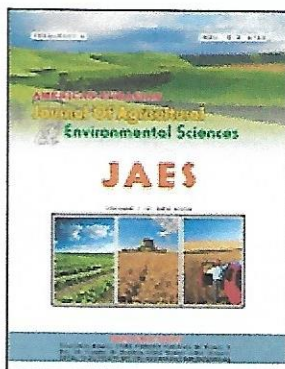




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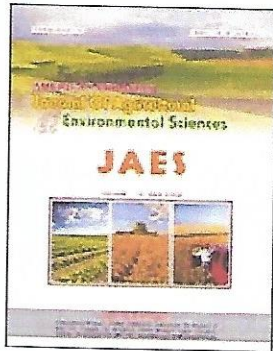
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## Ecological Footprint, Lifestyle and Consumption Pattern in Nigeria

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**Abstract:** Urbanization, economic growth and change in demand by citizens and lifestyle have been the major factors that affect production and consumption of resources; this has consequential effect on the environment. This is the basis for this study; Consumption is a component of Ecological Footprint. Thus this involves utilization of resources, uses of goods and services and generation of waste after the consumption. Therefore consumption is one aspect of human lifestyle that affects the Ecological Footprint of a nation. Nigeria's households spent more in 2010 than 2001. Between 2000 and 2001, the real household consumption increased by \$2.1 billion (32%). Over the same period per capita household expenditure increased nearly 28%. There is about 61% increase in population within the same period and the GDP increase of about 7% annually does not correlates. The three main types of household consumptions are food, housing and transportation. Comparison of the EF of Nigeria and the global EF indicated that it requires 0.81 planets to live the way Nigerians are living globally. Thus the EF of Nigeria is about half of the world EF.

**Key words:** Consumption • Ecological Footprints • Environment • Lifestyle • Sustainability

### INTRODUCTION

The patterns of household lifestyle have proved to have many effects on the environment. The choice of lifestyle determines what is produced and consumed directly or indirectly, this involves the use of natural stock and generation of waste in the process. The lifestyle of people is directly or indirectly associated with damages to the environment. This implies that household's purchasing power of goods and services is an indirect measure of household's consumption of resources and these impact on the environment.

The consumption of resources today is not done in sustainable manner and may jeopardize the availability of such resources in the future. This negates the [1] that define Sustainable Development as "*Development that meet the needs of the present without compromising the ability of the future generation to meet their own needs*". The availability of some resources may be extinct because of our lifestyle. Therefore the pattern of household consumption is an indicator for sustainable development [2].

The volume and type of product consume by households have effect on general consumption pattern

and this has major consequences on the environment. The sustainable development therefore requires reduction in the present consumption pattern within the ambit of sustainability and if otherwise the consumption will be unsustainable [3]. Consumption of resources as a factor in a sustainable development process was clearly stated in [4]. It states that "*the most important cause of the steady deterioration in the global environment is today's non-sustainable consumer and production pattern, especially in the industrialized countries*" therefore consumption and lifestyle are closely linked. Several factors causes problem to environment, from unsustainable consumption of resources to imported lifestyle in Nigeria. The first major factor is the environmental problem caused by production of goods and services. In fact the most serious threat to environment nowadays is no longer production rather consumption of resources. The present paradigm shift is that environmental problems have shifted from production to consumption [5]. It is proved that production is a function of consumption. Consumption dictates human activities because it depends on the lifestyle adopted by households. This therefore requires the shift from sustainable development to sustainable consumption [5].

## MATERIALS AND METHODS

This research is mainly done through the use of secondary data. It analyses the data from National Bureau of Statistics (Nigeria), National Population Data. These data obtained are between year 2000 and year 2010. The data include the national GDP; Household expenditure; Household's income; Types of consumption by households; Households lifestyle. The National Population Census provide data on Household size, Population, types of Dwellings, the number of vehicles available to households, means of transportation, dependency ratio, types of occupation, demographic structure of population as it relates to households in the country. The data collected are then subjected to analysis to be able to understand the underlying factors that causes Ecological Footprint of the cities to be verified.

## RESULTS AND DISCUSSION

The analyses of the findings are presented in various headings to shows the implication of households' lifestyle and consumption on the environment in Nigeria. The analysis shows that the lifestyle in Nigeria varies according to different states and along different class of people, but an average lifestyle is considered in the report of the study.

**Households Consumption:** There are four aspect of consumption to households in Nigeria that this report focus on, this include: Food; Housing; Energy for Transportation and Goods and Services. Consumption by households is one aspect of economy and this consumption by a single household may contribute marginally to environmental degradation but due to volume of consumption by population and households in general, this will collectively have greater effect on the environment. The aggregate of impact households is a very essential contributor to environmental problem such as waste disposal and sanitation, water, land and air pollution, sewage, climate change etc. [6]. The general impact of households' consumption as documented by [6] shows that households have impacted negatively to the environment in the past 30 years and will continue to affect the environment in the years to come especially in the area of transportation, energy, waste generation etc. There is several direct impact of households' consumption on the environment which is summarized in Table 1.

**Households Consumption of habit in Nigeria:** Households' lifestyle is seen from the pressure they exert on the environment by their consumption pattern. There are about 9 categories of consumption that is captured in this analysis due to data availability form the National Bureau of Statistics approved by UN-Data, [7]. These categories are shown in Table 2:

**Households Consumption of Food in Nigeria:** Consumption of food has a major impact on lifestyle as this determines the ability of households' to affect the environment. The National Policy of Government of Nigeria is that households should not spend more than 30% of their earning on food [8]. The consumption by different households in Nigeria shows that while the low income groups which account for over 60% of the population depend on locally grown food items [9], the medium and higher income groups eat more of imported food which is highly processed and packaged, this has greater effect on the Ecological Footprint (EF) of the country. The major cause of increase in EF in Nigeria is due to consumption and lifestyle of the people. The consumption pattern of Nigerians is shown in Fig. 1. The consumption of food in the country is on the increase annually.

**Households Consumption on Housing:** In Nigeria, there are several consumption associated with housing, this include consumption of materials for construction of buildings, furniture, electrical appliances, technical equipment etc. that are required to put the house into use (this are those required for both indoor and outdoor activities). Though they may vary according to households and their aggregation impact on the environment as all the resources are from the environment: forest for furniture, land for building materials etc. the national Policy on Housing indicated that not more than 20% of gross earning by households should be spent on housing.

Another consumption relating to housing in Nigeria is energy consumption for the heating and operation of the houses. The analysis shows that the use of wood fuel is most common in Nigeria and this produces amount of CO<sub>2</sub> that affect the environment. The use of alternative source of energy is low because it is expensive and scarce. The culture and lifestyle of the people does not also encourage the use of LPG. The access to electricity is low (about 40%) [10].

Table 1: Impact of Household Consumption and Waste Generation on the Environment.

Trend at Household Level	Determinants of Environmental Impact	Environmental Impact
•Growing demand for energy and water service tied to larger homes and more energy and water appliances	•Scale of energy and water use • Energy and water efficiency rates •Fuel source for heating and electricity generation.	•Greenhouse gas emission and air and water pollution linked to the generation and use of energy.
•Growing waste generation and recycling	•Volume and composition of waste and methods of waste disposal •Recycling rates and waste prevention.	•Greenhouse gas emission and air, water and soil pollution from inappropriate waste management.
•Diversification of waste stream	• Availability and quality of water resources	•Water resource depletion and pollution.

Source: Adapted from Organization for Co-operation and Development, 2002b

Table 2: Consumption Categories in Nigeria

Category	Description of its Contents
•Food and Beverages	•All types of retailed food items, alcoholic and non-alcoholic drinks etc.
•Clothing and Footwear	•All clothing, footwear and footwear repairs
•Housing	•All rental payment (including rent, rental expenses, wages, maintenance materials and services etc.)
•Goods and Services	•Electricity, furniture, all appliances, curtains, tableware, fuel for alternative electricity generation, personal goods and services, post and telephone, health and medical services and others
•Transportation	•Vehicle operation (petrol and vehicle parts and repair), purchase of vehicle and public transport
•Recreation and Education	•Sporting centres, schools (from pre-primary to tertiary education), vocational schools, training institutes, etc.
•Hotel and Restaurants	•Takeaways and food and beverages purchased in restaurants, accommodation and other services

Source: Adapted from NBS: 2009.

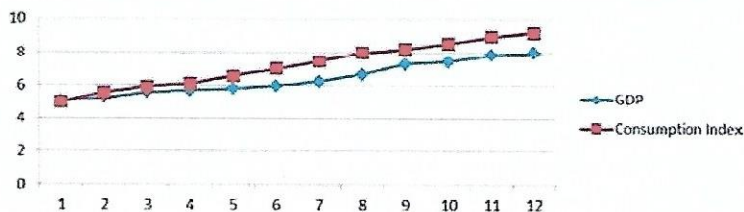


Fig. 1: Change in Consumption Pattern and GDP in Nigeria (2000-2011)

Source: National Bureau of Statistics, 2011

**Household Consumption on Transportation in Nigeria:**

This is the most increasing consumption by households in Nigeria. Transportation sector have been a huge problem in the country. The energy consumption by households on transportation is on the increase since year 2000 and beyond [8]. Several factors account for this, increase in population, expansion of town and cities, failure of urban infrastructure and increase in household private car ownership. Most of the transport consumption is from homes. The consumption is mainly for travel to work, school, market, day care centres and other activities; this type of energy consumption of fossil fuel is done on daily basis. Other is energy used for longer journey. The total number of vehicles registered in the country has increased tremendously between 2000 and 2008. It has increased by more than 100% and assumes to continue to increase because of failure of urban mass transit.

**Households Consumption on Goods and Services in Nigeria Cities:**

The household consumption of goods and services depend on lifestyle and the trend has been in the increase on the consumption of foreign goods in the country [11]. The consumer goods and services provided require energy, water and materials. The consumption of all these goods depends on households' income level. This implies that the higher the income, the higher the ability to consume more and change lifestyle. The lifestyle of Nigerians is far becoming materialistic have also increase the households crave for clothing, appliances, furniture, electronics etc.

All these consumption and lifestyle have had a huge impact on the environment; the rate of waste generation is becoming more and going beyond the capacity of the urban government to tackle it. There is heap of refuse in every part of Nigerian cities, other problems such as poor sanitation, potable water shortage, hygiene sewage and



effluent etc. there has been on the increase, the incidence of poverty, epidemics such as cholera, CSM etc. as a result of poor environmental sanitation and ecological imbalances.

#### **Households Expenditure on Consumptions in Nigerian Cities:**

The household expenditure in Nigeria has been on the increase due to increase in the consumption and lifestyle habit of the people. Several factors account for these: increase in the GDP and earning by households has been the major driving force [12]. There has been increase in the individual earnings which in turn increase the ability of households to consume more. Level of education has also shows to be a force in the consumption habit as illiterates seems to consume more of locally grown foods than the educated elites. There has been over 250% increases in the salary and wages of civil servant compared to 1990 [2] which in turn increase propensity of the people to buy and consume more.

The analysis of the data shows that three categories of consumption consumed more are Food, Housing and Transportation. Total household expenditure has been on the increase since the year 2000; though the rate varies across states and cities. The rate of consumption has increased by 54% between 2000 and 2010 [13]. The issue at present indicated that the increase in household spending has been marginal due to increase in household size and general population increase. The 1991 population Census put the population of Nigeria at around 89 million and 2006 Census put it at 144.5 million. This has robbed off the increase in the expenditure to marginal level. The per capita increase is about 32% [10].

The comparison of the increase in per capita household expenditure on consumption (32%) though more than GDP (7.6%) shows that there is change in expenditure by households. On average, expenditure of every Nigerian is higher year on. This is the universal trend. [14] "*per capita private consumption has increased steadily in OECD countries over the last 20 years and is expected to follow GDP growth in the period to 2020*". Analysis of the expenditure to households on consumption indicated that it increase by \$2.1 billion (32%). This translates to real per capita expenditure on consumption to about 28% and real per household expenditure on consumption by 18%.

#### **Expenditure by Households on Consumption Categories in the Cities:**

The analysis of the data on categories of consumption in year 2002 indicated that Nigerians spend more on housing than any categories due to increase in

the earning, especially the civil servants whose salaries were increased by the political administration then. Food was the next consumption that expenditure was higher and then follows by transportation. The amount spent per household on different categories is shown in Fig. 2. Also the analysis of the expenditure of households on these categories in 2007 indicated that food was the major priority due to poverty level and access to varieties of food items at lower price, availability of farm inputs and favourable climate for farming that year. Housing followed and transportation.

In overall, it could be seen that there is high percentage of increase in expenditure on clothing, goods and services and others due to changing lifestyle and quest for materialism. Housing shows the lowest increase (12.1%).

#### **Changes in Household Consumption Expenditure and GDP:**

The analysis of the changes that occur in expenditure by households on different categories of consumption and national GDP indicated that changes occur in consumption varies on different categories and are marginally. In 2007, housing has 21% of the households' expenditure; this is a decrease from 2001 figures. Also there is decrease in percentage expenditure on transport due to increase in number of private car ownership and attendance consequences of traffic bottleneck and greenhouse gas emission. The greatest percentage of expenditure goes to food consumption because of increase in population and household size. The percentage expenditure on different categories of expenditure is shown in Fig. 3.

#### **Factors Responsible for Change in Household Consumption and Lifestyle in Nigeria:**

Several factors influence household consumption pattern and lifestyle at individual to national level and consequently the extent to which that affect the environment. The lifestyle changes the consumption habit. Household size, population, economic growth, emerging technology, marketing strategies, change in style and taste are some of the factors influencing consumption pattern and lifestyle in Nigeria.

**Population Changes:** Between 1991 and 2006 the population of Nigeria increases by 61% from about 89 million to about 145 million, also the number of households increased by 27% [15]. This increase has led to increase in household demand and consumption of resources, but the problem is that the consumption and

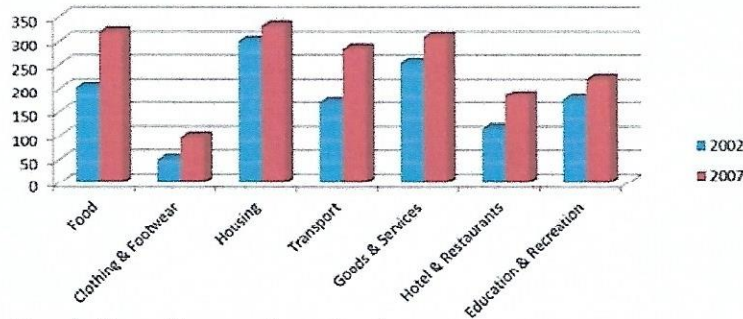


Fig. 2: Expenditure by Households on Consumption categories:  
Source: National Bureau of Statistics, 2010

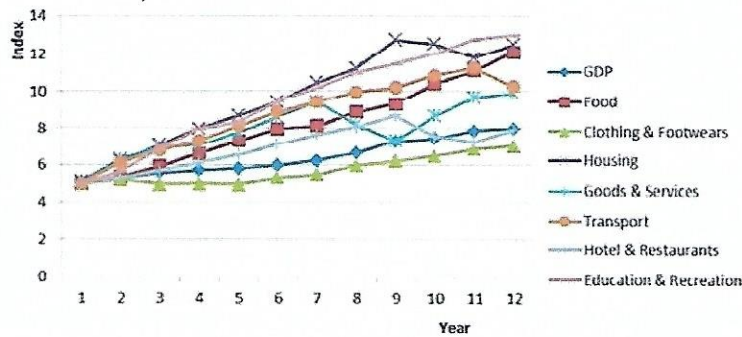


Fig. 3: The Change in expenditure on different categories of Consumptions in Nigeria (2000-2011)  
Source: National Bureau of Statistics, 2011

lifestyle have not correlates with the population increase. The analysis shows that household expenditure increases by 32% while that of increase in household is 27%. This implies that increasing household consumption is not only as a result of increase in population, it shows that Nigerians spend more now than last 10 years due to change in lifestyle.

**Household Size:** The population Census indicated that there is an increase in both households and household size between 1991 and 2006. The trend shows that large dwellings with high occupancy rate [16]. The data from 2006 Census shows that average household size in Nigeria is about 8 people per household while that of 1991 is slightly lower (6 people per household). The implication of these with attitude of Nigerians is that resource-efficiency is not in operation. The households use more space, energy, water and generate more waste per person [17]. This shows that lifestyle of Nigerians is a factor in consumption of resources rather than household size, though size is a factor.

**Affordable Goods and Services:** The globalization and international trade have made available goods and services to people and therefore households consume

more goods nowadays. In fact majority of packaged items in Nigeria are foreign goods. The varieties of goods available for household purchase and consumption have increased and becoming affordable. There is access to "a steadily expanding range of low-priced, mass produced goods and access to a progressively more global market place" [14] by Nigerians. The trend has changed the volume of household consumption and types of goods purchased. The price of goods is also a factor.

**Economic Growth and Income Level:** The growth of the economy and rise in GDP is closely related to consumption of resources by households. The recent increase in the salaries and wages in the country has made people to have high propensity to consume more, this is because there is more money to buy more consumables. The economic growth of Nigeria (GDP) is about 5.6% annually and the income level have increased astronomically (about 250%) annually compared to 1990 [18]. The analysis shows that the real expenditure by households increased more than GDP. Therefore, the more economic prosperous Nigeria become the more complex the society become and lifestyle changes which will in turn affect consumption of resources that will aggravate the EF of the country.

Table 3: Comparison of EF of Nigeria and Global Ecological Footprint

	Total		Per Capita	
	Nigeria	World	Nigeria	World
Available Bio-Capacity (gha)	169,189,935	11,962,482,810	1.12	1.78
EF of production (gha)	192,061,741	18,191,717,442	1.27	2.70
Net Import (gha)	24,969,838	-	0.17	-
EF of Consumption (gha)	217,031,579	-	1.44	-
BC - EF <sub>production</sub> (gha)	-22,817,806	-6,224,234,632	-0.15	-0.92
BC - EF <sub>consumption</sub> (gha)	-47,841,643	-	-0.32	-

Source: Adapted from GFN, 2010

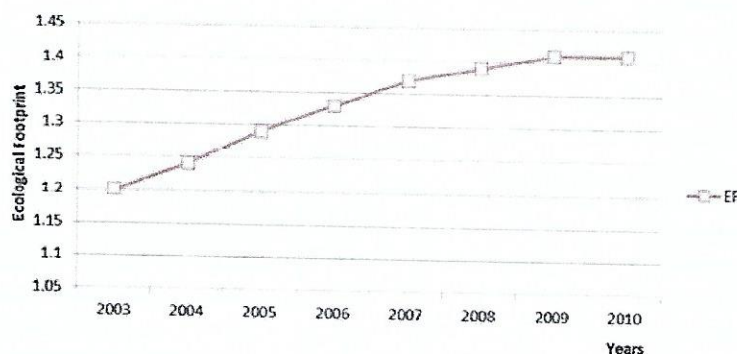


Fig. 4: Ecological Footprint of Nigeria  
Source: Global Footprint Network, 2010

**The Effect of Consumption and Lifestyle on the Nigerian Environment:**

The EF is a function of consumption and waste generated [3] and consumption depend on lifestyle. Therefore, the lifestyle of Nigerians has proved to be an issue in the management of the environment. Increasing human population (Urbanization) had proved to be the driving force in natural resources consumption. Ecosystem has continually playing the role of provider of resources and assimilator of the waste produced. Though interaction between man and environment is not static, it is dynamic in nature and can change over time. There have been several tools used for sustainability measurement of our environment and one of such tool is EF. Two major indicators show the lifestyle of people which are: better environmental management and management of consumption and production. It is a daunting task to show differences in the relationship of social, economic and environmental activities as it relates to benchmark of sustainability. Social challenges entail urban planning, transportation, lifestyle and ethical consumerism within the ambit of law. EF has evolved as one of the leading calculations of human's want on nature. This is done by measuring what amount of land and sea area the world population required to provide the natural flow he consumed and to sequent its waste with the prevailing technology [19].

The past event over a decade has shown that EF has been the main measure for resource utilization and consumption at national and international level, because it shows the impact of man on the environment; though it is not the overall indicator of sustainability, it has proved to be one of the criteria for environmental sustainability. The analysis above has shown that with the change in lifestyle and consumption pattern the EF of Nigeria is on the high. This is shown in Fig. 4.

The analysis shows that between 2001 and 2010, the EF of Nigeria rise from 1.20gha to about 1.41gha in 2010 [20]. Though at present it is lower than the global average, but that is not a reason to be complacence. The EF has not shown the differences among cities in Nigeria because statistics inhibit facts as average is used for the nation. There might be some cities that have EF higher than the present EF and even been closer to global EF. Therefore, proper management of the environment has to be put in place to forestall more damage to the environment.

Considering the EF of Nigeria as shown by the GFN indicated that though it is lower than the global average, we must not be complacence as failure to reduce consumption can lead to unsustainable development in the future.

The comparison of the EF of Nigeria with the global EF indicated that there is a significant difference. The EF which is a function of lifestyle and consumption habit and in Nigeria, the EF far less than the global one due to the use of locally grown food item and biodegradable consumption lifestyle. The analysis of comparison is shown in Table 3 thus:

The implication of this is that the level of consumption is more than the level of production which is compensated for by the net import. The importation adds more to EF because of the energy of fossil fuel expended during the transportation of the imported goods. And comparison of the EF of Nigeria and the global EF indicated that it requires 0.81 planets to live the way Nigerians are living globally [21]. Thus the EF of Nigeria is about half of the world EF.

### CONCLUSIONS

The analyses presented above have painted the trend in the level of consumption of resources by Nigerians due to changing lifestyle. Nigerians are consuming more of resources due to economic boom, population growth and increase in the households' earnings. [21] Opined that the present level of consumption, explosion in population size and economic boom can lead to man's need on the biosphere to be doubled by 2050 which the biosphere cannot cope with by the present productive capacity. (GFN, have substantiated the overshoot of the world to be over 25% in 2003). It is a common phenomenon that globally people are becoming aware that they have impacted negatively on earth thereby causing changes to the environment. One of the major problems is the lifestyle of the people that may not be able to complement sustainable development principles.

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