

Narrative of Population and Economic Growth on Wastes Disposal and Reclamations on Environment

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Abstract- Strive for conformability created quest in man to investigate the best alternatives of living in the live that is provided by the environment around him. Activities of man lead to creation of wastes which can be bio degradable, on biodegradable, and a non-refillable in terms of quarry activities. All these are function of the environment man find himself. Population growth is increasing vastly hence the trend of demand for goods and services as it affect the growth of the economy. Nature provides man with diverse opportunities that are unequal over the surface of the earth hence the law of comparative advantage is ushered as we have producing nation and consuming nation. The developing nations of the world which African countries found herself are consuming nations with high potentials for generating wastes. These wastes generation are function of population and economic growth as they deal with importation of finished goods, plastics products, abandoned vehicles called 'tokunbo', vehicles parts and tyres, scraps and used fabrics .Nigeria with her land mass and population as well as her weak political reforms provides favorable environment for these businesses to thrive. This work analyses the proliferation of these waste, areas of concentrations of these wastes, environmental impact assessment on dumps of these waste and their recycling, suggestions and solution to curbs waste dumps and live a free environment.

Keywords - Narrative, Waste Generation, Population Growth, Economic Growth, Stable Environment

I. INTRODUCTION

The waste generation in Nigeria is becoming uncontrollably increasing .this is increasing as demand and population increase measured. Nigeria as a giant in the Sub Sahara Africa is no doubt cannot avoid increasing in its wastes generation because it is a developing nation and the socio economic activities increasing rapidly. Greater percentages of these wastes are the plastics and rubber products. These comprise the thermoplasts, cellophanes, rubber for gallons, plastic water bottles, water sachets, foams and vehicle tyres. Also among the solid wastes are the fabrics synthetic or cotton, the

metal scraps from abandoned spoilt fridges, electronic appliances, and vehicle parts.

II. BACKGROUND

The generation of wastes in Nigeria is on the increase as it constitutes nuisance in the cities, and high ways of Nigeria. The flow of traffic in most high ways is being hindered by the growth of wastes dumps on the high ways. Besides, these wastes are harbour for rodents and other diseases causative agents like rats, cockroaches, mosquitoes and flies and well as the offensive odour emanating from these dump that may be hazardous to human health..Metal wastes is on the increase as new technology of manufacturing is emerging older products are being faced out and

discarded. These metal wastes constitutes nuisance in the environment and are hide outs for rodents, and insects which are diseases causative organisms' carriers, besides the environmental pollution. Non-biodegradable polythene and nylon wastes constitute a nuisance in all the urban areas in Nigeria. Wastes are materials that are not prime products (that is products produced for the market) for which the initial user has no further use in terms of its own purposes of production, transformation or consumption, and of which he wants to dispose. Wastes may be generated during the extraction of raw materials, the processing of raw materials into intermediate and final products, the consumption of final products, and other human activities. Waste includes all the items that people no longer have any use for, which they either intend to get rid of or they have already discarded. All daily activities, therefore, can give rise to a large variety of different waste flows from different sources. These sources include, for instance, waste coming from households (e.g. plastic packaging waste), commercial activities (e.g. cardboard packaging waste from shops, food waste from restaurants and medical waste from hospitals), industry (e.g. fly ashes from thermal processes of energy generation, textile waste and tanning liquor from clothes manufacturers), agriculture (e.g. slurry), construction and demolition projects. A small part of the waste which is generated is hazardous; that is, it poses substantial or potential threats to human health or to the environment. In recent times, polythene packaging has increased in the area of table water and soft drinks and has replaced the biodegradable leaves traditionally used in wrapping various foodstuffs in Nigeria. They are very light and are easily thrown away after use and this has increased on the abundance of the polythene waste. In addition, they can also be recycled for another usage. Due to ignorance some people do not know about the effects of improper waste disposal. Such people dump the polythene bags carelessly. Getting these plastic wastes off the streets is very important. It is expected to propose ways of cleaning up the environment of non-biodegradable waste. Since not much has been done in the area of recycling of these wastes in Nigeria, the primary objective is to design and fabricate plastics recycling machines, using locally available materials, capable of converting the

plastics wastes into pellets that can be used in the manufacture of new plastic products to generate IGR for the institution. There are lots of metallic wastes in Sub Sahara Africa among which Nigeria is the giant. The metallic wastes in the country are resulted of failure of the gadgets, or machine, change and emerging technology new products facing out older ones, scraps from works etc. Vehicle parts, refrigerators, electronic wares and home facilities constitute these wastes. The danger and the threat impose to the environment and humanity are lethal. They serve as home to rodents and insects which are diseases causative organisms carrier, offensive odour from water or any fluid collected in them, and useful space is claimed by their dump. The need to add value to this waste becomes important to save the environment, create job opportunities from scavenging or sourcing to sales of the products, generate income and increase the growth of GDP of Nigeria. Most of the restiveness and vices in the country is traced to youth unemployment. and research institutes. Hence, it is worthy to know the composition of any recycled product and it behavior at some conditions.

III. PROBLEM STATEMENT

Our ecological well being and the entire ecosystem is being threatened with incessant waste creation and disposals some of which have been taken to the ocean creating risks for the aquatic lives and accessibility for navigation and good water. Clearing the oceans and seas of these mess created by our lustrous living and dependency on non bio degradable plastics used for the packaging our goods, foods and drinks will not been easy task. Hence, researching on solutions to this trend caused by our socioeconomic activities, civilization and taste become very paramount to save the earth. The proliferation of wastes in the world cannot be only traced to the population surge but change in taste, change in technology to emerging technology, change in fashion and used of disposables. Metallic and plastics with other wastes in a growing economy like the Sub Sahara Africa is on the increase and this has constituted nuisance and threatened the ecological well being of the environment and the human beings. These wastes are host to carriers of

diseases causing organisms which aid the infection of some of these deadly diseases –lase fever –the rats, malaria and typhoid fever mosquitoes and bad water, and the offensive odour emanating from the dumps. Wastes also claim useful land and make it uninhabitable to man. Cost of extraction of these metals is expensive and labour intensive, generating new virgin plastic material is money sapping hence waste reclamation through recycling will help to bridge the gap and add value to efficient partnering of waste reclamation and disposal.

Scope

This work will analyze waste potentials, characterized the wasted generated, waste dumps location as it Affect our living, design a suggestive solution on disposals, and evolving products, discuss adding value to the wastes through recycling and innovation and the entrepreneur skills and business that can be generated as well as processes that can save the environment from the harm of wastes disposals, and recycling processes

Aims and Objective of the Project

Aim

The aim of this work is establishing the reason for generation of solid wastes, their disposals and characterization, suggestive solutions and creating an entrepreneur business that would add value to wastes which would convert these wastes to useful products for provision of employment opportunities, reduce youth restiveness, land and sea reclamations from dumps, reduction in diseases carriers, enhance ecological well-being of the environment. To achieve this aim the following objective must be met.

Objectives

The objectives of this project are:

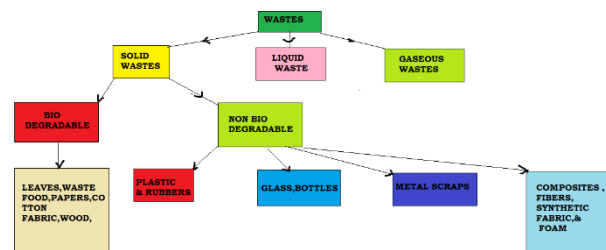
- Characterization of wastes
- dentification of recyclable wastes
- Generation of conversion process for non recyclable wastes that can be environmental friendly
- Suggestion on solution to waste disposals in Nigeria and Sub Sahara Africa
- Suggesting various business enterprises that can add value to waste.

IV. MOTIVATION

Living in an ecological balance environment free of the ills of diseases and other threats that are inimical to the well being of the population of Nigeria is a big motivation .Also being motivated by the availability of plastics waste and metal scraps and markets. The recycled plastic pillets can be sold as raw materials for plastics industries for new products and sell recycled billets (bloom) to rolling mills and exportation as the raw materials. Viability of the enterprise to create added values to metal scraps and plastics by creating vast employment opportunities from scavenging to the sales of the recycled products. Reduction of social vices and youth restiveness are achieved through the volume of employment.

V. CHARACTERIZATION OF WASTES

Wastes constitute sands debris, food items, vegetables and other green leaves, papers, plastics, polythene, rubbers, stalks, bottles, sachets of water, water cans, electronics, abandoned fridges, television box and tubes, vehicle parts and tyres, foam, woods etc. characterizing these wastes will help to suggest method of disposals and treatment. There are gaseous wastes, liquid wastes and solid wastes. The latter has been largely debated and is still posing threat to the both aquatic life and the terrestrial but the gaseous and liquid waste also are lethal to air and soil if they are composed of poisonous component through pollution and leaching. The conspicuous of the waste generation are the solid wastes which have claimed useful lands, roads and high ways, ocean and seas, cause pollution with the harsh offensive odours and harbors for diseases causing organisms.



Gaseous Wastes

The gaseous wastes are the wastes of combustion activities e.g. gas flaring, exhaust gases and fumes from chemical processing industries. However the CFCs cannot be left out which gaseous emission from refrigeration that is lethal to ozone layer. The gases from exhausts are mainly carbons and have been traced to be causative agents that lead to the topical global warming increase that threatened the world.

Liquid Wastes

Liquid wastes from domestic consumption are bio degradable and are not harmful to the soils but research has proven that leaching of waste dumps constitutes cadmium and lead which predict that the dumps comprise the electronic wastes. Cadmium and lead are poisonous to man and plants since underground water are affected. Most industrial liquid wastes especially chemical industries are harmful.

Solid Wastes

Most conspicuous are the solid wastes that bare being generated every day. The solid wastes comprise bio degradable and the non biodegradables. However, the bio degradable decay and decomposed to form the humus but they may be poisonous or not poisonous. This are the vegetables and green leaves, the leftover of food items, papers ,tissues, meat or bones, wood etc the non bio degradable are the plastic ,rubbers, synthetic fiber and fabric ,composites, glasses, bottles, TV tubes , electronic components and metal scraps. These constitute wastes that threatened the ecological well being of the ecosystem.

Wastes Sorting and Recyclables Wastes

Wastes sorting are the identification, characterization of solid wastes into bio degradable and non bio degradable wastes. This separation will promote easy and convenient wastes treatment and reduce the rigors of scavenging. Wastes sorting should have been the work of primary creator whom should develop the attitude of separating these wastes as previously mention into two bins biodegradable and non -biodegradable. Recyclable

wastes are the plastics and rubbers and the metal scraps. However, glasses and bottles can also be recycled but such businesses have not been embraced in this part of the world. Solid wastes, which are consequences of day-to-day human activities, need to be managed properly. Most cities in developing countries are facing challenges associated with poorly managed solid wastes operation. Amongst these solid wastes, plastic is the most common waste that has confronted man globally because it is used virtually all areas of industrialization. In Nigeria, the use of plastic both for domestic and industrial purposes cannot be neglected. It is widely seen in our environment that plastic waste constitutes largest percentage of waste products.

Plastic and Polymer Wastes

Plastic wastes and other polymer wastes are on the increase as the population and economy grow. The proliferation of plastics wastes especially in the urban areas constitutes a high percentage of refuse dumps on the surrounding including oceans and rivers in the cities metropolis. Many governments had spent money and resources in forming establishments that would take care of wastes disposals. Despites these efforts by the governments managing plastic wastes are still challenging.

Plastic Recycling: Waste to Wealth

Environmentally sound sustainable waste management systems that are beyond the mere safe disposal are required to deal with waste challenge. Solid wastes are classified into organic and inorganic and they both have negative impacts on public health, the environment and the economy. The organic solid wastes include food and agricultural wastes, while inorganic solid wastes are paper, plastic, aluminum, iron, etc. Over the years, wastes management measures have been categorized into reduce, re-use and recycle and are all applied simultaneously. With the right machinery, recycling process is the most effective way of managing plastic wastes and at the same time creates jobs. Subsequently, there is the need to design a cost effective plastic recycling facilities. Against this background, the establishment of plastic wastes recline plant becomes necessary to salvage the

environment, create employment and generate internally generated revenue (IGR) for Institution like this if we own one. The plastic waste recycling business has high potential for sustainability with the high ever growing of use of plastics package products and bags and their disposals.

Therefore, this project sees the transforming of solid wastes into feed stocks/raw materials for further production of economic products, as a very sustainable way of effectively dealing with solid wastes. As a response to need, this project will domesticate plastic recycling technology. The significance of domestication of recycling facilities and recycling of plastic wastes in the institution; it will lead to:

- Sustainable environmental cleanliness
- Employment generation and poverty reduction.
- Enhanced GDP and economic sustainability.
- Generation of IGR for nation
- Increase dependency on local products and encourage plastic industries.
- Capacity building, provides employment and entrepreneurial outfit for individuals

Project impact

The project will have tremendous impact on the socioeconomic, academic and technological status of the institution in particular and community in general. The economic value of the project is measured in terms of the cost benefit ratio. The benefits of having plastics wastes recycling plant are overwhelming, these include:

- Engaging the youths and reduce youth restiveness.
- Positive attraction of individuals and industries
- Establishment of plastics wastes recycling plant will facilitate entrepreneurial training of the youths in the surrounding communities.
- Availability of plaster pellet for plastic industries
- Improving the sanitary conditions of the surrounding
- This investment provoke replication in nation, and beyond
- It enhances productivity, and poverty reduction
- Increasing the IGR.

• Plastics are inexpensive, lightweight and durable materials, which can readily be moulded into a variety of products that find use in a wide range of applications. Waste is defined as any unavoidable material resulting from domestic activity or industrial operation for which there is no economic value. Waste could mean "a material waiting to be reused". The markets generate a variety of wastes, for example, corn cobs, vegetable wastes, packaging materials, etc. The household wastes also contain other materials such as paper, glass, metal, plastic, and other non-biodegradable materials and some of them are excellent raw materials for various industries in the country. Recycling is one of the most important actions currently available to reduce these impacts and represents one of the most dynamic areas in the plastics industry today. Recycling is a complex method of environment protection, which aim is the limitation of the raw materials consumption and decrease of waste quantity. Generically, recycling helps to conserve energy, natural resources, save money, and landfill space, and provides alternate materials .The need to decongest plastic waste and recycle them into usable products becomes necessary to salvage the environment and help the socioeconomic growth of the nation. Plastic recycling is a business that can generate high income because of its viability and availability of waste plastics. A lot of jobs could be created along the value chain of recycling business, as shown in Fig 1 and the value chain includes:

- Scavenging
- Sorting, washing and drying
- Operation of various major machines necessary to end the waste plastic to pellets.
- Packaging and over hauling

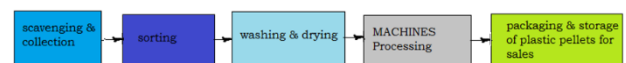


Fig 1: The layout of a recycling process that forms the value chain

Recycling processes

The recycling of plastic, including plastic sorting, such as sachet water, cellophane, cans, and plate and the feeding of the sorted into a crusher that cuts or shears them into small pieces. This is then followed

by washing, wet milling, melting, extruding into strands and the pelletizing of polythene strands pellets. The steps involve in the recycling of waste plastics is shown in the layout in Fig 4.

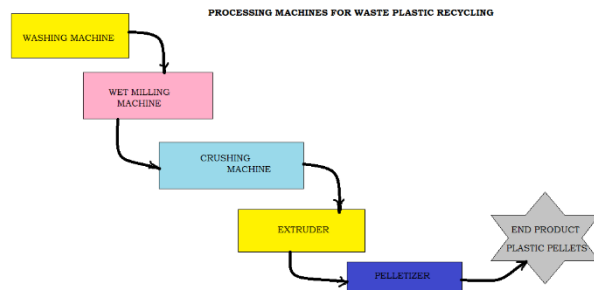


Fig 4: LayOut Of Waste Plastic Processing Machines

Metal scraps

Metal scraps are so ubiquitous as the plastics and their allied. However, over the years there has been low patronage on scavenging for metal scraps and worn out parts of machines and motor vehicles. This is gaining recognition as the cost of extraction from their ore is exorbitant and the delay in the production processes. Most rolling mills are going into recycling of metal scraps and recycled them for production. This is sure process of removing these environmental hazards causing agent from the environment to reduce the risk of diseases, and enhance land reclamation from dumps. Like the plastics and rubbers, metal scraps can be recycled and sold in billets to rolling mills and foundry manufacturing companies and individuals. This is a means where by a great deal of employment will be created and enhance other related businesses in the nation. Iron and steel scraps are recycled to cast iron, and aluminum scraps to aluminum .so it is for lead, copper, brass etc.

Incineration and Its Innovation

Global warming is threatening the earth and the entire ecosystem. This has been attributed to carbonization. The release of carbon dioxide into the atmosphere can be reduced if incineration process is made smokeless. This is the process of cleaning the exhaust air of carbon dioxide, carbons and allows clean air to go into the atmosphere. The accumulation of wastes in everyday life is fast growing more attention is needed to add value to these wastes and the whole processes-recycling and

incineration (burning). Generating heat energy to heat homes and generate electricity is good technology to be derived from the combustion or incineration of these wastes. This will help in the area of power generation and eating of water for domestic use. Therefore incineration will give drastic reduction to wastes growth and provide numerous jobs for the citizen of the nation .from scavenging or collection,sorting,drying ,incineration ,power generation and distribution and marketing.

Waste Disposal

Waste generation becomes inevitable for man and his activities. In our everyday life, we generate wastes and these must be properly disposed. Our reckless disposition of wastes results to having offensive environment and habitation threatened with pollution, diseases and floods as our water ways are blocked. Effective wastes disposal can be achieved through

- Proper waste disposal culture
- Policy formulation on wastes management
- Creating effective law and enforcement on wastes management
- Design effective process for waste treatment and disposal.
- Encouraging local manufacturing and discouraging importation of old abandoned goods
- Encourage research on wastes utility for power generation
- Promote recycling research and technology
- Create value and markets for wastes
- Researching on biodegradable materials for packaging and carriers of material should not be undermined
- Campaigns by government, NGOs on proper wastes disposals.
- Our attitude towards living contributes to a great extent what affects us as inhabitants of planet earth. Proper waste disposal will constitute sorting the wastes into biodegradables and non bio degradable .this will make work easier for the waste management personnel.Nigeriansb should cultivate the attitude of proper waste disposals by having at least two bins to stock these two categories of

wastes. Policy formulation, making and enforcing of law on waste disposal will go a long way to cultivating a culture of proper waste disposal and making the waste management boards effective. Researching on waste management, recycling, and technology that can enhance effective waste management will help to eradicate waste despite population increase, increased demand, and economic growth to a barest minimum level that ecological well-being will be appreciated. In waste disposal processes, machines or technology cannot do it alone. Hence, creating jobs and business out of these wastes, giving added values to waste will make waste disposal lucrative and effective. Campaigns by government and NGOs on proper waste disposal will help to sensitize market women and men on the adverse effects of waste on environment and the people as well as educating the citizens on the best ways for waste management and disposal. For the nation to be able to control its wastes and reduce spending on disease outbreak from the environment, and disaster caused by flood, we must cultivate an attitude of proper waste disposal and cleanliness as a nation.

VI. CONCLUSION

Man is part and parcel of nature and nature is part and parcel of him. Activities of man for his comfort and advancement bring about waste creation. As the taste increases, the socioeconomic activities increase, hence, demand grows. Population and economic growth also necessitates the growth of waste generation. This will be on the increase for the world especially the developing nations like Nigeria. This can be curbed by proper waste management, control, recycling, domestication, policy making and enforcement of law on waste disposal, research on biodegradable packaging and carriers as well as disposables, research ways to add values to waste through power generation, smokeless incineration, heating of homes, design and development of waste choppers and cultivating waste disposal attitude.

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