RESEARCH ARTICLE

PLASTIC POLLUTION MANAGEMENT: A PANACEA FOR NIGERIA'S UNTAPPED WASTE TO WEALTH GROWTH; A STUDY OF SOME SELECTED URBAN CITIES IN SOUTH EAST NIGERIA- ENUGU, OWERRI, AWKA AND UMUAHIA

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Manuscript Info

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Abstract

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The study investigated on the plastic pollution management: A panacea for Nigeria's untapped waste to wealth growth: A study of some selected urban cities in south east Nigeria Enugu, Owerri, Awka and Umuahia. The specific objectives include to: examine the extent management of plastic waste have aided employment generation in some urban areas in South East, Nigeria, Nigeria; determine the extent value chain network of plastic management has aided wealth creation in some urban areas in South East, Nigeria. The study adopted a cross sectional survey. The study instrument includes Garbage picking kits, health hazard prevention materials, waste selector machines, questionnaire, video coverage and security kits to help the research attendants for easy identification. Procedure**:** The study identified various dump sites across the cities mentioned. Out of a population of 6,454 staff, the sample size of 1096 was chosen after applying the Freund and William's formula for the determination of adequate sample size. Out of the sample size of 912 returned the questionnaire and accurately filled. That gave 83 percent response rate. The validity of the instrument was tested using content analysis and the result was good. The reliability was tested using the Pearson correlation coefficient (r). It gave a reliability co-efficient of 0.85 which was also good. Data was presented and analyzed by mean score (3.0 and above agreed while below 3.0 disagreed) and standard deviation using Sprint Likert Scale. The hypotheses were analyzed using Z- test statistics tool. The findings of the reveals that management of plastic waste has positive effect on employment generation in some urban areas in South East, Nigeria r (85, n = 1096) = 24.471, p < 0.05; value chain network of plastic management had positive effect on wealth creation in some urban areas in South East, Nigeria r (85, n = 1096) = 46.882, p < 0.05. The study concluded that in order for solid waste management and plastic production systems to coevolved towards maximizing recycling as a strategy for plastic waste management. The study recommended among others, that there is a need to formulate and enforce a plastic bag regulation primarily to do away with the menace and to guide any such endeavors.

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Introduction:-
Plastic pollution is the accumulation of plastic objects and particles (e.g.: plastic bottles and much more) in the Earth's environment that adversely affects wildlife, wildlife habitat, and humans (Hammer & Parsons, 2012). Plastics that act as pollutants are categorized into micro-, meso-, or macro debris, based on size. Since its commercial development in the 1950s, plastic has been a real success. Its global production is growing exponentially. Its success comes from its remarkable qualities: ease of shaping, low cost, mechanical resistance, etc. From the 1950s to the 70s, only a small amount of plastic was produced, so plastic waste was relatively manageable, by the 1990's, plastic waste generation had more than tripled on two decades, following a similar rise in plastic production. In the early 2000s, our output of plastic waste rose more in a single decade than it had in the previous 40 years. Today, the production of plastic waste ranges from 300 million tons every year, which is nearly equivalent to the weight of the entire human population. About 60% of that plastic has ended up in either a landfill or the natural environment. Being the ideal material for packaging, plastic is basically everywhere (UN Environment report, 2018).

While plastic has many valuable uses, we have become addicted to single-use or disposable plastic — with severe environmental consequences. Around the world, one million plastic drinking bottles are purchased every minute, while up to 5 trillion single-use plastic bags are used worldwide every year. In total, half of all plastic produced is designed to be used only once — and then thrown away. Plastic waste is now so ubiquitous in the natural environment. Plastics are inexpensive and durable, and as a result level of plastic production by humans are high. However, the chemical structure of most plastics renders them resistant to many natural processes of degradation and as a result they are slow to degrade. Together, these two factors have led to a high prominence of plastic pollution in the environment (Laura, 2018).

The visibility of plastic waste is increasing because of its accumulation in recent decades and its negative impact on the surrounding environment and human health. Unlike organic waste, plastic can take hundreds to thousands of years to decompose in nature (New Hampshire Department of Environmental Services n.d). Plastic waste is causing floods by clogging drains, causing respiratory issues when burned, shortening animal lifespans when consumed, and contaminating water bodies when dumped into canals and oceans *(*Baconguis,2018).

The South East states generate metric tons of solid waste daily – almost half of what obtained in the entire country. Recycling enterprise can process used polyethylene terephthalate bottles (otherwise known as PET or plastic bottles), cans and water sachets. These waste items can be compressed into bails and sold to macro recyclers for production of synthetic fibers, cotton, ropes, toys, bags, rubbers, plastic, among others.A rapid increase in the population and number of plastic-based products has also made waste management taxing. Many beverage companies that hitherto produced with crystal bottles have changed to PET bottles to cut cost.

Plastic products remain the most daunting to manage because as non-bio-degradable materials, they take hundreds of years to degrade, and when they eventually do, they break down into smaller toxic bits to contaminate the environment, hence the study tends to examine plastic pollution management: as a panacea for Nigeria's untapped waste to wealth growth; A study of some selected urban cities in South East Nigeria-Enugu, Owerri, Awka and Umuahia.

Statement of the Problem
The world bank quarterly report indicates that only 9% of the world plastics are recycled. Plastic waste management is a critical issue. The level of threat plastic waste poses to man and nature is phenomenal. In a country like Nigeria where unemployment is very high, this study is needful to create knowledge formed with empirical facts on how plastic pollution can be turned from waste sites to wealth sites. Today, graduates roam about the streets after their NYSC program, yet in their CDs in their primary place of assignment, they help in clearing refuse just to win praise from their state coordinators not aware of the fact that those plastics wastes in the dust bin sites can be recycled and plough back for good usage. In the business-as-usual scenario, each actor remains unaccountable for ensuring the plastic value chain is sustainable. Current efforts to improve waste management capacity across the planet are insufficient to stop plastic leakage, given growth trajectories for plastics. The current trajectory for plastic pollution results from: consumption patterns that support single-use business models for plastic products; waste

mismanagement leaking plastic into nature; and a supply chain currently producing five times more virgin plastic than recycled plastic.

The Nigeria factor of not paying attention to the health hazard plastic pollution constitutes and its possibility to be transformed into a formidable wealth creation platform poses a big problem. Job creation is almost impossible for the government to tackle whereas; a good research on the recycling of plastic waste can help create the jobs our youth are yearning for. Immediate action is needed to stop the uncontrolled growth of plastic pollution, and coordinated initiatives are required to hold each stakeholder accountable for reversing the plastics tragedy of the commons. This study therefore intends to examine plastic pollution management as a panacea for Nigeria's untapped waste to wealth growth.

Objectives of the Study: -
The main objective of the study was to evaluate plastic pollution management: A panacea for Nigeria's untapped waste to wealth growth. The specific objectives include to:
1. Examine the extent management of plastic waste have aided employment generation in some urban areas in South East, Nigeria, Nigeria.
2. Determine the extent value chain network of plastic management has aided wealth creation in some urban areas in South East, Nigeria.

Research Questions
The following research questions guided the study:
1. To what extent has the management of plastic waste aided employment generation in some urban areas in South East, Nigeria, Nigeria?
2. To what extent has the value chain network of plastic management aid wealth creation in some urban areas in South East, Nigeria?

Statement of Hypotheses
The following alternate hypotheses guided the study:
1. The management of plastic waste has positive effect on employment generation in some urban areas in South East, Nigeria, Nigeria.
2. The value chain network of plastic management has positive effect on wealth creation in some urban areas in South East, Nigeria.

Review of Related Literature
Conceptual Review
Plastic Pollution Management
Plastic pollution is when plastic has gathered in an area and has begun to negatively impact on the natural environment and created problems for plants, wildlife and even human pollution. Plastic pollution is caused by the accumulation of plastic waste in the environment. It can be categorized in primary plastics, such as cigarette butts and bottle caps, or secondary plastics, resulting from the degradation of the primary ones. It can also be defined by its size, from microplastics - small particles (<5 mm) of plastic dispersed in the environment - to macro plastics (Ackerman, 2000). Plastic waste is defined as plastic material collected by (or on behalf of) an organization that has no further use or value to the previous owner in its current state and so has been discarded. Waste therefore includes items that may eventually be recycled and/or reused. So, the waste management industry includes the recycling and recovery industries. Waste management practices typically vary between states. Almost all states residences in urban areas have access to collection services for waste and recycling, as well as periodic hard waste collection, provided by the states.Most state also manages or outsource transfer stations, which sort landfill waste from recyclables, and landfill facilities. The quality and frequency of services provided, the types of bins and direct access to landfill facilities for excessive waste, varies between the states.

The four key areas of activity in the waste management industry are: waste collection and transfer (typically managed by local councils);sorting of waste;recycling (i.e., manufacture of new goods) and reuse; and the final disposal of waste that cannot be recycled or reused into landfill. Plastic pollution can take different forms including: The accumulation of waste, the accumulation of marine litter, fragments or microparticles of plastics and non-biodegradable fishing nets, which continue to trap wildlife and waste, waste causing the death of animals by ingestion of plastic objects and the arrival of microplastics and microbeads of plastics from cosmetic and body care

products. Plastic pollution management means to create long term solutions that turn plastic waste into an income source via recycling value chains while reducing its environmental burden (Natalie, 2019).

Wealth Growth
Wealth is the abundance of valuable financial assets or physical possessions which can be converted into a form that can be used for transactions. This includes the core meaning as held in the originating old English word weal, which is from an Indo-European word stem (Silvio, 2013). The modern concept of wealth is of significance in all areas of economics, and clearly so for growth economics and development economics, yet the meaning of wealth is context-dependent. An individual possessing a substantial net worth is known as wealthy. Solving environmental problems usually just means cleaning up the mess people have made. But scientists are increasingly interested in creating something valuable from pollution (Sotenko, n.d).

Employment Generation
Employment generation is a natural process of social development. Human beings bring with them into the world an array of needs that present employment opportunities for others to meet. Where it is not so, the world could not have sustained a more than tripling of population over the past century?The government has also strived to provide direct employment in government departments and offices at various positions and levels. It also helps in indirect employment through the production of goods and services that aid the ability of the private sector to invite more job applicants and create opportunities (Rick, 2019).

Plastic pollution management is a highly mechanized process that is achieved with a modest amount of labor. Recycling, on the other hand, can be much more labor-intensive. It involves the collection, sorting, and processing activities, as well as other supporting roles such as facilities operations, sales, and logistics support. These processes begin with recyclable material collection from locations such as households, drop-off points, construction, and demolition centers and businesses. After collection, these recyclable materials go through a thorough sorting process to separate various materials as well as different quality goods. From the collection of materials to selling them, recycling businesses need varying degrees of skilled and semi-skilled employees to perform recycling industry jobs. Many recycling companies and associations play a significant role in building social awareness by providing recycling training services, thereby generating employment opportunities (LEPU, 2004).

Value Chain Network
A value chain is a set of activities that a firm operating in a specific industry performs in order to deliver a valuable product (i.e., good and/or service) for the market. The idea of the value chain is based on the process view of organizations, the idea of seeing a manufacturing (or service) organization as a system, made up of subsystems each with inputs, transformation processes and outputs. Inputs, transformation processes, and outputs involve the acquisition and consumption of resources – money, labor, materials, equipment, buildings, land, administration and management. How value chain activities are carried out determines costs and affects profits (Ghemawat, 2002). A single enterprise cannot implement and run a closed circular economy effectively for itself. Holistic waste management can be realized best with the application of certain Value Chain Network. With the methods from supply chain management, a sustainable circular economy is created by closing process chains between companies in an industry and by taking joint economic and ecological useful measures (Gurría, 2012).

Producing, distributing, and consuming products cause an enormous number of various types of waste. Within production, various types of waste emerge. Initially, there are waste materials and by-products as a direct result of the transformation processes. In addition, scrap arises as a result of not achieving the required output specifications. Finished and semi-finished goods as well as raw materials require certain packaging that fulfils different functions, such as protection, transport, storage, selling, or easier handling and usage (Ravi, Shankar & Tiwari, 2015). The lack of the adoption of not re-usable packaging is responsible for most of the generated waste and counts for approximately half of the emerging waste volume in Nigeria(Kogg, 2003).

Wealth Creation
Wealth creation means anything which could be owned and controlled, and have monetary value or have the potential to create the monetary value. The commonly used plastic is ubiquitous and used in carry bags, bottles, other packaging, toys, cellphones, refrigerators, automobiles, pipes, construction materials, microfibers, *et cetera*. Consumer needs have led to newer types of plastic and polyester clothing that is more durable and lasts even longer. Inorganic waste, such as PET and plastics, waste paper and tetrarchs are now increasingly recycled (Ravi, Shankar

& Tiwari, 2015). These are used to create innovative products through organized or unorganized sector at micro or small scale. Recycling waste of useful materials puts them back into circulation for consumers. Large amounts of functional electronic items are phased out or discarded in favour of new models. These can be easily put to use. This would reduce the consumption of scarce and expensive resources/raw materials. It would also reduce consumption of energy. All these interlinks have positive impact on economy and environment.Government has adopted new rules that provide for ways and means to minimize plastic waste generation, adoption of extended producer responsibility for collection of waste and sustainable plastic waste management, recycling and utilization of plastic waste in road construction, energy and oil generation. Boundary migration of organic micro pollutants (dioxins and furans) and volatile heavy metals (Kogg, 2003).

Theoretical Framework
Environmental Contingency Theory
The development required by the organization to always be sustainable and continuous begins with many changes either internal or external. External change itself can come from various factors one of them environmental factors. Contingency theory explains the main framework for an organization to define design, structure, managerial etc. Environmental contingency theory makes this work by focusing on an environment that has the potential to change the shape and culture of the organization. The environment also has a role to make the organization develop and innovate because of its demands in having information that always maintained its availability as well as the level of organizational complexity.

Contingency theory has an excessive focus on the environment in which the environment is not the only aspect that must be constantly monitored as an organizing factor. The environment is also considered not something that is continuously dynamic and never stable. In addition, the organization must also consider other things that are much more easily controlled by members in the organization such as politics and power owners that led to decision-making. However environmental contingency theory remains a theory capable of explaining the many adjustments that must be made to an organization in order to survive and sustain the acceptance of its environment. This study still has a shortage of detailing the advantages and disadvantages of more detail about the theory of environmental contingency, structural contingency theory, and contingency theory of the organization in general. Research in the form of evaluative research by involving resource persons who are part of the organization and part of the environment is also a research development that can be done to examine more in the application of these theories and the impact or influence for the organization (Kirana & Ummi, 2018).

Empirical Review
Walker (2018) wrote on the effects of plastic pollution on environment. He opined that the distribution of plastic debris is highly variable as a result of certain factors such as wind and ocean currents, coastline geography, urban areas and trade routes. Human population in certain areas also plays a large role in this. Plastics are more likely to be found in enclosed regions such as the Caribbean. It serves as a means of distribution of organisms to remote coasts that are not their native environments. This could potentially increase the variability and dispersal of organisms in specific areas that are less biologically diverse. Plastics can also be used as vectors for chemical contaminants such as persistent organic pollutants and heavy metals.

David, Anne andInibraniye (2018) conducted a study Recycling and Reuse Technology: Waste to Wealth Initiative in a Private Tertiary Institution, Nigeria. Covenant University, a private mission institution undertaking a waste-to-wealth scheme, is focused on managing and processing used materials to create reusable products. Such materials included PET bottles, paper waste, food waste from cafeterias, plastic food packs, nylon, tin cans, and others.Specific areas from the university which were chosen for the survey included the residential areas for staff and students and the two cafeterias. The waste generated was characterized so as to quantify the amount of recyclable waste generated, and also to find out which was most-occurring. The survey involved the use of structured questionnaires, on-site observations, and measurements. The study revealed that the average amount of recyclable waste generated per day in the institution were food waste, PET bottles, other plastic, nylon, tin cans, and paper. The study established that adequate waste characterization is a requirement for effective integrated solid waste management, which would boost resource recovery, reuse, and recycling.

Driedger (2015) conducted a study on the effects of plastic management on human health in South Africa. The objective of the study was to examine the effect on plastic debris on the conversion of river water to drinking water and its implication on the health of the public, The study used experimental design technique. The findings showed

that plastic pollution of the rivers adversely affects the drinking water and subsequently the health of the public, The study therefore recommended a recycling solution that can plough back the used plastic materials back to being used afresh.

Methodology:-
The study based on the plastic pollution management: a panacea for Nigeria's untapped waste to wealth growth; a study of some selected urban cities in south east Nigeria Enugu, Owerri, Awka and Umuahia. The study adopted a cross sectional survey. The scope of the study covered ten dustbin dump sites in the capital cities of four eastern states namely – Enugu, Owerri, Awka and Umuahia. The cities were selected purposefully because they possess the variables that are needed in the study. Both the manufacturing sectors that are involved in plastic usage and young people were randomly selected to answer the questions that were enshrined in the questionnaire.The study instrument includes Garbage picking kits, health hazard prevention materials, waste selector machines, questionnaire, video coverage and security kits to help the research attendants for easy identification.

Procedure:
The study identified various dump sites across the cities mentioned. And also, some drainage that within the cities were assessed, so as to pick the plastic materials therein.Manufacturing firms that are into recycling of wastes were contacted to help in the evacuation, selection and processing of the plastic materials. Enugu state has SEDI as example.The research assistants/waste collectors (IMT – IT students) were trained on the procedure of dump site collection and the hazard therein, questionnaire distribution and other logistics. Out of a population of 6,454 staff, the sample size of 1096 was chosen after applying the Freund and William's formula for the determination of adequate sample size. Out of the sample size of 912 returned the questionnaire and accurately filled. That gave 83 percent response rate. The validity of the instrument was tested using content analysis and the result was good. The reliability was tested using the Pearson correlation coefficient (r). It gave a reliability co-efficient of 0.85 which was also good. Data was presented and analyzed by mean score (3.0 and above agreed while below 3.0 disagreed) and standard deviation using Sprint Likert Scale. The hypotheses were analyzed using Z- test statistics tool.

Data Presentation Analysis
Likert Scale Analyses
Research Question One. **To what extent has the management of plastic waste aided employment generation in some urban areas in South East, Nigeria?**

Table 4.1:- Responses to research question one: On the extent the management of plastic waste has aided employment generation in some urban areas in South East, Nigeria.

		5 SA	4 A	3 N	2 DA	1 SD	∑FX	$\overline{X}$	SD	Decision
1	People have been employed for collection of plastic waste in our capital cities.	100 20	1964 491	444 148	364 182	71 71	2943 912	3.2	1.04	Agree
2	A good number of unemployed has been taken to sort out plastic waste in our cities.	700 140	1664 416	399 133	320 160	63 63	3146 912	3.4	1.15	Agree
3	The processing activities of plastic waste have been effective with the recruitment of people.	1190 238	904 226	576 192	108 108	148 148	2926 912	3.2	1.40	Agree
4	The facility operations have attracted some unemployed youths in our area.	1895 379	352 88	576 192	400 200	53 53	3276 912	3.5	1.37	Agree
5	There has been room for recycling training services thereby generating employment opportunities.	575 115	1740 435	423 141	308 154	67 67	3113 912	3.4	1.13	Agree
6	The various position and levels of offices have been created in our cities on plastic waste.	955 191	1448 362	372 124	330 165	70 70	3175 912	3.5	1.22	Agree
	Total grand mean and standard deviation							**3.4**	**1.22**	

Source: Field Survey, 2019.

From the table, it was agreed that People have been employed for collection of plastic waste in our capital cities with mean score of 3.2 and standard deviation of 1.04. A good number of unemployed has been taken to sort out plastic waste in our cities with mean score of 3.4 and standard deviation of 1.15. The processing activities of plastic waste have been effective with the recruitment of people with mean score of 3.2 and standard deviation of 1.40. The facility operations have attracted some unemployed youths in our area with mean score of 3.5 and 1.37. There has been room for recycling training services thereby generating employment opportunities with a mean score of 3.4 and standard deviation of 1.13. The various position and levels of offices have been created in our cities on plastic waste with a mean score of 3.5 and standard deviation of 1.22.

Research Question two. To what extent has the value chain network of plastic management aid wealth creation in some urban areas in South East, Nigeria?

Table 4.2:- Responses to research question two on the extent the value chain network of plastic management has aided wealth creation in some urban areas in South East, Nigeria.

		5 SA	4 A	3 N	2 DA	1 SD	∑FX	$\overline{X}$	SD	Decision
7	The warehousing of plastic waste has enhanced monetary savings in Nigeria.	1300 260	960 240	561 187	188 94	122 122	3131 912	3.4	1.36	Agree
8	The receiving and managing inventory of plastic waste has improved the producing of assets.	2095 419	800 200	429 143	236 118	32 32	3592 912	3.9	1.20	Agree
9	The converting of plastic waste into finished products has turned into recognizable value in the market place.	1820 364	1064 266	432 144	114 57	81 81	3511 912	3.8	1.26	Agree
10	The activities to distribute recycled plastic waste as a final product to a consumer have created financial wealth.	1805 361	1088 272	306 102	202 101	46 46	3447 912	3.8	1.20	Agree
11	Able to diagnose and create competitive advantage on plastic waste has reduced living expenses in our area.	2290 458	1088 272	171 57	200 100	25 25	3774 912	4.1	1.11	Agree
12	Ensuring that plastic waste recycled and placed in the customers hands improves physical wealth.	1245 249	1260 315	393 131	326 163	54 54	3278 912	3.6	1.23	Agree
	Total grand mean and standard deviation							**3.4**	**1.23**	

Source: Field Survey, 2019.

From the table, it was agreed that the warehousing of plastic waste has enhanced monetary savings in Nigeria with mean score of 3.4 from the respondents and standard deviation of 1.36. The receiving and managing inventory of plastic waste has improved the producing of assets with 3.9 agrees of mean score and standard deviation of 1.20. The converting of plastic waste into finished products has turned into recognizable value in the market place with 3.8 mean score and 1.26 standard deviation. 3.8 agree mean average supports that the activities to distribute recycled plastic waste as a final product to a consumer have created financial wealth with standard deviation of 1.20. Able to diagnose and create competitive advantage on plastic waste has reduced living expenses in our area with mean score of 4.1 and standard deviation of 1.11. Ensuring that plastic waste recycled and placed in the customers hands improves physical wealth with a mean score of 3.6 and standard deviation of 1.22.

Test of Hypotheses
Hypothesis One:
The management of plastic waste has positive effect on employment generation in some urban areas in South East, Nigeria.

Table 4.2.1.1:- Descriptive statistic on the management of plastic waste has positive effect on employment generation in some urban areas in South East, Nigeria.

N	Mean	Std. Deviation	Minimum	Maximum
912	3.416	1.229	1	5

Table 4.2.1.2: - Z – test on the management of plastic waste on employment generation in some urban areas in South East, Nigeria, Nigeria.

		The management of plastic waste has positive effect on employment generation in some urban areas in South East, Nigeria, Nigeria.
N		912
Normal Parameters	Mean	3.416
	Std Deviation	1.229
Most Extreme	Absolute	.321
Most Extreme	Positive	.321
Differences	Negative	-.204
Kolmogorov-Smirnon Z		24.471
Asymp. Sig.(2-tailed)		.000

a.   Test distribution is Normal
b.   Calculated from data

Decision Rule
If the calculated Z-value is greater than the critical Z-value (i.e., $Z_{cal} > Z_{critical}$), reject the null hypothesis and accept the alternative hypothesis accordingly.

Result:-
With Kolmogorov-Smirnon Z – value of   24.471 and on Asymp. Significance of 0.000, the responses from the respondents as display in the table is normally distributed.

This affirms that the assertion of the most of the respondents that on the management of plastic waste has positive effect on employment generation in some urban areas in South East, Nigeria.

Decision
Furthermore, comparing the calculated Z- value of 24.471 against the critical Z- value of 2.18 (2-tailed test at 95% level of confidence) the null hypothesis was rejected. Thus, the alternative hypothesis was accepted which states that on the management of plastic waste has positive effect on employment generation in some urban areas in South East, Nigeria.

Hypothesis Two:
The value chain network of plastic management has positive effect on wealth creation in some urban areas in South East, Nigeria.

Table 4.2.2.1:- Descriptive statistic on the value chain network of plastic management has positive effect on wealth creation in some urban areas in South East, Nigeria.

N	Mean	St. Deviation	Minimum	Maximum
912	3.797	1.245	1	5

Table 4.2.2 .2: - Z – test on the value chain network of plastic management has positive effect on wealth creation in some urban areas in South East, Nigeria.

		The value chain network of plastic management has positive effect on wealth creation in some urban areas in South East, Nigeria.
N		912
Normal Parameters	Mean	3.797
	Std Deviation	1.245
Most Extreme	Absolute	.276
Most Extreme	Positive	.276
Differences	Negative	-.208
Kolmogorov-Smirnon Z		46.882
Asymp. Sig.(2-tailed)		.000

a.   Test distribution is Normal
b.   Calculated from data

Decision Rule
If the calculated Z-value is greater than the critical Z-value (i.e., Zcal>Zcritical), reject the null hypothesis and accept the alternative hypothesis accordingly.

Result:-
With Kolmogorov-Smirnon Z – value of 46.882 and on Asymp. Significance of 0.000, the responses from the respondents as display in the table is normally distributed.

This affirms that the assertion of the most of the respondents that on the value chain network of plastic management has positive effect on wealth creation in some urban areas in South East, Nigeria.

Decision
Furthermore, comparing the calculated Z- value of 46.882 against the critical Z- value of 2.18 (2-tailed test at 95% level of confidence) the null hypothesis was rejected. Thus, the alternative hypothesis was accepted which states that on the value chain network of plastic management had positive effect on wealth creation in some urban areas in South East, Nigeria.

Discussion of Findings:-
Furthermore, comparing the calculated Z- value of 24.471 against the critical Z- value of 2.18 (2-tailed test at 95% level of confidence) the null hypothesis was rejected. Thus, the alternative hypothesis was accepted which states that on the management of plastic waste has positive effect on employment generation in some urban areas in South East, Nigeria. In support with Dativa (2019) opine those plastics are the most useful materials invented by man, and have brought great convenience to our daily lives but not without problems. Inappropriate disposal of wasted plastics has caused serious environmental problems.

From the result hypothesis two, comparing the calculated Z- value of 46.882 against the critical Z- value of 2.18 (2-tailed test at 95% level of confidence) the null hypothesis was rejected. Thus, the alternative hypothesis was accepted which states that on the value chain network of plastic management had positive effect on wealth creation in some urban areas in South East, Nigeria. in support with findings, solid waste management system can be classified into three categories which are municipal solid waste; industrial solid waste; and hazardous solid waste management. Municipal solid waste management is an essential public service that benefits all urban residents. In Nigeria, the scale of consumption and waste generation and the negative impacts associated with them varies dramatically from city to city, depending in a large part on a city 's wealth and size. Perhaps the greatest environmental nuisance and threat facing the ever-growing urban agglomeration in Nigeria today is the collection, transportation and disposal of both municipal and industrial waste (Bako, 2014).

Conclusion:-

From the findings of the study, plastics offer considerable benefits for the future, but it is evident that our current approaches to production, use and disposal are not sustainable and present concerns for wildlife and human health. There is a role for individuals appropriate use and disposal, particularly recycling; for industry by adopting green chemistry, material reduction and by designing products for reuse and/or end-of-life recyclability and for governments and policymakers by setting standards and targets, by defining appropriate product labelling to inform and incentivize change and by funding relevant academic research and technological developments. These measures must be considered within a framework of lifecycle analysis and this should incorporate all of the key stages in plastic production, including synthesis of the chemicals that are used in production, together with usage and disposal. In conclusion, the management of plastic waste has positive effect on employment generation in some urban areas; the value chain network of plastic management has positive effect on wealth creation in some urban areas in South East, Nigeria. Therefore, in order for solid waste management and plastic production systems to coevolved towards maximizing recycling as a strategy for plastic waste management.

Recommendation:-

Based on the findings of the study, plastic pollution management: A panacea for Nigeria untapped waste to wealth growth, the following recommendations were made:

1. City waste management strategy should include waste separation at source to ensure that actors within the recycling chain are guaranteed of less contaminated plastic waste. In addition, development of rules that require industries to take back certain quantities of plastic waste from the solid waste management system would enhance recycling.
2. In order to enhance plastic recycling, differentiated policies that take cognizance of these needs are formulated. In addition, the solid waste management and the plastic production systems operate at different levels and scales without any collaboration. There is a need to formulate and enforce a plastic bag regulation primarily to do away with the menace and to guide any such endeavors.

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