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Public Perception About Reusable Packages

Joseph Amewu[1]* Godwin Korku Dzidzornu Amuzu[2]
1. Department of Industrial Art, Ho Technical University, P. O. Box, 217, Ho, Volta Region, Ghana.
2. Master of Arts (Publishing Studies), Kwame Nkrumah University of Science and Technology, Kumasi

Abstract
The purpose of this research is to examine the publics' perception of reusable packages and to find out whether the reuse of packages is a better alternative to solving the problem of package waste management disposal in Ghana. The qualitative research method was employed where 540 was the target population with 100 being the accessible samples. Data collection procedures used were questionnaires and observations. The main findings of the study were that the majority of respondents (96%) affirm having some awareness and experiences with regards to reusable packages. Unfortunately, 88% of the respondents do not think that the packages currently available in the market are designed to be reusable. The commonest types of packaging available in the market are disposables packages. This is the reason why most respondents would likely discard packages without considering reusability. The conclusion drawn from the study was that reusable packages have been proven as a better alternative to solving the problem of package waste disposal in our communities and cities. It was therefore recommended that the Environmental Protection Agency in Ghana with support from other key stakeholders should effectively propagate the concept of reusable packages as a better alternative to other forms of package waste management disposal for Ghana.
Keywords: Packaging, Perception, Reuse, Reusable, Recycling, Waste.
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1. Introduction

Merriam Webster (2019) defines Reusable as: capable of being used again or repeatedly. Reusable Packaging is comprised of pallets, containers, wraps, bands, and dunnage designed for reuse within a supply chain. Reusable packaging is manufactured with durable materials and is specifically designed for multiple trips and extended life. A reusable package or container is "designed for reuse without impairment of its protective function." (Yam, 2009). Reusability of packaging is an important consideration of the environmental credo of "reduce, reuse, and recycle". It is also important to the movement toward more sustainable packaging. (EPA USA, 2012).

Reusable packages are one of the ways to conserve and protect our limited resources. It also helps to manage the packaging waste that we produce daily. Reuse is the recovery of materials and products for the same or similar end-use. In contrast to recycling, which recovers materials for processing, reuse recovers the original product (Dimino & Warren, 2004). Also designing packages with the view in mind that it can be reused is a good idea. In recognition of this fact, Newcorn (2003) reports that "we should design for reincarnation. You plan the next use of the material into the package already." (p. 62)

McDonough & Braungart (2002) contend that cradle-to-cradle design has the potential to expand, not reduce, the choices of materials available to package designers. The study further indicated that packaging can be designed to be an asset after use, rather than a liability, for customers. Finally, they argue that cradle-to-cradle packaging can cost the same or less than the packaging it replaces.

Packaging has become an indispensable element of modern consumption that provides a wide range of functionalities and consumer benefits. The role of packaging is perhaps of greatest importance in consumer packaged goods (CPG) markets, which often strongly rely on packaging elements to maintain product quality, prevent product losses, facilitate transportation and storage, and provide market place differentiation.

Packaging creates solutions as well as problems. One of the major problems created by packaging is waste management or disposal. The problem worsened as the world's population increased and more waste was produced on a daily basis. People's negative attitudes towards waste disposal have further blighted the situation.

In the current practice, the packaging is designed to outlast its contents and, after usage, often becomes redundant (Nigel D. et al., 2017). Given the high frequency of consumer purchase goods (CPG) and disposal, this adds to an increasing environmental burden, which contributes to global warming, raw material depletion, acidification, and energy consumption (Bovea, Serrano, Bruscas, & Gallardo, 2006). Consequently, incessant packaging waste has received major attention from policy-makers, environmental lobbyists, consumers and the packaging industry alike. The concept of sustainability seems to be increasingly important to consumers (Bemporad, Hebard & Bressler, 2012; UNEP, 2005).

Packaging waste is a complex stream to manage. It contains many different forms and a wide variety of materials. The environmental effects of these different types and forms of packaging are not well understood. The absence of a reliable database about the waste stream has meant that regulatory efforts are based on incomplete

and inadequate information. Over the years, many nations have tried to curb this health menace but it seems the more they try, the worse the problem becomes.

The problem is worsening because the focus of the campaign has been on recycling. However, recycling alone cannot solve this problem. It has become necessary to look for other economically viable and practical alternative ways to solving the problem.

This research, therefore, examines the public's perceptions about reusable packages and to find out whether the reuse of packages is a better alternative to solve the problem of package waste management in Ghana.

2. Review of Related Literature

In order to strengthen the theoretical framework of this paper, the following related literature was reviewed.

2.1 Packaging

The packaging is the science, art, and technology of enclosing or protecting products for distribution, storage, sale, and use (Yam et al., 2009). Packaging also refers to the process of design, evaluation, and production of packages. Soroka (2002) described packaging as a coordinated system of preparing goods for transport, distribution, storage, sale, and use. He further stated that it is a complex, dynamic, scientific, artistic, and controversial business function, which in its most fundamental form contains, protects/preserves, provides convenience, and informs/sells, within acceptable environmental constraints.

In her capacity as a lecturer at the Department of Communication Design of the College of Art and Social Science, KNUST, Kumasi, J. Stuber had this to say concerning packages, "Packages transport a product. It identifies and informs. A package is an identifier and it also protects a product…" (Personal communication, September 10, 2004)**.** Ackerman (1993) also noted that " Not all packaging is wasteful or undesirable. Packaging protects food products from contamination and spoilage. It protects products from damage during shipping. Packaging also provides detailed product information".

Malm (1999) dilated on the aesthetic functionalities of packages. From his point of view, how attractive a package is, is very important to its sales. Also, packages promise to satisfy the consumer's wants and needs as well as their desires. In addition, the packaging is an essential part of our marketing and distribution systems (Malm, 1999).

The focus is on the aesthetics of packages coupled with its marketability. "Thus concludes that package is a three-dimensional poster, therefore it must describe the product at all sides and- from any angle-." (Malm, 1999, p. 91).

2.2 Reusable Packages

Reuse is "a generic term covering all operations where end-of-life (EoL) product is put back into service, essentially in the same form, with or without repair or remediation" (Parker, 2007). Reuse is distinct from recycling because in the latter EoL products are processed to be used as raw materials in the production of new products. A container or pallet that is reused at least three times to transport or contain the same products, parts or goods. During the lifecycle of the packaging, it is repeatedly reused, inspected and repaired for return to the supply chain. Reusable containers represent one solution that the industry has developed in the face of growing environmental concerns. Particularly in Europe, the growth of reusable containers has been stimulated by a growing sense of corporate responsibility toward the environment, in a climate of increased pan-European regulations. While multinational firms have adopted this approach in other global arenas, the interest in reusable containers in the U.S. is driven more by economics (Rogers & Tibben-Lembke, 1999). Anecdotal evidence suggesting that reusable packaging systems offer cost reduction opportunities over expendable containers due primarily to the longer life of reusable containers (Andel, 1995). When the initial cost of a reusable container is amortized over its life, the cost of the packaging material is almost always lower than that of a comparable disposable container.

According to Adanu (2001), packaging materials are generally reused in developing countries like Ghana. The report further touches on the appropriateness of reusable packages in relation to the particular country and or countries that involve themselves in the act of reusable packages. She also stresses that each country wishes to reuse the type of package that is suitable for it (Adanu, 2001).

Finally, based on the potential in reusable packages, some countries have made provisions for reusable packages in their statutory laws. This law exempts reusable packages from tax. This stance is to persuade the public to buy and reuse reusable packages all the time. This is exemplified by the 1997 session, of the North Carolina General Assembly which passed Senate Bill 847, to exempts reusable industrial packaging containers from the state sales and use tax (Newcom, 2003).

2.3 Benefits of Reusable Packages

The key driver to the prioritization of reusable packages is the environmental concern. Evidence of concerns over environmental impact is significant in society's attitude and reactions towards reuse (Watson, 2008). Particular

consumer concerns related to the effect of packaging on resource use, energy consumption, pollution, solid waste and litter (Lawson & Wall, 1993). Governments are also concerned about the impact of packaging on the environment. Germany, for instance, tends to have taken the lead in Europe (Livingstone & Sparks, 1994).
Reusable packages save natural resources. Waste is not just created when consumers throw items away. Throughout the life cycle of a product; from the extraction of raw materials, transportation, processing and manufacturing facilities, manufacturing use; waste is generated. Re-using items or making them with fewer material decreases waste dramatically. Reusable packages reduce costs. The benefits of preventing waste goes beyond reducing reliance on other forms of waste disposal. Preventing waste also can mean economic savings for communities, businesses, schools, and individual consumers.

Furthermore, the reuse of packaging in the form it was originally intended is environmentally beneficial and saves significant amounts of energy. For example, it takes roughly ten times the amount of energy to manufacture a steel drum to recondition the same drum. Numerous studies of consumer packaging have shown that refillable containers are far more energy-efficient than those manufactured from recycled or virgin materials (Marsh & Bugusu, 2007). Reuse also offers great benefits to low-income people, non-profit organizations, and others operating on tight budgets, like New York City schools, which can gain access to quality products and materials (EPA USA, 2002).

The review further revealed that as an economic development strategy, supporting reuse operations puts dollars into the local economy rather than putting money into trucking waste out of state. At the same time, the educational value of reuse operations is enormous. People see in a very concrete way the value of recovering goods, rather than just disposing of them. In addition to social and environmental impacts, the economic potential of creating and retaining jobs through reuse is enormous, (Dimino & Warren, 2004). The success of reuse requires developing the reuse infrastructure and raising public awareness (Dimino & Warren, 2004).

From a regulatory standpoint, EPA guidelines for solid waste management emphasize the use of a hierarchical, integrated management approach (EPA 1989): source reduction, recycling, composting, combustion, and landfilling as waste disposal methods. Source reduction (that is, waste prevention) is reducing the amount and/or toxicity of the waste ultimately generated by changing the design, manufacture, purchase, or use of the original materials and products. EPA considers source reduction the best way to reduce the impact of solid waste on the environment because it avoids waste generation altogether. Source reduction encompasses using less packaging, designing products to last longer, and reusing products and materials (EPA 2002).

2.4 Reuse Versus Recycling Packages

Comparisons between reusable packages and the re-use of the material from what the packaging has been made (recycling) have to be evaluated in terms of the environmental and societal (benefits for the consumer and producer) impact. Without such a complete analysis it is not acceptable to claim that reuse of packaging is better for the environment and the economy than recycling. For this reason, the researchers compared reusable packages to recycling packages in relation to the environmental and social impact of both strategies. The idea is to ascertain which one of the two waste reduction strategies are favoured and works well over the other.

The recycling process redesigns the packaging materials into other products, whiles reusable utilizes the same package for similar or other purposes. A contribution made by the Reuse Development Organization (1995), in the U.S.A. suggests, “When evaluating alternatives for diverting waste, reuse should be favoured over recycling wherever possible.” This report primarily revealed that the organization is in favour of reusable packages and not recycling. It is also noted here that reuse has a better capability to manage waste.

Similarly, the California Integrated Waste Management Board, in 2005 reported about reusable packages; as the best choice of option to prevent or reduce the amount of waste that is generated in the first place. While recycling is an important component of the overall waste management hierarchy, it is still the least preferred option because you first have to generate waste in order to recycle it. Reuse falls in the middle in that if an item can be reused, either by the original user or by someone else before it is disposed or recycled, then the waste of that item is prevented or at least delayed.

Rankin (2004) made this observation that policy makers are finally coming to grips with the idea that the limits of recycling are in sight, that recycling cannot take care of all our waste disposal problems, and that recycling is not even the best waste management option. Reuse of products and materials, particularly packaging, is superior in terms of overall environmental impact. Reuse is often the best long term economic choice for businesses and consumers.

3. Methods

3.1 Research Design

The researchers employed the Qualitative method where the descriptive approach was adopted for describing the phenomena gathered from the data. Questionnaires were designed and administered to two groups of people; students from the Kwame Nkrumah University of Science and Technology. The second group comprised of hair

barbering salons, drug/pharmacy shops, supermarkets, and households.

3.2 Population

This research targeted the population of students from the Kwame Nkrumah University of Science and Technology, Kumasi and a group of households and shops around the university community. They include; barbering salons, drug/pharmacy shops, supermarkets, and households. The numerical representation of the target population is outlined in Table1 below;

Table 1: Target population for the study

NUMBER	RESPONDENTS	TARGET POPULATION
1.	KNUST Students Level 100-400	250
2.	Hair barbering salons	50
3.	Drug / Pharmacy shops	50
4.	Supermarkets	40
5.	Households	150
	TOTAL	**540**

3.3 Sampling Technique

With a random and purposive sampling technique, the researchers were able to identify and access a total number of 100 respondents. Questionnaires were designed and administered to the 100 respondents. In all, two sets of questionnaires were sent out. The first set of questionnaires was issued out to the population that usually "reuse packages". This was to examine respondents' perceptions and experiences while re-using these packages; whether they benefit from the practice and so on. A total number of 50 questionnaires were issued out to this group alone. The second set of questionnaires was directed at the group of the populace that normally throws away packages without first considering the possibility of reuse. This group consists of students from the Kwame Nkrumah University of Science and Technology (KNUST). In all 50 questionnaires were administered to this group of respondents. All the questionnaires were retrieved. The numerical representation of the sample is outlined in Table 2 below

Table 2: a Sample size of the study

NUMBER	RESPONDENTS	SAMPLE
1.	KNUST Students Level 100-400	50
2.	Hair barbering salons	15
3.	Drug / Pharmacy shops	10
4.	Supermarkets	5
5.	Households	20
	TOTAL	**100**

3.4 Data Analysis

The researchers employed SPSS (Statistical Package for the Social Sciences) and Microsoft Excel application software in analyzing the data obtained from respondents. Using the inductive approach to qualitative data analysis, all the data obtained from the respondent were transcribed using SPSS. The characteristics of each phenomenon identified were examined by categorizing them into themes. This was carried out with the aim of investigating the key objectives outlined in the study. Descriptive coding was used in summarizing the central themes of the data obtained. Coding was in two parts; firstly, public perception about reusable packages was grouped as one variable. Secondly, the reuse of packages as a better alternative to solving the problem of package waste management in Ghana was coded into 8 categories. The results obtained were presented in the form of a bar graph using Microsoft Excel application Software.

4.0 Results and Discussions

4.1 Respondents' perception and experiences while re-using packages

A greater percentage (96 %) of respondents from the study affirms having some awareness and experiences with regards to reusable packages (Table 3). On the other hand, 68 % of the respondents stated Yes with 32 % saying No regarding their awareness level and consciousness about safety usage of reusable packages.

This implies that there is a lot of awareness about the reusability of packages. Unfortunately, 88 % of the respondents do not think that the packages currently available in the market are designed to be reusable. It is only 12 % that agreed to the accession. This might be the main reason why 72 % of the respondents would likely discard packages without considering reusability. Only 28 % taught otherwise. Additionally, 80 % of the respondents would likely discard packages that do not meet taste whiles the remaining 20 % would not mind.

In determining whether the reusability of the package has any influence on purchase decision, 64 % of the

respondents agreed on whiles 36% disagreed. 52 %, on the other hand, said they would consider whether a package can be reused before buying a product with 48 % also in disagreement.

The fact that the majority of the respondents affirm being aware and experience with reusable packages is a clear indication that fertile ground is available for the effective propagation of reusable packages as a better alternative to other forms of package waste management disposal. Additionally, the reusability of the package plays a pivotal role in influencing buying decisions at the point of sale.

The result of the study shows that the majority (68%) of the public do not read labels on packages that suggest how they should be used or reused. it is eminent that an intense education should be carried out to sensitize the public on the need to read manufacturer's labels on packages. This will put the public in a better position to fully exploit the potential in reusable packages as well as protect them from consuming dangerous products.

It is evidently clear from the respondents that the majority would prefer packaged products over non-packaged products in the market. 92% were in favour while 8% taught otherwise. Numerical representation of respondents' perception and experiences with reusable packages as outlined in the table below;

Table 3: Perception of respondents about reusable packages

PERCEPTION VARIABLES	RESPONSE (%)	
	YES	NO
Awareness of reusable packages	96	4
Awareness of safety usage of reusable packages	68	32
Consider reusability of packages	64	36
Read manufacturer's labels pasted on packages	32	68
Consider whether a package can be reused before buying a product.	52	48
Discard packages without considering re-using.	72	28
Thinks packages available are designed to be reused	12	88
Likely discard packages that do not meet taste.	80	20
Preferred packaged products or non-packaged ones.	92	8

4.2 Respondents who think packages available in the market are reusable, disposable or non-reusable.

According to data obtained from the field, the majority of respondents (68 %), think disposables packages are the most available in the market. 20 % support reusable packages while only 12 % think the most available packages found in the market are non-reusable. It is evidently clear that most packages on the market are disposable. The disposable nature of these packages is the reason why consumers do not keep them after their content is consumed. Against this background, designers and manufacturers of packages should limit the number of disposable packages and produce more reusable packages instead.

As shown in Fig.1:

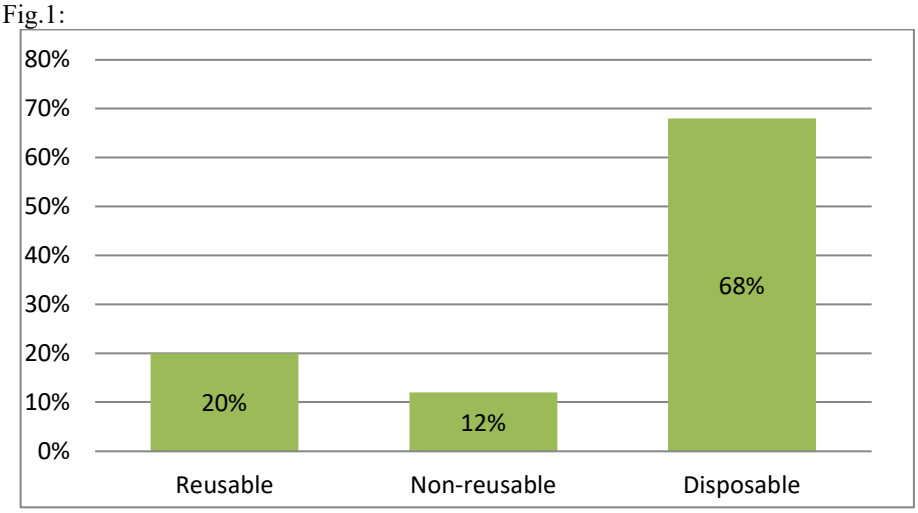

Fig. 1: Respondents who think packages available in the market are reusable, disposable or non-reusable.

4.3 Respondents who preferred certain type/types of a packaged product.

Preferences of respondents to the various types of packaged products were accessed by considering whether they would prefer attractive and decorative packages over portable and handy packages. The majority of respondents representing 52 % prefer attractive and decorative packaged products while 36 % would make portable and handy products their first choice. It was only 12% that would not bother about the type of packaged product. Although

the majority of the respondents preferred attractive and well-packaged products, they usually keep packages that are made from very durable materials as shown in Fig 2;

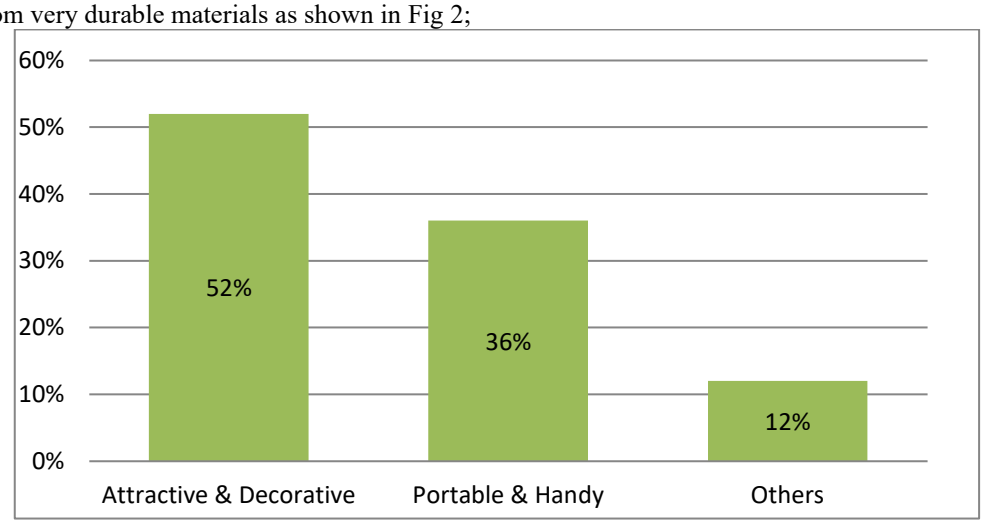

Fig. 2: Respondents who prefer certain type/types of a packaged product.

4.4 Respondents who consider reuse of packages and the reasons behind their actions.

A large number of respondents representing 68 % consider the reuse of packages because it serves a container for keeping food and other household items. 12% consider reuse for decorative purposes while 20% feel it is not applicable. This is an indication that a section of the respondents is already engaged in the act of re-using packages while the rest of the respondents have no clue about considering reusable packages. In addition, the fact that a section of the public is already practicing reusable packages without any difficulty sends a clear signal that there is a little problem associated with reusable packages as shown in Fig 3 below;

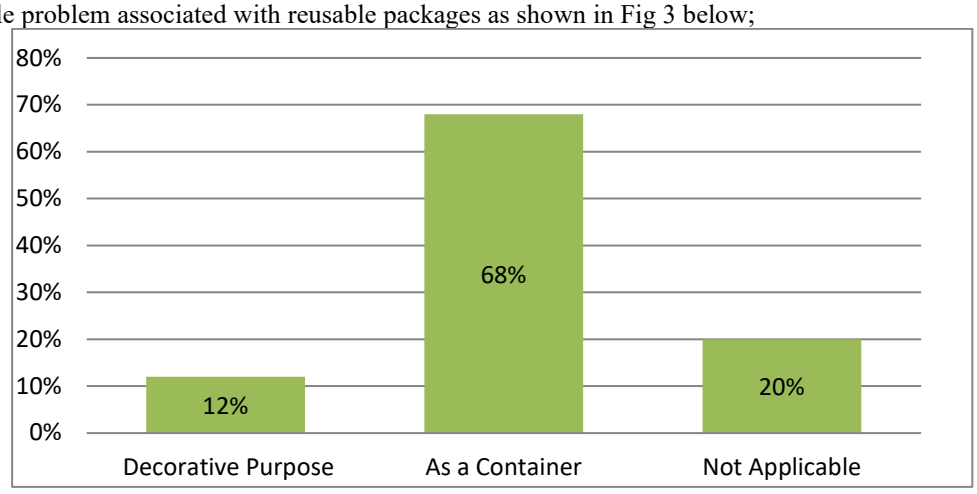

Fig. 3: Respondents who consider reuse of packages and the reasons behind their actions.

4.5 Respondents that would like to keep packages because of shape, durability or size, and for multi-purpose usage.

In an attempt to find out respondents view on whether they would like to keep packages because of the shape, durability or size and for multipurpose usage, the results indicated that 52 % of the respondents would consider durability and the sturdy nature of the package while 36% would consider nicely shaped packages first. The respondents that would like to keep packages because of its large multi-purpose usage were only 12 % (Fig. 4). This shows that the appearance, feel and tensile strength of the package play a pivotal role in determining the reusability of the package.

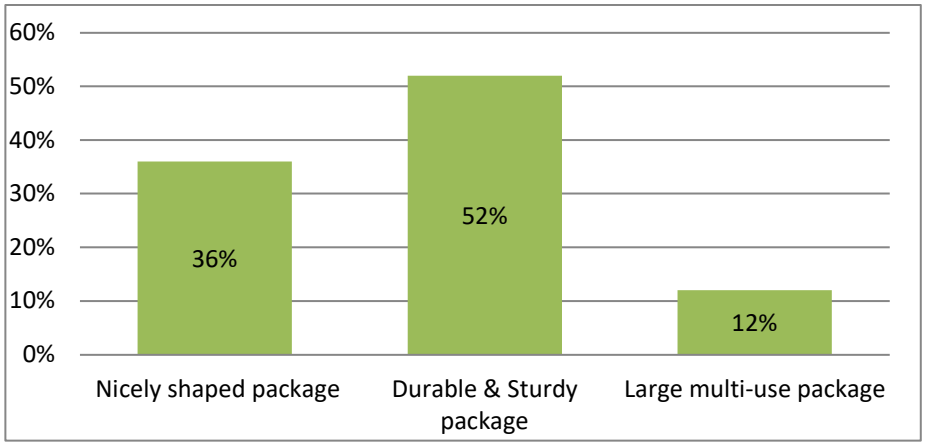

Fig. 4: Respondents that would like to keep packages because of shape, durability or size, and multi-purpose usage.

4.6 The type of packaging material that is safer and easier to reuse without adverse effects on the environment.
Most respondents (56%) mentioned that paper was the major type of packaging material that is safer and easier to reuse without adverse effects on the environment. The result further indicated that 32% of the respondents mentioned plastics and glass as other packaging materials respectively. Metallic tin plates were the least representing 8 %. The result further reveals that paper is the safest material to reuse. This implies that to fully enjoy the benefits of reusable packages, whenever possible, manufacturers should use materials that do not pose any problem to the environment. For this reason, biodegradable materials should be encouraged and used for packages most of the times as shown in Fig. 5 below;

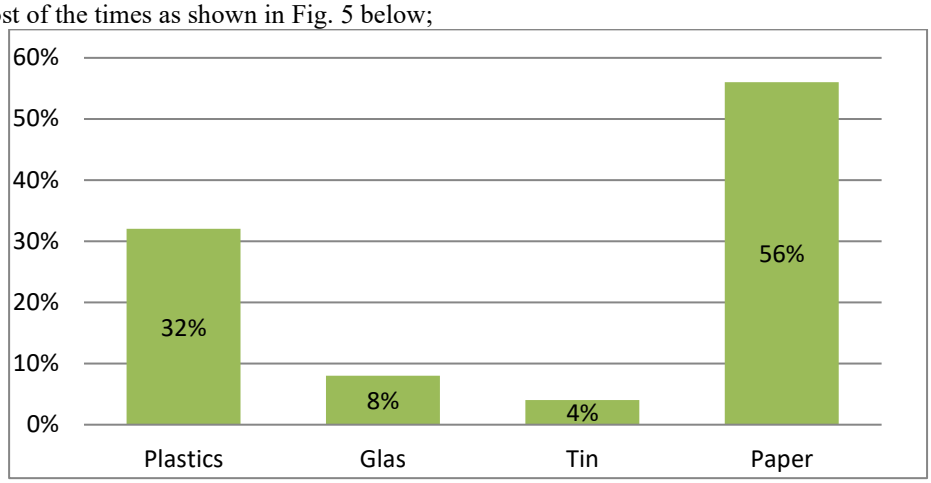

Fig.5: The type of packaging material that is safer and easier to reuse.

4.7 Respondents challenges with reusable packages
The research revealed that the majority of the public, representing 60 % do not encounter any challenge with reusable packages. 32%, on the other hand, face some challenges while only 8 % felt it is not applicable (Fig. 6).

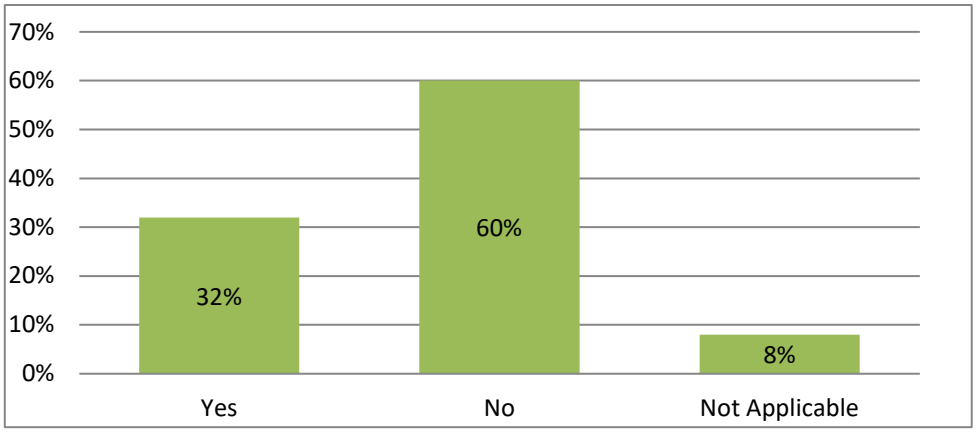

Fig. 6: Respondents challenges while re-using packages

4.8 Respondents view about the education of reusable packages

Considering the most effective medium to employ in educating the public about reusable packaging, a large number of the respondents representing 56 % suggest the use of mass media especially Radio, TV, Newspaper and Print media. 20 % of the respondents propose other forms of media whiles 16% and 8 % recommend schools and market centers respectively (Fig 7). It is obvious that sensitization through various forms of media especially the mass media would go a long way in helping the public to understand and accept reusable packages as a better alternative to solve the problem of package waste management in our communities. Since adopting the concept of reusable packages is proven to have the potential of becoming a better alternative to solving the problem of packaging waste management in Ghana, the Environmental Protection Agency has a duty to champion the course of reusable packages in the country. Furthermore, manufacturers of packages should organize seminars and public lectures on reusable packages and start producing reusable packages instead of producing disposable ones. Similarly, the designers of packages should consider the reusability of a package and advise the right material to be used for the packaging.

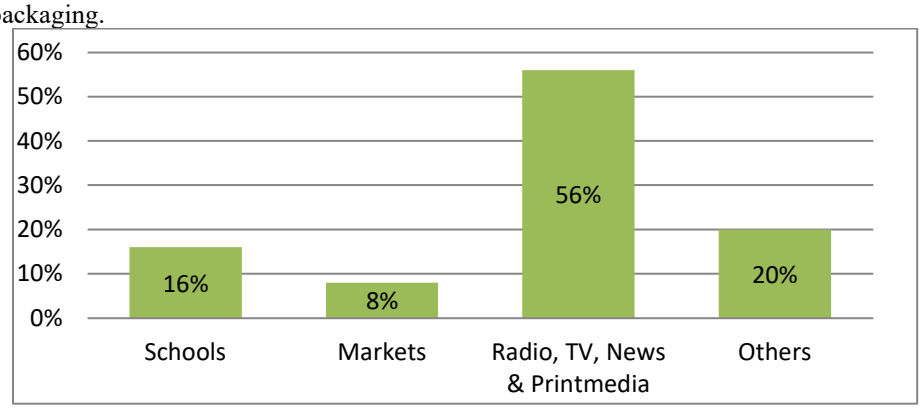

Fig. 7: Respondents view about the education of re-use packages

4.9 Who should be responsible for sensitization?

The responsibility of championing the campaign on adopting the concept of reusable packages other than other forms of waste management disposal strategies should primarily rest on the Environmental Protection Agency (EPA). According to the result obtained, 68% of the respondents agreed it is the duty of EPA for sensitization whiles 16 % think Metropolitan and Local Assemblies should be responsible. 4 % suggest information services while 12 % recommend any other agency (Fig. 8). Consequently, EPA should engage other key stakeholders in planning, developing and supporting creative campaigns on reusable packages. Furthermore, seminars and public lectures on reusable packages could also be organized. Similarly, package designers and manufacturers should critically consider the reusability of a package and advise the right material to be used for the packaging.

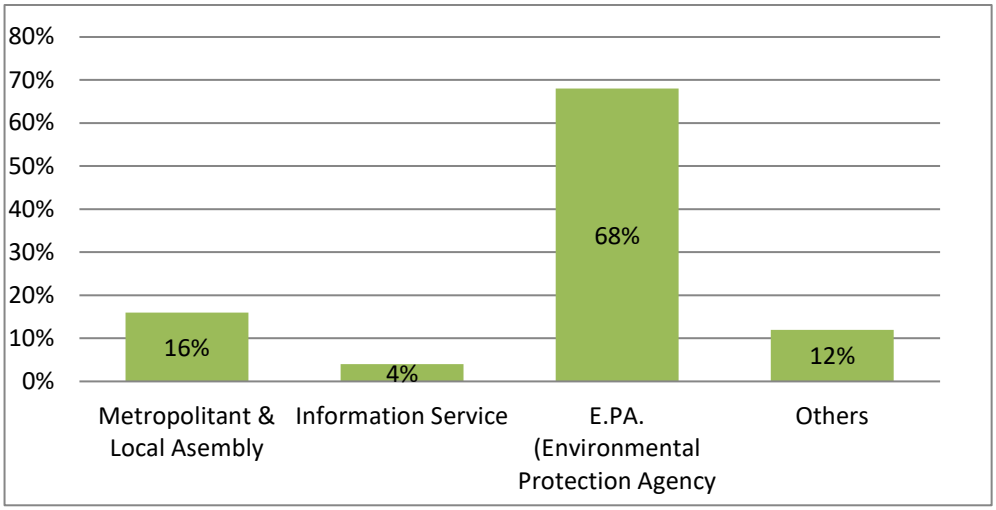

Fig. 8: Agencies responsible for sensitization

5. Conclusions

The fact that the majority of the respondents affirm being aware and having enough experience with reusable packages is a clear indication that the effective propagation of reusable packages is a better alternative to other forms of package waste management disposal.

However, since the result of the study shows that majority of the public do not read labels on packages that suggest how they should be used or reused; it is eminent that an intense education should be carried out to sensitize the public on the need to read manufacturer's labels on packages. This will put the public in a better position to fully exploit the potential in reusable packages as well as protect them from consuming dangerous products.

It is evidently clear that most packages on the market are disposable. The disposable nature of these packages is the reason why consumers do not keep them after their content is consumed. Against this background, designers and manufacturers of packages should limit the number of disposable packages and produce more reusable packages instead. Again, designers of packages should consider the reusability of a package and advise the right material to be used for the packaging. The study revealed that to fully enjoy the benefits of reusable packages, whenever possible, manufacturers should use materials that do not pose any problem to the environment. For this reason, biodegradable materials should be encouraged and used. Finally, environmentally safe and durable materials should be used in the design of reusable packages.

It is obvious that sensitization through various forms of media especially the mass media would go a long way in helping the public to understand and accept reusable packages as a better alternative to solve the problem of package waste management in our communities. Since adopting the concept of reusable packages is proven to have the potential of becoming a better alternative to solving the problem of packaging waste management in Ghana, the Environmental Protection Agency has a duty to champion the course of reusable packages in the country.

Consequently, EPA should engage other key stakeholders in planning, developing and supporting creative campaigns on reusable packages. Furthermore, seminars and public lectures on reusable packages could also be organized.

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