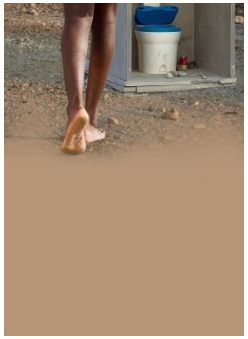
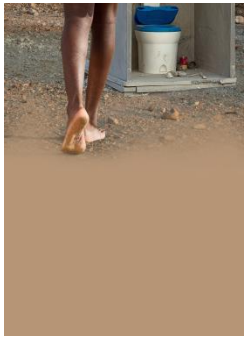


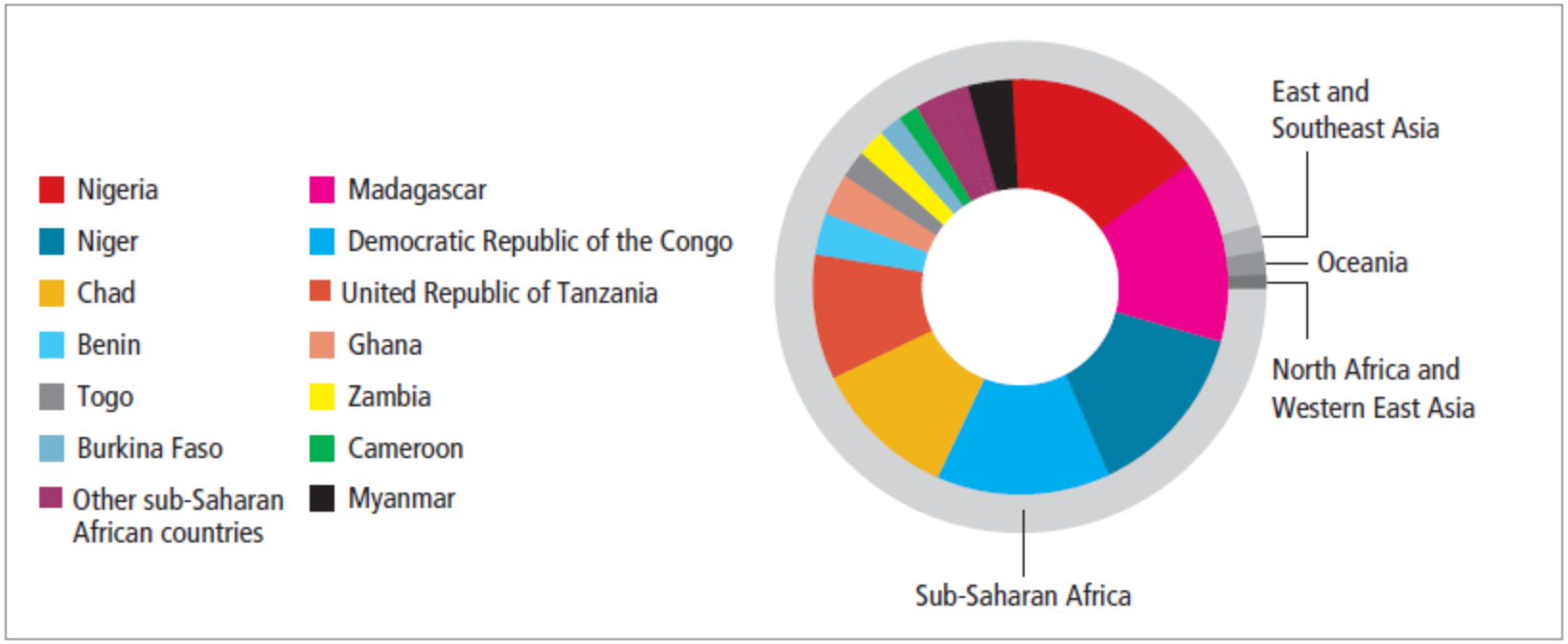
NIGERIA

IMPROVING THE STATE OF SANITATION

SUSMITA SENGUPTA
PROGRAMME MANAGER
CENTRE FOR SCIENCE AND ENVIRONMENT, NEW DELHI

Increase in number of people defecating in the open between 2000 and 2017

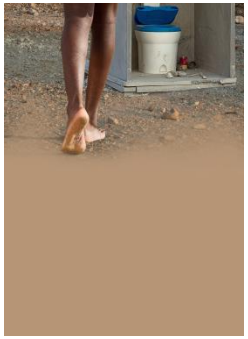


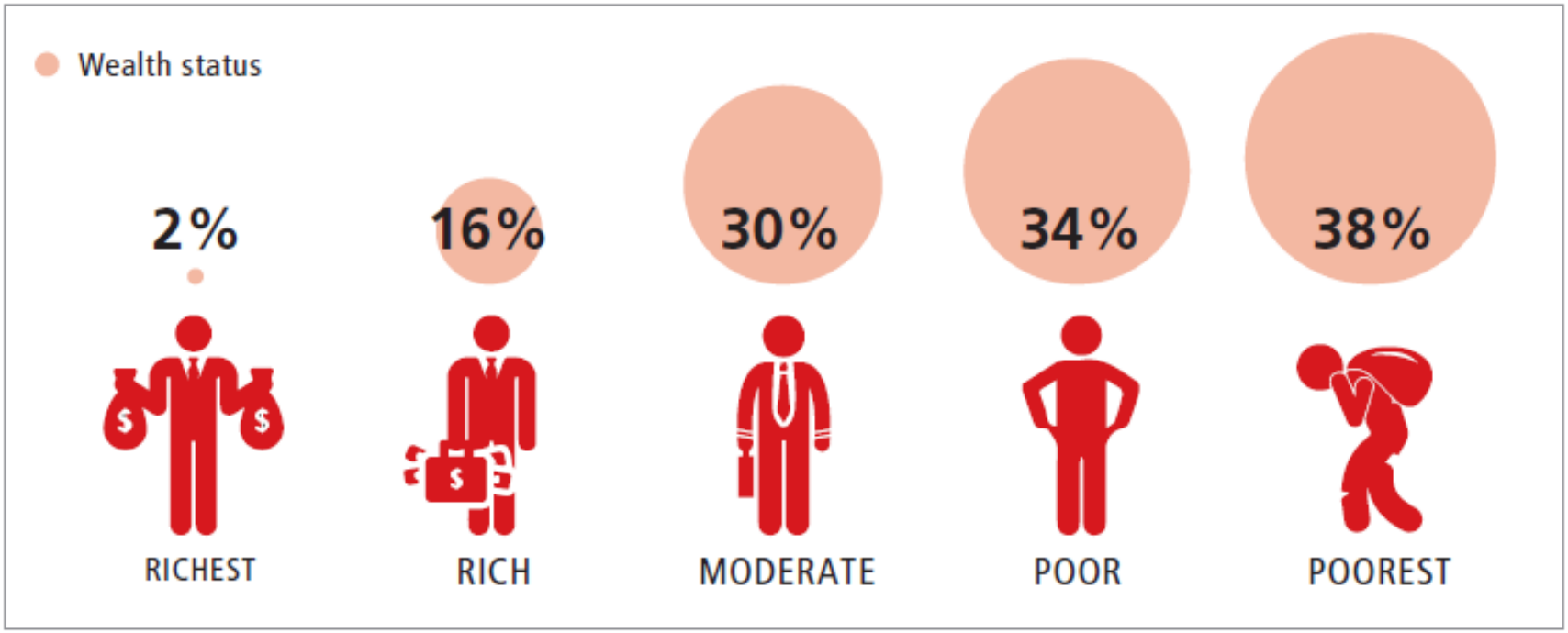


Source: JMP, 2019.

Increase is around 43 million

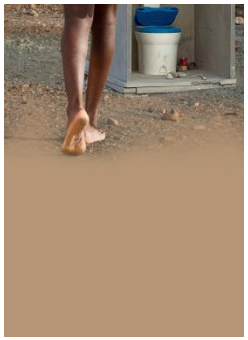
Open defecation in Nigeria

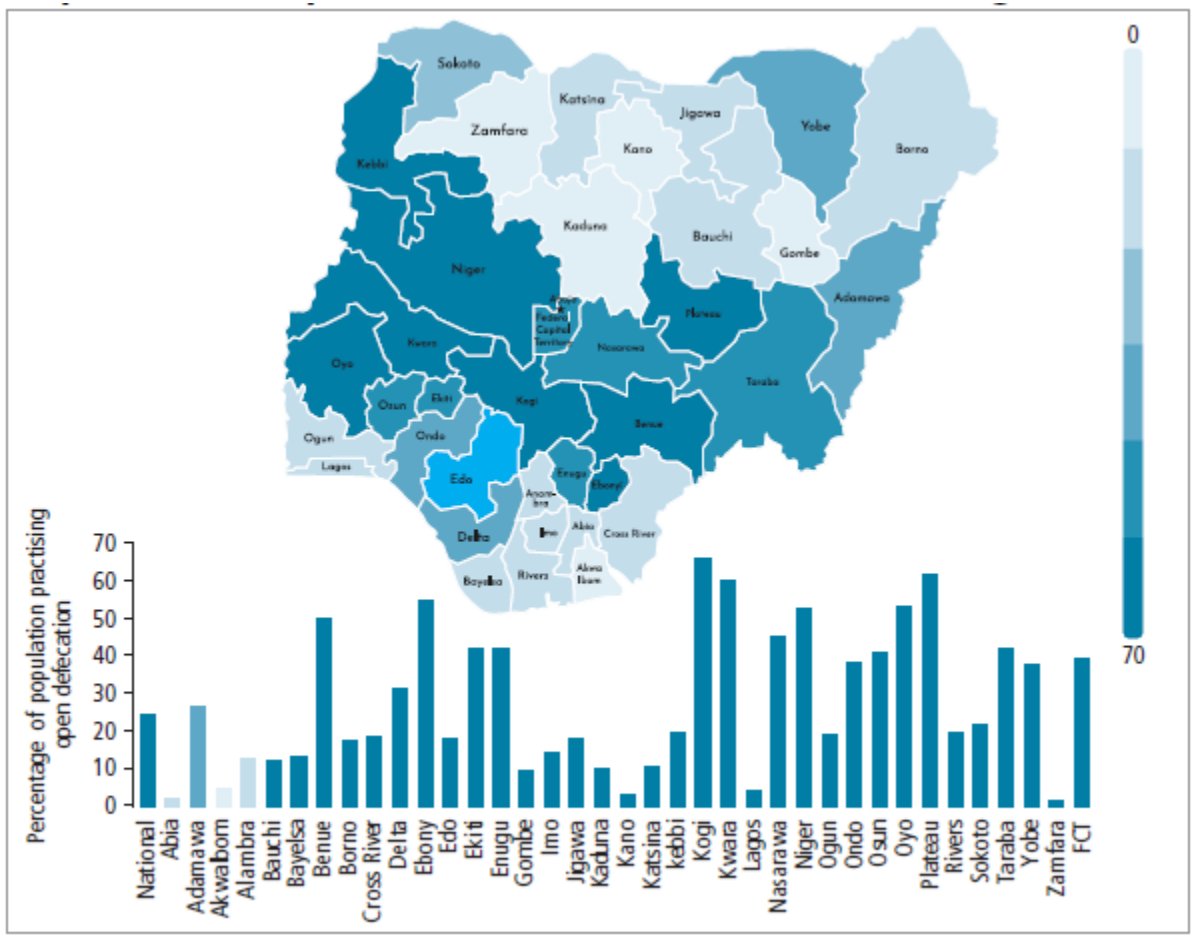




Source: WASH-NORM Survey, 2018.

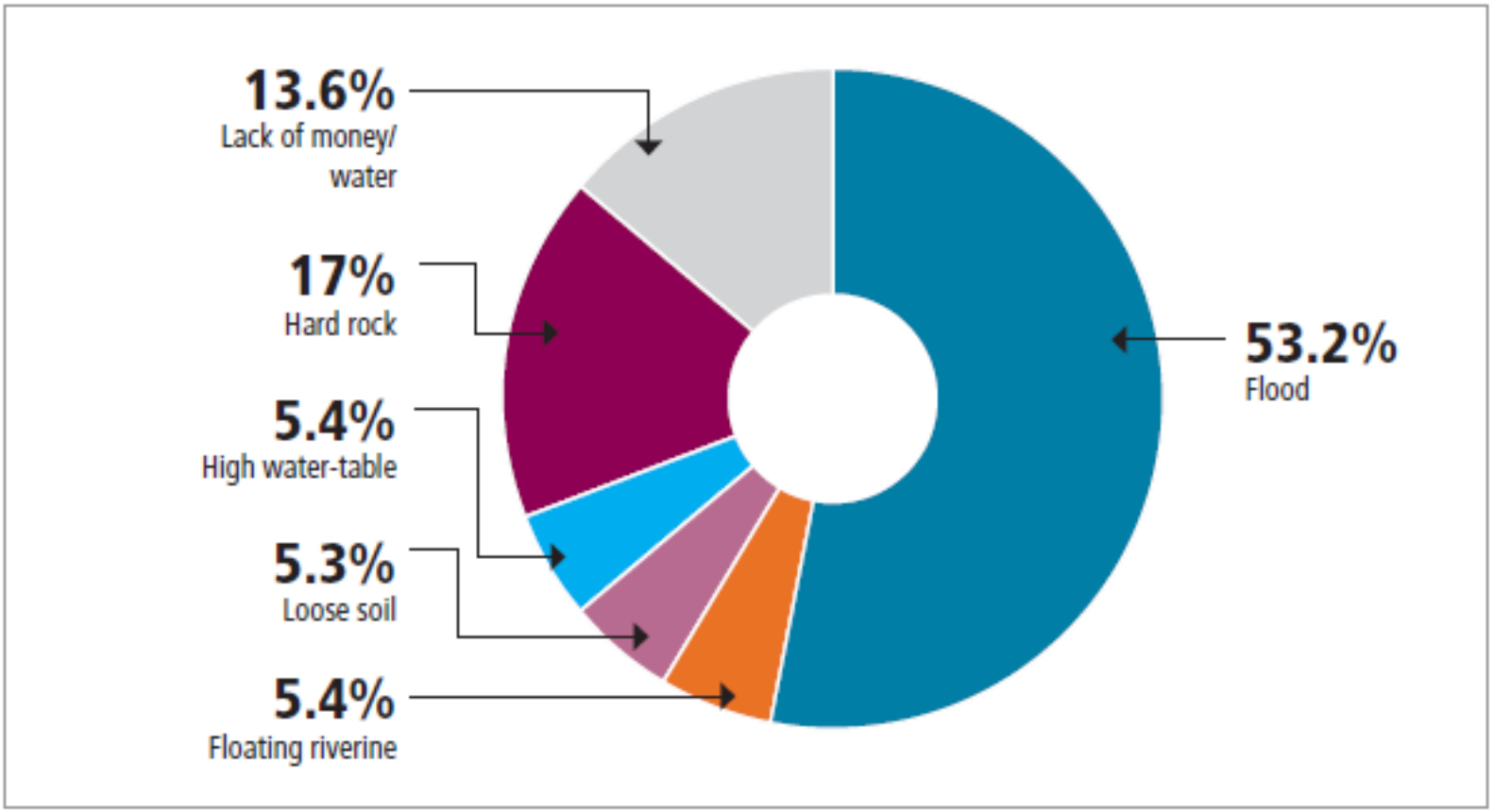
Open defecation in different states





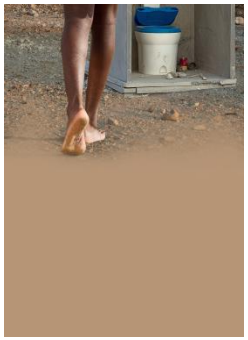
Source: WASH-NORM Survey, 2018.

Why people practice open defecation?



Source: Abogan, S.O. 2014. Appraisal of Existing Sanitation Technology in Nigeria; A Critical Review. Global Journal of Human Social Science: *B, Geography, Geo-Sciences, Environmental Disaster Management. Volume 14 Issue 1 Version 1.0 Year 2014*

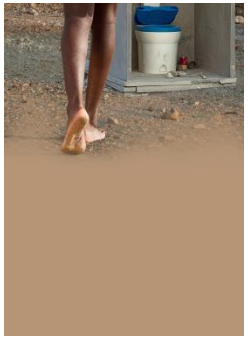
Sanitation facilities in urban and rural Nigeria



Sanitation facility	Urban	Rural
Flush to piped sewer	4.10	1.20
Flush to septic tank	8.47	1.84
Flush to pit toilet	4.11	1.44
Flush to somewhere else/no idea	0.19	0.09
VIP toilets	7.64	11.39
Pit toilet with slab (drop hole)	6.04	6.30
Pit toilet without slab (drop hole)	2.18	10.64
Open defecation	7.52	23.78
Hanging toilets	0.85	2.01
Composting toilets, bucket toilets and others	0.09	0.13

Source: Ismaila Rimi Abubakar, 2017. Access to Sanitation Facilities among Nigerian Households: Determinants and Sustainability Implications. Sustainability, *9, 547*

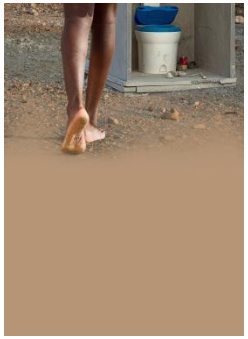
Sanitation facilities and status of household wealth in Nigeria

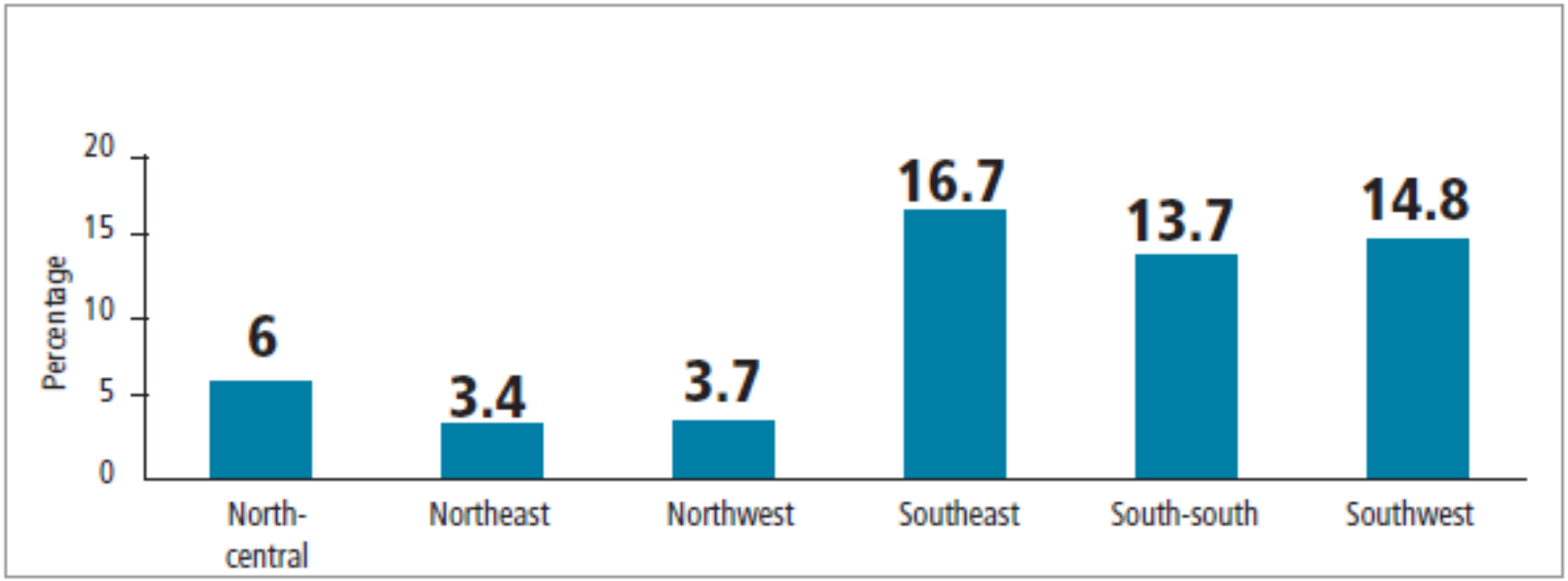


Sanitation facility	Poorest (%)	Poorer (%)	Middle (%)	Richer (%)	Richest (%)
Flush to piped sewer	1.00	0.01	0.11	0.95	4.23
Flush to septic tank	0.00	0.01	0.21	1.60	8.50
Flush to pit toilet	0.02	0.07	0.40	1.70	3.36
Flush to unknown place	0.00	0.01	0.04	0.08	0.16
VIP toilets	0.00	0.01	0.04	0.08	0.16
Pit toilet with slab	0.56	1.42	3.44	4.95	1.96
Pit toilet without slab	4.24	4.04	2.65	1.52	0.37
Open defecation	6.82	8.44	9.41	5.64	0.99
Hanging toilets	0.08	0.44	0.92	0.98	0.44
Composting toilets, bucket toilets and others	0.04	0.03	0.05	0.04	0.05

Source: Ismaila Rimi Abubakar, 2017. Access to Sanitation Facilities among Nigerian Households: Determinants and Sustainability Implications. Sustainability, 9, 547;

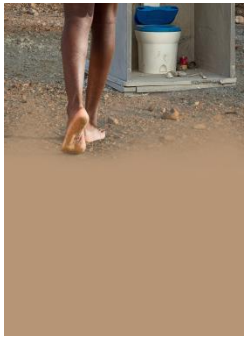
Improved toilets and menstrual hygiene management in schools - in different geopolitical zones





Source: WASH-NORM, 2018.

Contamination of groundwater near toilet pits in Kano state

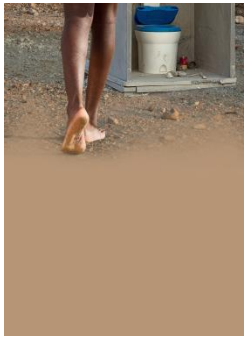


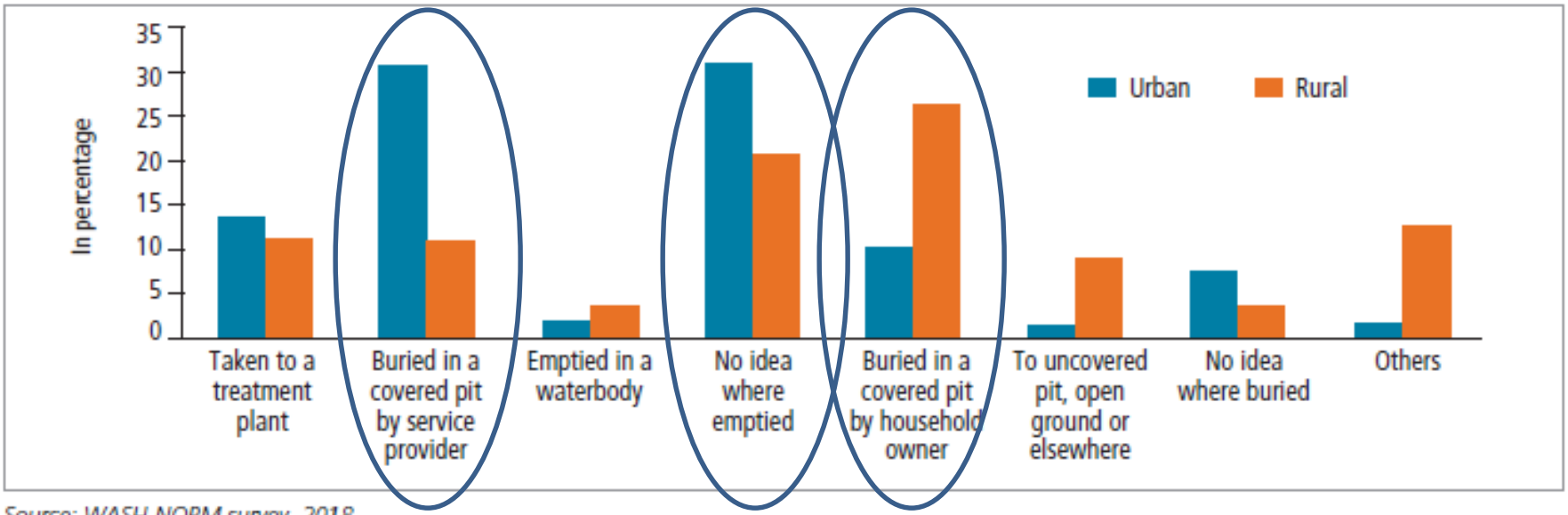
Sample site	Distance between groundwater source and pit (m)	Depth of pit (m)	Groundwater level (m)	Infiltration layer (m)	Coliform (MPN/100 ml)
K/Ruwa	1.3	5.1	5.2	0.1	2,400
Kantudu	1.5	8.5	10.6	2.1	240
Kaigama	2.2	7.3	7.6	0.3	1,100
Madigawa	3.5	6	6.2	0.2	1,100
Kabuwaya	3.8	6.5	9.4	2.9	15
Bakin Rawa	4.2	6.5	7.1	0.6	460
Gobirawa	4.5	5.8	7.8	2	93
Dala	5.1	7.2	8.2	1	150
Yalwa	5.5	6.7	8.8	2.1	75
K/Mazugal	7.5	8.1	13.4	5.3	15
Gwammaja	8.2	6.8	8.2	1.4	210
Adakawa	9.3	7.5	11.2	3.7	7

NSDWQ standard: 10 MPN/100 ml; MPN = Most probable number

Source: Abdulkadir R.S., Mahmoud A.M., Adnan A., Shamsuddeen U., Adamu R. T., Yunusa I. 2014. Effect of Pit Toilet Leaks on Shallow Well Water. International Journal of Microbiology and Application. *Vol. 1, no. 5, pp. 46–51.*

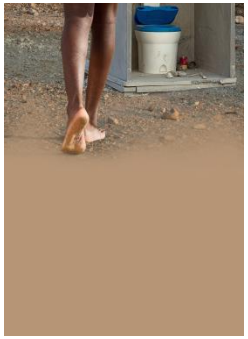
Handling faecal sludge in Nigeria





Source: WASH-NORM survey, 2018.

Recommendations

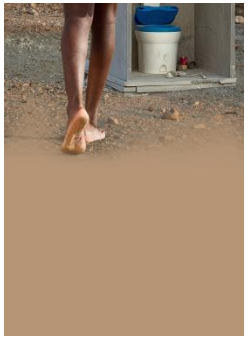


Task 1: Strengthening legal and institutional structures for effective implementation

The existing 2005 Policy Guidelines on Excreta and Sewage Management should be revised to bring clarity in the institutional structure. Our recommendations are:

- The **roles and responsibilities** of the different stakeholders, from household owners to government authorities and private agencies, should be well defined
- **Capacity-building and awareness** programmes should be planned for users, artisans, NGOs and government authorities involved in the sanitation sector
- The local government authorities should develop and implement faecal sludge **bylaws**, comprising conversion of insanitary toilets to sanitary toilets and implementing best practices of emptying and collecting faecal sludge and transporting it to treatment facilities. Conditions for issuing licenses to private de-sludgers should be well defined to safeguard the health of the people who empty the pits/tanks as well as the community
- The model of **dual licensing and sanitation tax** should be **implemented to operate and maintain faecal sludge treatment plants**. While discharge licensing should control private sludge-emptiers, government will need to monitor the schedule for de-sludging

Recommendations

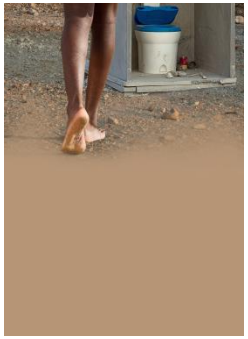


Task 2: Create manual/menu of toilet technologies, which are linked to treatment systems

Nigeria has diverse ecological conditions varying from dry areas in the north to flood-prone areas in the south. Toilet technologies are accordingly proposed as follows:

- **Biogas-plant-linked** toilets are the best option for every part of the country
- **Dual-pit toilets** are suitable for areas that have limited water supply, especially the **arid areas** in the north. Honeycomb brick masonry structures, normally used in dual-pit toilets, can be replaced by perforated cement rings where the soil is loose
- **Ecological sanitation toilet** is suitable for areas where water is scarce as well as those that easily get **waterlogged**
- **Septic tanks** are suitable in **small towns** (classified as rural by the 2018 WASH-NORM report) without a centralized sewer system, **where cost is not a constraint**.

Recommendations

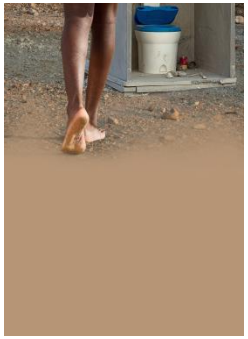


Task 3: Work on ensuring safe treatment/reuse of household excreta

The following options are suggested:

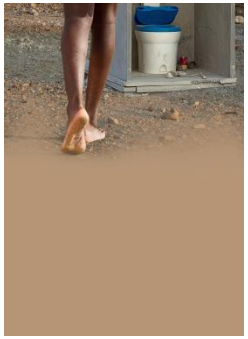
- Constructed wetlands, at the community level, are the best option for rural areas. In the southern part of the country, which is prone to severe waterlogging, the base of the wetlands should be structurally modified as per soil conditions
- Soil biotechnology is the best option to treat wastewater at the community level in small towns, where cost is not a constraint.

Recommendations



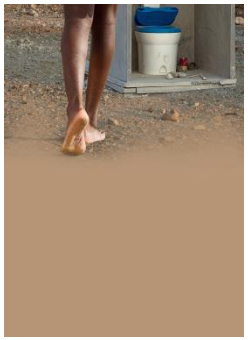
- To treat faecal sludge in rural areas, the following steps are suggested:
- A combination of sedimentation tanks and reed bed filter to effectively separate solid and liquid parts of the sludge
- This should be followed by treating the liquid in stabilization tanks and the solid by co-composting it with organic waste. The end-product can be reused. The treated liquid can be used for irrigation and the solid as manure in fields

Recommendations



- In cases where existing sewage treatment plants are near by, sludge from the settlements can be brought to these plants and co-treated with sewage. This is a more cost-effective option than building new faecal sludge treatment plants

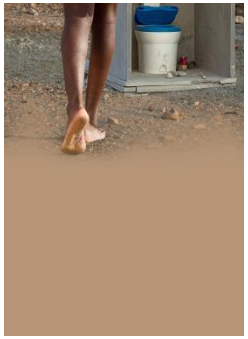
Recommendations



Task 4: Link water availability with sanitation and reuse

The country should implement the following:

- Introduce small-scale water-harvesting systems
- Revive traditional water-harvesting systems
- Focus on groundwater-recharge structures
- Involve communities (especially women) in small-scale projects. Make them aware and motivate them through incentivized schemes
- Water should be mandated for functional toilets. Government should provide support to the communities



Thank You