

Metal Waste Enterprise: A Tool for Revamping the Economy of Idah, Kogi State

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ABSTRACT

Socio-economic development and the degree of industrialisation influence waste generation rates by generally affecting income and consumption patterns. This study addresses the intrigues behind the collection of metal waste; the types of metal waste collected in the study area and the various characters involved in the activities of the enterprise. The analysis was based on data obtained from the questionnaire administered to gather information pertaining to the sources of the metal waste, the attributes of the participants in the business and its impact on the economy of the Idah. Three metal waste collection points were sampled for this study. The data was analysed using ANOVA and chi-square test. The result however shows that there is no significant difference between the metal waste trade and the economy of the town since the F calculated is 0.9214 with a table value of 112.47 at a significance level of 0.05. The paper thus recommends that zoning principles be adopted in the area so as to order the dump sites to avoid conflict in the land uses.

Keywords: Waste; Metal waste; Enterprise; Socio-economic; and Industrialisation

INTRODUCTION

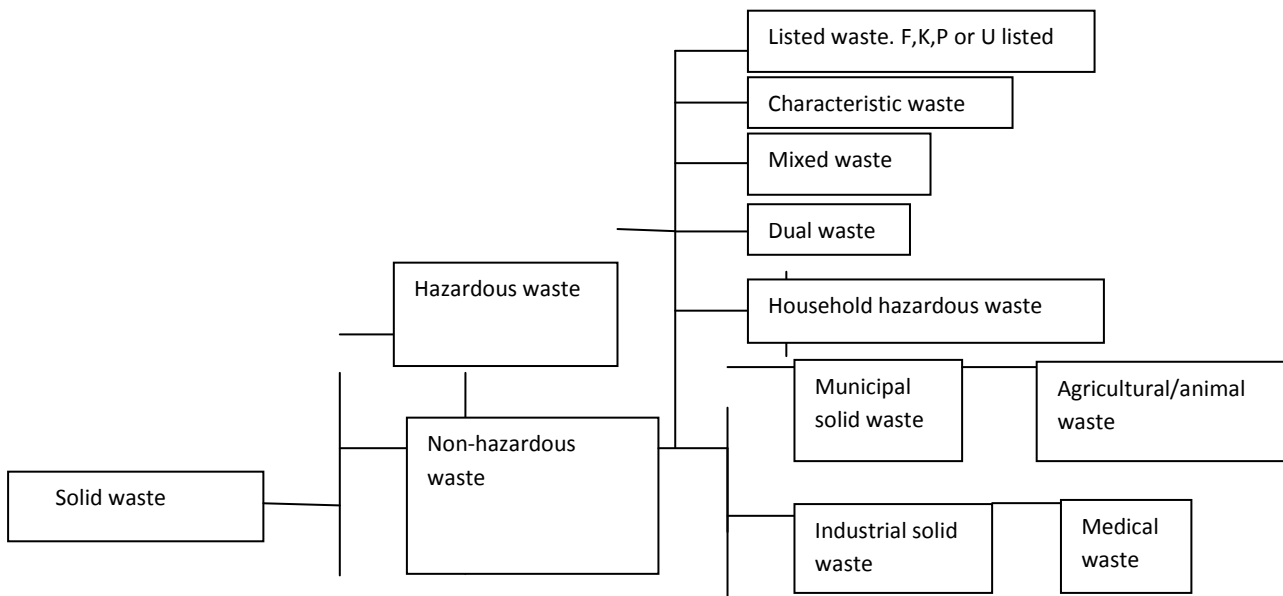
Waste may seem very easy to understand as it represents anything that is no longer in use or has no purpose or need for it. It can thus be applied to any material or substance to be discarded. The definition of waste goes beyond this as some certain factors could determine how it is defined. Such factors could be traced to how it should be handled, regulated, especially in professional settings. Waste is of different types – solid and liquid. The majority of household and veterinary practice waste is considered “solid waste”, regardless of whether it is actually ‘solid’ in physical form (AVMA, 2017).

The U.S. Environmental Protection Agency (EPA) defines solid waste as “any garbage or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded

material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining and agricultural operations and from community activities”.

Solid waste is a collective term used to distinguish non-biodegradable material and discards that come from sources like household, businesses and commercial establishment, manufacturers or industrial sites, biomedical sources like hospitals and clinics. They are the trash collected by the municipal waste management units for segregation according to the process of disposal. They are generally composed of non-biodegradable and non-compostable biodegradable materials. The latter refer to solid wastes whose bio-deterioration is not complete in the scene that the enzymes of microbial communities that feed on its residues cannot cause its appearance or conversion into another compound (Oyeniya, 2011).

Solid waste is a broad category; it can further be sub-divided into sub-categories as shown below;



(AVMA, 2017)

Solid waste carelessly thrown in streets, highways and alleyways can cause pollution when they are carried off by rain water run-off or by flood water to main streams, as these contaminating residues will reach large bodies of water (Jegade, 2014). One of the greatest challenges facing the country today vis-a-viz sustainable development ideals is management of solid waste.

Indeed, more than any other municipal service, waste generation, collection, transportation and disposal have continued to put pressure on the state resources, as well as its physical infrastructure (Oresanya, 2010; Jegede, 2014). The components of the typical waste stream in Nigeria include: vegetables, plastics, papers, putrescibles, fines, glass, metals and others like batteries, foams, and ceramics.

Table 1: Types of Waste and their Sources

	Type	Sources
1	Paper	Paper scraps, cardboard, newspapers, magazines, bags, boxes, wrapping paper, telephone books, shredded paper, paper beverage cups, paper is classified as organic only when it is contaminated by food residue.
2	Organic	Food scraps, yard (leaves, grass, and brush) waste, wood, process residues.
3	Plastic	Bottles, packaging, containers, bags, lids, cups.
4	Glass	Bottles, broken glassware, light bulbs, coloured glass.
5	Metal	Cans, foil, tins, non-hazardous aerosol cans, appliances (white goods), railings, bicycles.
6	Others	Textiles, leather, rubber, multi-laminates, e-waste, appliances, ash, other inert materials.

Source: Hoornweg & Bhada-Tata (2012)

Metal waste is a type of solid waste and can also be referred to as metal scraps. They are generated from carcasses of vehicles, engines, and other metal products not in use anymore. It is presently the most traded waste product in waste market. This paper thus examines metal waste enterprise as a tool for revamping the economy.

Objectives

- ✓ Determine the sources of metal waste products in Idah.
- ✓ Examine the roles of the participants in this trade.
- ✓ Evaluate the impact of this activity on the economy of the town.

MATERIALS AND METHODS

The Study Area (Idah)

The town Idah is one of the urban centres in Kogi State and one of the oldest settlements in Igala land. It is the traditional and cultural headquarter of the Igala kingdom and a host of the seat of the Monarch (Attah of Igala Kingdom). It is geographically located at the south eastern part of the state and on the eastern bank of River Niger. It is lying beside the middle course

of the River Niger. It is the Headquarter of Idah local government area of Kogi State. It has commercial routes (waterways) on the River Niger linking Lokoja to the north of the country; Onitsha in Anambra to the south; Agenebode in Edo State to the west; and Enugu to the east. It is a homogeneous community dominated by the Igala's and few of other tribes. The population of the area from the 2006 census is 79,755 (NPC, 2006), and by projection using geometric growth model (Agbola *et al.*, 2003) the figure is put at 102,092 for 2016.

Instrument and Analytical Method

Purposive sampling technique was adopted for this study. Questionnaires were administered to metal waste marketers. The questions bordered on issues like; sources of the metal waste product, methods of collection, roles of the dealers in this trade, age and sex of the participants in metal waste operations among others. A total number of fifty questionnaires were administered on the participants of metal waste enterprise which include the house-to-house collectors of metal waste, the scavengers and other participants of the trade.

RESULTS AND DISCUSSION

Age of Participants

The age distribution of the participants of metal waste enterprise reveals that a higher percentage of people in their middle ages are more involved in this type of trade (between 25-50years). While the house-to-house collectors fall within ages 15-25years. This could be attributed to the fact that the exercise is tedious and requires much energy and youthfulness. The study also reveals that 98% of the participants are male, where females are involved, they serve as cashiers (as shown in table 2 below).

Table 2: Distribution of Metal Waste Trade Participants by Age and Gender

s/n	Age of participants	Frequency
	<20	4
	20-29	15
	30-39	22
	40-49	12
	50-59	6
	60 and above	1
	Gender of participants	
	Male	59
	Female	1
	Total	60

Field survey, 2017

Attributes of the Participants

The survey shows that about 25% of the participants have no formal education, while 42% have primary education and 33% have up to secondary education. The metal waste business has been in existence in the town for more than 12years but gained prominence in the past 7years. The trade was basically on iron-beds before other metals were added.

SOURCES OF METAL WASTE

Metal waste includes all unnecessary scrap, gas cookers, aluminium lids from yogurt pots, metal lids, cans and tins, wrappers, aluminium foil, metal cheese triangle wrappers, aluminium and other metal pots and pans and dishes, all metal products without other admixtures (alloys). The survey from this study shows that 25% of the metal wastes are sourced through scavenging while 40% are sourced from house-to-house collection of metal waste., the remaining 35% are sourced from workshops from the carcasses of old vehicles, motorcycles and engines.

From the point of view of scrap analysts, metal waste can also be sourced from recyclable materials left over from product manufacturing and consumption, such as parts of vehicles, building supplies and surplus materials. Unlike waste, scrap has monetary value especially recovered metals, and non-metallic materials are also recovered for recycling. Scrap metals originates both in business and residential environments. Typically, a 'scraper' will advertise their services to conveniently remove scrap metal for people who do not need it. (Wikipedia, 2017).

METAL WASTE ENTERPRISE AND THE ECONOMY

Approximately 14-15 million vehicles are dismantled every year for recovering metal and other recyclable materials. While recycling the metals recovered from these automobiles saves tremendous energy that is used in making metal, it also prevents the hazardous materials from polluting the environment. For every single car that is recycled, results in the saving of 1400 pounds of coal, 1.25 tons of iron-ore, roughly 13-14 tons of steel, 120 pounds of limestone and 39000 gallons of water. The whole lot of activities surrounding the metal waste business creates room for people to be employed in spite of the alarming rate of unemployment in recent times.

The relationship between municipal solid waste generation and income varies with respect to the developmental stage of a nation (Medina, 1997; Troschinetz, 2005). According to Medina 1997, as a country develops, its waste generation rate increases. Whereas a weak correlation exists between income and waste generation for middle and upper income countries, and a decrease in waste generation is seen for the wealthiest countries. The quality of waste generated in developing countries is directly affected by several different elements (Fehr *et al*, 2000). The lifestyle that is usually associated with certain incomes can influence consumption rates and patterns (World Bank, 2003). The number of people in household has shown a correlation to per capita waste generation as the greater number of people in a given household results in less generation per person per day. (Bolaane and Ali, 2004).

Socio-economic development and the degree of industrialisation influence waste generation rates by generally affecting income and consumption patterns (World Bank, 2001). Climate and seasonal changes impact waste generation by having an effect on the amount of organic material generated as a waste product of preparing fresh foods in the seasons or climates that allow (World Bank, 2001).

The Analysis of Variance for the impact of metal waste trade on the economy of the town shows that there is no significant difference between the metal business and the economy of the town. At a significance level of 0.05, $Pr(>F)$ of 0.9214 is less than the table value of 112.47, it is obvious that metal waste trade affects the economy of the town such that a boost in the sector will improve the economy because the increased commercial activities from this enterprise will yield positive impact on the economy.

SUMMARY OF FINDINGS

- A critical study of the metal waste activities in the town shows that there are two major outlets for this trade.
- At least two lorry loads of metal waste products are released from these two outlets at least once a week.
- There is no recycling base in Idah but the metal waste products are taken out of the town to where they will be recycled.
- Over one hundred persons have been gainfully employed by this sector including the house-to-house collectors.
- More of the people involved in this type of trade have not more than secondary education.
- About 95% of the participants of this trade are males. The few females involved work as cashiers.
- People of the active age group of between 15-50years of age are the major participants in this sector.

CONCLUSION AND RECOMMENDATION

It is obvious from this study that metal waste trade has employed some persons and has equally boosted the economy of the town as well as the economic activities in the areas of operation. The activities of this sector have indirectly helped in the management of waste. Most of the waste that would have been left on the streets and disposed to cause hazards has been turned into income. Therefore for the activities of this sector to be well established and orderly, the following suggestions need to be put in place:

- Zoning regulations should be adopted so as to align the sector with the appropriate land use type. This will thus help to order the dump site and the loading area to avoid conflict with other land uses.
- The zoning should be properly ordered so as allow for ease of loading of the waste into the lorry.
- Cognisance to other conforming land uses should be taken in the zoning.
- There should be a functional access road to the area where the enterprise is situated so that vehicles can access the area.

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Reference to this paper should be made as follows: Jegede, J. A. (2017), Metal Waste Enterprise: A Tool for Revamping the Economy of Idah, Kogi State. *Intl J. of Management Studies, Business & Entrepreneurship Research*, Vol. 2, No. 4, 2017, Pp 106-114
