



# Poor plastic waste management in Accra, Ghana

AFRICAN TRANSFORMERS

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# INTRODUCTION

In recent years, nations have been looking at more sustainable ways of living and how to save our planet from the dangers of human activity, which dates to generations before us. One of the materials that have proven to be a call for concern and a threat to the environment are plastics. While this may be a global concern, the use of plastics in Ghana cuts across various industries since plastics are an integral part of the buying and selling process. Plastic packaging constitutes about 26% of the total volume of all plastics used (Drzyzga & Prieto, 2018). It is a much-preferred choice by both producers and consumers due to its light-weight nature and ability to store food and prevent it from contamination. With such high demand, Ghana currently imports about 10,000 metric tonnes of plastic annually (Agbai, 2018). Since most of these plastics are non-biodegradable, they become waste. In Accra alone, about 300 tonnes of plastic waste is generated daily at a rate of 0.016 to 0.035 kg/person/day (Kortei & Quansah, 2016).

As a group of students based in Accra, we continually experience the effects of the increase in plastic waste and the improper plastic management techniques practised within our vicinity. So, we researched to understand the problem better and to explore solutions, and opportunities to fill the gaps that exist within the plastic waste management sector. The lessons we have gained on this journey have helped us articulate levers of change for the gaps we have identified in our study of various stakeholders within the plastic waste management chain.

# **PROBLEM LANDSCAPE**

## **Effects**

### **1. Environmental**

The improper disposal of plastic waste has resulted in several environmental hazards within Accra. Based on our research, we realized that the effects of this are notable on sea, land and air.

Accra is a coastal city, and so most communities within Accra are situated close to the sea or a water body of some sort. As a result of improper waste disposal, the plastic waste from these communities ends up in water bodies. The United Nations Environment Programme estimates there could be as many as 51 trillion microplastic particles in the oceans already and about 12.7 million tons of plastic waste are washed into the ocean every year (Mambra, 2020). With such a large amount of plastics in the ocean, marine species are at danger of ingestion, suffocation and entanglement. Studies show that Plastic waste kills up to a million seabirds a year. As with sea turtles, when seabirds ingest plastic, it takes up room in their stomachs, sometimes causing starvation. Scientists estimate that 60 percent of all seabird species have eaten pieces of plastic, a figure they predict will rise to 99 percent by 2050 (Reddy, 2018).

A notable example of the effects of improper disposal of waste on land is the choking of gutters. Within Accra alone, the attention of the Environmental Service Providers Association (ESPA) was drawn to a site known as the Asylum Down gutter. This site is noted among others to cause surface floods during the rainy seasons such as the outbreak of the famous floods of June 3, 2015, in Ghana (Acquah, 2020). This event, as well as an explosion of the Ghana Oil Company service station, resulted in the death of 152 people and the destruction of properties estimated to be worth US\$23,000, (Impact

analysis of flood in Accra, Ghana, n.d.). Roads are also affected as they get blocked by floods, making it difficult for drivers and even this also has resulted in several road accidents.

Another way by which people prefer to dispose of plastic in Accra is by burning with fuels such as petrol and kerosene. According to the American Chemistry Council, plastics are made of hydrocarbons and the burning of plastics cause air pollution due to the production of chlorine and dioxins that lead to the global warming thus resulting in climate change (Asante & Amuakwa-Mensah, 2015). With such practices still ongoing, we have realized that the improper disposal of plastics is causing harm to the environment.

## 2. Social-Health

With large amounts of plastic waste continuously being deposited in water bodies, the sources of drinkable water are becoming fewer as the years go by. The chocking of gutters is also causing stagnant water which is a breeding habitat for disease-causing organisms such as mosquitos. According to the Ghana Health Service, Ghana recorded its worst outbreak of cholera in 2014. The poor sanitation in these communities is said to have significantly increased the spread of the disease. Eight out of its ten regions were affected and a total of 28, 000 cases and 243 deaths recorded (2014 family health annual report, n.d.).

The disposal of plastic waste in water bodies has also affected fishing activities. There are families in Accra whose income comes from fishing. According to the (Konadu-Agyeman, n.d.), fishermen in La, James Town and Korle Gonno are landing the big catch of plastics with their fishing nets, locally known in Ga as 'Tsaani'. Also, the burning of plastic causes heart disease due to the release of harmful particles such as carbon monoxide. In 2016, the mortality rate recorded was 203 for every 100,000 people (Air Pollution in Ghana, n.d.).

### 3. Economic

To reduce the problem of improper waste disposal and its effects, the government of Ghana has engaged in various measures. In 2019, the Government of Ghana paid an estimated \$200 million of debt to waste management contractors (Ekuful, 2019). Besides, the improper disposal of plastic waste has created multiple dump sites occupying large areas of land and reducing the beauty of Accra. The city is known to host various tourist attractions such as the Kwame Nkrumah Museum, and tourism serves as a source of income to the nation. So, the improper disposal of waste has negatively affected tourist sites such as James town (Knott, 2018). Hence, reducing the nation's income from tourism.

Also, the use and disposal of non-biodegradable plastics result in the formation of harmful particles in the soil which intend affects farming. Agriculture contributes to 54% of Ghana's GDP, about 40% of export earnings, and over 90% of the food needs of the country (SRID, 2001). So, improper plastic waste management does not only to affect soil quality but indirectly, the economy of Ghana too.

## Causes

### People's Mindset and Attitude

Based on our research and analysis, we found out that the people's mindset and negative attitude towards plastic waste management have contributed the most to its persistence, and this forms the root of all other causes of the problem. The magnitude of the matter was highlighted in one of our interviews with a market vendor in Accra who said "Plastic does not harm me in any way, it doesn't cut and it does not smell like cow dunk or feces" (Fifi, personal interview, Jan 2020). Since plastic waste management is not integrated into the learning curriculum for schools, people become ignorant. They tend not to respond actively to issues regarding the effects of plastics on the environment, and there is little motivation towards environmental care. Besides, not every youth gets the chance

to go to school, and those people are not considered when environmental sustainability education schemes come up. There are not many alternative schemes to educate people about plastic waste management.

## Governmental Policies and Regulations

The policies set by the Government of Ghana regarding plastic waste disposal are implemented poorly (MLGRD & EHSD, 2015). This has affected the functioning of environmental agencies, and most of the active waste management companies such as the private-owned companies Jeroka Venture and Accra Solid and Liquid Waste Limited (Sasa, 2018). Laws that also bind citizens to dispose of plastic waste in a controlled manner have not been enforced over the years. Consequently, citizens tend to litter with no fear of punishment or any consequences. Government is unable to ban the use of plastics due to the absence of policy (Nyabor, 2018).

In other countries like Zimbabwe and Rwanda, environmental agencies such as the Environment Management Agency (EMA), and City council see out the strategic placements of bins throughout the city. More importantly, they are responsible for enforcing government laws that prohibit people from dumping litter everywhere (Yooda, 2014). Such institutions are not fully functional in Ghana yet. As a result, there are inadequate disposal facilities across Accra.

## Poverty

Another branching force affecting people's mindset is poverty. In one of our interviews with Shamu, a sachet water vendor in Accra, he explained how he spends the whole day under the scorching sun selling sachet water only to get approximately 20 Ghana Cedis on each day (about \$4). He further explained how difficult conditions demotivate him from thinking about the environment. This is the case with most vendors in Accra, a city with a minimum daily wage of 9.6 Cedis (about \$2 a day), and a 2014 average annual

income per household of approximately 17,023.71 Cedis which is about \$5,100 (Knott, 2018).

## **Plastic production**

In Ghana, the large-scale production of plastic products such as plastic bags, plastic sachets, and lunch packs requires low start-up capital, laying a perfect platform for that industrial sector to boom (Stoler et.al, 2012). Consequently, Ghana has produced more than necessary plastic products. One vendor from Berekuso we interviewed indicated that she gives out plastic bags every time she sells anything just because she buys them at a meagre price (Chichi, personal interview, Feb 2020).

## **Urbanization and population growth**

The excess production of plastic in Ghana is also as a result of urbanization and population growth. Professor Alfred Oteng-Yeboah, Chair of the Ghana National Biodiversity Committee, recalls that ten years ago, food was packaged with leaves and women went to the market with woven baskets or cotton bags. Due to population growth and urbanization, these leaves have been replaced by plastics (Oppong-Ansah, 2018). The booming population has increased the demand for plastic products, increasing the chances of viability in that market. So, more people are using plastics, and since these plastics are not handled appropriately, they result in more plastic waste.

## **Plastic Imports**

Despite the high levels of production of plastic in Ghana, the country imports about 10,000 metric tonnes of plastic annually. Seventy-three percent effectively ends up as waste, while only about nineteen percent is reused, according to the country's Environmental Protection Agency (Kortei & Quansah, 2016). With such large amounts of plastic being imported and considering the production also, there is a lot of plastic circulating within the country.



# **SOLUTIONS LANDSCAPE**

## **A. EXISTING SOLUTIONS**

### **Itinerant waste buyers**

These are waste collectors that are engaged in the buying and marketing of sorted recyclable plastic waste. They collect recyclable material from door to door. They can be a branch of companies such as Bel Acquah, Voltic and other companies selling products in plastic packaging. In cases where they are individuals, they operate in marketplaces and other public places where plastic waste accumulates.

### **Municipal Waste Collectors such as Zoomlion Ghana Ltd.**

Zoomlion is the biggest municipal waste management in Ghana. It collects waste from designated areas in the various communities. Zoomlion' s mission includes public cleaning, solid waste collection and occasionally plastic recycling (ZoomLion, 2020). The solid waste is collected at the community level in bins and local disposing areas such as containers on dumpsites. Through this solid waste collection, Zoomlion reduces a significant part of plastic waste in Accra.

### **Clean up Campaigns**

They are so many clean up campaigns that run on periodic bases in Accra, to tackle the problem of plastic waste in Accra. Big organizations such as the European Union also get involved in these clean-up campaigns (European Union, 2017). These clean up campaigns are usually funded by companies, Churches, individuals and NGOs. The cleaning is mostly done in the busy markets of Accra such as Cantomanto, Kwame Nkrumah Circle and Madina.

## Small Scale Plastic Waste Collectors

Small-scale waste pickers are individuals that move around picking plastic waste which include polythene bags, sachet water empty packs, plastic bottles and similar recyclable plastic waste within small communities in Accra. Informal waste collectors are said to collect, sort and recycle up to 18% of the total municipal waste generated in small communities within Accra (Gugssa, 2012). For instance, in Cantomanto market which is located in Accra, these pickers go to places where the market vendors pile up their solid waste to manually sort out the plastics they need (WIEGO, 2019). They sell these plastics to recycling companies on a per kilogram rate. We visited one of the sites where they sell these plastic wastes at Kwame Nkrumah Circle. In our interview with Sabbogu, an informal waste collector, he stated that they sell 10kg of plastic waste for 30 Ghana Cedis (\$5.2) depending on the grade of the plastics. The plastics are graded based on how clean they are, and on their water content.

## Recycling Companies

There are several plastic waste recycling companies that are located in different parts of Accra. The companies at the frontline in managing plastic waste in Accra are, Neckoplastic, 3G plastic limited, GP Waste Recycle co.Ltd, Universal Royal Paper Limited, Polytex Ind.Ltd, Nelplast Ghana limited, Geocrest co.Ltd and Super paper product co.Ltd. These companies collect plastic waste from Zoomlion and small-scale pickers and carry out the recycling process (Sasa, 2019). Bela Aqua and Voltic, which are water supply companies, also play a pivotal role in reducing the plastic waste by recollecting their plastic water bottles for recycling. For instance, at our school campus, the cleaners pick up empty water bottles and sell them to these recycling companies at the community level on a per kilogram price.

## Non-Governmental Organizations.

Several non-governmental organizations hold sessions to educate residents in Accra on the importance of keeping the environment clean. They do this by conducting workshops in local vicinities to raise awareness of the alarming increase in the rate of plastic waste disposal. Friend of the Earth Ghana is one of the organizations that organize these campaign awareness programs in parts of Accra. It had a mission to conserve and make sustainable use of the world's natural resources to improve the economic and social well-being of present and future generations (Friends of the Earth Ghana, 2020).

## **B. GAPS AND LEVERS**

### Waste Collection Companies

**Gap:** Failure to segregate plastic waste from other solid waste after collection

Municipal waste collection companies are not so efficient in segregating the solid waste after collection. This then poses a significant challenge to recycling companies who end up not efficiently recycling the plastic waste and, in some cases, burn the plastic waste with other waste. We observed this when we visited one of the small recycling factories at Kwame Nkrumah Circle in Accra.

Also, there is a lack of consistency in waste collection services. The waste collection companies tend not to go round all communities periodically. So, the waste piles up over time until when next the waste collection companies come around.

### **Levers of change:**

Localized designated bins for plastic waste. This will enable plastic recycling companies to collect plastic waste easily.

Government and recycling companies alone cannot effectively fight the battle of plastic waste management. Success will require concerted and organized stakeholders' efforts

and responsibility, beginning with individuals, families, institutions of every type and level (educational structures and systems, especially). Therefore, they should encourage churches, companies, schools and stores to promote the culture of waste separation and proper plastic waste disposal among their members and by extension the broader public by sensitizing them and officially designating collection points and dates for collection (Agbai, 2018).

## **The Government**

### **Gap:**

No proper regulation on the operation of waste management agencies. Lack of implementation of plastic management policies.

In 2015, the government of Ghana tried to combat the plastic waste problem by banning light plastic materials with less than 20 microns (Akah et al., 2012). It was impressive and encouraging how the government realized the danger of plastic waste on the environment. However, the policy has not lived to serve its ultimate purpose as it does not cover all single-use plastics.

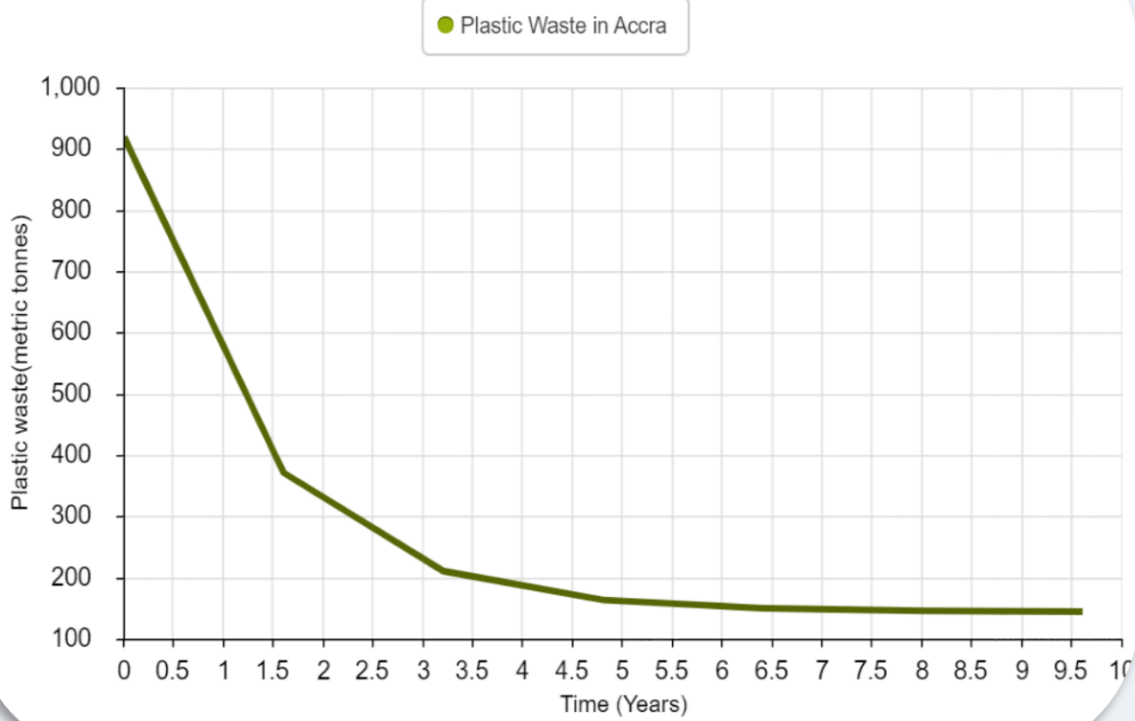
### **Levers of change:**

The government would benefit from tracking and supporting recycling companies that recycle waste such as Nelplast Ghana limited, which moulds pavement blocks from plastic (Oppong-Ansah, 2018). Annual plastic tax submission of reports on plastic management by companies that produce plastic waste would be a big step. Also, the government tighten on law enforcement and paying of fine for plastic polluters. It is imperative that the government also reduces the importation of waste managements implements to boost the local recycling sector (MARINE LITTER SOLUTIONS, 2017)

Plastic waste in Accra

New Display

New Display



Plastic waste in Accra

New Display

New Display

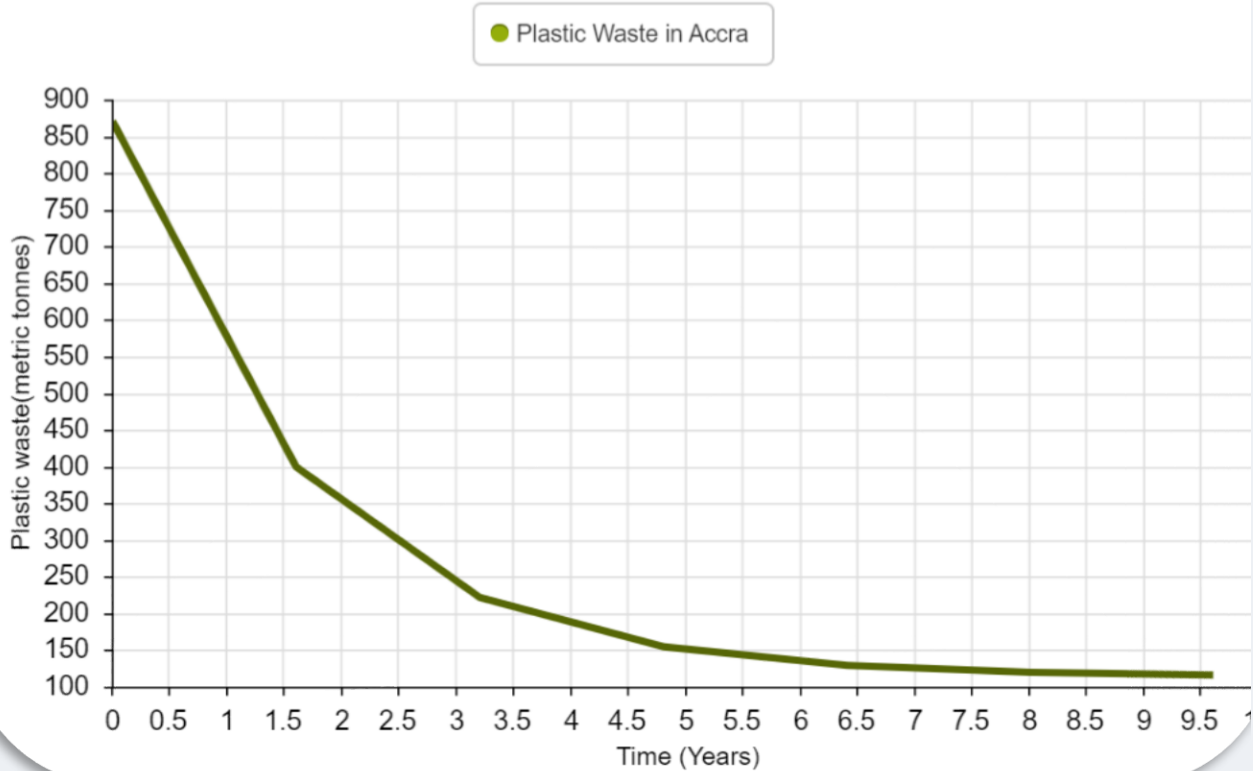


Figure 1 Tax increased by 0.05

Figure 2 Tax increased by 0.01

## Informal Waste Collectors

**Gap:** Lack of credibility, since high volumes of plastic waste are required as minimum selling quantity.

Informal waste collectors typically go to homes and dumpsites to collect plastics for sale to recycling companies. Those who use tricycles are estimated to collect and dispose of about 720 tonnes of solid waste a day, representing 47% of the total daily waste collection in the Accra Metropolitan Area. This contributes to saving the authority about ₵25 million in annual operational cost, yet they earn very little for their work owing to a lack of credibility (Ampofo, 2015). From our interviews, we found out that these waste collectors can sell a minimum of 10kg of waste which means smaller quantities are not taken into consideration (Yeboah, personal interview, Feb 2020). According to Setsoafia, informal waste collectors are the best option for tackling waste collection in underserved and difficult to reach communities (2020).

### Levers of change:

To bridge the credibility gap, it will be essential to provide documentation that allows informal waste collectors to sell small quantities of plastic waste at an agreed minimum selling rate. Also, creating a partnership between the informal waste collectors and recycling companies will make people trust the informal waste collectors more and encourage more people to make a conscious effort in collecting, sorting and contributing to the recycling of plastic waste.

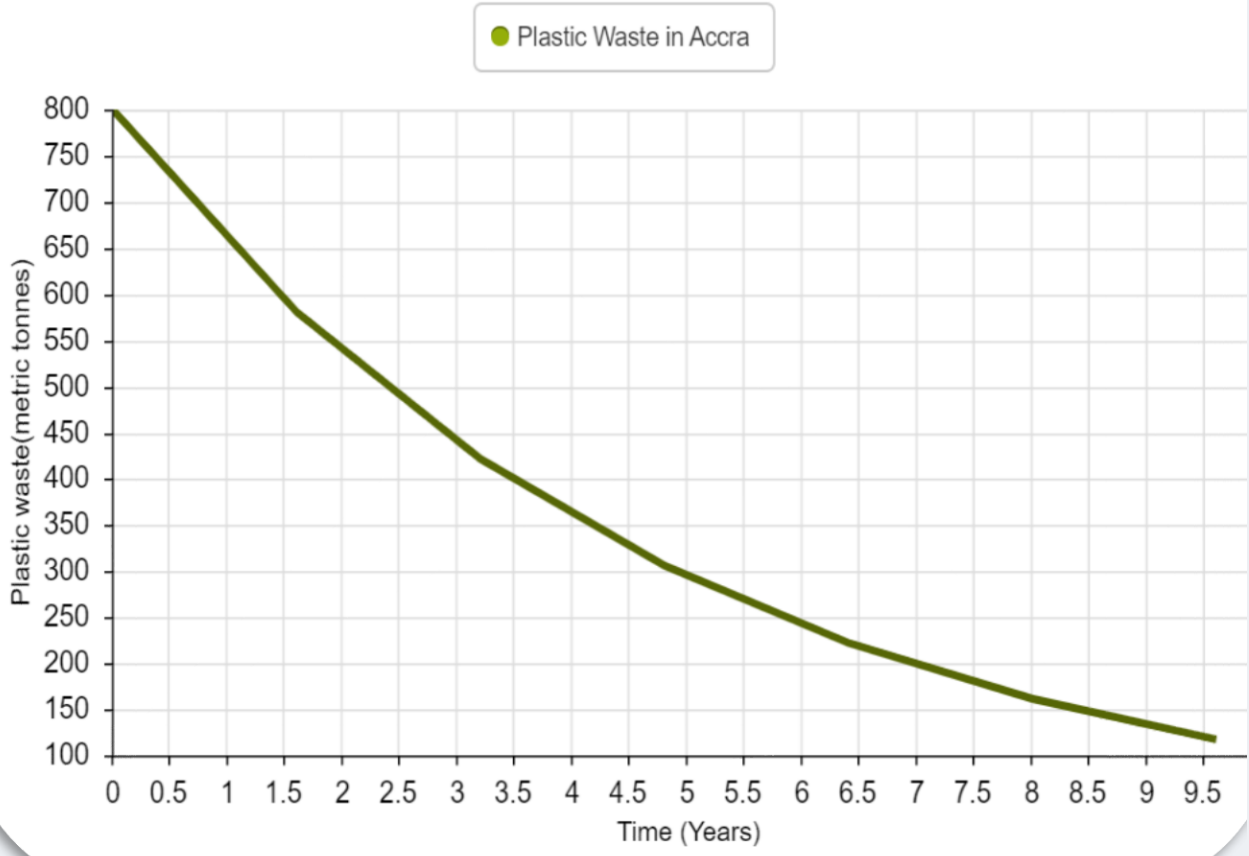


Figure 3 Waste reduction without incentives

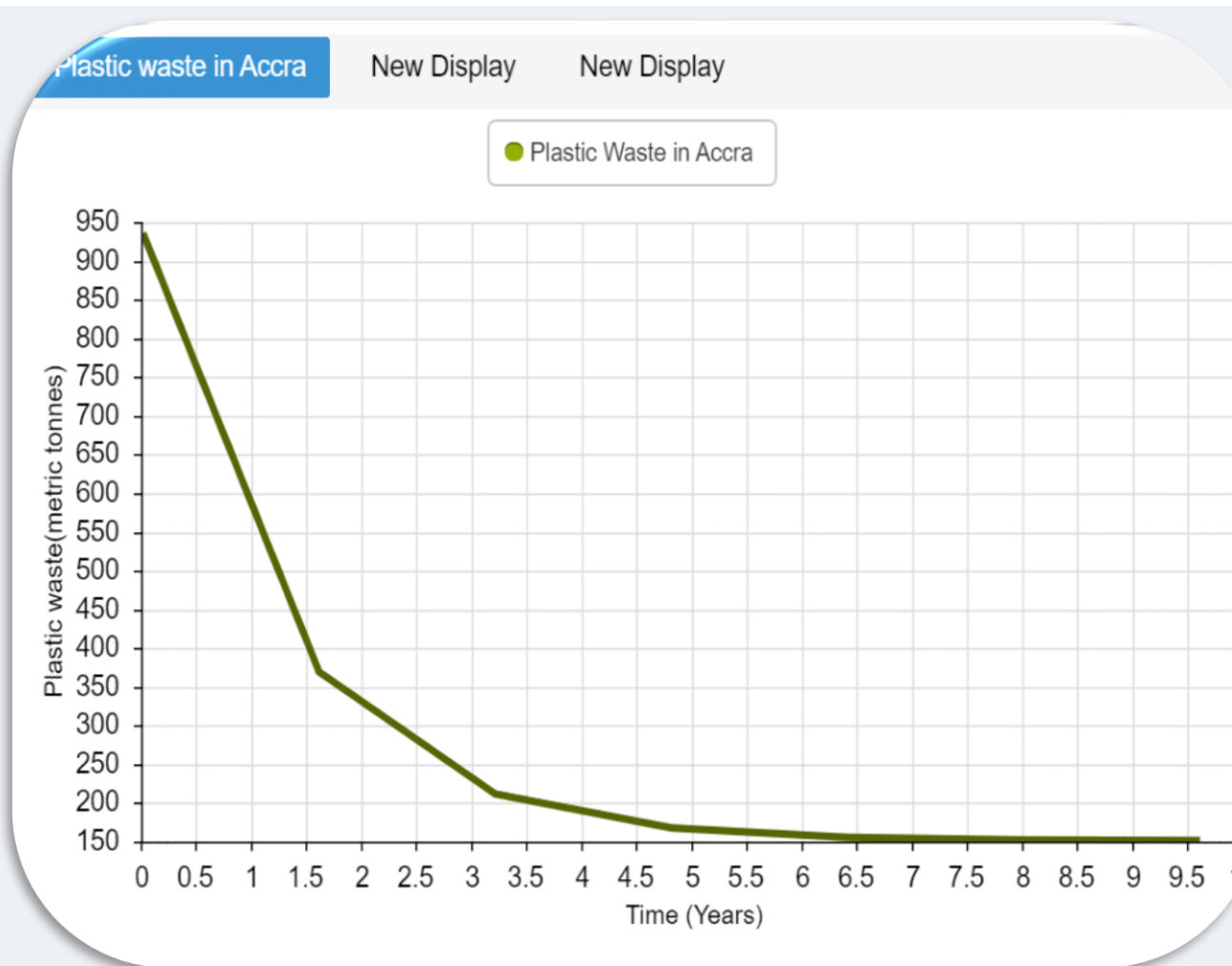


Figure 4 Waste reduction with incentives

## Recycling Companies

### Gap:

A smaller range of plastics is recycled in Ghana (Kortei & Quansah, 2016). If Ghana, like developed countries, could recycle half of its plastic waste, millions of gallons of oil and cubic meters of landfill space could be saved annually (Agbai, 2018). A feasibility study on plastic waste conducted by the Centre for Scientific and Industrial Research (CSIR) estimated GHC1.2 million could be realized monthly if the plastic waste generated in Ghana could be recycled (The Ghanaian Times, 2013)

### Levers of change:

Introduction of extended producer responsibility on the type of plastic they produce



Standardization of the type of plastic that is recyclable Collaboration with companies that reuse plastic

## Individuals that Reuse Plastic

### Gap:

There is a lack of coordination of individual stakeholders who deal with plastic waste through material recovery that is reduced, recycle and reuse . They work separately; hence their impact is not felt. (Sustainable Management of Plastic Waste in Ghana – Ghana-NRW – Cooperation for Sustainable Development, n.d.)

There are ineffective disposal structures for plastic waste, such as lack of localized collection sites. As a result they end up piling the waste at an undesignated places.

### Levers of change

There is need to establish a network of individual stakeholders whose aim is to reduce plastic waste. Promoting dialogue within the stakeholders would catalyze the sustainable development in dealing with plastic

## Sensitization by NGOs

### Gap:

There is a lack of consistency in sensitization campaigns for plastic waste management. This is due to a lack of funding and also sensitization strategies to draw the local people's attention as well as practical knowledge.

### Levers of Change

Maximize the use of the media in raising awareness of plastic recycling and increase the frequency of sensitization workshops so that people will not forget about plastic recycling. Also, exchange programs would help to transfer the practical knowledge necessary for the sensitization workshops.

## **Research methods**

- We deployed a qualitative research method, where we conducted 22 in-depth interviews with market vendors, ZOOMLION -waste collecting company, Students, a recycling company, itinerant plastic collectors and some Accra residents.
- We did secondary research using national policy publications, news articles, websites and research papers.

## **Key Insights and lessons Learned**

- Initially, we thought that biodegradable plastic was the way forward to manage plastic waste, but we realized that drastic change would take many years before implementation. The reason being that biodegradable plastics are still expensive to produce.
- We also realized that sustainable solutions are the ones that come from within society. Solutions should blend with the typical lifestyle of the people. The solutions should be a combination of what the local people want and the team's innovation.
- As a diverse group, we thought that our different experiences would help us to fill the gaps in plastic management, but we realized that solutions that work had been implemented in other countries do not work in Ghana. So, there is a need for appropriate technologies built for the context of Accra.
- Our solutions are limited to the Accra region, so it does not infer that they will work in other parts of Ghana without further research.