

ENVIRONMENT-FRIENDLY WASTE COLLECTION AND DISPOSAL USING  
LOCALLY WOVEN BASKETS

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**Abstract**

Municipal solid wastes (MSW) constitutes great concern for both government and citizens which necessitates appropriate measures to handle them. Considering some attributes embodied in the indigenous craftsmanship associated with hand-woven, locally made baskets, this study documents and analyses the process of basket making, its style, size, shape and the functions as well as the usage of baskets for household waste management in a traditional African setting, using Nsukka, Enugu State, Nigeria as a case study. Specifically, the paper argues that managing municipal solid waste using indigenous knowledge typified by basket weaving is not only effective but cost-efficient and a veritable way of promoting indigenous crafts that are fast losing their relevance to modernity. Basket making workshops in the study area were visited and key in-depth interviews conducted with craftsmen on what drives the design, style, size, shape and function of the baskets they produce. The differences in sizes, designs and strength of the baskets were also found to correlate with how the baskets are adapted for waste collection purposes. Findings also revealed that, compared with other waste management equipment, baskets are cheaper, environment and user-friendly, effective in achieving source of production separation, a sanitary environment, has economic and aesthetic values in promoting arts and culture. Therefore, the use of baskets for environmental management at household levels, particularly in smaller cities and rural areas should be encouraged and promoted.

**Keywords:** Baskets, Indigenous Crafts, Plastic Wastes, Solid Waste (SW), Environmental Management, Climate Change

**Introduction**

Plastics and other solid wastes continue to create great concern in waste and environmental management, beyond these concerns, the aesthetic value of the environment is being degraded by municipal solid wastes from human activities. Nigeria and indeed Africa is said to be well located, geographically. Nigeria has, over the years, been spared of many and intense natural disasters as witnessed in other climes, however,

due to unchecked human activities, many human settlement areas witness disturbing environmental degradation and pollution caused by improper waste disposal, handling and management.

Beyond putrid and ugly look of cities there is the more serious concern over the release of greenhouse gasses. Plastics originate as fossil fuels and emit greenhouse gases from cradle to grave (Bauman, 2019). Such facts means that residents need to imbibe a more sustainable behavioural culture not only as it concerns wastes but also sustainable living in its entirety. It has become obvious that for most indigenous people, foreign and appropriated behavioural culture may not properly engage existing waste problems, this gives rise to the need to study native tools of the people alongside appropriated ones like factory manufactured bins and dumpsters, in order to achieve the desired results. Much of these native tools are well-established in the culture of the people like the basket making craft. Scholars like Izugbara et al, (2004) Ajibade, (2007), Machete (2018) had proposed reviving and sustaining indigenous methods of waste management. Their study however did not consider the potentials and contribution of traditionally woven baskets.

On the other hand also, colonisation, civilization, modernisation and techno-revolution have eaten deep into the bank of indigenous culture, crafts, arts and knowledge system, leaving the millenials almost stripped of any inherent values. This is worse where technological approaches is yet to take deep root as is seen in Africa and other developing countries. For example, in Nigeria where people believe in 'a government-will-do-all' including keeping the environment, however, government is unable to do all, which is why residents handle wastes arising from their daily engagements inappropriately and probably hope that government will take care of it. Such residents forget that there are certain outcomes that are beyond government but can greatly alter the natural harmony of the environment, bringing about natural disasters like flooding, cyclones, climate change and global warming.

There is a low success rating of government and other concerned efforts at containing the municipal solid waste problem in Africa. This low success rate can be attributable to the use of solely foreign technology driven approaches. Perhaps a hybridization of the indigenous and the foreign will yield more results. Due to the low success of government and other concerned efforts at containing the municipal waste problem in Africa, using foreign technology driven approaches against indigenous ideas and methods, there arises a need to look back into these people's way of life and elicit solutions. As Oyeoku (2000) writes that if we, as a people preserve our heritage resources and transmit same to our children, we would be ensuring a regeneration and continuity of our culture. According to an Igbo saying; "it is inherent, that where one lives in that one protects and cares for". Despite the foregoing, observation reveals an every-problem-is-government's problem, I am-not-concerned attitude surrounding the waste disposal and management issue in Nigeria. There is no gainsaying the fact that government is aware of the impact of improperly disposed and managed wastes on the environment; such as blockage of waterways therefore causing flooding, disease and dirt leaching into the soil and methane (a green house gas) it appears as if government has become overwhelmed by the problem (Oyeniya, 2011). Equally, Bunge (2017) found two "leaks" through which the packaging plastic waste may still end up in the environment; littering (illegal dumping of waste into the environment by consumers) and export of separately collected fractions

(e.g. plastics of inferior quality) to emerging countries while arguing that in developed countries, Bunge further argues that

plastics recycling solves no problem in countries with proper waste management. The problem of littering can hardly be solved by forced recycling of plastics. Consumers who are unwilling to dispose of their waste in the nearest waste bin would not change their illegal behaviour due to an improved recycling system. Not a forced recycling, but the imposition of draconian penalties could be a solution to the littering problem.

The foregoing therefore suggests the need for a homegrown and more people-acceptable approach to waste management which the basket is a potential.

Using the familiar example, the Igbo of South East Nigeria, like many indigenous people had a way with wastes and they knew the differences between decomposing and non-decomposing wastes. This knowledge formed their waste management practices. The compost pit is an integral part of the Igbo traditional architecture and every compound had a compost pit which served as a holder for everyday organic waste and a cure for organic manure. Wastes are taken care of every morning and evening when the whole compound is swept. All wastes gathered during the morning and evening sweeping are heaped in a compost pit. While the basket is a domestic object crafted by the men of the house for containing and lifting other materials and objects used in the home, it also served as a craft training medium for teenage boys. It is with these baskets that such wastes as reusable and other non-decaying wastes are lifted and sent to designated places, where such wastes are kept by the community. Others are buried to rot; it was regarded as irresponsibility to the earth to leave such harmful objects lying around as we are practicing these days. Although these knowledge and practice existed, many researchers still believe that Africans are not properly equipped to manage the wastes generated in African countries. Many African countries lack the skills, resources and funds to efficiently control and manage waste – a threat to the environment and peoples health (ec.europa.eu, 2015). UN, Habitat (2014) points up to the fact that a key indicator of the challenge to manage some of these waste streams is reflected in the difficulty of most African countries to meet the Millennium Development Goals, especially that on sanitation and slums. It further states that efforts to improve the situation have been outpaced by rapid population growth and urbanisation. Unplanned development seems to be the major hinderance on proper waste handling, disposal and management.

### Conceptual Clarifications

For ease of understanding and proper situation of concepts in the paper, the following describes and explains the concepts as they may apply in this context:

Nkata is a local name and refers to hand crafted **baskets** made from palm fronds and sometimes grasses which are abundantly available in eastern Nigeria, biodegradable, it is also known that making crafts enhances learning, improve mental health and in this case will sustain an indigenous craft method and use whose existence is already being threatened. It also embody certain symbolic and physical characters which may have implications for proper waste handling, collection, disposal and management. Nkata is used here as an umbrella term for all baskets that may be referred to using another word in the dialects where the term originates from, just as the Bangladeshi *doko*.

**Indigenous Craft:** indigenous connotes ownership of skill, idea and processes as well as the outcome. While craft relates to productions or materials created basically with the use of ones hands, imagine and materials available locally to the producer. Crafts production is said to enhance both affective and psychomotor abilities. Here indigenous crafts will therefore refer to such crafts that are created using materials locally available like the baskets.

**Waste:** The word **Waste** can be replaced with such words as rubbish, refuse, debris, trash, garbage. Waste is regarded as any item that was once of use but discarded or thrown away and regarded as useless by the initial owner which is then moved to be buried or burned or appropriated for reuse or recycling. Wastes are also indicted in such harmful situations as contamination of soil, oxygen decreased, plants destroyed, animal extinction, contaminated water, floods, tornadoes, hurricanes as we experience now with global warming and the increase in temperatures causing hurricanes, ozone depletion and pollution.

Over the years waste generation has increased tremendously, and as (Kaushal, 2012) observes, waste generation has increased annually in proportion to the rise in population and urbanization. According to Indian Youth Climate Network (IYCN, 2013) Waste can be classified based on source; those originating from households are termed municipal **waste** while those from industry termed as industrial waste and notably those from places such as hospital which is known to generate highly hazardous wastes are called Hospital wastes which Ugbechi (2013) describes as the total waste generated in the hospital in two types: general or non-risk waste which constitute 75 -90% and Hazardous or risk waste which make up to 10 – 25%.

Some waste can be hazardous and toxic. Wastes can also be solid and liquid. Still it goes on to say that waste can be characterized into many types depending upon the basis. For example as organic and non-organic (inorganic). Another basis could be the degradability making waste into biodegradable and non-biodegradable. Third one could be based on source. Those originating from households are termed as municipal waste and from industry termed as industrial waste

Municipal waste is the class of waste this research is concerned with. Municipal waste include wastes resulting from municipal activities and services such as street waste, market waste and household. Garbage is the term applied to animal and vegetable wastes resulting from the handling, storage, sale, preparation, cooking and serving of food.

**Waste Management:** With globalisation, population growth and a consumerist culture, waste management became a more intense job requiring municipalities to take measures that are suitable for managing their own wastes ranging from creating waste dumps, landfills and recycling plants. However, in traditional African settings where people are mainly agrarian and livelihoods more frugal, waste management is an integral everyday activity by all waste generators. For instance in the Nsukka region and most Igbos of eastern Nigeria, individual compounds have compost pits where they dump all degradable wastes that decay over the months and are turned into compost for farming. They found use for most of the other non-degradable wastes such as metal, wood, plastics which were occurring less frequently than it does in this consumerist age.

Against above background and the attributes embodied in the indigenous craftsmanship associated with hand-woven locally made baskets, this study set out to document and analyze the process of basket making, its style, size, and shape and the implications of these attributes in the usage of baskets for household waste management in a traditional African setting using Nsukka, Enugu State, Nigeria as a case study. Specifically, the paper argues that managing municipal solid waste using traditional indigenous knowledge typified by basket weaving is not only effective but cost-efficient and a veritable way of promoting art and crafts that are fast losing their relevance to modernization. Specifically, the paper argues that managing municipal solid waste using traditional indigenous knowledge typified by [nkata] woven basket is not only effective but cost-efficient and a veritable way of promoting indigenous crafts that are fast losing their relevance to modernization. Basket making workshops in the study area were visited and key in-depth interviews conducted with craftsmen on what drives the design, style, size and shape of the baskets they produce.

### **Methodology**

This study documented and analyzed the process of basket making, its styles, sizes, shapes and the implications of these attributes in the usage of baskets for household waste management in a traditional African setting, using Nsukka, Enugu State, South East Nigeria as a case study.

From ethnological studies conducted in the course of the research, views, experiences and opinions of the participants were documented and evaluated

Basket makers from different locations of Ede-Oballa, Opi, Eha-Alumona, Obimo, Nguru, Ibagwa-Aka, Orba, Igbo-Etiti and Igbo-Eze all in Nsukka district of Enugu State, Eastern Nigeria were visited, key in-depth interviews conducted with them on what drives the design, style, size and shape of the baskets they produce. Basket making workshops were also organized to for interested young school leavers to raise awareness on the importance of basket making and usage in waste and environment management.



**Figure 1: Craftman demonstrating basket making during one of the workshops**

Results show that baskets are produced and utilized for different purposes which includes the task of waste collection and movement to compost pits/ farms and for collection of non-decomposing wastes such as metals. In Igbo society, baskets also embody the symbol of cleanliness and tidiness which is extended to the environment in various cultural practices and rituals. One such ritual is the practice of gifting a broom and a basket to a newly wedded woman as a symbol of cleanliness, orderliness and closeness to mother nature. The woman is publicly instructed of her duties to the compound where she is married, to the immediate community.

### **Discussion:**

For the purposes of this study, a population of one hundred homes were chosen in Nsukka urban in Enugu state. Also fifty basket sellers were interrogated in different markets in Nsukka area to evaluate the trend of their business. Among the hundred homes seventy-three homes were of the opinion that refuse disposal using plastic baskets, buckets and other non-degradable waste collectors constitute more waste problems when they age and showed preference for using baskets made from palm fronds that easily decomposes when it ages. See table 1 below.

Five local markets were visited in the research area to interact with basket sellers these markets are Ogige market, Orba market, Afor Opi market, Orié Igboeze and Nkwo-Ibagwa market. All the sellers who sometimes are the makers of the baskets they sell were excited and agreed that the promotion of baskets for refuse collection will enhance

their sales and by implication create more work for the makers and more wealth and means of livelihood for all concerned.

Number of Homes visited	Number that accepts basket as sustainable waste collection unit	Number Against use of basket	Percentage %
100	73	27	73%

Table 1. Number homes visited, number that are for and against use of basket as a more sustainable waste collector.

The differences in sizes, designs and strength of the baskets were also found to correlate with how the baskets are adapted for waste management purposes in the sampled households. The findings also revealed that when compared with other waste management equipment, the basket was far cheaper, had environment-friendly attributes that is beneficial to all in the environment.

**Sizes and shapes:** Baskets are made in very many sizes and shapes. Shape-wise, there are two basic shapes from where the designs derive; the first is the bowl form, and the second is the flat form. The sizes range from very small dainty to very large sizes, inbetween are various sizes that measures from 3 feet up to 6 feet.

Images below:



Figure 2: A basket size that can be adapted for contemporary waste collection and management

**Designs:** According to crafts men, their design is driven by the market or specific commissions from clients. However there are basic designs that are sold in the market which includes the plain basket, grain basket, tray-like flat basket and storage basket.

**Quality (strength):** The quality of each basket is decided by the craftsman and the use of the basket. Baskets that are used for tough domestic purposes and for carrying heavy materials and livestock are made to be durable and strong and they last very long when preserved and protected from the elements, especially water and harsh sunlight.

The basket makers who were interviewed explained that basket making is a skill learnt in their local community in the non-formal way. Although it is a difficult task, the raw materials are readily available. It is obvious therefore that, baskets have the potential to become a veritable tool in waste management if it is massively produced with a specific design adapted to the quality, sizes and styles suitable for waste collection from waste production point. It is believed that if waste management agencies starts the production and usage of well woven baskets in their official work just as they use plastic buckets or alongside plastic buckets this will bring an amazing change in the mind-set of the present people. As a craft process also, the production can become a tool at sharpening the fingers of the younger generation to better articulate the problem of poverty of mind (lack of creativity). It will also become a suitable tool for collection of such light wastes like light plastics for proper handling instead of the current process of littering the streets, farms and waterways.

Poverty reduction and income generation are almost a clichés in the Nigerian and African discourses and so it is not out of place to include it in the benefits hoped for in this project. Another issue is a process of mind-set change from foreign based attitudes to a more sustainable people generated life-styles that will develop over time.

### **Conclusion**

For its effectiveness in achieving a sanitary environment, its cost-effectiveness, and its economic and aesthetic values in promoting arts and culture, the use of baskets for environmental management at households levels, particularly in smaller cities and rural areas should be encouraged.

Based on the problem and observations, the following recommendations are made:

1. Basket making should be taught in primary and secondary schools as part of the creative arts curriculum.
2. Intensive design evaluation should be embarked upon by waste management firms and governments to come up with a veritable basket design that can be used for waste collection both as a handy waste collector and for community waste collection given the many usefulness of baskets.
3. Awareness creation/Mindset Change Campaigns: Citizens should be made to realize that it is harmful to the environment and to our individual health to place degradable and non degradable wastes together since there is actually no landfill where they are dumped and in modern practice landfills are not encouraged to take all sorts of waste especially where there is no known treatment going on. The wastes are dumped in open spaces close to human habitation like the kind of thing that happened in KOKO town in Edo State, Nigeria, where toxic wastes were dumped in the 90s. Waste Separation Campaigns should be carried on by waste management experts at both government and non-government levels. Instituting Waste Exchange/Utilization Networking and workshoping (eg. Waste for Art). Instituting Waste or Environment Wardens. Provision or introduction

- of multiple waste collectors (degradable and non-degradable collectors). Research into indigenous waste handling practices.
4. Placement of waste collection materials in strategic places and daily or twice daily collection.
  5. Study of and Creation of Composting processes as well as bagging and sales.
  6. Creation of community farm and gardens.

Waste management is a continuous process and as a developing space we should be open to change strategies as the outlook changes.

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