Demand for improved institutional public toilet facilities economics essay



Improved sanitation in terms of availability of hygienic toilet facilities is essential and a basic necessity of every human society. Various studies conducted in Ghana show that thegeneral sanitation situationis not the best. Further, it is not uncommon in Ghana seeing people defecating in public places, all because of inadequate hygienic toilet facilities. Each year government of Ghana spends large sums of resources in managing waste (both solid and liquid) in Ghana. In recent years there has been out-break of cholera and other communicable diseases as a result of improper waste management techniques, including indiscriminate defecation and dumping of liquid waste. Government also spends large sums of resources or budgets on treatment of malaria by procuring malaria drugs and also investing in malaria treatment procedures and education of people on environmental cleanliness. Some of these toilet facilities have been in dilapidated state making them inaccessible. It is essential to carry out this study to ascertain the demand for improved institutional public toilet facilities by determining households' willingness-to-pay for these improved toilet facilities. This study would provide the needed impetus for public-private investment in providing quality institutional public toilet facilities in Ghana. Finally, conclusions and recommendations will be drawn from the results of the study, in order to help in the current efforts in the provision of hygienic toilet facilities in Ghana and elsewhere. This study applies Contingent Valuation approach in determining households' willingness-to-pay for hygienic toilet facilities.

1. 1 Background

Based on the November 2010 rebasing of the gross domestic product (GDP) figures of Ghana, the country is officially a lower middle-income country with

GDP per capita figure of over 1, 000 United States (US) dollars per year as at 2010. Therefore in terms of average wealth based on GDP per capita, Ghana is wealthier than the majority of African countries. The economy of Ghana has also outperformed most African economies over the past two decades in terms of average growth rates and reduction in overall poverty levels. Yet in terms of the quality and access to environmental sanitation, the country is ranked in the bottom four of African countries giving it a distinction of being among the dirtiest countries in Africa. The international country environmental performance index (EPI) rankings released in 2010 by Yale University in the United States indicate that of the 47 African countries evaluated, Ghana's environmental sanitation quality was ranked 44th in Africa. Ghana's sanitation quality was better than only Chad, Eritrea and Niger. For the earlier 2008 EPI rankings, Ghana's environmental sanitation quality was only better than that of Burkina Faso, Chad, Eritrea, Ethiopia and Niger.

The very low poor quality of environmental sanitation in Ghana is exemplified by the grossly inadequate levels of private and public toilet facilities and the widespread disposal of solid and liquid wastes in the country especially in Accra, the most developed human settlement in the country. For example, according to a recent article in the Daily Graphic, an official of the Accra Metropolitan Assembly (AMA) indicated that about 91 per cent of all human dwellings in the national capital are without private places of convenience and this placed an excessive dependence on public toilet and the general public places for the disposal of human wastes in the city. The Public Health Unit of AMA revealed that 114, 521 residences are without

places of convenience, with 9, 149 and 1, 842 houses using water closet (WC) and the Kumasi Ventilated Improved Pit (KVIP) toilet facilities respectively. Further, a total of 315 houses use the outlawed pan latrines, with some 79 homes also using pit latrines (Daily Graphic, 15 January 2011).

In the nearby future, cities` authorities in Ghana would have to deal with large sizes of both solid and liquid waste. This is a result of less hygienic sanitation facilities which have been worsened with increasing population and migration into cities. Again with the quantum of both solid and liquid waste generated in most of our cities each day, effective waste management poses a serious challenge to the developmental agenda of most of these cities and other peri-urban areas. Therefore the current state of sanitation in the country presents a major threat to the health of many Ghanaians in case of outbreak of diseases such as cholera, diarrhoea, among others. The current sanitation situation also has serious ramifications on public budget on sanitation in Ghana. This is because provision of hygienic sanitation facilities drains the coffers and the budget of many

Metropolitan/Municipal/District Assemblies and the Common Fund.

The low environmental sanitation quality problem in Ghana presents a major national challenge in a number of ways. First, it is clear that the quality of environmental sanitation is directly linked to the human disease burden of a country. About 70 per cent of human diseases are known to be directly caused by poor water and sanitation factors. Such diseases include malaria, typhoid and guinea worm. Malaria accounts for about 40 per cent of hospital admissions and typhoid accounts for another three to five per cent of admissions. The universal health coverage, the National Health Insurance https://assignbuster.com/demand-for-improved-institutional-public-toilet-facilities-economics-essay/

Scheme, introduced in 2003 is known to have a moderately severe funding and sustainability challenge. It is obvious a substantial improvement in the quality of environmental sanitation even to the average quality levels found in Africa would substantially reduce health care costs and improve the financial sustainability of the scheme.

Second, it is well established that rapid and sustained economic growth is directly dependent on health outcomes including those dealing with demographic changes. Human beings work better with improved quality of health and it can be safely assumed that a better quality of environmental sanitation leads to improved health incomes and hence higher economic growth. There is a strong link between health on one side and economic growth, sustainable and development on the other hand. There is a growing evidence on this issue and also indicate that investment in health care systems usually comes along with substantial benefits for the economy. A study by the World Health Organization (WHO) indicates that an increase in life expectancy at birth by 10 per cent increases the rate at which the economy grows by 0. 35 per cent a year. On the contrary, poor health has a huge negative impact on the society. This study also asserts that about 50 per cent of growth differentials between rich and poor countries can be explained by poor health and life expectancy differentials (WHO Commission on Macroeconomics and Health, 2001). According to United Nations Development Programme (UNDP) (2011), a global study by WHO shows that unclean water, insufficient sanitation facilities and inadequate hygiene are ranked among the 10 sources of diseases globally. This therefore

underscores the importance of environmental factors on the causes of the global burden of diseases.

1. 2 Problem Statement

Ghana, with a population of about 25 million, currently generates about three million tonnes of solid wastes annually. Unfortunately only about 10 percent of these wastes generated are collected and disposed of properly. The rest are scattered over the country leading to a perennial waste problem. The situation is getting worse with increases in population and urbanisation which has led to high amounts of solid wastes being generated. To make matters worse, the municipal authorities in Ghana do not seem to have the required equipment and expertise for effective collection and disposal of solid and liquid wastes. Improper management of solid and liquid wastes has created problems such as the extensive visual pollution of the environment which reduces the value of the country to tourists, blockage of drains and gutters leading to severe flooding especially during the rainy seasons and the recurring outbreaks of diseases such as cholera, malaria and typhoid. This problem needs prompt action if Ghana is to achieve its targets scheduled for 2015 under the United Nations Millennium Development Goals. In Ghana, the percentage of the population with access to improved sanitation was 29. 9 percent (UNDP, 2011).

Effective solutions to Ghana's current solid and liquid waste management problems will save lives and resources and reverse the deteriorating aesthetic value of Ghana as a tourist destination. Ghana's tourism sector continues to show impressive growth in both the number of visitors and the revenues earned from it. Ghana's national parks, beaches and other tourist https://assignbuster.com/demand-for-improved-institutional-public-toilet-facilities-economics-essay/

sites have been littered with solid and liquid wastes making such places increasingly unattractive. If Ghana's investment drive to expand the tourism sector is to be achieved, then liquid and solid wastes at these public places should be properly collected and disposed off. One of the ways of achieving the above is through provision of hygienic public toilets. This further requires comprehensive study on the household's willingness-to-pay for hygienic toilet facilities. This would provide the needed basis for investment in hygienic toilet facilities by the public and private sectors. The policy options to improve upon environmental sanitation quality in Ghana include direct provision by government through District Assemblies of public toilets, the use of tax incentives to encourage private companies and firms to provide public places of convenience as part of their social responsibility obligations and the use of more economic incentives to encourage responsible behavior by individuals towards the proper disposal of solid and liquid wastes.

Recently, various studies and surveys have been conducted in Ghana to establish the extent of sanitation including toilet facilities (see for example, Ghana Statistical Service (GSS), 2008; Agyei et al., 2011; Kwashie, 2009; Arku, 2010; Water and Sanitation Program (WSP), 2012; and Ministry of Water Resources, Works and Housing (MWRWH), 2009). While some of these studies discussed mainly the qualitative features of sanitation (including toilet facilities) in Ghana, the recent literature has focused attention on the quantitative aspects, making use of the increasing availability of good quality data on sanitation (including toilet facilities). Within the empirical literature on sanitation, there has been a shift in emphasis from mere quantification to an econometric analysis of its determinants. There is,

therefore, the need to quantitatively understand what factors influence the demand for improved institutional public toilet facilities in Ghana. This can be achieved by estimating the demand for improved institutional public toilet facilities in Ghana. From the foregoing, the following research issues are pertinent:

What are the social, demographic and economic characteristics of households in Ghana?

What are the key factors influencing households` choice of use of improved public toilet facilities?

What are household's perceptions of toilet facility problems in Ghana?

What are the maximum amounts of monies that households are willing to pay for improved institutional public toilet facilities?

What is the cost that households who have toilet facilities incur to build and maintain them?

What are the factors influencing the levels of maximum amounts of monies that households are willing to pay for improved institutional toilet facilities?

These are the issues addressed by this study.

1. 3 Objectives of the study

This study aims to estimate the demand for improved institutional public toilet facilities in Ghana. In the light of the above discussion, the specific objectives of the study are:

to determine household's perceptions of toilet facility problems in the study area;

to determine maximum amounts of monies that households are willing to pay for improved institutional public toilet facilities;

to determine the cost that households who have toilet facilities incur to build and maintain them;

to determine the factors influencing the levels of maximum amounts of monies that households are willing to pay for improved institutional toilet facilities;

to determine the factors that influence households' choice of use of improved public toilet facilities; and

to analyze the social, demographic, and economic characteristics of households in Ghana.

1. 4 Justification of the study

The increasing awareness of sanitation-related diseases globally has led to a greater need for understanding the sanitation practices in developing countries in Africa like Ghana. A better understanding of the sanitation practices (especially availability of hygienic toilet facilities) can improve policy and sanitation decisions in Ghana (and other countries).

The study of the demand for improved institutional public toilet facilities in Ghana would be useful for Ghana policymakers to design sanitation policies to sustain and develop the health and tourism sectors. Empirical literature on

sanitation has shifted from mere quantification (see for example, Ghana Statistical Service (GSS), 2008; Agyei et al., 2011; Arku, 2010; Kwashie, 2009; Water and Sanitation Program (WSP), 2012; and Ministry of Water Resources, Works and Housing (MWRWH), 2009) to an econometric analysis of its determinants (for example Anaman and Jair, 2000). This study would be an outcome of field survey to be conducted in Ghana in 2013. The significant addition of the study would be the application of econometric models in this study, since most the surveys on sanitation practices in Ghana have been mostly descriptive. There is a rapidly growing literature on sanitation practices in Ghana but empirical work in this field is deficient.

With empirical studies on sanitation practices related to Ghana, they are normally descriptive in nature with less or no emphasis on building econometric models. This study seeks to bring new information, by estimating the demand for improved institutional public toilet facilities in Ghana. This study also attempts to identify certain key factors influencing the demand for improved institutional public toilet facilities in Ghana.

Estimating the demand for improved toilet facilities at the household level could help design policies to improve the sanitation situation in Ghana. This means that, formulation of policies that are effective in curbing poor sanitation practices in Ghana, require an analysis of its key determinants, namely, identification of variables that have a significant effect on demand for improved toilet facilities. Results obtained would help bridge the gap in knowledge on sanitation practices in Ghana.

Results obtained would help improve the empirical understanding of sanitation practices in Ghana, including their social, family and community context. This will help to explore how an understanding of sanitation practices may help develop preventive measures aimed at improving living conditions for householders thereby reducing the prevalence of sanitation-related diseases.

This study seeks to bring to the fore the challenges in the provision of public toilet facilities and the willingness of households to pay for hygienic toilet facilities by the application of Contingent Valuation approach.

1. 5 Organization of Research Proposal

The remainder of this report is organized as follows: the next section deals with the literature review. Following that, the methodology of the study is discussed. The work schedule, plan costing and budgeting of the study are then reported followed by a list of cited references.

2. Literature Review

2. 1 Overview of the Ghanaian Economy

Ghana's aim of achieving industrial and economic transformation in the long term received a major boost in 2010, when the country was formally declared a lower middle income country partly due to the rebasing exercise carried by the Ghana Statistical Service. Indeed, the country achieved lower middle income status in 2007 per the official figures released in November 2010 which put Ghana's per capita GDP as US 1, 100 dollars in 2007. The rebasing of the GDP resulted primarily to two major changes in the GDP estimation in Ghana; 1) the change of the base year for the GDP estimate

from 1993 to 2006 and 2) the expansion of the number of sectors of the economy from 14 sub-sectors (industries) to 20 industries.

Between 2007 and 2011, the size of the Ghanaian economy in terms of the nominal GDP more than doubled. In 2011, the total size of the Ghanaian economy was GHS 55, 300 million in nominal terms. This was a marked improvement of the 2007 figure of GHS 21, 755 million. The industry sector, under which the water and sanitation sub-sector, is located continues to show impressive performance in terms of its growth rate and contribution to the GDP. In 2011, the industry sector overtook the agriculture sector as the second largest contributor to the Ghanaian GDP; after the services sector. In 2011, the industry sector contributed an amount of GHS 14, 308 million which represented about 25. 9 percent of the total GDP. In the same year, the growth rate for the sector was 41. 1 percent; the highest among all the three sectors of the economy. The percentage share of the industry sector to the nominal GDP declined consistently from the 2007 level of 20. 7 percent throughout 2008 to 2010. The gains made in the industry sector in 2011 could be partly attributed to the discovery of crude oil in commercial quantities in 2007 and export of crude oil, since 2010. For instance in 2011, the crude oil sub-sector, contributed an amount of GHS 3, 746 million to the nominal GDP, representing 6. 8 percent of the total GDP (refer to Ghana Statistical Service, 2012, for GDP figures).

Ghana became a major exporter of crude oil in 2011 after the discovery of oil in commercial quantities in 2007 in the Cape Three points of Western region. According to Government of Ghana (2011), an amount of US\$337. 3 million (GHS 506. 0 million) were realized from the first three liftings of crude oil in https://assignbuster.com/demand-for-improved-institutional-public-toilet-facilities-economics-essay/

2011 with its total volume as 2, 980, 720 barrels. The total oil revenue realized from the export of crude oil was distributed to the various allowable sources in accordance with the Petroleum Revenue Management Act (PRMA), Act 805, 2011. The discovery of oil in commercial has provided alternative sources of funds for government projects and programmes. Further, the oil discovery has boosted the Ghanaian economy in terms of the size of the GDP and also growth of the GDP.

In recent years the Ghanaian economy has observed several progresses in terms of macroeconomic and political stability and economic growth. The current economic growth and political stability in Ghana could be traced as far as 1984 where the country has achieved positive economic growth rate each year and also stable political environment. With these achievements some researchers have referred to the 1984-2011 period as the era of political and economic stability. Since 1992, the country has held five successful elections with the current 2012 elections being the sixth consecutive elections to be held, making Ghana the darling/favorite of many developed economies. The political landscape of Ghana, which is a model for democracy in Africa, experience two major events in every four years: 1) multi-party democratic elections and 2) political transition. After 1992, Ghana has experienced both interparty political transition and intra-party political transitions. These current developments in the economic and political environment are expected to translate to improvement in the standard of living of the populace through the reduction of poverty and access to basic social amenities.

The Ghanaian economy has seen a sharp decrease in poverty status among the population as result of various interventions by both public and private institutions. For instance, poverty reduced from about 51. 7 per cent in the 1991/1992 period to about 28. 5 per cent in 2005/2006 period. The performance of Ghana in terms of 2011 Human Development Index (HDI) as reported by the United Nations Development Programmme (UNDP) (2011) has been mixed. According to UNDP (2011), in 2011, Ghana's overall HDI ranking was 135th out of 187 countries with HDI value of 0. 541. Ghana's score puts it in the medium human development category. The income gini coefficient which measures income disparity among the poor and the rich during the period of 2000 to 2011 averaged about 42. 8. Ghana had multidimensional poverty index value of 0. 144 with population in the multidimensional poverty using headcount been 31. 2 per cent of the population (representing about 7. 3 million people). Other indices for measuring poverty showed a similar trend with population vulnerable to poverty been 21. 6 per cent and population in severe poverty been 11. 4 per cent. The population below the income poverty line using the PPP (in Purchasing Power Parity terms) of US 1. 25 dollars a day been 30. 0 per cent with population on the national poverty line as 28. 5 per cent (refer to UNDP, 2011).

2. 2 The Role of Sanitation in the Ghanaian Economy

The role of the sanitation sector in the Ghanaian economy cannot be underestimated due to its importance in terms of provision of employment and also its contribution to the GDP. The sanitation sector is inter-related with several sub-sectors of the Ghanaian economy. Its impact could be felt in

the health, education, tourism, among other several sectors of the Ghanaian economy. For the purposes of GDP estimations, the economic activities under sanitation are classified under water and sewerage sub-sector. The water and sewerage sub-sector is further classified under the industry sector. Although the water and sewerage sub-sector could not be counted among the leading sub-sectors of the Ghanaian economy, its contribution to the GDP is enormous. The water and sewerage sub-sector makes both direct and indirect contributions to the Ghanaian economy.

The contribution of the water and sewerage sub-sector to the nominal GDP increased from GHS 227 million in 2007 to GHS 467 million in 2011. The percentage share of the water and sewerage sub-sector from 2007-2011 had stagnated around 0. 8 percent; with the maximum for the period been 1 percent achieved in 2007. The percentage contribution of the water and sewerage sub-sector decreased continuously from its highest level of 1 percent in 2007 for the period, 2007-2011. The real growth rate for the water and sewerage sub-sector increased from 1. 2 percent in 2007 to about 2. 9 percent in 2011. For the period 2007-2011, the year 2009 had the highest real growth rate of 7. 7 percent with the year with the least real growth rate been 2008; where the real growth rate was recorded as 0. 8 percent (for GDP figures refer to Ghana Statistical Service, 2012).

The sanitation sub-sector provides employment for the youth in Ghana. In Ghana, reliable figures on employment are woefully inadequate. But available evidence suggests that the sanitation sector provides a sizeable amount of employment for the people of Ghana. For instance in 2011,

Zoomlion Ghana Limited, a waste management service provider had about https://assignbuster.com/demand-for-improved-institutional-public-toilet-facilities-economics-essay/

3000 core staff and field staff capacity of about 65, 100 under the National Youth Employment Programme (NYEP), (Agyepong, 2011). In 2012, the Accra Metropolitan Assembly (AMA) had about eleven waste management service contractors who are tasked with the collection of solid waste. The various waste management service contractors had been allocated designated areas (sub-metros). Some of these waste management services contractors had been allocated more than one designated area. For instance, Zoomlion Ghana Limited had been allocated three designated areas such as Ayawaso West, Ayawaso Central and Ablekuma Central sub-metros (for more information on waste management by AMA, visit AMA website on ama. gov. gh).

In 2012, the Kumasi Metropolitan Assembly (KMA) had about seven different waste management service contractors designated for the 10 sub-metro areas of the Kumasi Metropolis. Similarly as AMA, some of the waste management service contractors in KMA work in more than one sub-metro area. Meskworld Company Limited and Zoomlion Ghana Limited work in two and three sub-metros respectively. Further there are several other septic tank dislodging service providers in the two metropolises. For instance, in 2012 the KMA alone had about 13 septic tank dislodging service providers (for more information on waste management by KMA, visit KMA website on www. kma. gov. gh).

2. 3 Legislations on Sanitation in Ghana

The sanitation sector of Ghana is regulated by the Environmental Sanitation Policy 1999 and other several legislative instruments and laws. For instance, the outputs and targets setted in the revised Environmental Sanitation Policy https://assignbuster.com/demand-for-improved-institutional-public-toilet-facilities-economics-essay/

of 1999 include the abolishing of pan latrines by 2010; at least 90% of the population has access to an acceptable domestic toilet and the remaining 10% has access to hygienic public toilets and further, hygienic public toilets are provided for the transient population in all areas of intense public activity. Although the policy document has been revised, much still remains to be done in terms of meeting the output and targets for the provision of hygienic toilet facilities.

2. 4 Trends of Ghana's Performance on Sanitation Based on Yale University's Environmental Performance Index (EPI), 2008-2012

The international country environmental performance index (EPI) rankings released in 2010 by Yale University in the United States indicate that of the 47 African countries evaluated, Ghana's environmental sanitation quality was ranked 44th in Africa. Ghana's sanitation quality was better than only Chad, Eritrea and Niger. For the earlier 2008 EPI rankings, Ghana's environmental sanitation quality was only better than that of Burkina Faso, Chad, Eritrea, Ethiopia and Niger.

The performance of Ghana in terms of the 2012 EPI ranking has been mixed based on the 22 performance indicators and 10 policy categories. Based on the 2012 Environmental Performance Index (EPI), Ghana was ranked as 91 among 132 countries. This means there is the need to address these concerns raised by the 2012 EPI. In terms of drinking water, Ghana was ranked 101 with a score of 32. 8, both environmental burden of disease and child mortality, had Ghana ranked 113 with a score of 34. The 2012 EPI

showed that in terms of sanitation, Ghana was ranked 126th out of 132 countries with a score of 3. 0.

2. 5 Public Expenditure on Waste and Sanitation Management in Ghana

Each year the Government of Ghana (GoG) allocates resources to the various sectors of the Ghanaian economy through the budget statement. As part of the government's efforts in improving the quality of sanitation in the country, various projects and programmes were earmarked and funded in the 2012 Government of Ghana Budget Statement. Investment in sanitation sector continued for the 2012 fiscal year with Government of Ghana making several allocations of funds for the activities of the sanitation sector. According to GoG (2011), the 2012 Budget Statement allocated funds for several projects in the sanitation sector of Ghana. For instance, an amount of GHS 33. 3 million was spent in 2011 on sanitation and waste management projects undertaken by the MMDAs. This figure was expected to rise to GHS 60 million for the 2012 fiscal year. The government further planned supporting Public Private Partnership (PPP) in terms of the construction of compost plants to treat waste and produce fertilizer for farming (GoG, 2011). This is expected to improve sanitation situation in the country in order to achieve targets of the MDGs in 2015.

3. Methodology

3. 1. Data and Data Sources

A scientific survey based on the stratified random sampling method of urban householders specifically in selected communities in Ghana on provision of improved public toilet facilities will be undertaken using questionnaire.

Administration of the questionnaires will be undertaken by hired assistants.

A small pilot survey will be initiated in the tenth to eleventh month of the study period. During this pilot survey, we would seek to know if the willingness to pay bidding game is well understood clearly by respondents through our explanation on the purpose of seeking monetary value information on access to and use of improved institutional public toilet facility. The final questionnaire will be developed and administered once the pilot survey had been done.

The economic value of provision of improved institutional public toilet facilities will be determined using the contingent valuation method. This will be based on a mixture of the open-ended approach as used by Anaman and Lellyett (1996b) and the payments scale approach as used by Donaldson (1997) adapted to Ghana conditions. Initially, householders will be asked to offer their price for the particular type of improved institutional public toilet facility based on the open-ended approach. This is similar to the Ghanaian market conditions where a patroniser of certain goods/services can initially offer a price. This is considered a starting bid. The starting bid is increased by one cedi per month at a time until the interviewer and the respondent mutually agree on the final price. The final price is taken to be the maximum wiliness to pay (WTP) or the economic value attached to the particular improved institutional public toilet facilities by the householder.

The survey data will be analysed using simple statistical analysis to determine the means and standard deviations of important variables.

Multiple regression analysis will also be employed to determine the factors that influenced amounts of monies that householders were willing to pay (WTP) for improved institutional public toilet services. The dependent variable of the multiple regression models is the maximum WTP by householder for improved institutional public toilet services. The independent variables gleaned from literature so far will be total householder income, age of householder, distance of home to roadside community waste collection service and the number of children in the home. Finally logistic regression analysis will be used to determine the factors that influenced householders' choice of improved institutional public toilet facility.

3. 2 Proposed Sampling Procedure

This research would be conducted between August and November 2013. The sample study would be selected by a multi-stage sampling technique. At the first stage, some of the districts would be randomly selected from three zones that would be defined by geographical, socio-cultural and economic differences. The whole country would be divided into three zones: northern, central and southern zones. The northern zone would comprise of the three northern regions (Northern, Upper East and Upper West regions). The central zone would be made up of Ashanti, Brong Ahafo, Western and Eastern regions while the southern zone would cover Greater Accra, Volta and Central regions. By a simple random method, at least two districts would be was chosen from each of the zones for the study. At the second stage, approximately ten per cent of the total number of communities/EAs in each of the selected districts would be randomly selected. There would be proportional representation to each of the districts. The study would adopt

survey research method of both descriptive and quantitative types. Both qualitative and quantitative methods would be used for this research. These include focus group discussions, formal and informal interviews and observations.

3. 3 Expected Result

The study will show the factors th