

ENVIRONMENTAL HEALTH CHALLENGES

BY

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Abstract

The topic of this write-up is "Environmental Health Challenges". The importance of environmental health cannot be over-emphasized. No nation can achieve high level of health without good environmental condition. In this write up, efforts were made to examine the concept and components of environmental health, environmental health challenges and the way forward.

INTRODUCTION:

Concept and components of Environmental Health:

It is not very easy to just give one line- definition of environmental health. This is because what constitute environmental health are many. Environmental health is the branch of public health that is concerned with all aspects of the natural and built environment that may affect human health. Environmental health and environmental protection are so closely related. Environmental health is focused

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on the natural and built environments meant for enhancing human health, whereas environmental protection is concerned with the protection of the natural environment for the benefit of human health, Briggs (2000) defined environmental health as a discipline of public health whose focus is on the promotion and maintenance of a healthy environment for the survival of man. The World Health Organization (WHO) defined environmental health as those aspects of the human health and disease that are determined by factors in the environment. It also refers to the theory and practice of assessing and controlling factors in the environment that can potentially affect health.

Environmental health is broader than hygiene and sanitation; it encompasses hygiene, sanitation and many other aspects of the environment such as climate change, radiation, flooding, natural disasters etc. Environmental health addresses all the physical, chemical, and biological factors external to a person, and all the related factors affecting behaviours.

Environmental health concerns include the following;- (a) **Air quality**, including both ambient outdoor air and indoor air quality, which also comprises concerns about the popular tobacco smoke (b) **Body art safety**, including tattooing, body piercing and permanent cosmetics, (c) **climate change** and its effects on health, (d) **Disaster preparedness and response** (e) **food safety** including food transportation, food processing, wholesale and retail distribution and sale, (f) **Hazardous materials management** including hazardous waste management, contaminated site remediation, prevention of leaks from underground storage tanks (eg fuel station etc) and the prevention of hazardous material releases to the environment and responses to emergency situations resulting from such releases.

- Housing, including substandard housing abatement.
- Liquid waste disposal, including city waste treatment plants and on-site waste water disposal systems, such as septic tank system.

- Medical waste management and disposal
 - Safe drinking water
 - Noise pollution control
 - Occupational health and industrial hygiene
 - Radiological health, including exposure to ionizing radiation from x-rays
 - Recreational water illness prevention including from swimming pools, ocean and fresh water bathing places.
 - Solid waste management, including land fills, recycling facilities, composting and solid waste transfer stations
 - Toxic chemical exposure whether in consumer products, housing, workplaces, air, water or soil.
 - Vector control, including the control of mosquitoes, rodents, flies cockroaches and other animals that may transmit pathogens.
- because of its enormous contributions to the well-being of the public. For instance, as reported by USAID (2010) environmental exposures have been estimated to contribute to 4.9 million (8.7%) (deaths and 86 million (5.7%) globally. In the United States, sites created by various companies have been found to be hazardous to human and environmental health in nearby communities. This according to Brain (2004) has led to increased miscarriages, mutations, birth defects and concerns that most frightened the public. In Nigeria, when one imagines how often the oil companies and the inhabitants of where they are operating quarrel over the environmental degradation, one can appreciate more the importance of environmental health.

From the above listed aspects of the environmental health, it can be clearly seen that it is a large area of public health that needs special attention

The theme of this conference can be said to be apt - considering the fact that almost the entire world is right now experiencing a deadly EBOLA disease which is very much environmentally related. It is important to note that diseases do not just come to people without causes. Pathogens (disease-causing

organisms) are the infectious agents of these diseases. Examples of these pathogens are bacteria, fungi, viruses, protozoa and a host of others. To cause a disease, they must have to be introduced into our bodies in sufficient quantities. The environmental conditions and practices that facilitate the carrying of such infectious agents into our bodies are termed "environmental risk factors". Some of these environmental risk factors are hereunder listed and examined briefly.

- Water Supply/water pollution
- Housing
- Food hygiene
- Waste disposal
- Air pollution

Water supply: Right from man's creation, water ranked and is still ranking second (after air) amongst important things that support man's existence on earth. Physiologically, man cannot live a happy life without having water that is quantitatively and as well qualitatively enough in the body system. In the United States of America, each person uses about 75

gallons of water every day for drinking, cooking, cleaning and many other purposes. A big problem in the use of water is that after water is used, it is flushed or drained away. Where that waste water, or sewage, goes next is critical to good health. It is an established fact that 70 percent of body fluid is made up of water (Novice, 1999). It is also known that no human being can survive for many days without taking fresh water.

With regards to water supply situation in Nigeria, it is true that World Health Organization has been making efforts to provide safe water to nations of the world but greater number of people do not have good water supply. Again, those who are supplied with fresh water do not have enough of it. (water shortage).

Sources of water for most Nigerians include the following:- water from lakes, rivers, underground wells, rain fall collected off roofs, public standpipes etc. In most parts of Nigeria, greater number of people do not have access to clean water supply. Majority (especially from rural

locations) make use of unclean water. Even in towns and cities, greater percentage of the people use water from shallow wells. These shallow wells are filled with water collected from the surfaces and dirty streams around. This leaves nobody in doubt that people who patronize the use of such water are prone to a lot of water-borne diseases.

In some cities and villages, it is common to see a dead and decomposed human body or vultures floating on the stream that is being regularly used by people around there. It is also not strange to see people having their bath or defecating in a stream where they fetch the water they drink and use for all other domestic activities. This is water pollution and is detrimental to health.

Some of the water-borne diseases are cholera, poliomyelitis, hepatitis A, typhoid etc.

Housing: One cannot successfully discuss environmental health without making references to housing. A house refers to a building for people to live

in. The type of house one lives in can have significant effects on his health. Many houses in Nigeria today are built without any health consideration during the planning stages of the buildings. Many of them have very small rooms, poor lighting, poorly constructed staircases, leaking roofs. Some others are sited near potential sources of pollution like industries, markets, refuse dumps etc. For any house to contribute meaningfully in the promotion of people living in it, the basic necessities should be in place. In most dwelling places in Nigeria -- especially in major cities, the poor standard nature of houses is better felt than told by someone. Some rooms are without any pronounced windows. Windows of some of the buildings are better described as "pin-hole" windows. Many of the houses that even have windows have such windows blocked by another opposite building in such a way that the windows cannot open fully for air to come in. Sizes of rooms versus the number of occupants is yet another public health problem. It is common in major cities to find a family of eight people living in one

room which normally is not even enough for one person. This promotes the spread of diseases very rapidly.

Food hygiene: One of the most sensitive aspects of environmental health is food, hygiene. Food hygiene simply mean efforts geared towards ensuring that food to be eaten remains uncontaminated. Diseases such as cholera, typhoid, paratyphoid fever and a host of other diseases are few examples of food-borne diseases. When one discusses food hygiene, one should think of how and where food is prepared, who prepares the food (hygienic condition of the person), how food is stored etc.

Regarding where and who prepares the food we eat, people have been advised to attempt finding out the nature of the people (hygienic conditions) that prepare the food they consume in most of the food canteens in Nigeria. According to Chijioko (2012), most of the people that pound the food we swallow and the soup we consume in 'most canteens are very dirty people. He maintained that no health minded person would like to eat in most of

these canteens after discovering the type of people that prepare the food and the environment under which the food is prepared. What of the water used in washing the plates used in serving food in these canteens? In most of these food canteen sources of water used in washing plates, cups and spoons are water, from shallow wells, surface water, water off roof etc. These sources are already polluted before they use it for washing plates and other materials used to serve food. Most of these food handlers do not protect their food from insects, rodents etc. This is a serious issue because these organisms harbor micro - organisms capable of causing food-borne diseases. Food should always be stored in closed containers. In -most food eating canteens or hotels, both cockroaches and flies struggle with the food servers for food.

Waste disposal: The collection and disposal of Solid wastes remain parts of the environmental health problems. In any family in Nigeria, wastes generated on daily basis has been estimated to reach 0.64kg (Iyi;2013).

The problem with waste in Nigeria is not that they are generated but that when generated, the collection, transportation and disposal become problem. In many cities, heaps of refuse are seen here and there. In some cities, these heaps of refuse are not collected till they block roads and force people to follow alternative roads (if any). One can imagine the fate of people living near such abandoned heaps of refuse. This is because people live very near to most of the places where refuse collections are located in Nigerian cities.

Another painful thing with refuse collection is that during most of the times the vehicles used in doing the collection are loaded, the loading is always to the brim so that almost one quarter (if not more) of the refuse pour along the road thereby causing another round of environmental degradation.

Air pollution: Air pollution is the contaminations of air by the discharge of harmful substances. Air pollution can cause health problems like burning eyes and nose, itchy irritated throat, and breathing problems among others.

Some chemicals found in polluted air can causes cancer, birth defects, brain nerve damage, and long-term injury to the lungs and breathing passages in certain circumstances. Above certain concentrations and durations, certain air pollutants are extremely dangerous and can cause severe injury or death.

Air pollution can also damage the environment and property. Trees, lakes, and animals have been harmed by air pollution. Air pollution can damage buildings, monuments, statues and structures. It can also result in haze, which can reduce visibility in national parks and elsewhere, and can cause interference with aviation.

Air pollution could be classified as indoor or outdoor air pollution - depending on where it occurs.

Indoor air pollution: Many people spend large portion of time indoors - as much as 80-90% of their lives. Such people according to Maccia (1992) work, study and eat, drink and sleep in enclosed environments where air circulation may be restricted. For these reasons, some experts feel that

more people suffer from the effect of indoor air pollution than outdoor pollution. Indoor air pollution is the presence of excessive levels of air contaminants inside a home or building from sources such as cigarette smoking, fuel combustion for heating or cooking, (eg faulty old stoves etc) carpets, etc. Emission are more likely to accumulate in structures having limited air exchange with the outside. Many air pollutants typically have higher concentrations indoors than outdoors. Other sources of indoor air pollution also includes: tobacco smoke, vapors from building materials, paints, furniture.

The outdoor air pollution on the contrary is the presence of excessive levels of air contaminants outside a home or building.

A good example of a large-scale outdoor pollution is smog. It is caused by chemical reactions between pollutants derived from different sources, primarily automobile exhausts, and industrial emissions. Cities are often centres of these types of activities, and many suffer from the

effects of smog, especially during the warm months of the year.

For each city, the exact causes of pollution may be different. Depending on the geographical location, temperature, wind and weather factors, pollution is dispersed differently. However, sometimes this does not happen and the pollution can build up to dangerous levels. A temperature inversion occurs when air close to the earth is cooler than the air above it. Under these conditions, the pollution cannot rise and be dispersed. This can happen in any season (temperature inversion). This can cause or create smog. Etc The major air pollutants include carbon monoxide (Co) which is an odorless, colourless gas. After being inhaled, its molecules can enter the blood stream, where they can inhibit the delivery of oxygen throughout the body parts. Low concentration of this gas can cause headaches, dizziness, and fatigue; and high concentration can be fatal.

Carbon Dioxide (CO₂) is another air pollutant which is the principal gas emitted as a result of human activity

such as burning coal, oil and natural gas etc. CO₂ can cause burns and even blindness if an area is exposed to it for a long time. If this gas is inhaled in large quantity, it can be toxic and can cause an increase in the breathing rate, unconsciousness, and death.

Another group of important air pollutants is the **hazardous air pollutants (HAPS)**: These are chemicals that cause serious health and environmental effects that include cancer, birth defects, nervous system problems, and death due to massive releases. These hazardous air pollutants are released by sources such as chemical plants, dry cleaners, printing plants and motor vehicles (cars, trucks buses) and even planes.

Lead is another pollutant. It has been phased out of gasoline, which has considerably reduced the contamination of air by lead. This however does not mean that it has completely gone out of circulation in human environment. Lead can still be inhaled or ingested from other sources like from paint (for houses and cars) lead batteries, certain parts of bullets,

water pipes and some hair dye products

Lead is highly toxic metal that produces a 'range of adverse effects particularly in young children. It can cause nervous damage and also digestive problems. Some lead - containing chemicals can cause cancer. Wildlife are also harmed by lead.

Ozone (O₃) is a gas that is a variety of oxygen. Oxygen consists of two oxygen atoms; ozone consists of three. Ozone is in the upper atmosphere, where it occurs naturally in what is known and called "Ozone layer". It protects/shields the earth from the sun's dangerous ultraviolet rays. However, at a ground level, it is a pollutant with toxic effects. Ozone damages human health, the environment, crops and a wide range of natural and artificial materials. Ground level ozone can irritate the respiratory tract, causing chest pain, persistent cough, an inability to take a deep breath and an increased susceptibility to lung infections. Ozone can also damage trees and plants and equally can reduce visibility

Other major pollutants of the air are Nitrogen oxide, sulfur Dioxide (so₂), volatile organic compounds (VOCS) etc.

Health Effects of Air Pollution

The human health effects of poor air quality are far reaching. Principally it affects the body's respiratory system and the cardiovascular system. Individual reactions to air pollutants depend on the type of pollutant a person is exposed to, the degree of exposure, the individual's health status and genetics. People who exercise outdoors, for example, on hot, smoggy days increase their exposure to pollutants in the air. The health effects caused by air pollutants may range from physiological changes to difficulty in breathing, wheezing, coughing and aggravation of existing respiratory and cardiac conditions. These effects can result in increased medication use, increased doctor or emergency room visits, more hospital admissions and even premature death.

Population at Risk

Although everyone is at risk from the health effects of air pollution, certain

sub-populations are more susceptible. Individual reactions to air contaminants depend on several factors such as the type of pollutant, the degree of exposure and how much of the pollutant is present. Age and health are also important factors here.

The elderly and people suffering from cardio-respiratory problems such as asthma appear to be the most susceptible groups.

Children and newborns are also sensitive to the health effects of air pollution since they take in more air than adults for their body weight and consequently, a higher level of pollutant. People who exercise outdoors on -hot and smoggy days are also at greater risk due to their increased exposure to pollutants in the air.

Noise pollution: There are certain noise or sound one may hear and it becomes a disturbing one to him. This is noise pollution. This is because that person had not desired that particular noise. So, noise pollution can be described as undesirable sound that is

disturbing to the individual hearing such sound. Many people have severally gone to the court because of noise pollution. Noise pollution is one of the worst pollution that man encounters. Unwanted noise can impair one's reasoning, disturb one's discussions, disturb one's natural sleep, make one annoyed and cause even high blood pressure of the affected person (Iyi 2012),

It is true that what an individual may term noise pollution may be enjoyed by another individual who may be deriving pleasure from such noise or sound. For example, in homes and cars, some people like to tune their music very high while others don't. For those who like to have it high, it does not constitute noise pollution while those who do not like it so see it as, noise pollution.

What are then the effects of noise?. According to Briggs (2000), continuous exposure to loud noise constricts blood vessels and decreases the flow of blood to vital organs of the body. In turn, the body reacts by producing hormones that raise blood

pressure and increase heart-beat.

Noise no doubt disturbs people from their sleeps. This has been an age long problem among tenants especially in the so-called "face me, I face you." Many tenants have taken their co-tenants to court for disturbing their sleep by their sound systems or other sources of noise pollution.

Long time exposure to loud noise may lead to permanent hearing loss. This explains the hearing loss experienced by older people. This is because, it happens gradually. A practical example of the effect of loud noise in hearing is the hearing loss inflicted on people living very near those places that were severally bombed during wars.

Noise also disturbs one from hearing clearly what he wants to hear. One hears clearly when the sound he receives is pleasant. When the sound becomes unpleasant, one will even lose interest in getting the message being delivered.

Generally, to avoid being a source of discomfort to others because of the

noise, from you or your belongings, you should consider others when making any noise which includes when laughing, crying, dancing, playing, tuning radio, sounding car horns, slamming door, etc.

Environmental health challenges

Both governments and individuals have tried and are still trying to improve the environmental health condition in Nigeria. Even though these efforts of the government and spirited individuals are being felt, more still need to be done in this sector. Environmental health services in Nigeria are challenged by so many factors, some of which are briefly discussed,

- **High level of ignorance:** To a very large extent, many people including many of those expected to provide environmental health service do not know or appreciate the importance environmental aspects of health and all the issues involved.

Many people, particularly mothers have not fully understood the link between personal/public hygiene, health and disease as well as the ways

to break the link. Also, many policy makers and professionals still hold on to the restrictive bio-medical approach to health and disease. It is dear that where knowledge is slow, incomplete or incorrect, there is the tendency that people's ability to make informed decisions about their health would be limited and their exposure to health risks increased.

- **Poor funding:** For any meaningful project - especially health project, enough fund is basic. Funding of environmental health services have been poor over the years compared with other sub-sectors* like education, Agriculture etc. In many local government areas in Nigeria, personal observation has revealed to me that many local government areas are without a functional refuse van while other implements required are either insufficient or not available. However, lack of resourcefulness adds to the problem. In most cases, the little resources allocated are really not available to prosecute environmental resources services due to undue corruption in many places. Environmental health services are seen

as the main conduct pipes through which funds are siphoned.

- Poor political will and commitment: In many states in Nigeria, there seems to be very poor political will and commitment in the area of environmental health. There is lack of will to make realistic plans-as well poor will to implement plans. Environmental health services according to WHO (2003) requires commitment on the part of the stakeholders towards the realization of the programme. Mobilization of people in favour of environmental resources should be encouraged especially at the local government level.

- Weak government policy and legislation: Most of the policies put in place by the government towards improving environmental health service in Nigeria are weak and ineffective. The National Policy on Environmental Sanitation which is an attempt being instituted by the federal govt. to address some of these problems should be implemented without sentiments and unnecessary

bureaucracies.

- Training and Human resources Development: The training of most environmental resource personnel take place at the state government-owned schools of Health Technology/ Hygiene.- The standard of many of these school leaves much to be desired. Most of these schools lack environmental health personnel, facilities and all other things required for quality training to take place. There is this belief that a teacher teaches only what he knows. Quality teachers produce quality students-all other things being equal.

The way forward

For the advancement of environmental health in Nigeria, the following steps have been suggested.

- Advocacy: Due to the fact that both government and individual priorities are misplaced in disfavour of environmental health in Nigeria, there is need for a planned advocacy strategy to sensitize all stakeholders towards improved services. There is need for both policy advocacy as well as

personal advocacy in favour of environmental resources. Everyone has to be involved. The media has a great role to play here. It will help to provide the correct information to the public and also to the government on issues of environmental health.

- **Developing the workforce:** There should be a strategy aimed at developing competent and effective environmental health workforce to deliver contemporary services and address emerging health needs.

- **Fostering leadership:** It is said that any group of people without a leader is just like cattle or sheep moving anyhow. A national programme should be developed to create a cadre of well-trained specialists who will become leaders at all the levels of service delivery in environmental health.

- **Environmental Health Policy and Regulation:** Government should put in place policies directed towards addressing environmental health problems. These policies should specifically indicate what is to be done, who does- what and also include

system for monitoring and evaluating of activities done.

- **Intensifying Hygiene Education:** Environmental health professionals should take leading responsibility in modifying their approach to providing environmental health services They should find out new approach to environmental health services that will help to motivate the entire populace and positively redirect them towards positive environmental health practices.

Conclusively, efforts are being made today by both government and individuals at improving the environmental health status of Nigerians. This must have to be appreciated but considering the fact that no nation can achieve enviable level of development without sound environmental status, it is time governments at all levels come out boldly and do the needful. They should stop paying lip services to environmental health issues; enough money should be budgeted for this unit.

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