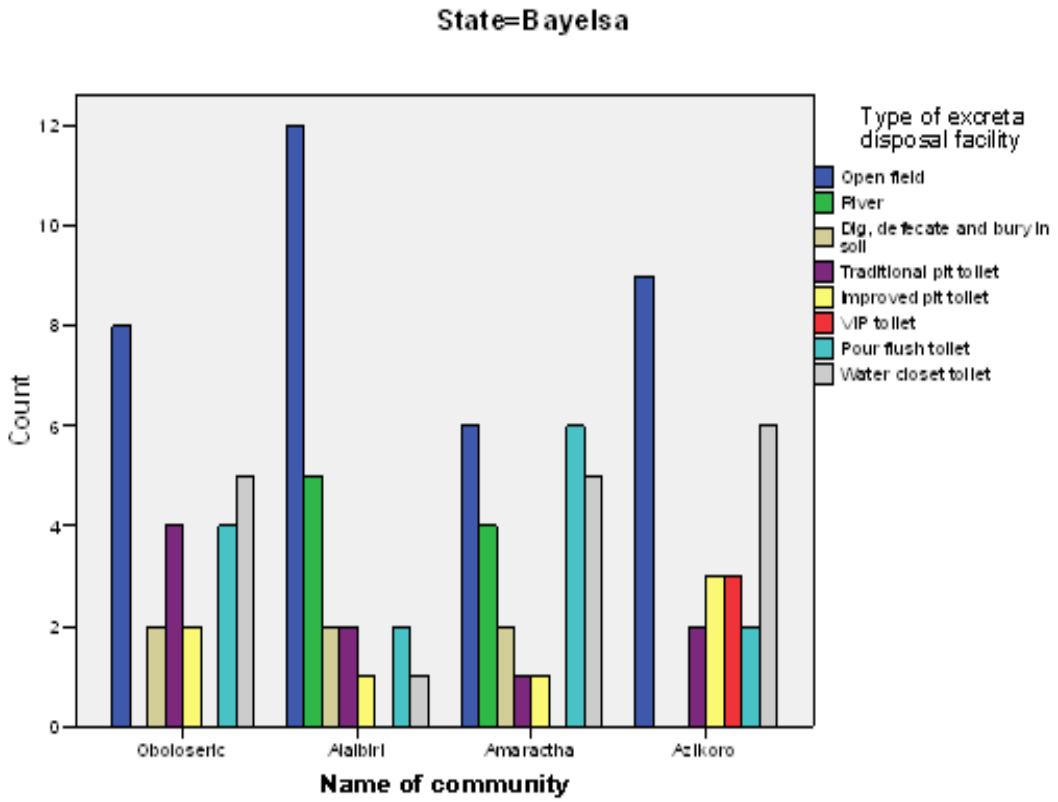












Constraints for toilet construction		Floods	Floating riverine	Loose soils	High watertable	Hard rocky	No water / money	Total
Total All States	Count	431	44	43	44	138	110	810
	% within State	53.2%	5.4%	5.3%	5.4%	17.0%	13.6%	100.0 %
	% within What would you consider to be the major challenge(s)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0 %	100.0 %
	% of Total	53.2%	5.4%	5.3%	5.4%	17.0%	13.6%	100.0 %

Presence of Superstructure

Problems of facilities

State	Leakages, %	High water table, %	Collapsed, %
Kogi	24.3	8.1	8.1
Cross River	6.3	3.1	6.3
Niger	0	0	4.8
Bayelsa	9.5	4.8	9.5
Yobe	16.7	8.3	20.8
Lagos	5.6	16.7	0
Kebbi	6.5	6.5	6.5
Sokoto	12.5	12.5	12.5
Imo	-	36.1	-
Delta	2.5	5.0	-

Preference for new toilets

State	Pour Flush, %	Improved toilet, %	WC, %	Traditional, %
Kogi	12.5	25.0	20.0	-
Cross River	14.3	5.7	54.3	-
Niger	15.8	31.6	7.9	-
Bayelsa	38.7	16.1	38.7	-
Yobe	-	-	-	86.0
Lagos	19.4	-	77.8	-
Kebbi	-	2.8	11.8	86.3
Sokoto	-	-	5.0	96.0
Imo	-	-	-	100.0
Delta	-	-	-	90.2

YOBE

LAGOS

IMO

VIII. The Challenges

From the study so far, the challenges seem to be:

- Communities are aware of their needs of sanitation
- Given an opportunity, they prefer water closet or septic tanks in the south eastern region;
- In the north traditional pit latrines are preferred possibly due to their religious and cultural background; some communities also preferred upgrading the toilet facility to a better system; pour-flush system is acceptable in several places
- Finances/poverty are a major concern;
- In some locations the hydro-geological nature of soil is affecting the quality of sanitation system to be put in place; this demands only certain types which can withstand the soil type;
- Culturally, blocks, cement and iron materials are used in the construction of the toilets;
- Communities are ready to go for a better sanitation system if available and migrate from the present practices.

VIP TOILETS (STEP BY STEP)

Caring the Disabled (Bungudu)

This is the first time an equal-access latrine has been constructed in Nafisa's school. The UNICEF-supported structure offers a concrete wheelchair ramp as well as a set of crutches and other forms of stability. In place of the traditional hole, there is an easy-to-clean seat. The door is wide enough to accommodate a wheelchair and Nafisa was able to wash her hands without difficulty.

Which way forward to meet the challenges?

- **A few model sanitary units appropriate and suitable in various hydrogeolical zones will be a way forward as demonstration units which can be replicated by the communities with the assistance from LG, NGOs, and other agencies.**
- **Choose what you want from the World Toilet museum !!**

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