

Market Based Mechanisms: Panacea for Plastic Pollution Control in Bayelsa State

Onyinye I. Ochuba¹, Prof. Good Wilson²

¹*Department of Economics, University of Africa, Toru-Orua, Bayelsa State, Nigeria*

²*Department of Economics, Ignatius Ajuru University of Education, Rumuolumeni, Port Harcourt, Rivers State, Nigeria*

Abstract: - The world generally has been bedevilled by pollution of all sorts ranging from water, air, soil, noise with the latest addition of plastic pollution. Plastic pollution is the aftermath of high usage and indiscriminate disposal of plastic waste. These wastes cannot be assimilated by the environment due to their non-degradable nature. This has resulted in both soil and water bodies being littered with plastics. This exploratory study seeks to find solution to the observed high rate of plastic usage and its indiscriminate disposal using market mechanism inform of Pigovian corrective tax. The study area is Yenagoa Bayelsa State and purposive sampling technique was deployed to elicit the view of plastic users, manufacturers as well as waste managers. Our findings revealed that these stakeholders in plastic industry are very reluctant to accepting corrective plastic tax as a way of reducing the menace of plastic pollution. Rather they are all open to a viable replacement for plastics.

Keywords: Pigovian, Non-Degradable, Biodegradable, Sink function, Externality.

JEL Classification Code: H23

I. INTRODUCTION

Pollution as defined by (Hussen, 2004) is the residuals (low entropic matter) of economic process. It therefore implies that pollution is an inevitable by-product of economic activities. The word pollution emanates from the Latin word *pollutus* which means foul, unclean or dirty. One of the key functions performed by natural system is the sink function. Sink function is the ability of the environment to absorb waste. When these wastes become too much or are such that the natural system lacks capacity to absorb them, they give rise to pollution. Pollution therefore is anything that has the capacity of altering the original setting or atmosphere of an environment, thereby beating its assimilative capacity or depleting its ability to perform the sink function. (Cunningham, Cunningham, & Saigo, 2003)

There are several types of pollution chief among which are air pollution, water pollution, and noise pollution etc. According to (Lynn, Rech, & Samwel, 2016), the late 1950s saw increase in production of plastic as a result of several benefits from it which include being portable to carry, durable, economical both to produce and use, being fanciful etc. Plastic pollution has joined the list of pollutants and by extension pollution. According to (Wikipedia, 2019), 'plastic pollution is the accumulation of plastic objects e.g plastic bottles, bags, plates, spoons etc in the earth's environment that adversely affect wildlife, wildlife habitat and humans'. Plastic pollution

happens every second around us as manufacturers are quickly switching from ceramics and paper packages to plastic packaging. We see virtually everything ranging from water to food, drugs anything you can think of coming with one form of plastic or the other. In Nigeria today, we hear of plastic rice that are meant to replace organic rice. It is plastic, plastic and plastic everywhere. The trend is not peculiar to Nigeria alone. Globally, concerns are being raised on the prevalence of plastic in our environment. This informed the choice of the caption 'Beat Plastic Pollution' as the theme for world environment day 2018. (Oladele M. C., 2018)

Plastic pollution has been accused of being partly responsible for some of the natural disasters especially flooding that has befallen Nigeria in the recent past. (Oladele M. C., 2018) reported in Punch newspaper of Aug 11, 2018 indicates that the flooding which claimed the lives of over 40 persons in Jibiya Local Government Area of Katsina State on July 15, 2018 was attributed to building of houses on water ways and blockage of drains by wastes especially plastic wastes. Cities like Lagos, Aba, Onitsha, and Port Harcourt which harbour heavy economic activities which inevitably give rise to high production, use and indiscriminate disposal of wastes especially plastic wastes have had their own share of the sorry tales.

Elsewhere in China and Australia, the cry has been so much on the impact of plastic pollution on aquatic lives as reflected in ocean pollution. In a research conducted by Ocean and atmosphere business unit of common wealth scientific and industrial research organisation, they observed a worrisome trend, that by 2050, 99% of seabirds will have plastic ingestion if effective waste management is not deployed. Plastic pollution has also been found to aid the emission of Carbon dioxide (CO₂). In a study in China by (Chen & Shinichihiro, 2018) , it was observed that in a bid to get rid of plastics, individuals and organisations embark on burning of used plastics. This results in the emission of CO₂ which in itself is a cumulative pollutant.

Most of the studies on plastic pollution have centred on its effects in causing flooding, land and environmental degradation, ocean and aquatic lives contamination as well as containment methods such as incineration with or without energy, using plastics as landfill and most importantly recycling.

However, little or no attention has been paid to possible use of market mechanisms to discourage the production and use of plastic which has become an externality.

This study therefore intends to explore the possibility of deploying such market based mechanisms as taxes and permit as corrective measure for the containment of the production and use of plastics which will ultimately result in reduction if not complete eradication of plastic pollution.

This paper specifically in Yenagoa, Bayelsa State seeks to provide answers to the following questions:

- i. Will plastic users be willing to pay higher prices to continue the usage of plastic products in Yenagoa?
- ii. Can disposal of plastic waste be charged differently from other Biodegradable waste products in Yenagoa?
- iii. Will plastic producers be willing to pay for production permit to ensure they remain in the business of plastic production in Yenagoa?

This work is significant in the following ways: first, findings from this research will aid the government especially Ministry of Environment and State Environmental Sanitation Authorities in making effective policy for the containment of plastic pollution. Second, it will also be very beneficial to fiscal policy makers as plastic tax and permit might be new sources of additional revenue to the government whilst ensuring that the damage currently being done to the environment by plastics are drastically reduced. Finally, this study will engineer research on viable alternatives in more environmental/biodegradable products as possible replacements for plastics.

The rest of the study is structured into five sections as follows: Section one is introduction. The second section is the review of relevant concepts and literature. Section three presents the methodology. Section four presents and analyses the data, while section five takes care of conclusion and recommendation.

II. LITERATURE REVIEW

2.1. Conceptual and theoretical Issues

Plastic Pollution

Plastic pollution as defined by (Charles, 2019) is the accumulation in the environment of synthetic plastic products to the points where they create problems for wild life and their habitats as well as human population. Since the first production of plastic in 1907 by Bakelite, the world has experienced massive increase in the production of plastics. According to data made available by (UNEnvironment, 2018) current annual plastic production has reached an all-time high of 300 million tonnes which is approximately the weight of the entire human population. More worrisome is the fact that productions of plastics has shifted from more durable plastic to the production of single use and dispose plastics.

Plastic Production as defined by (Rogers, 2015) involves the process of distilling petroleum using combination of specific catalysts. This can be achieved through polymerization or polycondensation. Significant portion of plastics are produced from chemicals derived from oil, natural gas and coal all of which are dirty and non-renewable resources. There are various types of plastics. The table below shows the types of plastics, the annual volume of production and whether or not they can be recycled.

S/N	Plastic Type	Example	Annual Volume of Production in tonnes	Recyclability
1.	Low Density Polythylene (LDPE)	Plastic Trays	64,000,000	Non-recyclable
2.	Polypropylene (PP)	Bottle Caps	55,000,000	Sometimes recyclable
3.	High Density Polyethylene (HDPE)	Shampoo bottle	40,000,000	Highly recyclable
4.	Polyethylene Terephthalate (PET)	Water Bottles	32,000,000	Highly recyclable
5.	Polystyrene (PS)	Cutleries	17,000,000	Non-recyclable
6.	Polyurethanes (PUT)		16,000,000	Non-recyclable
7.	Polyvinyl Chloride (PVC)	Ceiling	15,000,000	Sometimes recyclable
8.	Expanded Polystyrene (EPS)	Protective Packaging	11,000,000	Non-recyclable.

Source: (Hannah & Max, 2018)

Market Based Mechanism for Pollution Control

Pollution as indicated by (Hussen, 2004) is by product of economic activities. However, if the activities that create pollution are left unchecked, the environment and its occupants will suffer immensely. Market based mechanism for pollution control involves the use of such instruments as subsidies, taxes and permits as incentives or deterrents to control the amount of pollution economic agents emit. (Dahlberg, 1989). Subsidy reforms are employed to encourage economic activities which do not generate pollution. Taxes on the other hand when deployed serve to increase prices to reflect social cost. This social cost reflects the negative externalities which pollution represents. Permits which can be tradeable or non-tradeable is engaged with the aim of limiting pollution to an optimal level. Tradeable permits are those permits which can be sold by the initial purchasing organisation in the event that they did not or are not able to exhaust the entire quantity purchased. It is also known as transferable permit. The non-tradable permit is one that cannot be resold once purchased. It is not transferable.

These market based mechanisms came to replace or compliment the control and command approach. The control and command approach involves the government imposing quantitative limits on the amount of pollution firms are allowed to generate or requiring firms to install specific

pollution control devices. (Dahlberg, 1989). Market based mechanism has the advantage of capitalising on the power of the market place to reduce pollution effectively and also use economic incentives to promote conservation and the development of innovation technology. This study intends to employ the use of corrective taxes on plastic producers and consumers.

2.2. Theoretical Literature

Externalities and Corrective Taxes Theory

The issue of externalities is well known in welfare and public sector economics. (Agiobenebo, Onuchuku, & Ajie, 2003) has it that externalities are said to exist when the activity of an agent affects the utility or production possibilities of another agent without being priced. When the activity of one agent gives rise to an unpriced effect on the consumption and/or production possibilities of other parties, an externality is said to have occurred. The agent creating the externality is referred to as the emitter/emitting party or the polluter, while the receiver that is the party receiving the externality is the receiving agent. Externality can be beneficial or detrimental. Beneficial externality is one in which the receiving agent gains from the unpriced activity of the emitter. Detrimental externality on the other hand is where the receiving agent suffers due to the activity of the emitter. Relating this to plastic pollution, the emitters are the producers of plastic and the users, while the receiving agent is the entire locality that is being ravaged by plastic pollution arising from improper disposal of used plastic products.

Acknowledging the damaging effects of detrimental/negative externalities, back in the early twenty century economists such as Mill, Pigou came up with possible corrective measure for this externality. This effort culminated into the Pigovian Prescription where they prescribed imposing corrective taxes on emitting agents or the polluters and granting subsidy to the receiving agents. They advocated that taxes should be levied on emitting agents in order to internalise the externality. According to them, the imposition of the tax leads to reduction in the level of output produced and the attendant reduction in the level of producer's surplus, while government increases its revenue by the amount of tax imposed.

The Pigovian corrective tax has however been criticised as having the tendency of discouraging production. This is especially prominent for goods that have close substitutes and are highly elastic. Proponents of the Pigovian thought line however argue that this tax should be imposed on the producing unit of the production chain rather than on the output itself. But in real sense, there can hardly be a distinction between producing unit and the actual produce.

Relating this theory to plastic pollution, one can conveniently say that corrective tax on plastic might be productive given that plastic for now do not seem to have a viable substitute as they have readily replaced competing elements; thus imposition of corrective taxes can be easily passed on to the

final consumers given that it exhibits inelastic demand. (Jan, 2002). It is now left for the consumer to decide whether to continue the use of plastics or to switch to any cheaper alternative.

2.3. Empirical Literature

In this section, some works which have been done on plastic pollution and pollution taxes are examined. (Barness, 2019) examined the role of economic development and technological research in understanding plastic pollution. This study which took place in the United States of America modelled the relationship between mismanaged plastic waste and income per capita for 151 countries. It employed the environmental Kuznets curve using plastic pollution data. They found that a major instrument for reducing plastic pollution is investment in scientific and technological research.

(Chen & Shinichiro, 2018) Examined the approaches to solving China's marine plastic pollution and CO₂ emission problem. They made use of water input-output and linear programming to investigate the options for reducing CO₂ emission considering alternative waste treatment or recycling process as obtainable in China. They observed that out of nine processes considered, four could result in reduction in net emission.

(Lynn, Rech, & Samwel, 2016); examined the link between gender and plastic consumption and production with focus on the impact of the chemical used in plastic production on human health. They found that (i) about 40% of global plastic production is done by packaging industries; households use about 20% for consumer products. (ii) Women buy more plastic related products than men. (iii) Two third of global plastic consumption took place in wealthiest regions of North America Free Trade Agreement (NAFTA), Western Europe and Japan. (iv) That plastic consumption in less wealthy regions is less, but they produce more litters due to poor collection and processing infrastructure.

Elsewhere, (Wilcox, Seville, & Hardesty, 2015) undertook an investigation into the threat of plastic pollution to seabirds. They utilized data from 80 studies of seabird species that have ingested plastic which was undertaken between 1962 and 2012. Using risk modelling captured 71% of variation in plastic ingestion based on the model including exposure, time, study method and body size. They predicted that plastic ingestion is increasing in seabirds and that it will reach 99% of all species by 2050. They stated that the only way to avert this danger is by effective waste management.

(PlasticsEurope, 2015) In their work; an analysis of European latest plastic production, Demand and waste Data observed that plastic production is rapidly increasing with a current doubling time of 11years. He estimated that between 2015 and 2026, there will be as much plastic as has been made since production began.

(Millock & Nauges, 2003) investigated the impact and effectiveness of French tax on air pollution from 1990- 1999. The Pollutants covered by the tax included: sulphur dioxide (SO₂), Nitrogen Oxides (NO_x), Hydrochloric acid (HCl) and Volatile Organic Compounds (VOC). Using plant-level database, they found a negative significant effect of the tax on emission of these pollutants. This they attributed to the small abatement elasticity with regard to tax.

From the foregoing, studies have been undertaken on the upsurge in plastic pollution, its effects and the aftermath of some containment methods. Also the use of tax for pollution control has been studied. The tax study however was on air pollution. No study has dealt directly with the possibility of using taxes to discourage the production and consumption of plastic which is the crux of this study.

III. METHODOLOGY

This study is of the exploratory research design. In the words of (Kothari & Gaurav, 2014), ‘the main purpose of exploratory research study is that of formulating a problem for more precised investigation or development of working questions from an operational point of view’. According to them, the major aim is to uncover new ideas and gain insight, and to achieve, the study must have inbuilt flexibility so that different aspects of the problem under study can be considered adequately.

The study area is Yenagoa, the capital of Bayelsa State. The choice of Yenagoa is informed by its terrain that is prone to flooding almost annually. The study population comprised of market women, shop owners, food vendors who make use of disposable plates and spoons, individuals who go to dump waste at designated dumpsites, private waste managers who are paid to evacuate waste from houses, government contractors who pack waste at various waste dump sites and plastic producers who produce polythene bags, sachet and bottle water.

Purposive sampling technique was used in this investigation. Purposive sampling is a non-probability sampling method which occurs when elements for the sample are chosen by the judgement of the researcher. (Saunders, Lewis, & Thornhill, 2012). Here we deliberately targeted plastic users, waste managers and plastic producers as our sample. We visited the various markets in Yenagoa on the market days. We visited swali market on Monday where we got 10 respondents. We went to Kpansia market on Saturday and Opolo market on Friday where we got 10 respondents each from both markets. Refuse dump time in Yenagoa is from 6pm to 6am. So we visited various dump sites between the hours of 6pm and 8pm to get the views of individual waste disposers. We stayed at the dump sites every day except Mondays and Wednesdays for two weeks. For the local food vendors, we visited Ekeki Motor Park in the mornings for two days where we got the views of food vendors. We interacted with various food vendors especially those that are mobile, selling from wheel barrow and pushing trucks. This we did for two weeks except

for Sundays, Mondays and Wednesday. For the waste Managers and water producers, we visited their offices.

At the end of the exercise, we administered a total of 100 questionnaires, out of which 96 were returned. The four unaccounted for were the ones given to mobile food vendors. We were unable to meet them after they left the spot we first meet them.

Our analysis therefore is based on 86 returned Market Mechanism Panacea for Plastic Pollution Questionnaire (MMPPPQ) for plastic users, 5 returned MMPPPQ for waste Managers and 5 returned MMPPPQ for plastic producers.

Response from MMPPPQ for plastic users provided answer to our research question 1. Answers from MMPPPQ for waste Managers provides solution to research question 2 while an input from MMPPPQ for plastic producers provides answer to research question 3.

Simple Percentage (%) and Frequency is employed to analyse the research questions. Also descriptive statistics (bar chart) was also employed to illustrate the findings of the answers to the research questions.

IV. DATA PRESENTATION AND ANALYSIS

The data collected from the field are presented and analysed in this section. The presentation and analysis of data follow the order of the research questions.

4.1 Research Question (i): Will plastic users be willing to pay higher prices to continue the usage of plastic products in Yenagoa?

Table 1. Age Distribution of the Plastic Users in Yenagoa

Age	18 – 30	31- 40	41 – 50	51 – 60	60 and above	Total
Respondents	24	37	18	5	2	86
Percentage (%) of Respondents	27.9%	43%	20.9%	5.8%	2.3%	100

Source: (Field Survey, 2019)

Table 1 presents the age distribution of plastic users in Yenagoa. From table 1, plastic users are concentrated within the age brackets 18 – 30 (27.9%), 31 – 40 (43%) and 41 – 50 (20.9%) The least concentrated are plastic users between the age bracket 61 and above (2.3%)

Table 2. Gender Distribution of the Respondents (Plastic Users in Yenagoa)

Gender	Male	Female	Total
Respondents	23	63	86
Percentage (%) of Respondents	26.7	73.3	100

Source: (Field Survey, 2019)

Table 2 presents gender distribution of plastic users in Yenagoa. From table 2, more women 63 or 73.3% of the respondents as against 23 or 27.6% of the respondents who were men.

Table 3. Educational Level of Respondents (Plastic Users in Yenagoa)

Educational Level	No Education	Primary Education	Secondary Education	Tertiary Education	Total
Respondents	12	20	33	21	86
Percentage (%) of Respondents	14	23.3	38.4	24.4	100

Source: (Field Survey, 2019)

Table 3 presents the educational level of plastic users in Yenagoa. 12 respondents representing 14% of the respondents are without any formal education. 20 respondents representing 23.3% of the respondents have primary education. 33 respondents representing 38.4% of the respondents have secondary education, while 21 respondents representing 24.4% have tertiary education.

Table 4. Various Purpose of Plastic Demand in Yenagoa

Purpose	Sale of Products	Stock of Trade	End User
Respondents	67	6	86
Percentage (%) of Respondents	78	7	100

Source: (Field Survey, 2019)

Table 4 presents the various purposes for which plastic is demanded. It shows that 67 respondents representing 78% of the respondents use plastic for sales of their products mostly for packaging. 6 of the respondents representing 7% of the respondents deal on plastic as their stock in trade. All the 86 respondents representing 100% of the respondents use one form of plastic or the other as end users.

Table 5. Willingness of Plastic Users to Pay Higher Price for Plastics, Pay Plastic Tax and Readiness to Switch to Substitute

Willingness to pay higher for plastic	Yes	No	Total
No. of Respondents	13	73	86
Percentage of Respondents	15.1	8.9	100

Source: (Field Survey, 2019)

Table 5 presents the willingness of the respondents to pay higher prices for plastic, pay plastic tax and willingness to switch to substitute. It shows that only 13 respondents representing 15.1% of all the respondents are willing to pay higher prices in order to continue using plastics. 73 respondents representing a larger percent of 84.9% of the entire respondents expressed unwillingness to pay higher prices for plastic.

Table 6: Willingness to Pay Plastic Tax

Willingness to pay plastic Tax	Yes	No	Total
No. of Respondents	16	70	86
Percentage of Respondents	18.6	81.4	100

Source: (Field Survey, 2019)

In table 6, 16 respondents representing 18.6% of the respondents are willing to pay plastic tax, while 70 respondents representing 81.4% of the respondents are not willing to pay plastic tax.

Table 7: Readiness to switch to Substitute

Readiness to switch to substitute	Yes	No	Total
No. of Respondents	83	3	86
Percentage of Respondents	96.5	3.5	100

Source: (Field Survey, 2019)

Table 7 indicates that 83 respondents representing 96.5% of the respondents are willing to switch to substitute should there be any, while 3 respondents representing 3.5% of the respondents expressed unwillingness to switch to alternative.

Table 8. Gender Distribution of Waste Managers in Yenagoa

Gender	Male	Female	Total
No of Respondents	4	1	5
Percentage of Respondents	75	25	100

Source: (Field Survey, 2019)

Table 6 presents the gender distribution of waste managers in Yenagoa. Only 1 female representing 25% of the respondents is female. 4 respondents representing 75% of our respondents are male.

Table 9. Length of Stay in Business of the Waste Managers

Length of stay in business (Years)	0 – 5	6 – 10	10 and above	Total
No. of Respondents	3	2	0	5
Percentage of Respondents	60	40	0	100

Source: (Field Survey, 2019)

Table 7 shows how long our respondents have been in business the business of waste management. 3 respondents representing 60% have stayed up to 5 years in business. 2 respondents representing 40% of the have stayed between 6-10 years while non has exceeded 10 years.

Table 10. Waste Managers view of Plastic Pollution as an Environmental Emergency.

Plastic Pollution as an Environmental Emergency	Yes	No	Total
No. of Respondents	4	1	5
Percentage of Respondents	80	20	100

Source: (Field Survey, 2019)

Table 10 shows that 4 of the plastic producer respondents representing 80% believes that plastic pollution is an environmental emergency, while 1 respondent representing

20% does not see plastic pollution as an environmental emergency.

Table 11. Length of Stay in Business of Plastic Producers in Yenagoa

Length of stay in Business (Years)	0 – 5	6 – 10	10 and above	Total
No of Respondents	1	4	0	5
Percentage of Respondents	20	80	0	100

Source: (Field Survey, 2019)

Table 11 shows how long the plastic producers have stayed in business. 1 respondent representing 20% of the respondents is between 0 – 5 years, while 4 respondents are 6 – 10 years in business. None of the respondents is above 10 years old in business.

Table 12. Plastic Producers Views of Plastic as Threat to the Environment and Their Willingness to Pay Corrective Tax on their Manufactured Plastic

Plastic as threat to the environment	Yes	No
Frequency	5	0
Readiness to Pay corrective Tax		
Frequency	0	5

Source: (Field Survey, 2019)

Table 12 shows that all the plastic producers admitted that plastic pollution is a threat to the environment, but none of them expressed readiness to pay corrective tax.

Discussion of Findings

Results of our finding reveal that the concentration of plastic users is between the ages of 18 to 60. Ages 61 and above use fewer plastics. This will not be unconnected with reduction in general activities of this age bracket. We also found that the few people who engage in the business of plastic production and waste management are within the age bracket of 41 and 60. This leaves the big issue of their level of commitment towards ensuring sustainability of our environment.

The study found that over 70% of plastic users are female, while less than 30% are male. This goes to confirm an earlier study by (Lynn, Rech, & Samwel, 2016) in which they found that women buy more plastics than men. We want to agree with their submission that this can be traced to the fact that women buy more of everyday consumables than men who buy bulky goods like cars, electronics etc. In our case also, the gender disparity is as a result of the obvious which is that most of the users use them as their line of business example food vendors and the regular market women. On the level of education, we found an even distributed as both uneducated and the educated use plastics. Level of education did not affect plastic usage.

This investigation also revealed that all the age brackets and gender use plastics as end users. 7% deal on plastics as stock of trade while 78% use plastics as business facilitators in this

case either to wrap products or for immediate packaging. We found that most of the wastes Managers are less than 10 years in the trade. The same statistics repeated itself among the Plastic Producers. Wastes Managers statistics can be related to when importance on proper management started gaining societal importance and when we in this part of the world began to realise that wastes can actually become wealth and that waste management is not supposed to be left to government alone. For the plastic Producers, this study centred on water producers who produce both sachet and bottle water.

On the central theme of this study which is the possibility of adopting corrective tax to discourage the production and subsequent consumption of plastics as a way of reducing its effects on the environment, we discovered the regular apathy towards tax as over 80% of plastic users as well as the entire producers and waste managers did not accept that they will pay corrective plastic tax. This suggests that there will be high case of tax evasion should the government decide to adopt this strategy. The aim might not be achieved because the producers and the consumers alike are not willing to pay. Transmitting same into higher prices is equally evasive as almost the same percentage expressed unwillingness to pay higher prices. Rather than pay taxes, over 90% of plastic producers/users and waste managers declared readiness to switch to alternative. This poses a fresh challenge to research and developments (R&D) as well as top industry players to invest in the search for possible replacement for plastics as consumers are willing to switch over upon any discovery.

V. CONCLUSION AND RECOMMENDATIONS

- ❖ We suggest that government as well as private investors should invest in R&D in order to develop a possible alternative for plastics or a hybrid plastic that will be more environment friendly. That is a form of plastic that will not task the ability of the environment to perform its sink function greatly. That way, our environment will become more sustainable even in the face of increasing plastic usage.
- ❖ Government should consider proper enlightenment of the masses on the need to adopt corrective plastic tax. And upon introduction, should channel proceeds from this tax to provision of amenities that will engender proper disposal of plastic waste to avoid the indiscriminate disposal we currently witness.
- ❖ There should be massive campaign against plastic abuse by all. Just like the mandatory counter advert on tobacco ‘Tobacco smokers are liable to die young’, similar counter advert should be placed on plastic products, stressing its negative impact on the sustainability of our environment.
- ❖ Government should make it mandatory for plastic producers to be responsible for management of plastic wastes. If this is done, you are likely to see increased campaign on recycling of plastics by luring

plastic users to dump plastic waste separately for a reward or a coupon as is the practice in most advanced countries. This will reduce the spate of indiscriminate disposal of plastic wastes.

- ❖ More private investors should join the waste to wealth program where people are already getting enriched by simply investing in technology that converts plastic wastes to valuable commodities.
- ❖ On a drastic note, more governments should join the Taraba State government to ban the use of plastic bags. On the 20th of May, 2019, the incumbent governor of Taraba State, Governor Ishaku banned the use of plastic bags also known as polythene bags in the state. This according to him is to boost sanitation within the state. But before this measure, it is pertinent to create a viable alternative to plastic bags and plastics generally.

This study has extensively dealt with plastic pollution and containment using the pigovian corrective tax. Findings reveal unwillingness to pay corrective taxes and the possible increased price. The dial therefore favours more investment in R&D towards finding a viable alternative in a biodegradable product or making plastics biodegradable themselves.

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