

URBAN AND RURAL AREAS: A NEXUS

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GOOD HEALTH AND AIR POLLUTION REDUCTION IN THE URBAN AND RURAL
AREAS: A NEXUS

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Abstract

There has never been anything as important to human existence as that of good health, which seems threatened by the myriads of pollution surrounding the earth's surroundings. But worse among these within the Nigerian environment is air pollution. The aim of this paper is to find out the connection between good health and air pollution reduction and see how healthy living can be promoted when air pollution is reduced in Nigerian environments. Major causes of air pollution and their effects were examined, both in the rural and urban environments to see if there has been changes from what was obtainable over time. Contact and interaction with rural and urban dwellers were made, to ascertain if there has been any change or deviation from the sources and effects of air pollution. However, it was revealed that there haven't been any significant changes in the way by which people of the rural and urban settlements pollutes the air. The practices of bush burning, indiscriminate spraying of some chemicals, industrial activities, Carbon generation from vehicular movements etc. remains the major sources of air pollution. The problems of respiratory infections, cancer of the lungs and other negative effects of air of pollution to people and the environment are still what the rural and urban dwellers are dealing with on daily basis. The paper concluded by suggesting how pollution could be mitigated to protect earth's flora and fauna by recommending veritable steps for a better environment for every living thing such as substituting the use of firewood as cooking equipment for gas or electric stoves and boosting public transportation by reducing the rate at which individual uses motor vehicles, that is, the use of public transport instead of traveling alone in a car.

Keywords: Air Pollution, Environment, Good Health, Health Problems, Pollutants

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Introduction

Good health for every living thing on the earth surface is the most pivotal for every facet of human and non-human existence to be in flowing and synergic working conditions (Rahman, 2016). In tandem with the third Sustainable Development Goals (SDGs), good health for all is very essential and should not be compromised. It is achievable where there is of peace of mind, consumption of healthy food in good proportion, availability of potable clean water, habitation done in a non-blurry environment and dwelling in clean environment that is not vulnerable to some pests and diseases, as well as exposing man to external dangers. With all these in place, good health is guaranteed.

There is nothing as good as living in an environment with clean air. But due to unwholesome behaviour by people, both at the rural and urban areas, air purity has been degraded. Over the years, human happiness and healthy living have been threatened by pollution, with the especially, air pollution in different ways (Baldasano, Valera and Jimenez, 2003). Air-pollution can be referred to as silent killer and distorter to successful growth to living things, and good at altering lifestyles. In some ways, it has destroyed many precious properties unknowingly.

The environment constitutes valuable resources for the existence of man and it is a fundamental fact that man cannot live in isolation from the environment. The very substance of man's existence depends on the environment, hence, the continual interaction between him and the environment (Funmilayo, 2013). Rapid urban growth is responsible for many environmental and social changes in the urban environment in Nigeria. Amenities such as energy, education, healthcare, transportation and physical security are required to sustain and keep every urban environment functioning efficiently. In Nigeria, poverty-planned urban and rural development is threatening our environment, our

health as well as the quality of life. Relevant authorities need to take charge of the situation through urban renewal and slum upgrading programmes.

Most air pollution research has focused on assessing the urban environments and the effects of pollutants but not much is known about air pollution and pollutants in relation to human health in the rural areas knowing fully that technological advancement had caused a lot of changes to take place in this environment. It is on this note that this paper is geared towards seeing how good health can be promoted through reducing air pollution both in the rural and urban environments.

Therefore, the present study examines the major causes of air pollution in the rural and urban environments and also identify how best to curb factors of air pollution in our environments.

Study Area

The study area of this research is Ondo-West Local Government. It is one of the 18 Local Government Areas in Ondo State. According to absolute location, it is situated between Latitude 7° 0' 59" North and Longitude 4° 44' 44" East. It is a town about 205 metres above sea level, having an area land size of about 970 km². According to the 2006 national population census, was counted as having 283,672 persons, putting population density at about 292 persons/km²; (Ondo State Ministry of Physical Planning and Urban Development; 2011 archive).

The area is characterized by wet and dry seasons with heavy rainfall ranging from 1,500mm to 1,800mm, and occurs for about 8 months of the year. Temperature is high throughout the year, ranging from 27° C to 32° C, with maximum temperature occurring around April. The dry season is short, lasting from December to February. The average yearly humidity is about 80%. The vegetation is

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evergreen, composed of many varieties, including hardwoods such as timber (Adeoye, 2011).

Conceptual Issues on Air Pollution

Air pollution, usually called particulate matters, can be referred to as an alteration of air quality that can be characterized by measurements of chemical, biological or physical pollutants in the air. It is the presence of undesirable impurities or an abnormal rise in the proportion of some constituents of the atmosphere (Wikipedia, 2021). Air pollution is the most destructive long-term environmental action, and its perpetration is worse in third world countries where laws against it are either non-existent or, where it exists; erring individuals are hardly ever arrested or charged with such heinous crimes against mother-earth (Jones, 1999). Air pollution comes from divergent sources which may be from rural or urban activities (Godish, 1998). Pollen, spores, viruses, bacteria and other small bits of organic materials in the air caused widespread suffering from allergies and airborne infections thereby impacting negatively on human health.

Air pollution is generally the widest spread and obvious kind of environmental damage. According to Environmental Protection Agency (EPA), some 147 million metric tons of air pollution are released into the atmosphere each year in the United States by human activities (Cunningham and Cunningham, 2008).

In times past, air pollution in rural areas was synonymous with just smoke pollution, and strictly an activity in the backyard kitchens where woods were burnt as stoves, and where some agricultural practices like bush burning took place (Gbadegesin, 1992). But now, insecticides (liquid and gaseous such as mosquito coils), vehicular fumes, cigarette smoke, gaseous emissions from industries located at rural interiors, open-air burning of

dustbins, and so on, have all contributed to jeopardize the country sides (Oguntoke, Opeolu and Babatunde, 2010; and Majra, 2011). Karagulian and Amann (2015) believed rural fumes to be of a dastardlier consequence to the rural dwellers than their urban counterparts because the rural people take lesser precautions to respiratory health issues, and according to Rooney, Zhao, Bates and Pillarisetti (2018), between 2.6 and 3.8 million premature deaths occur from being exposed to dangerous atmospheric emissions worldwide, with about half of these coming from the rural areas of third world countries.

Oguntoke, Opeolu and Babatunde (2010) believed that urban and rural emissions are similar, but only differ in extent and diversity of occurrence. These main sources of rural air pollution by these scholars are seen as firewood burnt for cooking, cigarette smoking, open dustbin burnings, some mining/mineral exploring activities, engine fumes and diffused emissions from use of insecticides which includes canned liquid insecticides for indoors, mosquito coils and outdoor sprays of insecticides.

Urbanization has become universally synonymous with air pollution. This is because the major characteristics urban areas are known for are their abilities to have viably and relatively heavy industries. Most of these industries are not without the emission of gaseous substances that adulterate the air of environments (Belis, Karagulian, Bo and Hopke, 2013), a nasty cause of climate change rattling the world (Seinfeld and Pandis, 2006).

According to World Health Organization (2014), vehicular traffic fumes especially from older vehicles (25%), combustion and agro-allied activities (22%), natural dust and salt (18%), domestic use of fossil fuels (20%), biomass burning and industrial activities (15%) are the major source of urban air pollutions. These atmospheric areal impurities are a result of never-dying cultures of primary, secondary

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and the tertiary industries. These had inadvertently bedeviled air quality in urban areas, which also include indiscriminate dumping of refuse that release very foul odour in the air that affect surrounding residential inhabitants, indiscriminate use of chemicals as insecticides, paint-scrubs, beauty or cosmetic products, paint-mixtures, fumigation of surroundings, and so on.

Effects of Air Pollution on Human Health and Environment and the Prevention

The impact of air pollution on health depends on how much pollution people are actually exposed to during their lives time. Cunningham and Cunningham (2008) asserted that the World Health Organization estimates that some 5 to 6 million people die prematurely every year from illness related to air pollution. Heart attacks, respiratory diseases and lung cancer are all significantly higher in people who breathe in dirty air, compared to people in cleaner environment. Air pollution levels are the causes of myriads of dangerous life-risking ailments on humans

Air pollution (indoor and outdoor) has a profound impact on health, especially among children. The local effects of this pollution are further compounded by climate change. Indoor pollution comes from the use of solid fuels and other sources. The effect of pollution is seen as:

Acute lower respiratory infections (pneumonia) in young children, the chief killer of children worldwide and the disease responsible for the most lost life years in the world, chronic obstructive pulmonary disease such as chronic bronchitis and emphysema, in adult women who have cooked over unvented solid fuel stoves for many years and lung cancer (Smith, 2005).

Recent studies indicate that the past studies of solid fuel use and pneumonia in young children probably overestimated the risks due to confusion of upper and lower respiratory infections, the former not bringing a death risk. On the other hand, there is growing evidence of health effects of other kinds, including tuberculosis, eye defects, injuries, cataracts and a possibility of blurred vision, several other cancers, low birth weight, heart disease, facial discolourations, ventricular hypertrophy, psychological disorders, psychosomatic disorders, autism, retinopathy and pregnancy related problems such as mutation in babies, still-births, deformities in neonates, complicated childbirths, low birth weight, stunted growth of babies, abnormal baby deliveries, and so on.

Agriculture also has its own share of diseases resulting from air pollution. In addition to affecting humans, increased air pollution levels affect agricultural plant and animal products which also has its own turn of effects on human health. As a result of increased air impurity levels on agriculture, certain risks abound, such as: discolouration of green leaves of seasonal, crops, perennial crops, forest vegetation, and so on, some organ failure of some farm animals, respiratory problems/cancer of some farm animals, stunted growth of some perennial trees and/or farm animals, mutation in some farm animals, storage of carcinogenic substances on plants and/or farm animals which affects humans when consumed by them, poor yields in crop production, pregnancy problems in livestock and poultry and poor milk production in cattle, mutation during gestation of some farm animals, still-births and/or deformities in born babies of farm animals, complicated birth in offspring, low or poor birth, low birth weight of newly-born farm animals, and so on.

It is worthy to note that the above dangers posed by air pollution on humans and agriculture are common

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features in the South-South regions of Nigeria where crude-oil exploration is rife, and in regions where solid mineral exploration is prevalent.

Rural and urban dwellers can prevent themselves from adulterated air by changing their old practices, and the prevention of some newly acquired unwholesome environmental cultural practices, which can all be summarized as: stopping bush burning practices as a preamble to a new crop cultivation season, using mosquito nets as a better option for preventing mosquito bites, rather than the use of gaseous and/or liquid insecticides, ensuring inhabited houses close to mineral mines or other areas where natural resources are tapped, are demolished and the inhabitants relocated to better areas, creating enabling laws against unwholesome anti-atmosphere practices like bush burning and prosecution of those who contravenes the laws.

Equally, people should think more of recycling most materials in their dumps, rather than throw them away as dumps. While the plastic materials could be sold, the food wastes could be converted into compost that could be sold to farmers. There should be a reduction in the use of firewood for cooking, while the use of electric or gas stoves for cooking should be encouraged. Chemical sprays for furniture should be carried out at secluded areas, not where other individuals stay. The use of modern anti-insect gadgets like *insect-magnets* and *insectocutors* should be encouraged. Elimination of stagnant waters and the trimming of overgrown grasses to prevent mosquito spread should be ensured. With all these put in place, good health of all citizens can be guaranteed.

Benefits of Pollution Prevention in Rural and Urban Areas

It is only healthy nations that create viability in the homegrown economy as well as partake as stakeholders in national development. Where ill-health is made to be the order of the day at the different rural and urban environments, then, economic, cultural, political and social life in the country will be in a sorry state.

It is pertinent to know that most of the foods we eat in urban areas come from the rural areas. If the atmosphere of these areas is constantly under threat, it will inadvertently, affect the urban areas too. Constant air pollution will affect these rural crops and livestock that find their ways into the urban markets, combined with their carcinogen infestations, which, unintentionally, affects urban customers for these products.

Also, important to note is that if air pollution is not curbed, it will adversely affect the health of the indigenes. This may lead them into needing urban health facilities since rural health facilities in Nigeria hardly have the wherewithal to treat these types of problems, which may bring untold pressure on urban health facilities. In addition, some rural-urban migrants may begin to fall sick in these urban areas they have sought refuge in, making such areas believe such ailments are urban-borne, when, in fact, they are products of rural air-pollutions.

Methodology

Basically, information was gathered from both the rural and urban dwellers to ascertain any significant changes on the sources and effects of air pollution on the people and the environment. This was done through personal contact with some residents of Ondo town around Yaba, Oreretu, Oka, Surulere and Eso-Lisaluwa as well as five different feeder rural areas to this major urban area, that is, Laje, Bagbe, Laoso, Litaye and Lamu. However, all the categories of people were put into consideration such as, the artisans, civil servants, farmers and traders. Both male

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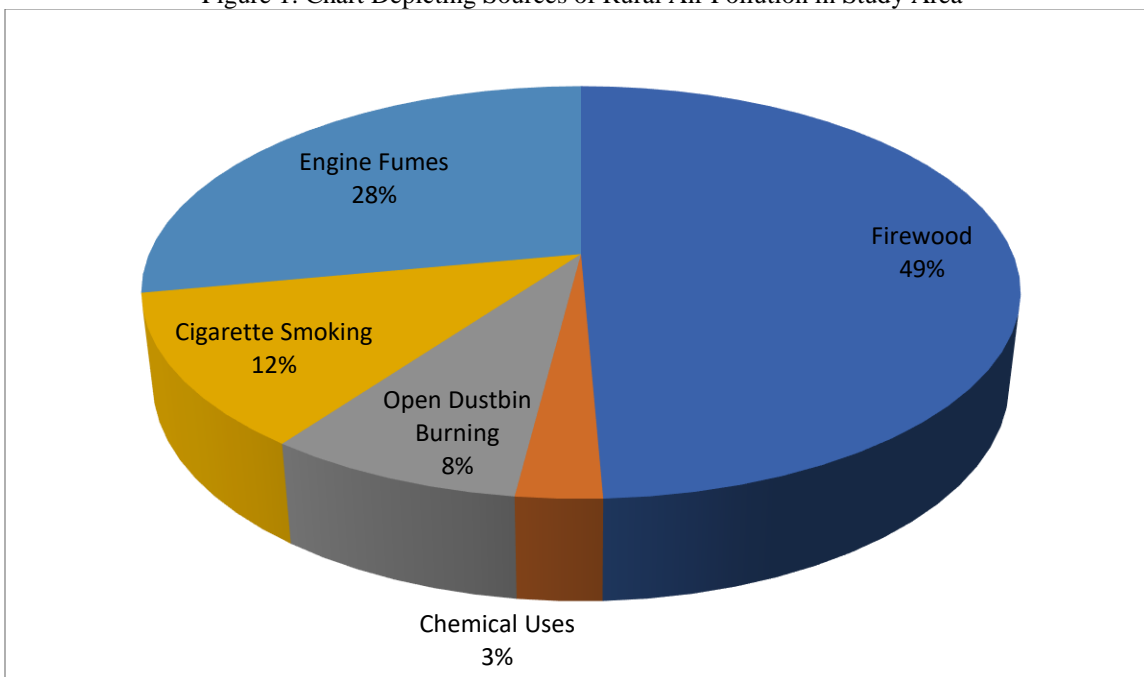
and female were also considered as respondents. This was done purposively for fair representation.

Discussion

As observed over the years, the sources of air pollution in the rural area include: use of firewood, spraying of chemicals, open waste disposition, bush burning and the use of low medium scale sophisticated machines for the

processing of some agricultural outputs into semi-finished goods (Figure 1). These sources still remain without any major change. This was corroborated by the revelation of the rural dwellers throughout the period of interaction with them. No new source of air pollution was mentioned adding to the ones of public knowledge over decades.

Figure 1: Chart Depicting Sources of Rural Air Pollution in Study Area



Source: Authors field survey, 2021

Naturally, urban centres are noted to be more sophisticated than the rural areas. They perform more of secondary functions compared to the mere primary functions of the rural settlements. Industrial activities are on the high side in the urban centres, large scale wastes are generated in the cities, also the discharge of Carbon into the environment is incomparable. All these has been in existence since the human race started craving for development. The urban centres, in meeting the daily needs of the people have to

practice its function on a large scale (Figure 2). This in turn have an environmental implication on the people. However, from recent findings, there have not been any significant change in these sources. Industrial activities still remain accompanied by large scale waste generation and the continuous vehicular movement. Although, there could have been increase in the number of industries and their activities as well as increase in waste generation, hence the sources of air pollution change so far. The urban dwellers identified

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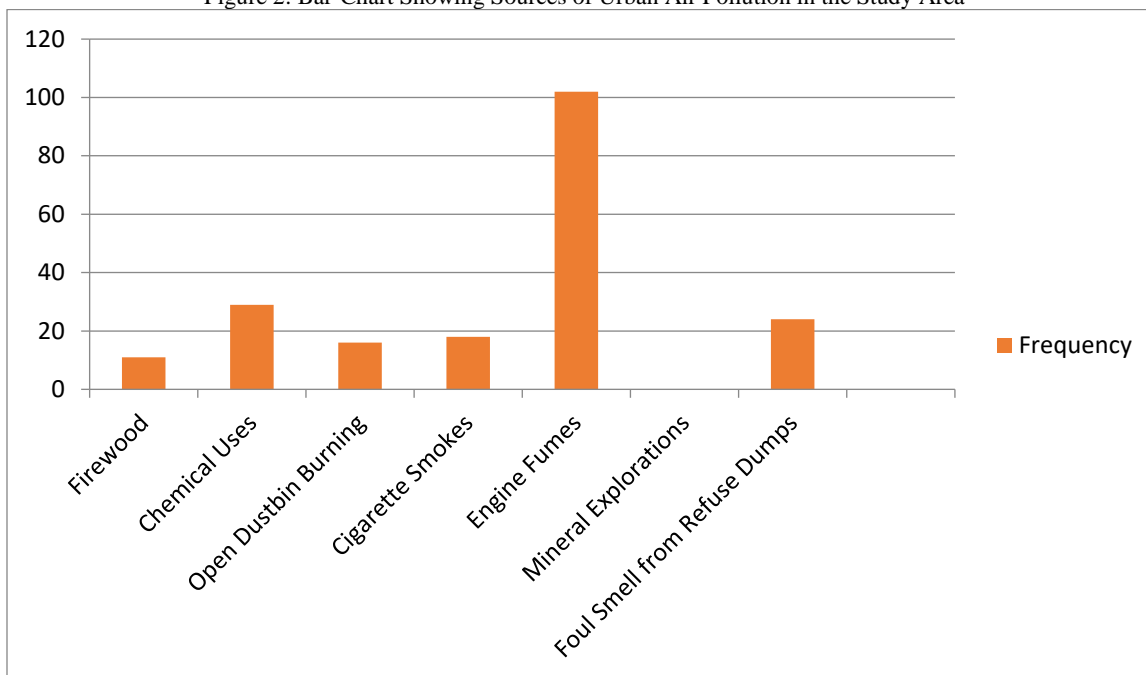
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these sources as firewood, use of chemical, open dustbin burning, cigarette smoking, engine fumes and foul smells

from refuse dumps. These are areas where they found environmental discomfort when it comes to air pollution.

Figure 2: Bar-Chart Showing Sources of Urban Air Pollution in the Study Area



Source: Authors field survey, 2021

Conclusion

Developing countries as well as already industrialized nations of the world take bold steps in engaging in more and more manufactures to better their various economies. But unlike the more advanced western economies that now seem to enter a phase of cutting down drastically the use of non-renewable fuels for powering their industries, the third world countries; Africa inclusive, seem a distant cry from achieving that feat. It is important that if we in the third world desire a cleaner health, be it for our agriculture or for humankind; be it for now or for the future, there is the need to join the other societies in order to decrease the unchecked increase in lethal diseases and the

increase in congenital problems now rampant in our societies, as compared to centuries ago. It is always important that taken these bold steps will not only benefit us health-wise, but also, economy-wise.

In order to protect the public health and the environments, the amounts of air pollutants being emitted into the air should be reduced drastically to the barest minimum. This can be achieved by the corporate efforts of both the government and individuals so as to make the environment conducive for the inhabitant thereof.

Recommendations

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As it might have been advocated by various researchers who might have worked on air pollution, it is still recommended that certain steps should be taken to nip increased air pollution in the bud, apart from a change from non-renewable sources of energy to renewable ones, should include using more electronic devices like *insectocutors* instead of insecticides against insects and engaging more in clearing grasses before engaging in crop cultivation rather than engaging in bush-burning. Also important is the banning of dumping waste near neighbourhood especially by refuse collector vehicles, burning of refuse dumps, burning of tyres near neighbourhoods for whatever use or reason, substituting the use of firewoods as cooking equipment for gas or electric stoves, stopping the exposure of human wastes from sewages during the emptying and cleaning of the suck-aways, and so on. Since most air pollution in the study area and generally in developing world is associated with engine fumes in the form of transportation and generating machines, the use of solar energy will be a better alternative to generators and boosting public transportation by reducing the rate at which individual uses motor vehicles, that is, the use of public transport instead of traveling alone in a car will be a great preventive measure. Older automobiles on the roads should be retired, turning off of engine when waiting longer than one minute and starting trips a little earlier and reducing speed to reduce emissions saves fuel and also safer for the environment and our health.

It is very important that we take these bold steps, and not be left behind among the comity of nations so that the country do not continue to be a laughing stock or be looked down upon by the western world, and thus, making them always see us as areas they could give aids too, especially after making our leaders forego certain privileges to their advantages. Taking these steps, will, as a consequence,

benefit us health-wise and economy-wise; both in the short and long run.

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