

Population Growth, Environmental Degradation and Human Health in Nigeria

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Abstract: As the human population doubles every few decades so, its impact on the environment increases at a faster rate. Humans cannot escape the law of population growth when population increases, the resources required for its sustenance also increases therefore man has made a remarkable impact on the environment primarily through the use of natural resources and production of wastes. This study examines the impact of population growth in Nigeria on the environment and the attendant result on human health. Rapid human population growth has been identified as underlying environmental problems in the country. The study recommends measures to limit rapidly growing population as well as strategies to reduce the negative impact of human activities on the environment.

Key words: Population, growth, environment, degradation, health, production, Nigeria

INTRODUCTION

The generic concept of population has traditionally been used as a highly abstract view of a universe of phenomenon comprising recognizable individual elements and concerned with highly general aspect of the distribution and change. This study however, focuses on the human population which differ from plant and animal in a number of ways particularly in its ability to make remarkable impact on the environment through her activities. Therefore, the term population in demographic usage refers to the total number of people resident in a particular area at a particular time. Population growth on the other hand simply refers to addition to or subtraction from the existing population through the interaction of the three elements of population change namely: birth, death and migration. Nigeria which is referred to as the demographic giant of the world's fastest growing region (Sub-Sahara Africa) has been growing in such a way that the population figure recorded in every census surpasses the figure of the immediate past census. With a total population of over 140 million people and a growth rate of 3.2%, the nation will double its size in 22 years. This dramatic growth in human population has caused much concern especially about the strains it places on the resources of the environment and the quality of the lives. Population is a major source of environmental degradation. Population impacts primarily on the environment through the use of natural resources and production of waste and is associated with environmental stress such as reduction of ecosystem complexity, loss of biodiversity and the alteration of the all important biogeochemical cycle (Asthana and Asthana, 2006).

Environmental degradation in Nigeria results from factors such as economic growth, population growth, urbanization, intensification of agriculture, rising energy use and transportation. It is therefore, safe to conclude that environmental changes in Nigeria is a result of the dynamic interplay of socio-economic, institution and technological activities (Alo, 2008; Sule, 1995).

Human health and wellbeing is appreciably affected by the environment. Asthana and Asthana (2006) asserted that malnutrition and diseases caused by contaminated environment, human wastes, airborne diseases form the core of the disease pattern of the developing world, Nigeria inclusive. That is to say that contaminated environment due to human activities has resulted in several cases of ill-health, morbidity and shortening of lifespan.

Hence, this study examines population growth and its attendant impact on human health and total wellbeing with particular reference to Nigeria.

CONCEPTUAL FRAMEWORK

This study will rest on two basic conceptual framework namely that of the demographic transition theory and the concept of ecosystem.

The demographic transition theory has been described as the theory of reduced growth rate through development (Fellmann *et al.*, 2005). This theory traces the levels of human fertility and mortality presumably associated with industrialization and urbanization. Over time the model assumes that high birth and death rate will gradually be replaced by low rates.

The theory has four stages; the first stage of the demographic transition model is characterized by high birth rate and high but fluctuating death rate. The second stage states that death rate drops due to improved sanitation and control of infectious diseases but birth remains high thus there is a rapid increase in numbers. For the third stage, birth rate decline as a result of improved education which led to better standard of living and improvement in the adoption of family planning methods therefore, population growth is less rapid. The fourth stage is marked by low birth and death rates and consequently by a low rate of natural increase or by decrease if death should exceed those of births (Fellmann *et al.*, 2005).

It becomes necessary to point out that Nigeria which is currently in stage three of this model will continue to experience increase in human population far into the future due to effect of past high fertility. The negative impact of human activity on the environment is inevitably the result of increase in human population.

ECOSYSTEM CONCEPT

The ecosystem is a complex system in which interaction between the different component of the environment occur. It refers to any spatial unit which includes the living and non-living constituent interacting with each other and producing an exchange of materials between the two (Asthana and Asthana, 2006).

The non-living or abiotic component of an ecosystem are mineral nutrients, temperature, light, water and air etc. while the living component of the ecosystem is made up of population of different organisms which occurs in the system.

In the ecosystem, green plant alone are able to trap solar energy. The transfer of energy from green plant through series of organisms which consumes food energy and in turn are themselves consumed, constitute the food chain.

However, this natural flow of energy in the ecosystem is being disrupted through increase in human activities which is as a result of increase in human population. It is the argument of this study that the growth of human population impacts on the ecosystem negatively.

POPULATION GROWTH TREND IN NIGERIA

Umoh (2001) posited that the growth of population in an area reflects the history of the peoples responses to the environmental possibilities within the area. Population growth refers to the numerical change in the size of a

region's population between two periods (e.g., between 2008 and 2009 AD). The rate of growth is usually expressed in percentage.

Nigeria's demographic history reveals that from a population of 30 million persons in 1952/53, the country's population rose to 88,992,20 in 1991, more than twice the 1952/53 within 39 years. In 2006, Nigeria recorded a total population figure 140,003,542 comprising of 71,704,869 males and 68,295,683 females. This translate in an annual growth rate of 3.2% over 1991 census figure. Base on this growth rate the population will double itself in 22 years. The sustained population increase as illustrated above raised challenges which should be taken seriously given the difficult environment and decaying facilities provided for the rising numbers.

REASON FOR THE OBSERVED POPULATION GROWTH IN NIGERIA

The rapid population growth in Nigeria and in many other developing countries result from an inter play of many factors over the years, the death has been declining. Today the death rate is 13.9/1000 persons as against a persistently high birth rate of 44.5/1000 person (Umoh 2001). The out come of this combination is the large natural increase in the population. Some of the reasons advance to explain the low mortality rate include improved agriculture and enhanced food security, better nutrition, improvement in general sanitation among the people and better medical care and the scientific break through in techniques for controlling infectious diseases.

Of particular importance are the place of vaccination, immunization and the use of insecticides to subdue mosquitoes and other insect vectors. The disastrous effect of wars, famines and other natural disasters have greatly been curtailed due to international co-operation and improved transportation and information technology, coupled with the impact of industrialization that has added to the range of consumable and capital goods available for use (Umoh, 2001).

THE HUMAN POPULATION AS A SOURCE OF ENVIRONMENTAL DEGRADATION

According to Botkin and Keller (1998), the human population issue is the underlying issue of the environment because most current environmental damages result from the very large number of people on the earth, ultimately researchers cannot expect to solve the problem of environmental degradation without first limiting the total number of people on the earth to the amount the earth can sustain.

Asthana and Asthana (2006) described the impact of human being on the environment under two broad subheadings:

- Reduction in ecosystem complexity and diversity
- Changes in biogeochemical cycles

Reduction in ecosystem complexity and diversity: Man has been over simplifying the structural component and diversities which occur in undisturbed natural ecosystem. Through agriculture and other human establishment, man has been able to alter the flora and fauna over a large surface area. The complicated many tiered tropic structure of a natural system is reduced to two link; primary producer and man.

Also man tends to over simplify the microbial community present in soil bodies through the use of chemical fertilizers and intensive agriculture leading to depletion of organic materials on which microbial population depend for nutrition while insecticides washed down into water and the soil kill susceptible organism directly.

Man has also affected the diversity of animal by taking few species, domesticated and protected them to form a huge population. Those species which are left out are finding it difficult to cope with stress imposed by human activities. A number of plant and animal have become extinct or at the verge of extinction due to over simplification of the ecosystem.

Changes in biogeochemical cycles: The complete pathway through which chemical element flow in the earth system is called the biogeochemical cycle. Ruthless exploitation and pollution of the environment has disturbed the operation of the all important biogeochemical cycle (Botkin and Keller, 1998). Examples of this cycle include; the carbon cycle, oxygen cycle, the phosphorus cycle, nitrogen cycle, the sulphur cycle and the cycles of other trace element. Taking the carbon cycle as a case study, carbon occurs as carbon dioxide in the atmosphere as organic compounds in plants and animal bodies, in coal and petroleum deposits and as inorganic carbonate in water rocks, shells and testes, etc. Human activity has led to an enhanced rate of input of carbon into the atmosphere which has caused a measurable rise in the concentration of atmospheric carbon dioxide. This is due to increased use of organic matter, coal, petroleum and natural gas as fuel and the combustion of carbonate rocks for the manufacture of cement and lime (Asthana and Asthana, 2006).

While a small rise in the concentration of carbon dioxide in the atmosphere may have no effect on plants and animal, a high concentration of carbon dioxide in the

atmosphere acts like a big blanket around the globe which obstructs loss of heat from earth surface, it will cause an effect like that of a green house in which the glass enclosed space gets heated up due to its insulation from outside environment. This effect is referred to as glass house effect or simply as global warming.

Changes in the concentration of other elements such oxygen, nitrogen and phosphorus, etc., in difference to the naturally required concentration has lead to one harm or the other in the environment which either directly or indirectly affect the human health.

THE DEGRADED ENVIRONMENT AND HUMAN HEALTH IN NIGERIA

The three-component of the environment which include the atmosphere (air), the hydrosphere (water) and the lithosphere (land) play very important roles in the survival of man. Therefore, the desecration of these spheres of life impacts negatively on human health.

Taking water as a case study, Guinness and Nagle (2002) opined that the world's fresh water are closely linked to human health. They further stated that 25,000 people die every day because of poor water. The 1,700 million people lack clean water (1200 million lack proper sanitation) 3 million people die of diarrhea each year and 200 million people suffer from schistosomiasis each year.

In Nigeria as in many other countries, water pollution results from urbanization, industrialization and intensification of agriculture, etc. There is a wide spread pollution by sewage, nutrient, toxic metal, industrial and agricultural chemicals as well as domestic sewage (Sule, 1995; Alo, 2008; Opukri and Ibaba, 2008).

The land component of the environment is not left out. As the Nigerian population increase and agriculture developed, the human impact on land is accelerated as natural vegetation is being destroyed and replaced with cultivated species. The impact of agricultural development on the environment include activities which contribute to soil erosion, land salinization and loss of nutrients.

The third component of the environment which is the air has two source of pollutants i.e., the natural as well as the human related sources. However, it is the human component that is most abundant in urban area and that leads to the most severe air pollution problem for human health. These air pollutants includes those from smokestacks of power plants at industrial sites, agricultural areas sprayed with insecticides and herbicides as well as these trucks, buses, an air craft, ships and trains (Sule, 1995; Smith and Enger, 2004).

Air pollutants affect the human health in various ways for instance Sulphur Oxide (SO₂) causes severe damage to human and other animal lungs. Nitrogen oxides

causes irritation of eyes, nose, throat and lungs increases susceptibility to viral infection including influenza (which can cause bronchitis and pneumonia). These are very common ailment in Nigeria (Asthana and Asthana, 2006). Also carbon monoxide is a very toxic air pollutant. Carbon monoxide and haemoglobin in the blood have very high natural attraction for one another. Haemoglobin in human blood will take up carbon monoxide nearly 250 times more rapidly than it will oxygen. Many people and some times a whole family has been accidentally asphyxiated in Nigeria by carbon monoxide produced from incomplete combustion of fuels in campers, tents and houses.

THE WAY FORWARD

Having established a link between human population and a degraded environment as well highlighting the effect a degraded environment on the human health, it becomes necessary to suggest a way out so as to achieve a sustainable environment.

Underlying every environmental problem is the issue of human population growth. Therefore, any attempt to solve this problem must start by addressing issue of rapid population growth in Nigeria. This study hereby recommends that the simplest and one of the most effective means of controlling population growth in Nigeria is to delay the age of first childbearing. Women should be encouraged to be educated, this will make the delay to occur naturally. Family planning is another effective means of regulating birth. Awareness campaign should be intensified in the country (Alcala, 1994; Population Reports, 2002).

National policy on population can also be reviewed to assign a particular number of children to a couple and not just to a woman.

Improving the economic status of women would lead to improved financial standing which could allow them have fewer children (WHO, 1998).

As per solving the problem of environmental degradation, it is suggested that alternative source of energy should be developed to reduce the risk posed by use of hydrocarbon as fuel environmental education should be encouraged. People need to be thought how to use the resources of the environment without causing damage to the environment. This can be achieved through media publication and other means of creating awareness which include building environmental education into the school curricula.

Environmental law which have been enacted should be thoroughly enforced through task forces. Also the multinational companies and other industries with

tendencies to generate pollution should be forced to carry out environmental impact assessment and put in place mitigation measures before carrying out production.

Finally the Nigerian government need to invest more in the health system as the current level of investment in health is low. Improving the health sector will afford those already affected as well as those that will be affected by polluted environment the opportunity to get treatment.

CONCLUSION

There is no gainsaying that the Nigerian population is growing at a very fast rate. The obvious implication of this growth rate is that much pressure is placed on the resource of the environment leading to environmental degradation which invariably affect the human health. It is therefore necessary to put in place measures to first solve the population problems before proceeding to solving the damage done to the environment as well as the resultant health problems. This study has been able to establish a link between population growth and environmental degradation in Nigeria, it has also brought to the lime light some of the health problems that are outcomes of the polluted environment. The study has also suggested a way out of the problems.

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