Water meanings, sanitation practices and hygiene behaviours in the cultural mirror: a perspective from Nigeria

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ABSTRACT

This paper focuses on water meanings, sanitation practices and hygiene behaviours from a cultural perspective in southern Nigeria. Attention was directed on how cultural understanding of water influences sanitation practices as well as the challenges such a relationship poses on public health and sanitation programmes in rural Nigeria. A wide range of meanings, beliefs, values and taboos surrounded local notions and ideas of water and sanitation which were noted to determine available responsive practices and norms. Socio-economic characteristics, physical location and cultural factors were used in explaining the degrees, scale and impact of observed practices and norms across space and time. The paper argues that it will make more practical sense if water and sanitation problems are addressed within the cultural foundation, to understand the realities of local circumstances of beliefs and values, than applying the logic of pure science. This is very important in designing interventions to reduce risks in deeply cultural communities.

Key words | beliefs, culture, hygiene behaviours, Nigeria, sanitation practices, water

INTRODUCTION

For many years, tremendous efforts have been made to link important disease epidemics to water supply and sanitation practices (White et al. 1972; Khan 1982; Aung & Hlaing 1989; Kolsky & Blumenthal 1995; Cairncross et al. 1996; Curtis et al. 2000; Ikurekong et al. 2008; Saravanan & Mollinga 2010). Such efforts have dominated the basis of modern diagnosis and intervention programmes often mobilised around the strategic disruption, interruption or weakening of the chain of contamination cycles or disease transmission pathways (Khan 1982; Aung & Hlaing 1989-cited in Kolsky 1995; Esrey et al. 1991; Curtis & Cairncross 2003). Although water mediates the transmission of micro-organisms or parasites onto humans, unsafe sanitation practices and lack of environmental hygiene catalyse the spread of infections. Conventional science often employs the logic of biological evidence in understanding environmental and behavioural factors of water contamination and the spread of diseases as evidenced in a number of reviews (Curtis et al. 2000). What seems to be missing in such thinking is the role of cultural factors of beliefs, norms, values, local knowledge and spirituality in influencing the broader contexts of behaviours for which contaminations and spread of diseases occur.

In an extensive review of literature, Jewitt (2011) captured both the spatial and temporal dimensions of cultural factors that constrain intervention efforts to address the water and sanitation challenges in developing countries. Among the factors are taboos and ambivalence surrounding human excrement (Douglas 1966; Van der Geest 1998; Black & Fawcett 2008) and enhanced status of individuals, among other socio-economic and physical factors (Jenkins & Curtis 2005). Of particular interest in Jewitt’s review are reports of: (a) Madagascar’s cultural taboo against storing sewage underground for fear of contaminating the dead and putting one person’s faeces on top of another’s both of which exclude the use of drop and store systems (citing Ramanantsoa 2004; Black &
Fawcett 2008); (b) resistance against the use of cesspits in Uganda for fear of allowing excreta to be used by sorcerers to cause harm (citing Gillanders 1940). Many cases of cultural tolerance for the handling of faeces (faecophilia) associated with ‘night soil’ activity in China, India, and Ghana have been reported (Esrey et al. 1998; Van der Geest 1998; Ramaswamy 2005; Har-Davis 2008).

A World Health Organization (WHO) report on drinking water noted that in some Asian countries people’s idea of what is ‘good’ potable water does not take into account chemical, organic or bacterial pollutants (Barnabas 1982). Sheat (1992) while acknowledging the importance of local knowledge of water, argues for locally sensitive and flexible policies and programmes given that the perception of water quality may very well become more important than the reality. According to Derryberry (1954), people’s ideas and perceptions may be correct, but even if they are not, the people are just as sure they are correct as the sanitarian is sure they are mistaken. Babe (1997) had remarked that ‘when we give meaning to the objects of interactions, people act on them, which affects them.’ Such meanings reflect long-standing norms of relationship and consequently tend to determine accompanying behaviours. Therefore, water and sanitation issues go beyond the question of the science of the contamination cycle and simple hygiene to a broader context of cultural factors of beliefs, values and norms associated with water, water quality, defecation and faeces as well as associated responsive behaviours.

Literature treating water, sanitation and hygiene behaviour from a cultural perspective remains scant, at least from the African perspectives. This study sets out to address the important question of how the notion of water and judgement of quality feed into sanitation practices in Nigeria. Given that real life or well-being in African contexts cannot be treated outside the social, material and spiritual world views, especially in rural areas (Millar & Hiemstra 2008), a study of the cultural underpinnings of water and sanitation behaviours will contribute to improving our understanding of the practical issues involved in local social, cultural and ecological geographies of public health in developing countries.

BACKGROUND TO THE RESEARCH AREA

This study was carried out in Akwa Ibom state, southern Nigeria. There are three major ethnic groups namely Ibibio, Annang and Oron with a total population of 3,920,208 spread across a landmass of 7,081 km² (Figure 1).

Over 80% of the population are estimated to live in rural areas and are involved in semi-subsistent agriculture and related activities including trades, skilled crafts, commerce and other important livelihood occupations (Okoji 2000). Rural–urban, rural–rural, regional and international migrations are very common among the population (especially the younger generation) in search of better opportunities and education. This has become another source of opportunity to sustain the extended family structures in the rural areas through remittances. Several land holding systems have been recognised in rural Akwa Ibom State (Ekong 2003). The most important ones with implications for water resources management and sanitation practices include individual holdings (Okpokpo Ikot or Ndedep Ikot); secret society land (Owok Ekpe or Owok Nka); and sacred groves (pieces of land dedicated either to deities or for the disposal of those who did not die in the proper manner). Individual holdings imply right of ownership of all available groundwater under the land area according to the Land Use Act of 1978, while surface water, notwithstanding the types of land holding system, belongs to the community. Water bodies found in sacred groves or secret society lands carry the same treatment as

Figure 1 Akwa Ibom State – Major ethnic groups.
the land itself, such as restricted entry and persistent religious and symbolic rituals. Given the dominantly traditional form of resource ownership in rural Nigeria, local consciousness and attachments to the natural environment, such as water resources, are very strong and these influence the general perception and traditional behavioural practices.

The population of Akwa Ibom State speaks languages reflecting the slight diversity in the socio-cultural and ethnic background of the State. The common language understandable to all the ethnic groupings is the Ibibio dialect. Over 90% of Akwa Ibom indigenes are Christians, with a significant number subscribing to the new Pentecostal movement. The growing tendency towards the new Pentecostal movement reflects the growing faith and belief in the spiritual solution to existential and livelihood problems. Traditional rulers, by the oath of their office, maintain a traditional (pagan) form of worship, through libation and regular communication with ancestors. This happens notwithstanding their additional Christian identity. In actual fact, there is a blending of some basic elements of the traditional and Christian beliefs, and the Christians most often respect and are subject to the traditional institutions of governance especially in the rural areas.

Generally, the rural people obtain their daily water supplies either from the natural sources (rivers/streams, ponds, rain, and hand-dug wells) or modern supply sources (public sector and private or commercial supplies). According to official estimates about 42% of Nigeria’s urban and semi-urban population have access to safe water supplies and adequate sanitation compared to about 29% living in rural communities (FGN 2000). Some studies report even lower levels of coverage than the official figures for urban as well as rural water and sanitation (Nyong & Kanaroglou 1999; Stoveland & Bassey 2000; Sanusi 2010). Despite numerous commitments to international agreements as well as local policy initiatives at various levels of government, the water supply and sanitation coverage in Nigeria remains low with no significant improvement. The rapid rate of socio-economic development and rising population pressure as well as poor or absence of investments in the water and sanitation sectors have been noted to be responsible for the observed low coverage rates in the sectors. It is also important to note that water supply services in Nigeria are not planned in a way that integrates or incorporates sanitation concerns. Such absence of coordinated planning implies that while one sector, mostly water supply, seems to receive some attention, the sanitation sector remains largely unattended to. Consequently, most households (both in urban and rural areas) are left on their own to decide on their sanitation, with unimproved pit latrine the only option available to most.

According to Nigeria’s Water Supply and Sanitation Interim Strategy note (2000), no urban community in Nigeria has a sewerage system except for Abuja and limited areas of Lagos. This means that sewage and sullage in urban areas either lie stagnant or are disposed through the storm water drainage system. Many public programmes on rural water and sanitation yearly adorn the airwaves while implementation narrows down to drinking water supplies. More surprising is the fact that when actual ground assessment is carried out, one hardly finds any functional drinking water infrastructure. The few available systems are politically distributed in ways that reflect self-interest and clannish tendencies of the politicians and bureaucrats. As a consequence, the rural populace in Nigeria are not served with public water and sanitation facilities.

In Akwa Ibom State water is traditionally recognised as God-given or nature given (mmono ede ake Abasi). It is also the local prevailing belief that water bodies are the dwelling place for the spirits (animistic tendencies). In terms of sanitation, two toilet systems are common in the rural areas, namely: pit latrine or open defecation (depending on location, time and emergency situation). Open defecation is common in locations closer to the river or settlements sandwiched by large expanses of vegetative land. Night time also provides opportunity for open defecation as well as situations, mostly in public places, where there are no public toilets. According to official estimates, more than 70% of the rural population does not have access to public water and sanitation services in rural areas. The implication is that individuals are left to make their own sanitation infrastructure choices, which in most cases rely on beliefs, values, taboos and traditional norms. In considering water supply and sanitation interventions in rural Akwa Ibom State, policy makers and researchers hardly reflect on the various taboos and powerful emotions surrounding water meanings and sanitation practices. The consequence is
often the failure of water and sanitation project and programme interventions. This paper attempts to delve into the various cultural issues that constrain efforts to achieve successful water and sanitation coverage for the rural population.

**HOW THE RESEARCH WAS CONDUCTED**

This research started with the initial collection and transcription of local proverbs in 2004 and 2005 (Akpabio 2006), and then subsequently sought deeper understanding of their meanings with specific reference to drinking water. As most indigenous practices are based on peculiar world views of beliefs and values, the study sought to understand the impact of such world views on water development initiatives. The information obtained on meanings, ideas and values of water was subsequently extended to understand sanitation practices. This involved additional investigation (between 2007 and 2008) to understand (a) how the various local meanings ascribed to water played in sanitation practices, (b) the cultural meanings of sanitation practices and hygiene behaviours.

The study was conducted to cover three major ethnic groups in Akwa Ibom state as follows: Ibibio, Annang, and Oron. Interviews were conducted on a household basis, with the head of a household being the contact person. Household as used here refers to a family unit whose members share a common pot. It mostly comprised of a husband, wife, children and any other member of the extended family or kinship. In African contexts, the head of a household is usually represented by a man. However, efforts were equally made to reach out to a woman (who anchors domestic water and sanitation practices) in a given household while information from such households was taken collectively as representing the household.

The research used individual interviews with male and female household members across a range of ages, classified into three age groups: 60 years and above (elders), 35–60 years (adults), and below 35 but above 18 years (youth). These classifications were arbitrarily made to capture the various layers of opinions and, in most cases, particular attention was paid to the status and position of an individual. Individuals were allowed to freely discuss all they knew about water and sanitation. They were equally encouraged in their discussions to cite some relevant local proverbs to support their claims. Such interviews raised a number of overarching themes.

Around 2009 and 2010, follow-up interviews were made with the same respondents (although not all interviewees were located) to find out the reasons for some contentious issues as well as establishing the consistency of individual views. The follow-up interviews were, however, not as comprehensive as the initial ones. At every stage of the interview, informed consents were sought from the respondents while assurances on confidentiality were regularly communicated to them.

All household interviews ($n = 12$ for each ethnic group) were conducted in local languages with the help of three trained research assistants. In all, a total of 36 in-depth interviews ($n = 22$ males and 14 females) were conducted. Visits were equally made to a few government drinking water projects (public impact on rural sanitation is very insignificant and conceptually built around drinking water projects) in these ethnic communities to understand the challenges underlying the survival of such projects both at the levels of governments/donor agencies and the communities involved. About 18 of such public projects sites (at least six from each ethnic group) were visited to gain information on their status, coverage, management, public acceptance and utilisation as well as other implementation challenges. Group leaders, village chiefs, and some elders drawn from each of the communities hosting such public drinking water facilities were also separately interviewed because of their relative roles in the village governance. For instance, the village chiefs and elders are believed to be the most important sources of information on village history, ancestral matters and the system of governance in their respective domains. As a way of balancing views and given the aim of this study, officials of Akwa Ibom state Rural Water and Sanitation (AKRUWATSAN), the only agency in charge of rural water and sanitation programme in the state were interviewed. Such interviews were to enhance an understanding of how the state institutions relate to local resource users in the implementation of water and sanitation schemes. Although this agency may not have projects in some of the village communities studied, the information gathered at that level was useful in enhancing the discussions, generalisations and conclusions.
various views that emerged were assembled and interpreted to identify the commonalities and differences within and across the study communities as well as changes over time. All discussions and interviews were guided by a checklist of discussion topics (which were partly generated during an initial discussion on these issues) especially in local communities. Such checklists of topics broadly include: (a) ideas about water and water quality; (b) ideas about sanitation and hygiene; (c) water handling practices from source to utilisation at home; (d) toilets and defecation preferences/practices; (e) ideas about some water related diseases such as cholera, dysentery, typhoid and diarrhoea etc.; (f) toilet and faeces handling for children and adults; and (g) hand washing after defecation, before eating, before preparing food; among several others.

This study also depended tremendously on additional information from individuals with relative knowledge of the areas studied as well as the general Akwa Ibom state. Consequently, students drawn from the University of Uyo (located in Akwa Ibom State, southern Nigeria) with a fair knowledge of their respective ethnic localities were utilised. Their participation was voluntary and served to complement, dispute, clarify or offer explanations to some contentious issues arising from the field research. They were equally useful in providing clues to relevant and sensitive information about local cultures and associated practices on water and sanitation. Given their levels of education as well as their various ethnic and cultural backgrounds, the students were very useful in enabling enlightened discourses and analysis of some contentious views and responses gathered from the field.

The sensitive nature of some of the topics (e.g., hand washing before and after defecation) implies some interviewees may have been tempted to put up false information for self-image. Such ‘image-preserving’ behaviours could pose a serious challenge to the integrity of the overall result of this study. This and related perceived biases were surmounted by working with local informants as well as engaging in discussions with volunteers with significant knowledge of the respective communities and ethnic areas. To ensure confidentiality and protect the identity of the interviewees, results are presented below without reference to individual, group or community names.

## RESULTS

Major sources of drinking water supplies, available toilet facilities, individual hygiene practices and the sanitary condition of the surrounding environment, among other health and hygiene behaviours, were the most important outcomes for accessing the water and sanitation situations in the study areas. The main sources of drinking water were identified to be purely natural sources – stream, river, rainwater – and complemented by private/commercial boreholes. Public water services were hardly noticed and where available, were observed to be non-functional. Three main defecation places were common namely pit latrine, open defecation and modern flush toilet system. Twenty-four of the thirty-six household respondents representing 66.7% owned pit latrines which were shared among the household members and other households given that most of the households visited lived in large compound units comprising from 2 to 5 related households. Households that did not have identifiable points of defecation (27.8%) were those who practised open defecation in bushes, river or any other natural points (ravine, flood channels). The remaining households (5.6%) had an in-house flush toilet system. Pit latrines were located at a distance of 2 and 7 m from the house. The location was determined by available landed property, to the extent that households or compound members who opt for a pit latrine must locate it within the available landed area. In this case, most households’ locational decisions on pit latrines are circumscribed and dictated by the availability of landed properties within their homes. Earlier studies by Avvannavar & Mani (2008) in several parts of Africa and Jenkins & Curtis (2005) in Benin implicated the physical/natural settings as critical determinants of village water and sanitation practices. Avvannavar & Mani (2008) particularly observed that women in Africa are generally more concerned with privacy (and safety) when it comes to defecating in the open and a natural environment with bushes and shrubs suits their requirement the most. The study added that in the absence of such a natural environment women prefer to defecate in the early hours of the day, and usually seek the company of other women.
The labour and financial implication of putting up a pit latrine constrains and shapes a particular household decision on whether to own one or not. Households with male members find it easy to own a pit latrine since the labour will largely be provided by the male members of the household. Invariably, households with female members find it difficult in the absence of financial resources to pay for the cost of opening up a pit latrine. Ownership of a pit latrine was also noted to depend on the location of a household. This was observed mostly in households living closer to the riverside. Such households rarely owned a pit latrine but depended on the nearby body of water. The same situation was observed in households who lived near to a large expanse of vegetative area. A respondent in his early 30s who lived closer to the riverside observed jokingly, ‘our water is our free toilet … so why should we dig pits again … it is free…’. The research also revealed that public places (schools, markets, churches) did not own toilet facilities. Individuals who need to defecate at such places have the options of either using the available and nearby bush or negotiating with nearby compounds to use their toilet. At night and in an emergency situation, individuals are left with possible options of either defecating at any convenient point or visiting a nearby family compound, depending on the location and time periods. While the absence of a basic regulatory and enforcement framework and standards could partly explain why basic water and sanitation facilities are absent in public places, the situation of general poverty characterising the rural villages in Nigeria makes it impossible to invest in standard systems of sustaining water supplies and sanitation facilities at such public places.

Research revealed, from the local informants, that most people preferred to defecate at roadsides and flood gutters at night especially in areas where open defecation was still observed as a common practice. It was also common practice during night time journeys (short or long) where access to the latrine is limited. This was confirmed by the level of faecal wastes littering the roadsides. Roadside defecation at night probably relates to safety concerns of individuals especially the desire to protect oneself from snake bites while in the bush. Households that own in-house toilet systems were very rare (5.6%) and often associated with people of very high socio-economic rank and better exposure to and awareness of relevant information. Such households equally depended on their private borehole facilities with private power generating plant to guarantee a stable supply of water. Wealth and income, exposure and education have been reported to correlate with improvements in individual and household water and sanitation practices (Jenkins & Curtis 2005). In this case, improved socio-economic condition tends to lead to lifestyle changes in which new values, needs and desires are imbibed. This explains in part why households would decide to own a new and modern toilet system instead of the traditional pit latrine or open defecation practices.

Notions of water and sanitation related problems as well as general hygiene practices did not significantly differ between groups and individuals, irrespective of socio-economic and cultural backgrounds. As many as 91.7% of respondents did not discuss the commonly known water related diseases and epidemics within the logic of ‘contamination cycle’ or ‘water quality problem’ but tended to implicate ‘bad food’ (52.8%) and ‘seasonal changes’ (38.9%). Very few discussants (8.3%) however were able to make scant references to poor water quality, poor sanitation and unhealthy hygiene practices while a very small number saw it as an inherent human problem. However, explanation for such phenomena often assumed a spiritual dimension especially where human lives are lost. In the case of diarrhoea, cholera and dysentery, common local phrases capturing such beliefs abound and include ‘idoho nkana’ (not normal), ‘utoro ikpu’ and ‘utoro amwa ifot’ (linked with witches and witchcrafts). This is where allegations and accusing fingers are directed at individuals as being responsible. One of the local informants observed that, ‘incidence of that nature disrupts relationships and generates hatred between the accuser and the accused … it can also result in cases where police authorities are invited for arrest especially of the accused …’ In some instances, it manifests as a class struggle where the poor accuses the rich of witchcraft. While the latter is likely to engage the services of the police and law, the former’s idea about solving such an ‘abnormal problem’ will ultimately fall back on the spiritual beliefs (prayers, spiritual counselling, traditional healing rites, among others). Struggles arising from the consequences of water and sanitation practices in rural areas of Nigeria sometimes reflect the persistent power struggle of the poor and rich who are constantly locked in ‘well-being’ battles. Such power struggles see the rich and better exposed in an advantageous position over the poor and less exposed.
Within the local populace, applying the logic of science in understanding water-linked diseases/epidemics was rather difficult, and such difficulties were derived partly from the cultural meanings imputed to water and were reflected at certain points during our various discussions. Water carries various meanings among the people. Such meanings are broadly categorised into the following themes namely, ‘divine or sacred resource’ (which cannot harm); ‘homes of spirit deities’ (spirit ancestors and deities are believed to live in water bodies); ‘religious/spiritual meanings’ (rituals and symbols of power), among several others (Table 1).

Table 1  |  Ideas and beliefs around water, sanitation practice and hygiene behaviours

<table>
<thead>
<tr>
<th>Local beliefs/ideas of water</th>
<th>General world views</th>
<th>Manifestations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sense of purity</td>
<td>1. ‘Divine’ and ‘sacred’ resource</td>
<td>1. A local proverb says <em>Mmooŋ-mmooŋ eyet idio’lekpo’, idio’k-lokpo’ iyetke mmmun (It is only water that can wash away dirt)</em></td>
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<tr>
<td></td>
<td>2. Water cannot harm (in traditional societies, issues of industrial water pollution are relatively unheard of. A behavioural change could be possible if water pollution were to be a problem)</td>
<td>2. Water is believed to come from God (<em>Mmooŋ edike Abasi</em>) and so is perfect</td>
</tr>
<tr>
<td>Homes of spirit deities and ancestors</td>
<td>1. Water bodies of this category have existential meaning to individuals and communities</td>
<td>3. The use of Holy water comes from this belief</td>
</tr>
<tr>
<td></td>
<td>2. Water is believed to offer healing powers to some human problems upon drinking or bathing</td>
<td>4. Purity exemplifies the cleansing power of water which forms the basis of ritual baths</td>
</tr>
<tr>
<td>Religious/spiritual symbol</td>
<td>Water is believed to possess spiritual cleansing power among the Christians and traditional religion</td>
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</tr>
<tr>
<td>Cleanliness</td>
<td>‘nsana idem ado uyai’ (physical cleanliness is beauty)</td>
<td>This notion encourages good hygienic practices by the educated and better exposed</td>
</tr>
<tr>
<td>Sanitary taboos</td>
<td>Unsanitary persons especially women are not to be stigmatised (you do not say a woman smells or is dirty)</td>
<td>It is a taboo. It triggers mass women nude protest directed against the offender (often accompanied by some diabolical rituals)</td>
</tr>
<tr>
<td>Myths around germs</td>
<td>Germs never kill Africa (germs iwutke Africa)</td>
<td>A readily available justification for unavoidable unhygienic practices or for consuming unhygienic food</td>
</tr>
<tr>
<td>Child health/well-being</td>
<td>The child’s life is believed to be in the protective hands of ‘God’ (<em>Abasi ekpeme ntuho-eyen</em>)</td>
<td>1. Children’s excreta are regarded as inoffensive</td>
</tr>
<tr>
<td>Diseases/epidemics</td>
<td>1. Diarrhoea or cholera epidemics assume spiritual explanation. It is seen as abnormal – ‘idoho nkana’, ‘utoro-ikpu’, ‘utoro-anwa ifot’ – especially if it kills</td>
<td>2. Children are allowed to experiment with many things including soil eating</td>
</tr>
<tr>
<td>Healing and bathing restriction</td>
<td>It is believed to be part of the rules and processes of some traditional or spiritual healing</td>
<td>3. Infant with a sign of convulsion or epilepsy is sometimes abandoned at a waste dump site as a traditional method for healing</td>
</tr>
<tr>
<td>Human excreta and traditional medicine</td>
<td>This partly anchors on the belief that the dirtier the elements are the more effective the concoctions are believed to be</td>
<td>Most traditional healing processes restrict their patients from bathing for some days</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Human faeces and urine occasionally form part of traditional medicine and spiritual healing concoction e.g., <em>editibe</em> (local immunity against charms); <em>akpub</em> (bullet proof), etc.</td>
</tr>
</tbody>
</table>

(continued)
The respondents saw water as an instrument of peace (water has been used in making peace between warring individuals and groups) and life both at individual and community levels. Given these bodies of beliefs and world views around water, it would sound odd to the cultural, religious and moral values of the community to ascribe human diseases as resulting from the same water. A commonly known local proverb ‘mmo ̣ o mmo ̣ o eyet idio ̣ knkpo’, idio ̣ k- nkpo’ iyetke mmo ̣ o’ (It is only water that can wash away dirt) speaks volumes about the values ascribed to water. With various beliefs, meanings and taboos around water and water quality, individuals and communities hardly question the qualities of the water they use, and there are spiritual sanctions for such sacrilegious behaviours. Rather than implicate water for diseases or epidemics, water in most cases is seen as a source of solution to such problems, which is often achieved through rituals and other forms of spiritual invocations.

Knowledge of hygiene was based on physical cleanliness while beliefs, myths and superstition did, in some instances, define individual or group hygiene behaviours and practices. A local saying that linked physical cleanliness with beauty (nsana idem ado uyai) emphasises the positive aspect of hygiene and consequently forms the basis for conscious behaviours for self- and environmental-hygiene practices by individuals and groups. Where knowledge of hygiene transcends the understanding of physical cleanliness, myths, beliefs and superstition set in to shape perception. It was interesting to learn from every respondent on the implication of calling an individual, especially a woman, ‘dirty’ or ‘stinky’. It is generally perceived as disgracing the dignity of womanhood. A respondent in his late 30s (who has attained a formal education up to a post-primary level) emphasised this as follows: ‘...you dare not try to say a woman is smelling or dirty... no matter who you are... you pay for it...the entire womenfolk far and near the area will organise themselves and protest naked to your house (nduo iban)...with lots of diabolical things... in most cases you may not end up being alive... it is serious...’ Such ‘mob behaviours’ (nude protest) capture the full wrath and power of the local women who come out in large numbers against the accuser. A list of demands, including money, to perform the traditional rite of washing the woman clean are placed on the accuser. Such behaviour is not very common among the menfolk. However, if a man faces such circumstance of being called ‘dirty’, he falls back on the women for remedy. The women are hired (nduo Iban) to do the job and whatever proceeds that accrue from it will go to the women’s group. Few respondents saw such a resort as a bad way of getting back at the enemy since the outcome is likely to lead to the death of the offending person or extreme impoverishment (he will sell virtually everything he has, and even obtain personal loans to settle the case).

Infant/child health and well-being received serious attention and discussion among the respondents. Infant/child hygiene is mostly located in the traditional idea of children as being under the protective hands of ‘God’ (Abasi ekpeme ntuho-eyen). One nursing mother in her late 20s (with post-primary education) made this remark, ‘...
children are under God’s care ... they are innocent ... so what do they know ... no matter what they eat around, it does not harm them ...’. The respondent was quick to emphasise that most problems children have do come from evil powers ... ‘idiok ererimbot (wicked world). The belief in ‘divine protection’ for children influences parents’ attitudes of allowing the infant or child to explore all manners of things around the environment including ‘soil eating’. Such daily exploration/experimentation by infants/children is believed to build up confidence and assurances in parents over their child’s strength and capability to master the immediate environment. Parents’ frequent desire to cultivate the right spirits of courage and boldness in their children emerged as one of the major reasons for exposing infants and children to all forms of risky behaviours with implications for the children’s health and well-being. Given that the responsibility for child upbringing is solely the parents’ business with very insignificant government support, such tendencies of introducing infants and children to risky behaviours is probably the desire to create the necessary spirit of ‘self-struggle’ and ‘risk taking’ to enable the child to face up to the challenges of growing up. This is more of a social security question. An informant remarked that most parents hardly heed to the advice against exposing infants to ‘soil eating’. The likely reply from parents on such advice, according to the informant, is ‘...leave them ... that is part of childhood ... infants do eat soil ... you were in the same situation as an infant’.

Infant/child excreta handling were also discussed and consensus were gathered around ideas and beliefs on parental-child bond and the inoffensiveness of child excreta and child wastes, among others. An elder or the parents usually spit saliva into the child’s mouth, the parents use their mouths to suck off the infant nasal mucus, infants’ faeces are not dumped alongside adults’ but separately disposed of around the stalk of a plantain or banana roots, children can defecate at any point. One woman in her 50s (and who has obtained a formal education up to primary school level) stated as follows, ‘infant faeces are not dropped in the common pit with adults’... doing so will affect the development of the infant teeth ... it is often thrown into the bush or around waste dumpsites’. This has been an age-old practice. Deviation from this practice is most likely in households with in-house toilet facilities as gathered from the local informants. This probably has to do with education and better exposure. It also may relate to the convenience and availability of improved housing quality which tends to confine all activities in-house. This seems to imply that the traditional practice of throwing infant/child excreta in the open may not be under the influence of cultural beliefs but rather a matter of a lack in socio-economic improvement. Infant and child hygiene carried lots of meanings mostly centring on parental bond. Neglecting such practices and customs would amount to a sign of rejecting a child. For parents hoping for more children, such bond of love and attachment is one of the expected traditional responsibilities if they want to have children in their homes. More so, newly married couples who wish to have children in their matrimony are expected to display some behaviours such as not avoiding ‘dirty children’ and helping clean up other children in their dirty condition, among others. Almost all the respondents were of the consensus that child or infant hygiene and parents’ behaviours toward them are normal traditional expectations and practices that carry some spiritual meanings and implications (Table 1).

The adults were also involved in unhygienic and unsanitary behaviours and practices. These happen as part of healing rituals or as part of liquid preparations or concoctions for various purposes. Most traditional healing processes restrict bathing for some days as part of the rules for successful healing. This depends on who is performing the healing ritual and for what purpose. The number of days could vary from one day to as long as seven days depending on the nature of healing sought as well as the nature of the rites performed. Any form of sickness can attract any form of rite depending on the meaning attached, for instance, spiritual explanation of witchcraft, ancestral spirits and spirits of the dead can be attached to simple or common sickness of diarrhoea or cholera. Such understanding determines the kind of treatment ritual sought. Such points of healing processes lead to practices with grave sanitation implications. There are instances in which human excreta (faeces or urine) are used as part of traditional medicinal preparation for individual use. From an informant perspective, such traditional ‘concoctions’ as ‘akpub’ (bullet proof) attract the most dirty or disgusting of substances which may include ‘a piece of torn cloth from an insane person’, among others. The dirtier the elements, the
more effective the concoction is believed to be against charms. One man in his late 40s (who has received a higher level of education up to Bachelor degree) noted as follows, ‘…local beliefs of bullet proof … akpub … are real and often mysterious … how human beings with naked bodies withstand several bullet shots … I understand they drink a whole lot of things your eyes will hate to see …’ While human and environmental wastes and unsanitary environments are seen from the negative perspectives, the beliefs and practices around them in the study area defies some imagination, and this seems most consistent with Douglas’ (1966) observations of the universal view of the extra power of taboos. For instance, an infant or child who is attacked by epilepsy or convulsion will be taken and abandoned in a waste dump site for some minutes or hours. The underlying spiritual assumption is that the earth goddess (Eka Abasi) responsible for that sickness is not friendly with dirty areas, which are often capitalised as the basis of separating the afflicted child from the ‘Eka Abasi’. This practice has to persist till the baby outgrows the problem.

**DISCUSSION**

Peoples’ ideas, values, perception and management of water and sanitation depended on the local cultural, spiritual and locational environment as well as education and exposure to new ideas from the outside. Notions of water and sanitation considerably influenced attitudes and behaviours and thus contribute to reinforcing water and sanitation related disease transmission pathways (White et al. 1972; Bradley 1977). Most respondents did not harbour serious concerns for germs (disease causing micro-organisms). A mention of germs elicited the response, ‘germs iwutke Africa’ (germs do not kill Africa). The basis of this understanding (impotence of germs) did not have much to do with culture. Economic factors were very crucial. Within the hierarchy of needs, acquisition of essential issues such as food, shelter, water and security attract higher priorities than quality and hygiene. Consequently, personal financial investments in sanitation and hygiene, to ensure the safety and quality of those needs, are given a low priority. This pushes back the responsibility for provision of sanitation services on the government although individual attitudes could still be changed through a sustained programme of community-driven education.

Locational effects which capture such features as vegetation, terrain and availability of water bodies did mediate the settlement-environment relationship. As can be seen in the study area, location of settlements exerted various degrees of impact and influenced various sanitation practises such as open defecation and drinking water choices, among others. Settlements that are closer to the river, a bigger ravine or an open bush were more likely to practise open defecation given the proximity to the favourable natural sites mentioned. Jenkins & Curtis (2005) observed that household choices to own a toilet or practise open defecation in rural Benin were driven in part by developmental transformation and cultural change which tend to render the practice of traditional open defecation less attractive and unappealing. This seems to coincide very closely with the observed findings of this study in Akwa Ibom State that the majority of households, in fact, have switched to latrine as a result of changes in land use, population density and group norms. However, such change in attitude is not homogenous but more pronounced in some communities where traditional free open defecation sites are not as available as they are for communities which uniformly continue in the tradition of open defecation.

Beliefs equally played roles in determining individual and group sanitation behaviours. Settlements in coastal or riverine areas tended to develop a strong attachment to supernatural beliefs in water spirits and water deities which contribute in strengthening the spiritual perception and religious/ritual practices around such bodies of water. Paradoxically, such bodies of water not only served as drinking water sources, they equally served as sources of human excreta disposal and open defecation practices. This is where the ‘purity and danger question’ that was thoroughly analysed by Douglas (1966) manifest most. An almost similar paradox was reported in Ghana where local peoples’ negative sense of human excreta hardly corresponded with their poor disposal habits, which eventually exposes them to contact with the same excrements (Van der Geest 1998). Settlements whose sources of livelihoods depended much on bodies of water were generally stronger in water-linked beliefs, which by implication underlied sanitation related behaviours.
Capacity building through education and awareness creation could possibly bring about behavioural change most especially in the areas of socio-economic improvements (education, poverty, exposure to better information, etc.). However, such behavioural change may be slightly difficult where cultural and religious barriers take root. This is because some of the hygiene-related behaviours were still within the clutches of beliefs. Informant discussants were very particular about these with clearly cited instances on infant/child hygiene, health and well-being, ascribing disease epidemics to spiritual forces, patronage of traditional healing and spiritual homes as well as the various deep-seated beliefs and meanings attached to water and bodies of water, among others. An informant in his early 30s (who is educated up to a Bachelors’ degree) stated, ‘...all these issues of drinking dirty things for protection or patronising traditional healing homes or sorceries ... do you think they are limited to the common people?...top government officials, educated people ... in short very many of them are involved ... or do you tell me they will say some of the concoctions they drink are unhygienic ... never ...’ Behaviours relating to infant/child hygiene equally assumed deep-seated cultural roots. The ideas and practices about the child-parent bond drove such unhygienic behaviours as spitting saliva into the infant mouth and the perception of child excreta as inoffensive, among others. The desire to mould the child character in the likes of the parents was one of the explanations offered for spitting saliva into the infant mouth. These practices were not understood from the physical perspective of hygiene and child well-being, they were loaded with spiritual meanings with implications that families not prepared to practise or endure some of the practices are spiritually ‘cursed’ of having children. Besides the reasons of physical aesthetics and a conscious attempt to influence the perceptions of self (through regulating and controlling certain information during interview), those in the educated class were not really free from the grips of cultural beliefs that were attached to water and sanitation practices. Openly stigmatising some of the practices only relegates the practices to individual and household privacy/secrecy.

In every instance, identified beliefs and behaviours about water, sanitation and hygiene tended to be very strong among the elders and respondents with a poor background in formal education. This manifested at various instances of discussions. Although a lack of information and necessary exposure could explain this more, the research, however, gathered at informal levels that the elders and less exposed differed from the young and better exposed in the sense that while the former openly expressed their beliefs and corresponding risky practices, the latter tended to hide them during the interview probably for fear of being ridiculed.

Based on the study findings, it seems clear that behavioural responses to water and sanitation-related disease risk situations will be influenced by ideas about disease causes and the beliefs about different responsive practices. For instance, infant diarrhoea is believed to be associated with teething. Consequently, parental response will be ‘a no action’ situation given that such a case is believed to be ‘normal’ for infants. At most the mother will prepare a small herbal substance to regulate the diarrhoea. In cases where diarrhoea is associated with bad food, seasonal fruits (mango, fresh vegetables) or hot/cold food (e.g., hot eggs), the usual response is regulation or stoppage. These reflected much about the level of ignorance and have less to do with cultural beliefs. This may pose less difficulty for information and enlightenment programmes aimed at achieving a reduction in risky behaviours that may affect child health and well-being.

It was equally interesting to know that religious affiliation had no significant impact over most of the belief aspects of sanitation practices and hygiene behaviours. Although over 90% of the general population in the area professed Christianity, such identified issues bordering on sanitation, hygiene and healthcare behaviours and practices still received greater cultural influence. The proliferation and consequent patronage of healing homes imply that the sanitation and hygiene concerns arising from the treatments offered by such places are not discounted. Most spiritual homes run by churches equally integrated and drew on some elements of traditional healing options in their practices. Given this unique interplay of the physical, traditional, religious and spiritual factors, achieving effective programme intervention will have to depend on available local institutions and groups in a manner that utilises dialogue and information dissemination practices. Oberkircher & Hornidge (2011) have suggested the incorporation of the available local value base in passing necessary information.
to local groups rather than using the Western secular approach. In this context, the use of available local traditional and religious value structures could pass the needed environmental health information given the wider respect and acceptability that such structures enjoy among the rural populace.

**CONCLUSION**

Clearly, traditional cultural meanings, beliefs and values in Akwa Ibom State have deep implications for water and sanitation practices and tend to multiply sanitation related disease risks. It is common to implicate a range of contextual factors bordering on socio-economic and physical characteristics such as the lack of formal education, poverty, age, exposure and natural environments, as the major drivers of risky water, sanitation and hygiene behaviours. Findings from the study however go beyond such pure socio-economic factors to a deeply cultural foundation bordering on beliefs, spirituality and local values. For instance when top government officials and better exposed/informed people do not discriminate in their choice of healthcare or healing homes, it means practical intervention that is based on improving the socio-economic characteristics alone may not be the only avenue for solution unless the beliefs and general cultural factors of individual and group behaviours are understood and addressed. As Paul (1958) in his opening statement noted, ‘improvement of the environment for better health is not a matter of technology. It may impinge on various beliefs and customs of people and lead them to reject such action’.

Two issues clearly emerged from this study. In the first instance, there were some behaviours that were not entirely linked to cultural beliefs and values but to a lack of capacity to understand and recognise the logic behind the problem and consequently effect the necessary change. These mainly had to do with a lack of formal education (to understand the problem and embrace appropriate solution), a lack of necessary exposure/information and the problem of poverty (which relates to inability to effect appropriate solution because of a lack of resources). Behaviours such as hand washing after defecation, the attribution of water and sanitation related diseases to seasonal changes and food blames for some epidemics, among others could appropriately be addressed through clearly targeted education and enlightenment. The second dimension touched on the belief aspect of individuals and society. This was more fundamental and relates to individual and group feelings of insecurity that led them into practices of ‘self-help’ which drew on societal beliefs. In these two contexts, a highly decentralised system of education that is driven by available local traditional and religious institutions of authority has a higher chance of success. For instance, the services of the traditional village and religious Councils, Church and other group leaders are very critical. The capacity of such local institutions should be enhanced through regular education and exposure to best practices and standards. In addition, media demonstration of public health issues equally has the potential of capturing the attention of the local population and could lead to behaviour change. Such media programmes should be a package, drawn up and demonstrated in local languages on a continuous basis. This equally faces the problem of the limited number of people who have access to media infrastructures such as television and radio.

While the study acknowledges the pervading impacts of hard-to-shake beliefs in public and environmental health issues in rural Nigeria, the activities of relevant public health and governmental institutions in minimising some unwholesome local beliefs and practices is not visible enough. Environmental education has not been given serious consideration in the Nigerian programmes on public health intervention. Low level of access to improved water and sanitation infrastructures in rural areas suggests an equally low level of awareness by the population on the public health impact of poor water access and sanitation practices. This has created room for the thriving of local beliefs and practices. At this point, the paper argues that access to improved public water supply and sanitation systems should be prioritised as a public intervention policy. The problem, however, remains in what best available, sustainable and locally accessible infrastructural options are possible besides the usual option of a western type of toilet system which looks more alien to the local populace. The paper will argue that in solving the problems arising from water and sanitation practices, it would make more sense and bring more productive results if the usual
thinking of a technical solution is a little more widened to capture the social and cultural perspectives of potential beneficiary communities. Understanding and appreciating the peoples’ perspectives of what constitutes water and sanitation will enable intervention programmes to build on the foundation of desirable practices by bringing in new information in a culturally desirable way. There is no doubt that meeting the UN Millennium Development Goal (MDG) of halving, by 2015, the number of people without access to safe drinking water and improved sanitation facilities (WHO & UNICEF 2008) has become an enormous task. Achieving a breakthrough in addressing this task will not be possible by only rolling out local policies, clinging to hard science and throwing around relevant infrastructures. Careful attention should be paid to the various social, cultural, religious and traditional understanding and practices that make success in achieving the goals of improved water and sanitation coverage difficult. This is the software approach to water and sanitation improvements.

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