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Sanitation And Safe Water Supply For Sustainable Development In Anambra State, Southeast Of Nigeria: Harvesting Social Landmarks Of The State To Advantage.

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Abstract
The deplorable state of sanitation and the consumption of unsafe water by residents of Anambra state, southeast of Nigeria account for increased morbidity and mortality among the population. There are also productivity losses and other health related costs associated with inadequate sanitation, unsafe water and inadequate hygiene in the area. Functional public water supply scheme remains elusive in the state whereas successive efforts on the part of government to mitigate associated problems are yet to yield substantial result., This review paper emphasized the need to harvest robust social landmarks and organizational structure of the people of Anambra State to advantage in finding solutions to her sanitation and water supply challenges. It was recommended that town unions, age-grades, women groups, corporate outfits, clubs, non- governmental organizations, traditional institutions and titled men/women associations have vital roles to play in support of provision of adequate sanitation and safe water supply. They should be approached to support and complement state government's sanitation and water supply projects in the spirit of community participation.

Keywords: Sanitation, Safe Water Supply, Social Landmarks, Institutional Conflicts and Collapse, Advocacy.

Introduction

The importance of clean environment and safe water supply to man's continued survival on earth cannot be over emphasized. Environmental sanitation, defined by National Environmental Sanitation Policy (NESP, 2004) as the principle and practice of effecting healthful and hygienic conditions in the environment to promote public health and welfare was considered by World Health Organization (WHO, 2004) to constitute, with safe water supply, the major or primary drives of public health. Indeed, the relation between unsanitary conditions of the environment and health problems of man was well understood, even in the antique era. According to Obionu (2011), from earliest civilizations, some form of public health had existed. Egyptians, Greeks and Romans, all, at sometime built model towns and had developed sanitary systems as part of strategies for improving health. Obionu (2011) further argued that the latrine and flush closet were invented not during the European Renaissance, but in Crete 3000 years earlier.

Similarly, among modern societies there have been several initiatives at international level to promote sanitation and safe water across the globe. One of such efforts is the Millennium Development Goals' (MDG) target to achieve 75% access to safe drinking water and 63% coverage for improved sanitation in all nations by 2015 (United Nations, 2001). Another example is the 'Action Plan for Water' adopted by G8 nations to assist poor nations that show positive political commitment in provision of safe drinking water and sanitation (United Nation.2003). On her part, Nigeria launched the National Policy on Water Supply and Sanitation to provide portable water and adequate sanitation to all Nigerians (Federal Government of Nigeria, 2000)

Unfortunately, in Anambra state, located at the southeastern part of Nigeria, despite aforementioned international and national initiatives, the problems of sanitation and safe water supply do not yet attract optimal attention they deserve. The state encounters water and sanitation problems some due to lack of development, and others resulting from development activities. Often times, the fact that man's environment is full of hazards which constitute threats to sanitation and safe water supply is taken for granted by individuals, communities and the government. Such hazards emanate from the air we breathe to the water we drink, the food we eat, the house in which we live, the solid and human waste we generate in our homes, and from living organisms, many of which are disease vectors, with whom we share our environment.

According to Obionu (2011), environmental hazards also include natural occurrences such as desertification, coastal

flooding and urban flooding (where existing drainages are blocked). There are also industrial development-induced hazards (also called modern hazards), which include industrial effluents discharged into open public drains and water channels, outdoor pollution from fumes of industries leading to irritation and diseases of the respiratory tract, engine oil from mechanic workshops estimated at millions of gallons discharged carelessly on the ground and into public drains, vehicular emission with high lead and carbon monoxide contents, fumes and noise from generators sometimes positioned in the corridor and kitchen of their homes by the occupants etc.

Orakwue (2010) noted that in the Niger Delta Region of Nigeria, there are additional problems of gas flaring and oil spillage with their serious health and economic consequences. Dumping of toxic waste as was experienced in Koko in Delta State in 1987 represent newer dimensions to the problems.

However, of all these, the greatest challenge to environmental sanitation and safe water supply in Anambra state are problems of municipal solid waste which pile up in the streets of urban cities like Nnewi, Onitsha and Awka, or in side dumps, sometimes totally blocking the roads. Soon they decay and form seepage which infiltrate and contaminate underground water. They also serve as feed for great number of insects, domestic and wild-animals such as rats, pigs, dogs, and vultures many of which are disease vectors. Apart from their pungent odour, they also lead to proliferation of disease-carrying insect like housefly, and when it rains, some of them are washed into surface water sources like streams and rivers thus polluting them. Orakwue (2010) frowned that Anambra state is yet to achieve clean and viable environment for economic, political and social growth in her area.

.In view of the foregoing, the objectives of this paper are two-fold. First, is to examine the state of sanitation and water supply in Anambra state and secondly, to suggest viable mitigation measures anchored on social features of the area. All of these are with a view to achieve environmental sustainability in the state.

Theoretical Thrust

Three related theoretical platforms complement each other in explaining the problem of poor sanitation and unsafe water supply, and the need to explore the advantages of social attributes in mitigating such problems. They are social learning, social disorganization and social representation theories.

Social learning theory emphasizes the role of socialization in take-up and transmission of ideas, knowledge, practices and usage. The theory focuses on the learning that occurs within a social context. It considers that people learn from one another, including such concepts as observational learning, initiation and modeling. Bandura (1978) cited in Nwangwu (2011) is considered the leading proponent of this theory.

According to Nwangwu (2011), Bandura outlined the general principles of social learning theory as follows:

(1) People can learn by observing the behavior of others and the outcomes of those behavours.
(2) Unlike behaviourists who suggest that learning has to be represented by a permanent change in behavour, social learning theorists argue that learning could occur without change in behavour because people can learn through observation alone and their learning may not necessarily be shown in their performance.
(3) Cognition plays a role in learning. Over the last 30 years social learning theory has become increasingly cognitive in its interpretation of human learning. Awareness and expectations of future reinforcements or punishments can have a major effect on the behavour that people exhibit.
(4) Social learning theory can be considered as a bridge or a transition between behaviourist learning theories and cognitive learning theories.

Social learning theory locates the problem of poor sanitation and unsafe water supply to issues of social acquisition of related practices, actions and inactions associated to the problem.

One of the statements of facts in social learning theory is that awareness and expectations of future reinforcements or punishments can have a major effect on the behavour that people exhibit. From the foregoing, it could be said that the awareness and expectations of future reinforcements or punishments that arise in relation to poor sanitation and unsafe water supply can positively or negatively affect the behavior of people of Anambra state in future. It therefore follows that the state through her appropriate agencies like Anambra State Environmental Protection Agency (ANSEPA), Anambra State Waste Management Agency (ASWAMA), State Ministry of Health (SMOH), Water and Environmental Sanitation Units (WESU), and Environmental Health Unit of Local Governments amongst others need to create ideal sanitation and safe water supply awareness and expectations among residents. This will

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generate positive cognitive role that will stimulate appropriate response to water and sanitation issues. Also, the theory states that learning could occur without a change in behavior. This may justify the fact that even elites in Anambra state who though are well informed of dangers associated with poor sanitation and unsafe water supply, yet they still adopt risky behaviors in that regard. Such negative behaviors may be because the learning was achieved through observation alone. It also suggests that little or no effort was made to engage the people in effective communication on sanitation and safe water supply in order to understand their perception toward it.

One criticism of social learning theory is that it does not take into account the biological, psychological and other factors that shape individuals. These differences may affect the interaction between the individual and his social group. The theory also did not fully explain the actual origin of deviant behaviors which non compliance to sanitation and safe water supply regulations by individuals constitutes part of.

On its part, social disorganization theory is of the view that the environment and social disorganization provide the key to explain the health care system. It argued that the environment has great impact on individuals; it affects everything an individual does, from manner of behaviour to taste and health status. The theory also contends that morbidity and mortality rates are high in areas with high population density, deteriorated housing, slums, poverty and unemployment. It outlined indicators of social disorganization to include high mortality rate, marital disharmony, broken families, lack of essential health care services etc. In the context of social disorganization theory, poor sanitation and unsafe water supply are manifestations of social disorganization. Anambra state is yet to achieve high level of stability in patterns of conduct of her socio-economic and political affairs; hence social disorganization cannot be dissociated of her territory.

On the other hand, social representation theory (SRT) is adopted as strength based theory useful in finding solution to sanitation and water supply challenges of Anambra state. Pioneered by Serge Moscovici in 1973 (Nutbeam & Harris, 2004), the theory historically speaking was based on Emile Durkheim's collective representation. .However Moscovici used it for his study on reception and circulation of psychoanalysis in France (www.wikipedia .org).

According to Moscovici (1973), social representation is a system of values; ideas and practices with a twofold function. First is to establish an order that enables individuals to orient themselves into their material and social world and to master it. Secondly, it enables communication to take place amongst members of a community by providing them with codes for social exchange and for naming and classifying unambiguously, the various aspects of their world and their individual history. Social representations are widely communicated bodies of knowledge that are shared to a greater or less extent among various subgroups in society. These include publicly elaborated argument concerning issues of central importance to society including sanitation and safe water supply.

Moscovici elaborated three types of social representation:

a. Hegemonic representations which he argued are those which are held in common in a well organized community. These representations are generally not produced by the group members themselves and they are consistent and unite the group.
b. Emancipated representations which are out flows of knowledge and ideas belonging to sub-groups that are in some degree in contact.
c. Polemical representation which are generated as a result of controversy and conflict and may be seen as a minority view point within society.

Therefore, in relation to growing trends of poor sanitation and unsafe water supply, social representation theory seeks to explain that there are some positive and negative representations or concerns on the subject created by residents of Anambra state. Although poor sanitation and unsafe water supply could be considered as physical processes, they are driven by social processes and understood through social processes including interpretations of events presented in the mass media. In line with this theory, the way that information promoting positive or negative response to sanitation and water supply is framed or packaged may influence attitude and cognition relating to the issue. In this regard, it is important to note that several negative representations (perceptions) on sanitation and safe water supply are held by many people in Anambra state. These include low level of awareness about the relationship between filthy environment and disease emergence; belief system that suggests that surface water sources are unlikely to cause any harm to man; negative attitude towards payment of sanitation rate which is critical for provision of sanitation services in the state. Thus there is immense need to search for and project positive local representations that will stimulate positive responses to sanitation and safe water supply.

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This paper thus submits that since individual and communal perceptions (representations) of poor sanitation and unsafe water supply regulate individual actions and outcomes, attention must focus on harnessing positive, rather than negative socio-cultural, economic, political and other arrangements (including norms, beliefs, values) related to the subject in the quest for solution.

Situation of Water supply and Sanitation in Anambra state and other parts of Nigeria

Water and Sanitation coverage rates in Nigeria are amongst the lowest in the world. The situation is applicable to Nigeria's 36 states (Anambra inclusive). Nigeria is currently not as close as expected towards reaching the Millennium Development Goal (MDG) targets of 75% coverage for improved drinking water and 63% coverage for improved sanitation by the year 2015. The population with access to water from improved sources in 2006 was 47% which increased marginally to 54% in 2010. Sanitation coverage has similarly insignificantly improved from 30% in 2006 to 35% in 2010. There are also higher levels of both water and sanitation coverage in the urban areas in contrast to rural areas (WHO/UNICEF WSMP, 2010).

Fig 1: Water and Sanitation Coverage by Geographical Zones in Nigeria (Source: WHO/UNICEF Water and Sanitation Monitoring Programme, 2010)

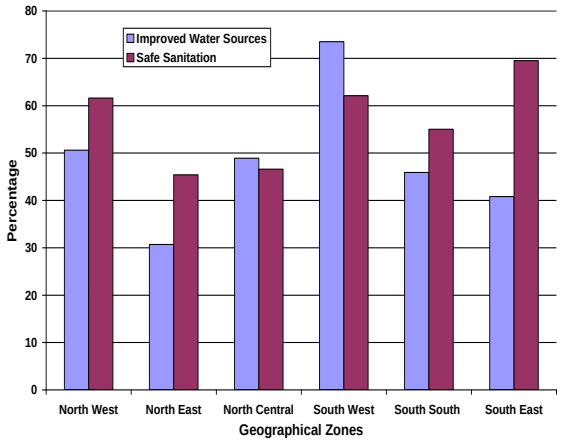

Fig. 1: Water and Sanitation Coverage, Geog. Zones, Nigeria (WSMP, 2010)

The coverage of water and sanitation in the different zones of Nigeria show wide disparities (Fig. 1).

Wide disparities among the states are also common within many of the zones (Water and Sanitation Monitoring Programme, WSMP 2010). The study also found that 70 million Nigerians use unsanitary or shared latrines, 32 million have no latrine and defecate in the open, while the poorest quintile is 10 times more likely to practice open defecation than the richest (John, 2010).

More worrisome is the fact that there exists very skeletal statistics about generation and disposal of solid wastes including household garbage, industrial wastes and waste water in Nigeria. There is thus a crisis situation in this sector. Waste disposal is a capital intensive project. It requires skilled personnel in sanitation and environmental engineering. Unfortunately, the funds allocated to this sector and skill to carry out efficient disposal is inadequate. Refuse heaps thus provide breeding foci for rodents, vermin and other disease vectors

Wale (2008) reports that in UNICEF Water and Environmental Sanitation (WES) projects in Zone A (comprising Abia, Enugu, Akwaibom, Anambra, Benue, Imo, Cross-River and Rivers) and Zone B (comprising Delta, Edo, Ekiti, Lagos, Ondo, Ogun, Osun and Oyo), water scarcity has remained a major problem confronting community dwellers.

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In addition to above challenges across Nigeria, the case of Anambra state is compounded by her increasing population especially at her three major urban towns of Awka, Onitsha, and Nnewi. Furthermore, Anambra State Water Corporation has been non functional for more than eight years with her staff on indefinite strike over unpaid salaries. Water schemes begun at Awka, Onitsha and Nnewi are all uncompleted. Consequently, the quantity and quality of water supply and sanitation in the state remain inadequate. Similarly, sanitation and related services agencies like ANSEPA and ASWAMA are not yet very visible in discharging their functions of making the environment safe for habitation.

Costs of Unsafe Water and Poor Sanitation on Nigeria

The desk study, 'Economic Impacts of Poor Sanitation in Africa – Nigeria' conducted by World Bank's Water and Sanitation Programme (WSP, 2012), quantified the annual costs incurred because of poor sanitation and unsafe water supply. The report states that Nigeria looses US$ 3billon (N455 billion) or three per cent of her Gross Domestic Product (GDP) yearly to poor sanitation. The study found that majority (83.3 per cent) of these costs came from the annual premature death of 121,800 Nigerians from diarrheal disease, including 87,100 children less than five years of

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age. Access time and productivity losses accounted for 8.5 per cent of the total economic costs, while health-related costs accounted for about 6.4 per cent.

Similarly, the impact of unsafe water and sanitation on death rates of children under five and mothers in the year after childbirth has been quantified by June, Corinne, Susann, Bruce & Andrew (2012). They used data collected from studies in 193 countries. Dividing the countries into four tiers, or quartiles, these researchers found that countries ranked in the bottom 25 percent in terms of safe water had about 4.7 % more deaths per 1,000 children under the age of five than countries in the top 25 percent. On the other hand, in respect of sanitation, countries in the bottom 25 percent experienced 6.6 % more deaths per 1,000 children under the age of five than countries in the top quartile.

The costs discussed in the preceding paragraphs are more pronounced on non oil producing states like Anambra which due to low federal allocation are unable to invest heavily on sanitation and safe water supply initiatives.

The report by June et al (2012) also found that maternal mortality rates, defined as the death of a woman within a year of childbirth, showed connections between lack of clean water and sanitation. The report found that the odds of a new mother dying increase 42 percent from the top-ranked tier of countries to each lower tier and increase 48 percent from the top to each lower tier in terms of inadequate sanitation.

An estimated 1.4 million children die each year from preventable diarrheal diseases globally (Ode, 2008). About 90 percent of such diarrhea cases are related to unsafe water and inadequate sanitation. Maternal deaths also result from similar factors (Lawoyin, 2001). According to Folashade (2000) and Harrison (2012) health centers providing maternal care and delivery also exposed women to unsafe water, poor sanitation and poor management of medical waste. As a consequence, they contend that up to 15 percent of all maternal deaths are caused by infections acquired from the hospital during labour and delivery and within six weeks after childbirth

State and National Response to Challenges of Poor Sanitation and Safe Water Supply

The Federal Ministry of Water Resources (FMWR) is the national coordinating body for the water sector. The National Water Resources Institute (NWRI) creates and implements training programs on water resources and advises the government on water-resource need and priorities.

Water supply is the responsibility of the states, and each state has a State Water Board or Agency. The state water agencies (SWAs) are responsible for establishment, operation, quality control, and maintenance of urban and semi-urban water supply (and sometimes rural).

In Anambra state, her Water Corporation stopped operations more than 8 years. There are no functional water treatment plants. Residents depend largely on boreholes and unsafe sources despite obvious disadvantages. With respect to sanitation, the state recently established Anambra State Waste Management Agency (ASWAMA) after previous approaches failed to yield desired results. Unfortunately, ASWAMA is currently bedeviled by problems and practices that resulted in collapse of its predecessors. Such problems include poor funds, limited manpower and equipment, overzealous staff etc. Furthermore, sanitation agencies in the state lack experienced environmental health professionals thus making them ineffective and inefficient,

The 774 Local Government Authorities (LGAs) in Nigeria are responsible for the establishment, operation, and maintenance of rural water supply schemes and sanitation facilities in their areas (Constitution of Federal Republic of Nigeria, 1999). However, only a few have the resources and skills to address the sector. Sanitation facilities continue to be inadequate as the sector experience disorganization, institutional conflicts, and the lack of defined responsibilities. This situation is also applicable to local governments in Anambra state. In particular, the conflict in the state is between agencies like ANSEPA, ASWAMA, and environmental health units of local governments and taskforces on sanitation whose functions are interrelated.

Sanitation and safe water supply are also listed in Nigeria's Poverty Reduction Strategy Paper tagged 'National Economic Empowerment Development Strategies (NEEDS)' which the Vision 20; 20; 20 Document has amplified as a key area of priority and resource allocation. The Anambra state Economic Empowerment Development Strategies (SEEDS) have a similar thrust with the national but has not been fully explained.

Multiple international development agencies play significant roles in Nigeria's water and sanitation sector. Some of the principal participants include the Department for International Development (DFID), the United Nations, the African Development Bank (ADB), the World Bank, Japan

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International Cooperation Agency (JICA), the government of China, and the European Commission (EC). Nonetheless, the contributions of these partners have not been adequately marched or supported by local initiatives, hence the minimal level of success recorded, particularly in Anambra state.

Factors Contributing to Failure of State and National Responses to Safe Water Supply and Sanitation

According to Obionu (2011) and Wale (2004), some factors that have hampered supply of safe water and maintenance of adequate level of sanitation in Anambra and other parts of Nigeria include the following;

- There is a huge investment gap. Out of the calculated US$2.5 billion annual investment required to meet the MDG targets in Nigeria, only about $550 million is being injected by state and federal governments due to limited resources and competing needs. Despite this investment gap, enormous resources of individuals and social groups remain largely unexplored in the spirit of **'trait taking'**. Trait taking philosophy emphasizes building on existing social traits that improve people's lives. Painfully, the option of '**trait making'** which try to make the community learn new positive behavior about safe water and sanitation dominated previous efforts with minimal results. This remains the situation in Anambra state.
- Civil society participation in water and sanitation sector is very limited. Also, NGOs engaged in the sector are few. Thus, there is limited number of social groups that willingly focus on environmental sustainability concerns or are invited to assist government in that regard. Such civil society organizations are crucial parts of the social landmark of Anambra state. They should be harvested to advantage in addressing water and sanitation challenges.
- The statistics on sector coverage are irregular and conflicting due to divergent definitions, indicators and methodologies applied by different agencies involved in the sector..
- At the state level, institutional arrangements are not well defined hence there is duplication of efforts and clashes of interest with limited outputs. Most rural areas depend upon streams, rivers, shallow boreholes or hand-dug wells for water supply. These are not safe.
- There is lack of awareness, poverty, poor planning and poor implementation of water and sanitation programmes. Community participation and public private partnership is generally low or totally non-existent in current sanitation and safe water supply schemes thus contributing to poor results or performance.

The Way Forward

Given the reality of inadequacies and slow progress in the area sanitation and safe water supply services in Anambra state, two key strategies discussed below are recommended to mitigate the situation. The strategies are derived and refine some of the submissions of a multi- disciplinary research team of Nnamdi Azikiwe University, Awka (2012), as well as inputs from Environmental Health Officers Association of Nigeria (EHOAN, 2007) on the subject. The two strategies are:

(a) Water and Sanitation Education Anchored or Propelled by Social Landmarks

Given the reality of inadequacies and slow progress in the area sanitation and safe water supply services in Anambra state, water and sanitation education should be the most effective tool in tackling child and maternal mortality. Educating mother and children, particularly of school age about the dangers associated with unsafe water and sanitation will enable communities to make the best out of their situations. Such water and sanitation education should be conducted under the following themes:

i. Personal hygiene, hand washing, cleaning/washing of clothes, homes and their surroundings
ii. Purification of drinking water, boiling, household filtration and disinfection with commercially available chlorine, solar methods, safe storage of drinking water etc
iii. Safe excreta disposal, use of latrines, burying human waste (8 inches deep and at least 200 feet away from natural waters) etc.
iv. Environmental conservation, including recycling and re-use of water

Water, sanitation and hygiene education should be delivered using leaflets, posters, banners as well as seminars and workshops. An appropriate number of community members selected across social spectrum/landmarks should be recruited and trained. The intervention team to be trained will also be drawn from NYSC, School teachers and volunteers.

Community based institutions, such as traditional rulers, town unions, women organizations, health facilities, schools, religious organizations and similar institutions should be employed as channels to reach communities receiving interventions.

Governments, at the Local, State and ultimately the Federal levels, Ministries such as those that are concerned with Local Government, Rural Development, Education, Health, Water Resources, Sanitation Agencies among others should be enlisted for assistance providing education, training and

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forms of enforcement as may be necessary effective delivery sanitation and safe water needs of communities..

Assistance and cooperation should be sought from the Radio, Television and the Actors Guild of Nigeria (popularly referred to as 'nollywood actors'). This is with a view to create or stimulate ideal water supply and sanitation response which young people like to model.

(b) Advocacy for Safe Water Supply and Sanitation

By 2004, the Federal Ministry of Water Resources began the process of revising its sanitation policy but the policy has not yet been adopted. Sanitation remains a state and local government responsibility. In other words, there are 37 water agencies in the country, one for each State and one in the Federal Capitol Territory. Sanitation facilities continue to be inadequate as sector disorganization, institutional conflicts, and the lack of defined responsibilities prevail. Out of the calculated US$2.5 billion annual investment required to meet the MDG targets, only about $550 million is being injected by the Government due to limited resources and competing needs. It is, thus, obvious that not only is there insufficient government commitment, but that there is also no regulatory framework to guide progress in this sector.

Advocacy for supply of safe water and sanitation should be carried out by mobilizing human right, women, student, and labour groups among others. Routine steps employed in advocacy work should be followed. These steps include:

- Analysis of the issues, the context, key actors and potent time frames
- Setting objectives, which should be specific, measurable, achievable, relevant and time-bound (SMART)
- Identifying the targets, i.e., the key decision makers and how they can be reached.
- Defining the message, which should comprise a demand for better government commitment in terms of budgeting as well as speeding up the development of policy
- Choosing approaches and activities, which should comprise among others, collaboration, complementary activities, generalized campaigning
- Selecting appropriate tools, which will include lobbying, visits/demonstrations, reports, and media :((television, radio, press), posters, leaflets and banners and drama, theatre.
- Assessing what resources are needed and monitoring/evaluation for optimum results.

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