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BENEFIT INCIDENCE ANALYSIS OF GOVERNMENT EXPENDITURE ON SOLID WASTE MANAGEMENT IN OSUN STATE, NIGERIA

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Abstract

This study examines the benefit incidence accruing to households from government expenditure on solid waste management in Olorunda Local Government Area of Osun State, Nigeria. Data were collected from one hundred and fifty households using stratified random sampling. The data were analyzed using descriptive statistics; Foster, Greer and Thorbecke (FGT) poverty index, and benefit incidence analysis. The common methods of solid waste disposal by households are backyard dumping, community dump yard, and riverbank dumping. About 6 percent and 43 percent respectively of the households were core and moderately poor. Average household spending on solid waste disposal service by the user of government facilities is ₦252.98, which was more than the government unit subsidy on solid waste management of ₦14.00. About 63 percent of the total government expenditure on solid waste management accrues to the poor but more disproportionately in favour of the moderately poor. It can be concluded that solid waste management is progressively benefitting the poor.

Keywords: *Solid waste, Expenditure, Income, Poverty, Benefit-Incidence,*

1. Introduction

Solid waste management systems are an essential component of the environmental infrastructure in human settlements (Mugagga, 2006). These systems encompass all the activities undertaken from the point of waste generation up to the final disposal. In most of Africa's urban areas, solid waste management is ultimately the responsibility of Local Government Councils, while among most of the rural populations the wastes are handled at the household level. Thousands of tons of solid wastes are generated daily in Africa. Most of it ends up in open dumps and wetlands, contaminating surface and ground water and posing major health hazards. Generation rates, available for selected cities and regions are approximately 0.5 kg per person per day. While this seems modest compared to the 1-2 kg per person per day generated in developed countries, most waste in Africa is not collected by Municipal Collection Systems, because of poor management, fiscal irresponsibility, equipment failure and/or inadequate waste management budgets (Mugagga, 2006).

Urbanization is one of the major problems facing mankind in this millennium. In Africa for instance, the current average urban population growth rate of 3.5 is more than thrice the rate of the rural population growth (UN-Habitat, 2001). It has been indicated that by 2015 (2030) there will be 25 (41) countries in Sub-Saharan Africa (SSA) with higher urban than rural populations. The major related challenge is the provision of sufficient food for the increasing urban population and appropriate urban sanitation. Both challenges are linked as the urban food supply contributes the majority of the urban waste (Drechsel and Kunze, 2001).

Waste management authorities have little or no plan for recycling but focus their limited resources on the priority needs of "waste collection" and "safe disposal" which consume an immense share of the government budgets in low-income countries as cost recovery is low (Drechsel et al., 2004).

Solid Waste Disposal (which is the disposal of normally solid or semi-solid materials, resulting from human and animal activities, which are useless, unwanted, or hazardous) is of great concern across the world as poverty, population growth and high urbanization rates combine with ineffectual and under-funded governments prevents efficient management of waste (Doan, 1998; Cointreau, 1982). Despite the low government expenditure on solid waste management, some basic questions come up. Firstly, is the government expenditure on solid waste management sufficient? Secondly, does this investment target those who need them? What is the mean amount of domestic solid waste generated per person per day in the study area? What is the composition of generated domestic solid wastes, current storage, collection, and transportation and disposal alternatives available to the waste managers? Are there any material reduction, reuse, recycle and recovery initiatives being undertaken by the different waste management actors? How affordable is the amounts of money charged for domestic solid waste management services in the different socio-economic areas and are they aware of the health dangers associated with poor domestic solid waste management?

With few exceptions, these questions have rarely been seriously answered and research into solid waste management issues has focused on how to fine tune the approach without challenging or evaluating the expenditure of government on solid waste management. For instance, past studies on studies solid waste management focused on the technical aspect of different means of collection and disposal (World Bank, 1992) while Cointreau (1994) pay attention to enhancing service delivery with a special emphasis on privatization. Ojo (2006) looked at demand and supply side of solid waste management while Afolabi (2006) carried out the evaluation of solid waste management institution. However, the concept of benefit-incidence has been use in the study of government expenditure on some other public goods and services. For instance, Adenegan *et. al.* (2002) use the concept of benefit incidence in their studies of Government Expenditure on Nigeria Primary Education while Yusuf *et al* (2003) and Idowu (2005) on the other hand, used the concept in the

study of Government Expenditure on Primary Health Care and benefit derived by households. Similarly, Castro-Leal *et al.* (2000) used the approach to examine public spending on Health Care in Africa to know whether the poor benefit. All the studies focused on the welfare impact of government subsidized programmes. The study on government expenditure on solid waste management using Olorunda Local Government Area of Osun State as a case study is therefore necessary to determine whether the government unit subsidy reached the target group and which categories of people benefit most.

This evaluation is necessary considering the effect of unmanaged solid waste on the environment and the health of the households, and consequent effect on the productivity and economy in general. According to Afolabi (2006), when people are sick, man-hour will be reduced and per capita expenditure will also increase as sick people spend more on medical treatment, which is a leakage. This will lead to reduction in the money available for investment. Also, there is need to know the level of government expenditure on solid waste management and if the expenses is worthwhile and justifiable. For instance, Lagos state is said to be spending between twenty and twenty-five percent of her budget on solid waste management (Emily *et. al*, 2004) whereas Lagos is regarded by Adedibu and Okekunle (1989) as "dirtiest' capital in the world.

This study, therefore, will provide useful recommendation that will help the policy makers to make decision on the best solid waste management systems to embark on; and also if the amount of subsidy on solid waste management is worthwhile or not, whether to increase it or allow the private investor to come in. Although they are there, they are very few considering the quantity of waste being generated daily. Apart from this, the study will contribute to existing literatures on solid waste management.

The rest of the paper is divided into three. Section two describes the research methodology employed in the study while section three presents detail analysis and interpretation of result. The last section concludes the paper.

2. Methodology

2.1. Study area

The study was carried out in Olorunda Local Government Area of Osun State. Osun State was created from old Oyo State on 27th of August, 1991. It comprises of thirty local government areas (LGAs). The land area is about 10,245 sq. km. The population of Osun State, according to National Population Census 2006, is 3, 423, 535 with 1, 740, 619 males and 1, 682, 916 females. The State is located in the South-Western part of Nigeria. The State shares boundary with Oyo State in the west, Ekiti State in the east, Kwara State in the north and Ondo State in the South. The

indigenous people of Osun State are the Yoruba Sub-group of the Oyos, the Ijesas, the Ifes, and the Igbominas. It also consists of other immigrant.

Olorunda Local Government Area is one of the two local government areas in the Osogbo metropolis, the State capital, with headquarter at Igbonna. The local government is bounded in the north, south, east and west by Irepodun, Osogbo, Ifelodun, and Egbedore Local Government Areas of the state respectively. The local government is divided into 10 wards, 7 of which are located in the Osogbo while the remaining 3 are Ilie, Oba-Ile and Oba-Oke which are in the northern part of the local government. Other notable areas in the local government are Oke-Oniti, Ayetoro, Sabo, Testing ground, Power line, Orita-Balogun, Latonna, Ayoola e.t.c. The population of Olorunda Local Government Area according to National Population Census 2006, is 131,761 with 68, 114 male and 63, 647 female.

The local government is the industrial area of the state capital where major industries are established such as Nigeria Machine Tool, Osogbo Steel Rolling Mill to mention a few. The local government is also the commercial nerve of the state capital as it plays host to three of the major markets within the state capital. They are Oluode, Igbonna and Orisunbare markets. But with creation of Osun State in 1991, the new role that Osogbo metropolis assumed as the state capital has resulted in significant increase in the volume of waste generated (Oladimeji, 1992). Municipal waste heaps now dot several parts of the state capital.

The occupation of the people living in the local government ranging from farming in the surrounding rural communities to trading, self employment, civil service, education, service and repair industries and also farming on small-scale such raising of livestock in the urban part of the local government.

2.2. **Data**

Primary and Secondary data were used for this Study. The primary data were collected using a well structured questionnaire while the secondary data were sourced from the Public Health Department of the Olorunda Local Government and National Bureau of Statistics Nigeria. The Population of Osun State Local Government was obtained from Official Gazette (FGP 71/52007/2,500(OL24) of National Bureau of Statistics Nigeria. Data on government net spending on solid waste service were collected from the Water and Environmental Unit, Public Health Department of Olorunda Local Government Area of Osun State. The data include the following;

- Number of skip eater refuse compactor = 1
- Number of Skip= 2 per ward. For 10 wards = 20
- Number of trip that refuse compactor make per week = 2
- Number of health workers in charge of Solid waste disposal service = 40

The sample size for this study was 150 respondents drawn from the 10 wards of the LGA. In each ward, 15 households were randomly selected.

2.3. Method of analysis

Descriptive statistics, poverty and benefit incidence analysis were used to analyze the data. Descriptive statistics was used to analyse the expenditure profile of the respondents, the level of solid waste disposal system in order to determine the level of use of government provided solid waste disposal facilities and also to analyse the socio-economic characteristics of the respondents. The poverty status of respondents in the study area was analyzed based on the headcount index using the Foster, Greer, Thordecke (1984) poverty measure (FGT) given by;

$$P\sigma = n^{-1} \sum_{(i=1)}^q ((Y - x_i^\sigma) \cdot Y)$$

Where

- σ = degree of concern for poverty. It can take on the value 0, 1, and 2
- The $\sigma = 0$ is the poverty headcount index, $\sigma = 1$ is the poverty gap while $\sigma = 2$ is the poverty severity
- P = Poverty status of the household
- Y = Poverty line
- x_i = Per capita expenditure of each household
- n = Sample Size
- q = Number of household below poverty line

The degree of concern (σ) for poverty in this study was put at zero, which gives headcount index. After determining the poverty status, the respondents were then categorized into poverty groups based on their mean per capita household expenditure on the basic needs using relative poverty measure. The categories were core poor, moderately poor and non-poor, with their meaning stated as follows;

- Core poor are those that spent less than one-third of the mean per capita household expenditure (HHPCE)
- Moderately poor spent less than two-third of HHPCE but greater than one-third
- Non-poor are those that spent either equal or greater than two-third of HHPCE.

The household per capita household expenditure (HHPCE) is given by:

$$\begin{aligned} \text{Household per Capita Expenditure (HHPCE)} \\ = \frac{\text{Total household expenditure}}{\text{Household Size}} \end{aligned}$$

The mean per capita household expenditure was calculated by dividing the sum of each household per capita expenditure by the total number of households

$$\text{Mean Household per Capital Expenditure (MHPCE)} \\ = \frac{\text{Total Per Capita Expenditure}}{\text{Total}}$$

Benefit-Incidence was used to examine the level of government spending on solid waste management and benefits derived from spending by households in the study area. This was done after grouping the respondents into respective poverty groups. The procedure involved allocating per unit public subsidies according to individual utilization rates of public service. The model is specified as;

$$X_{ij} = H_{ij} \left(\frac{S_i}{H_i} \right)$$

Where

- X_{ij} = Value of total subsidy on public waste collection service to expenditure groups
- S_i = Government net spending on public waste collection and disposal service
- H_i = Population of the local government
- H_{ij} = Population of households in group j that use public waste collection services
- S_i/H_i = Unit subsidy of providing public waste collection and disposal services
- i = Level of public waste collection Service
- j = Expenditure groups

3. Results and discussion

3.1. Household expenditure and poverty status

The level of monthly household expenditure on basic needs is presented in Table 1. It is apparent that more than half of the total average monthly expenditure is spent on food, which implies that food is normally given priority by households. This is in conformity with Adenegan *et. al.* (2002) and Idowu (2005) in their works on analysis of Government expenditure on Nigerian Primary School and Primary Health Care respectively while Ojo (2006) reported same in his work on economic analysis of Solid Waste Management.

Monthly expenditure on other basic items except water and solid waste disposal service constitutes about 40 percent of the average monthly expenditure. This could be attributed to the fact that most of

these items are in joint demand with basic necessities of life that is food, shelter and clothing. Water and solid waste disposal accounted for a mere 1.6 percent of total household expenditure.

Table 1
Distribution of Respondent by Average Monthly Household Expenditure

| Item | Average Annual Expenditure(₦) | Percent |
|------------------------------|-------------------------------|---------|
| Food | 12,386.51 | 58.4 |
| Clothing | 1,328.51 | 6.3 |
| Cooking Fuel | 1,051.45 | 5.0 |
| Electricity | 1,422.91 | 6.7 |
| House Rent | 1,713.00 | 8.1 |
| Health | 536.28 | 2.5 |
| Children Education | 2,426.76 | 11.4 |
| Water | 77.28 | 0.4 |
| Solid Waste Disposal Service | 252.98 | 1.2 |
| Total | 21,195.69 | 100.0 |

The Mean Per Capita Expenditure (MPCE) per month of the households is ₦5,516.67 and within the context of the poverty lines set in the methodology, any household spending less than two-thirds of MPCE per month is poor while the core poor spends less than one-third of MPCE.

Accordingly, 49 percent of the households are poor. Of this figure, only 6 percent belong to the core poor group while the bulk of the poor in the state are moderately poor. When compared with the NBS (2007) which indicates poverty level of 24.7 percent for Osun state based on 2004 NLSS, it evident that poverty seems to have worsened over the last five years in the state.

Table 2 presents the expenditure profile of households by poverty level. This is to know the expenditure level of different categories of households across poverty groups on basic needs such as food and non-food items.

The average household expenditure per month of core poor households was ₦11,083.34 while for moderately poor and non poor households were ₦13,693.04 and ₦28,722.70 respectively. Moderately poor and non-poor households spent per month ₦34.89 and ₦478.43 on solid waste disposal service respectively while core poor households spent no amount on solid waste disposal service. Evident from the above is that the poor spend less than one tenth of the amount spent by the non-poor on waste disposal. However, the non-spending on waste disposal by the core poor could be attributed to the fact they did not employ the service of private waste collectors. They either dumped their refuse in the community dump yard or in the skip facilities provided by government.

Table 2
Average Household Expenditure per Month across Poverty Status

| Items | Average Household Expenditure Across Poverty Groups (₦/ Month) | | |
|------------------------------|--|-----------------|------------|
| | Core Poor | Moderately Poor | Non-Poor |
| Food | 8, 625.00 | 9, 434.88 | 15, 317.65 |
| Clothing | 316.67 | 600.58 | 2, 061.27 |
| Cooking Fuel | 525.00 | 407.85 | 1, 655.98 |
| Electricity | 437.50 | 723.84 | 2, 128.24 |
| House Rent | 312.50 | 634.89 | 2, 786.76 |
| Health | 200.00 | 375.00 | 711.77 |
| Children Education | 666.67 | 1, 043.51 | 1, 237.65 |
| Water | 0 | 24.42 | 130.88 |
| Solid Waste Disposal Service | 0 | 34.89 | 478.43 |
| Total(₦) | 11, 083.34 | 13, 693.04 | 28, 722.70 |

3.2. Household use of government solid waste skips

This is to know the different categories of households that make use of the government provided skip (dust-bin) and its implication. The level of use of any public facility determines to appreciable extent the benefit accrue to individual from government on such facility. The distribution of respondents according to household use of government solid waste skip is given in the Table 3.

Table 3
Household Use of Government Solid Waste Skip

| Poverty Group | User | | Non-User | | Total | |
|-----------------|-----------|---------|-----------|---------|-----------|---------|
| | Frequency | Percent | Frequency | Percent | Frequency | Percent |
| Core Poor | 5 | 11.1 | 4 | 4.1 | 9 | 6.0 |
| Moderately Poor | 21 | 51.9 | 43 | 39.7 | 64 | 43.0 |
| Non-Poor | 15 | 37.0 | 62 | 56.2 | 77 | 51.0 |
| Total | 41 | 100.0 | 109 | 100.0 | 150 | 100.0 |

Table 3 indicates that 27 percent of all the households sampled used government provided solid waste skips while 73 percent used other methods. All the poverty groups make use of the skip. Out of the 41 users, 11.1 percent were core poor, 51.9 percent were moderately poor while the remaining 37 percent were non-poor. This implies that majority (63 percent) of the household that made use of the facilities provided by government are poor.

3.3. Government subsidy on solid waste disposal service

Government unit subsidy is based on actual expenditure by government. Government unit subsidy on solid waste service is determined by using government expenditure account. It represents the total amount of government spending per citizen in the provision of certain welfare programme. From table 4, the proportion of population that uses the facilities is 27 percent. The population of the households that use skip-bin provided by government is therefore 35,576 persons since the population of the local government according to National Population Census 2006, is 131,761 while the government unit subsidy per month on solid waste management was ₦14.00 since the total spending per month on solid waste management by government was ₦ 498, 000.00. The average household expenditure of skip users on the waste disposal service is ₦68.31. The total spending on solid waste disposal on solid waste disposal by household and government is given in the Table 4 below.

Table 4
Household and Government Spending on Solid Waste Disposal Service

| Solid Waste Spending | Amount (₦/Month) | Percent |
|----------------------------|------------------|---------|
| Average Household Spending | 68.31 | 83.0 |
| Government Unit Subsidy | 14.00 | 17.0 |
| Total | 82.31 | 100.0 |

Table 4 shows that average household spending per month on solid waste disposal service is higher than government unit subsidy. The government unit subsidy is 17.0 percent of the total spending on solid waste disposal services per month by both households and government. Household expenditure on solid waste represents about 5 times the government subsidy. This implies that for every ₦1 of government unit subsidy for providing service on solid waste management, household spent ₦4.88 in gaining access to the facilities (Skips) provided by government.

3.4. Benefit-incidence of government spending across poverty group

Based on the poverty level of households calculated earlier, the total number of households using government waste disposal facility was generated. Thereafter, the accrued benefit to the different poverty groups were calculated based on unit subsidy of ₦14.00. Table 5 presents the benefit incidence accruing to each group.

Table 5
**Household Benefit-Incidence of Government Spending on
 Solid Waste Disposal Service**

| Poverty Group | Number of Users | Benefit Incidence(₦) | Percent |
|-----------------|-----------------|-----------------------|---------|
| Core Poor | 3, 949 | 55, 286.00 | 11.1 |
| Moderately Poor | 18, 464 | 258, 496.00 | 51.9 |
| Non-Poor | 13,163 | 184, 282.00 | 37.0 |
| Total | 35, 576 | 498, 064.00 | 100.0 |

Majority (63.0 percent) of government spending on solid waste disposal service accrued to poor group while the remaining accrued to non-poor. This could be attributed to the fact that majority of the skip users belonged to the poor group. This supports the findings of Adenegan *et. al.* (2002) and Yusuf *et. al.* (2003) that the more the use of government provided facilities, the greater the benefit incidence of government unit subsidies accruing to the group.

4. Conclusion

The study shows that the predominant method of solid waste management was land filling. The study further showed that the mean per capita expenditure per month was ₦5,516.67. The poverty line is ₦3, 677.75 per month, that is, two-third of mean per capita expenditure per month and any household that spent below this value were said to be poor while above this value were non-poor. The result showed 6 percent of the households are core poor, 43 percent are moderately poor and 51 percent are non-poor. The core poor households spent less than ₦1838.88 (one-third), moderately poor spent between ₦1838.88 and ₦3, 677.75 while non-poor spent above ₦3, 677.75 per month. Majority of the households across the poverty group used plastic dust-bin to collect their household waste for disposal followed by drum, refuse and other types of container in that order. Core poor households spent on the average per month ₦1, 272.11 on basic needs while moderately poor and non-poor spent ₦9, 116.71 and ₦10, 806.87 respectively. The government unit subsidy per month on solid waste disposal service was ₦14.00 while average household expenditure on solid waste disposal service by skip-bin user was ₦252.98. The costs incurred were mainly on containers and waste vendors payment. This implies that subsidy on solid waste disposal service contributed by government was only 17.0 percent of the total spending while households contributed the remaining 83.0 percent. The benefit incidence analysis showed that the benefit accruing to the poor households was 63 percent while 37 percent was accruing to the non-poor household.

Improved solid waste collection and disposal result in increased in welfare gain for the households and improved environmental quality (Ojo, 2006). Hence, government unit subsidy on solid waste disposal

service should raise the welfare status of the household. It can be concluded that the more the use of government provided solid waste skip by a particular poverty group, the greater the incidence of government subsidy accruing to the poverty group. The study showed the government subsidy on solid waste disposal service was inadequate making the household to contribute more to gain access and utilized these facilities. This low subsidy may be attributed to lack of interest by government of the day, which may not see solid waste management as their priorities. Diversion and embezzlement of fund could also contribute to the low subsidy.

Although the government unit subsidy was targeted at the poor households, they still spent more to gain access to the facilities. The study also showed that majority of households dumps their waste discriminately. This may be due to low level of awareness, low level of income, large household size, location of the skips and also nonchalant attitude of the some people.

References

- Adedibu, A.A. and A.A. Okenkule (1989). "Issues on the Environmental Sanitation of Lagos Mainland Nigeria." *The Environmentalist*, 9(2), 91-100.
- Adenegan, K.O.; S.A. Yusuf and M.A. Sodipo, (2002). "Government Expenditure on Nigerian Primary School Education: Benefit Incidence Approach." *African Journal of Education Planning and Policy Studies*. 3: 1:71-81, June 2002
- Afolabi, E.M. (2006). "Economic Evaluation of Ibadan Solid Waste Management Authority, Ibadan, Oyo State, Nigeria." *A B.Sc. Project submitted to the Department of Agricultural Economics, University of Ibadan, Ibadan Oyo State, Nigeria* – Unpublished
- Castro-Leal, F.; J. Dayton.; L. Demery and K. Mehra. (2000). "Public Spending on Health in Africa: Do the Poor Benefit?" *World Health Organisation Bulletin* 78(1): 66-74
- Cointreau, S.J. (1982). "Environmental Disposal of Urban Solid Waste in Developing Countries" *Urban Development Technical Paper No. 5*. The World Bank, Washington, DC, USA.
- Cointreau-Levine S. (1994). "Private Sector Participation in Municipal Solid Waste Management in Developing Countries" Vol. 1: *The Formal Sector, Urban Management Programme Policy Paper No. 13*, World Bank, Washington.
- Doan, P.L. (1998). "Institutionalising Household Waste Collection: The Urban Environmental Management in Cot D' Voire" *Habitat International* 22(1): 27-39
- Drechsel, P. and D. Kunze (eds.) (2001). "Waste Composting For Urban And Peri-Urban Agriculture – Closing the Rural-Urban Nutrient Cycle in Sub-Saharan Africa." *IWMI/FAO/CABI*: Wallingford, Pp 229.
- Drechsel, P.; O. Coffie; M. Fink; G. Danso; F. Zakari and R. Vasquez (2004). "Closing the Rural-Urban Nutrient Cycle: Options for Municipal Waste Composting in Ghana". *Final Scientific Report on IDRC project 100376*. – Unpublished.

- Emily, W.; Alissa, W.; Warren, E.; Brian, W.; and Erica, W. (2004). "Municipal Solid Waste Management in Developing Countries: Nigeria, A Case Study". *NITRES* 314. April 26, 2004.
- Foster, Greer, Thordecke (1984) "A Class of Decomposable Poverty Measure" *Econometrical*.38 (6), Pp761-766
- Idowu, A. O. (2005) "Analysis of Government Expenditure on Primary Health Care and Benefit derived by Households. A Case Study of Ibadan North Local Government Area, Ibadan, Oyo State" A *M.Sc. Project Work submitted to the Department of Agricultural Economics, University of Ibadan, Ibadan, Nigeria* — Unpublished
- Mugagga, F. (2006). "The Public-Private Sector Approach to Municipal Solid Waste in Makindye Division, Kampala District, Uganda." A *Master of Philosophy Thesis Submitted Department of Geography, Norwegian University of Science and Technology (NTNU), Trondheim, Norway. May 2006*
- NBS (National Bureau of Statistics) (2006) "Nigeria Legal Notice on Publication of the Details of the Breakdown of the National and State Provisional Totals 2006 Census". *Official Gazette (FGP 71/52007/2,500(OL24) www.nigerianstat.gov.ng*
- NBS (National Bureau of Statistics) (2007) Poverty Profile for Nigeria Unpublished.
- Neal, H.A. and J.R. Schubel (1987) "Solid Waste Management and the Environment" New Jersey, Prentice-Hall, Inc.
- NPC (National Population Commission) (2006) "Nigeria Census" National Population Commission, Abuja, Nigeria.
- Ojo, T.O. (2006) "Economic Analysis of Solid Waste Management in Ibadan North Local Government Area, Ibadan, Nigeria" A *M.Sc. Project Work submitted to the Department of Agricultural Economics, University of Ibadan, Ibadan* — Unpublished
- Oladimeji, J.O. (1992) "Environmental Degradation in Osun State, Nigeria" A *Paper delivers at Environmental Problem And Solution Forum. Osun Environmental Protection Agency (OSEPA).*
- UN-Habitat (2001) "Cities in a Globalizing World" *Global Report on Human Settlements 2001*. UNCHS, Earthscan Publications, London, page 271.
- Van de Walle, D. (1992) "The Distribution of Benefits from Social Services 1978-1987" *Policy Research Working Paper (No 871)*. Country Economic Department, The World Bank, (March, 1992)
- World Bank (1992) "World Development Report" *Development and Environment*. New York.
- World Bank (2000) "World Development Report" *Development and Environment*. New York.
- Yusuf S.A., Oyekale A.S. and Uwagboe O.A. (2003): Benefit Incidence Analysis of Government Expenditure on Primary Health Care Services in Ibadan North Local Government Area of Oyo State in *Human Resource Development in Africa The Nigerian Economic Society (NES) Selected papers for the 2002 Annual Conference Chapter 22 pp 595-610.*