

# **PACKAGING IN GHANA: CHALLENGES IN THE PACKAGING DESIGN AND PRODUCTION CHAIN**

By

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## DECLARATION

I hereby declare that this submission is my own work towards the PhD degree and that, to the best of my knowledge, it contains no material previously published by another person or material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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## ABSTRACT

Over the years manufacturers in Ghana have been using different types of packages for the sale of their products on the local market. The problem of poor packaging of locally made products took a centre stage as most of the exported products to the international market could not be sold because they were poorly packaged. Much efforts have been made by the various stakeholders in the packaging and export sector ever since to solve the poor packaging of the locally made products. In spite of all these efforts the problem still persists even though it is not as it used to be at the early stages. Therefore, this research studies the Packaging Design and the Production chain in the Ghanaian packaging industry. It aims at identifying the challenges and proposing solutions to the constraints inherent in the packaging design and production chain in the local packaging industry. Customer satisfaction is now of prime importance to every modern product manufacturer. The product must give some form of satisfaction to the customer and since the product and its packaging go hand in hand, the packaging should also give satisfaction to the customer. Customer satisfaction in the packaging can be achieved by getting customers' input for the design of the packaging. Kano's Theory of Customer Satisfaction has been proven to offer the easiest way of getting the different customer requirements in a product. This research also tests the feasibility of using the Kano's Theory of Customer Satisfaction in determining customer quality requirements for packaging concept and development. The researcher finally proposes solutions to the identified challenges in the packaging design and production chain which would help improve the quality of local products packaging, especially food products packaging.

It is believed that an improvement in the packaging design and production chain would help solve some of the inherent problems in the Ghanaian packaging sector and possibly bring the problem of poor packaging to the minimum level. The research began with the study of related literature; this gave the researcher information about existing studies done in the subject area and to justify the research topic for the study. The purposes and the new marketing roles of packaging and labelling were considered in the review. Printing equipment and methods employed in packaging design and production were also reviewed. The researcher employed the qualitative method of research in this study. Personal interviews with selected personnel in the various packaging subsectors were conducted in the nation's two major metropolises, namely: Accra and Kumasi, where the big companies, shops and more of the customers are located. The data gathered were assembled, analysed and interpreted. Out of it conclusions were drawn and recommendations made which would help improve the local design and production of packages for modern competitive markets. The conduct of the research has unearthed some of the problems and challenges in the packaging design and production subsector in the Ghanaian packaging industry such as poor pack designs, poor prints, lack of experts in packaging structural design, poor adherence and enforcement of packaging quality standards, the use of obsolete packaging machinery, to mention but a few. Proposed solutions to the problems identified in the study include the use of Concept Testing Methodologies, the use of Jigs in Manual Labelling, the use of Press Settings Recorders, and specific areas where capacity building programmes have to be focused on. The researcher believes that by employing the solutions provided would help address most of the challenges in the local packaging industry.

M. I.

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## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the Study

Ghana, since it undertook its economic reform in 1983, has initiated an export diversification programme. Manufacturers and exporters have been involved in outlaying considerable capital to take advantage of the opportunities offered by export diversification to expand their market. Unfortunately, Ghanaian exporters in the manufacturing sector, in an analysis by the Ghana Export Promotion Council (GEPC), appear uncompetitive vis-à-vis the foreign competition.

The Freeport zone and trade liberalisation policies in Ghana have also put locally manufactured goods in a stressful competition with the imported Western goods in the local market. The attractiveness of the packages of the foreign products coupled with their affordable prices has been attracting more patronage in the local market suffocating the marketing of locally manufactured and branded goods to yield poor sales (“Export Packaging”, 2007).

Much of the difficulties faced by the Ghanaian products sold locally or exported can be located in the processes involved in the packaging of products. At the centre of the problem is the issue of poor labelling. It does appear that some degree of technical incompetence and inadequate understanding are still prevailing in the local packaging design and production chain.

## 1.2 Statement of the Problem

There is a general perception that packaging and labelling of Ghanaian products lack the quality that can make them competitive in any market. Although some of the locally made products are considered to be of high quality and unique to the country, the sad part is that they are not accepted as good packaged products to enable them to be sold successfully outside the local market. Some of the locally made products go bad as a result of this poor packaging system leading to huge capital losses to manufacturers and exporters of such products.

There are many factors that may contribute to poor or substandard packaging. Factors such as the manufacturers' perception or understanding of the role of packaging as a marketing tool, the producer's commitment to ensuring quality, the availability of the right inputs as required to produce and financial constraints can significantly influence manufacturers' choice of packaging a product.

The market competition and the consumers' desire for quality products compel manufacturers to ensure quality in both their products and packaging. However, poor adherence to quality practices and regulations could lead to poor packaging as well.

Preliminary investigations conducted by the researcher revealed that good packaging materials, machinery and personnel required to help manufacturers package their products well were available in the local packaging industry. Notwithstanding, the problem of poor packaging or sub-standard packaging of locally produced and packaged consumer products still persist. These, among others, put the local Ghanaian manufacturer's packaged products in a *hit-or-miss enterprise* and a strong market competition with imported packaged products on the local and international markets.

There is also a general perception that Ghanaian customers prefer imported foreign products to similar locally made brands and patronise the former mainly because of the high quality and attractive looking nature of their packaging. The result is that there is comparatively better sale of the imported products than those produced locally and placed on the Ghanaian market. This situation is becoming more and more alarming as it is dwindling sales and profit margins of “made in Ghana” products on their own local market.

It may appear that the local manufacturers in the Small and Medium Scale Enterprise (SME) brackets do not seek and input their customers’ concerns in their product packaging developments. As a result their product packaging may not satisfy their customers fully leading to customer dissatisfaction. Customer dissatisfaction in the product and its packaging can potentially lead to customer disinterest and low patronage of a product. This could subsequently weaken the customer loyalty to the products and also have an adverse effect on the sales and profit of the manufacturers.

In spite of over a decade’s effort made by stakeholders to resolve the issue of poor packaging and labelling of locally made products, the problem still persists among the manufacturers in the SME bracket. This study therefore seeks to identify why there are still problems within the packaging design and production chain of the Ghanaian packaging industry and propose solutions to them.

### **1.3 Objectives**

The study seeks to:

1. Identify the challenges inherent in the packaging design and production chain in the local packaging industry.



2. Find out what methods local food product manufacturers use to get customers' input for their products' packaging design concepts and development.
3. Assess the impact of the packaging ancillary organisations' programmes on product packaging in Ghana.

#### **1.4 Research Questions**

1. What are the challenges in the local packaging industry that lead to poor packaging?
2. What methods do local manufacturers use to get customers' input for their products' packaging design concepts and development?
3. Are the programmes designed by the local packaging ancillary organisations actually support good or high quality packaging of local food products?

#### **1.5 Delimitation**

The research is limited to consumer products packaged locally by manufacturers resident in Ghana whereby packaging should promote the sale or advertise the products that can be sold in the supermarkets. Thus, products whose packages require structural design, decoration and must be labelled as required by food and drugs laws are considered in this study.

This study will not go deep into packaging material sciences where the biological and/or chemical properties of each packaging material will be tested with sampled products and specifying their optimum barrier properties in relation to their shelf-life. However, the study will make use of available existing data on the packaging material properties where possible to support a claim or make a claim.



A study in respect of packaging machinery and personnel is beyond the scope of this research since it focuses on the packaging and labelling designs for consumer products. Therefore, the quality assurance activities in the packaging graphic design and print production and testing are considered.

Much attention will not be given to secondary and tertiary packages in this thesis document since they are not the main focus of this research. The main focus is on the primary packaging and labelling concepts and how packaging designers could test their packaging design concepts to ensure market success. However, some information on secondary and tertiary packaging will be provided when needed.

## **1.6 Limitations**

The researcher does not claim of expert knowledge; he accepts responsibility for any biases or shortcomings.

## **1.7 Definition of terms**

**Competitive edge** - The advantage a company has over its competitors in product marketing.

**Consumers** - Are those individuals who use goods or services to satisfy their individual needs and desires, rather than to resell or use them as raw materials.

***Hit-or-miss enterprise*** - An insecure business venture.

**ISO** - International Organisation for Standardisation

**Labelling** - The use of textual information on a product's package to instruct and to inform those who interact with the product.

- Packaging -** The materials in which objects are wrapped or contained before being conveyed or sold. In economic sense, packaging is industrial and marketing technique for containing, protecting, identifying, and facilitating the sale and distribution of products.
- PNDCL -** People's National Democratic Congress Law. PNDC was a political party in Ghana.

## 1.8 Abbreviations

- GEPC** - Ghana Export Promotions Council.
- ISO** - International Standards Organisation.
- IOPG** - Institute of Packaging, Ghana
- SMEs** - Small and Medium Scale Enterprises
- WTO** - World Trade Organisation.
- WPO** - World Packaging Organisation.
- PROINVEST** - Promotion of Investment and Technology.
- APEX-CI** - Association Pour les Exportations de la Côte d'Ivoire
- SMEs** - Small and Medium Scale Enterprises
- UPDIG** - Universal Photographic Digital Imaging Group. A coalition of professional bodies dedicated to promoting standards for photographic digital imaging.

## 1.9 Assumptions

1. A scientific study into the local packaging design and production chain could help identify the challenges in the local packaging industry that lead to poor packaging of locally manufactured products.

2. The results of the study can be applied to solve most of the packaging and labelling design problems in Ghana.

### **1.10 Importance of the Study**

The study is geared towards finding a pragmatic solution to major problems affecting the quality of product packaging in the SME sector in Ghana. The study would therefore enable manufacturers to package their products professionally and attractively to meet the taste of their target market.

This research report would serve as a guide for design and testing of consumer packaged products. It will also serve as a body of reference for packaging designers, teachers and students of packaging design and construction in the higher education.

### **1.11 Organisation of the Rest of Text**

Theoretical backgrounds to the study and literature relevant to this study have been reviewed in Chapter Two.

The research design, population used, the sampling procedures as well as data collection methods and treatment of data are detailed in Chapter Three. Chapter Four gives detailed account of the analysis and interpretation of the data collected, as well as the proposed solutions to the major problems identified in the study. The Chapter Five contains the Summary, Conclusions and Recommendations.

## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURE**

#### **2.1 Overview**

The researcher's quest to know much about literature on packaging, especially those on Ghanaian products, for the local and international markets revealed a lot of information on the history, problems and measures taken to mitigate them in order to make the packaged products competitive in the global market and to be able to meet the challenges in packaging in the 21<sup>st</sup> century.

In this chapter the definitions of packaging, history of packaging and the development of packaging from the days of old to the present, functions of packaging materials and packaging were looked at. In addition, literature material on quality and customer satisfaction was reviewed.

#### **2.2 Definitions of Packaging**

From the varied definitions of packaging given by packaging experts and researchers in their published and unpublished documents it has been proved that it is not a term that is easy to define as it means a different thing to different people.

The simplest definition of packaging given by Dorf *et al* (1994) is “the material, form or vessel that contains a product” (p. 332). This definition is similar to that of the Oxford Advanced Learners Dictionary (2000:838), which defines packaging as the material used to wrap or protect goods before they are sold. These

two definitions, though simple, captures some aspects of packaging as the use of materials to wrap products in order to contain them. It implies that using anything to wrap a product is referred to as packaging.

Okumpah-Bortei (1991) in his MA thesis cited Davis (1967) as saying: “Packaging is a collective form for all kinds of containers in which goods are packed for sale to the consumer”. He commented that it is too narrow a definition for packaging since it excludes containers mainly intended for transit or storage purposes. He also added that this definition limits packaging to ‘kinds of containers’ alone leaving out other activities involved in packaging. Okumpah-Bortei’s comments show that the previous definitions are a bit inadequate and the researcher agrees with him.

Hanlon (1971) gave a definition that describes some aspects of packaging by asserting that; “packaging has many faces. In its more familiar forms it is the box on the grocer’s shelf and a wrapper on a candy bar. It can also be the crate around a machine or a bulk container for chemicals”.

It is obvious that he was describing packages rather than defining packaging. Hanlon continues by explaining further that: “.....it is art and science, it is materials and equipment. It is protection, promotion, law, logistics, manufacturing and materials handling all rolled into one”. This explanation reveals what is involved in packaging processes, and cannot be taken as a definition.

Paine (1961) also defined packaging by some functions it performs: “Packaging may be defined as a means of ensuring the safe delivery of a product to the ultimate consumer in sound condition at the minimum overall cost”. If packaging can be defined by its functions then Paine’s definition captures just a little of the functions packaging performs. The various functions of packaging the researcher



discovered are discussed under the functions of packaging. The proposed definition by the institute of packaging professionals quoted by Raper and Ming-Ren Sun (1994) says:

The enclosure of products, items or packages in wrap, pouch, bag, box, cup, tray, can, tube, bottle or other container form to perform one or more of the following functions; containment for handling, transportation and use; preservation and protection of the contents for required shelf and use life and sometimes protection of the external environment from any hazards of contact with contents, identification of contents, quantity and manufacturer – usually by means of printing, decoration, labelling, package shape or transparency; facilitate dispensing and use. If the device or container performs one or more of these functions, it is a package (332).

The researcher considers this as an all embracing definition touching on all aspects of packaging. However, it seems too long for a definition and also if new functions of packaging are discovered in the future then it will be inadequate to stand as a perennial definition. The researcher proposes the following as working definition for packaging in this study: Packaging is the use of material and process to produce a support for a product to facilitating its preservation, transportation, handling, marketing and information dissemination.

### **2.3 History of Packaging**

The researcher agrees with the popular assumption that the people who lived in the prehistoric era were not much concerned with packaging products as they are presumed to consume things in their raw/natural state and most probably on the spot or may carry them in their bare hands. However, the uses of packaging in one form or other evolved gradually as man progressed through life.

The most significant era of packaging is when man started containing some of their wares in leaves as wraps, gourds and shells as containers, which nature has endowed since creation. The researcher is of the view that one of the first



constructed packages may probably be weaved palm fronds and creeping plants for packaging agricultural goods and also for transporting them.

The oldest information on manufactured package available to the research dated as far back as 1844 when paper production was introduced in Europe. What necessitated the use of manufactured package could be linked primarily to transportation and agglomeration (“History of Packaging”, 2006).

Packaging started in a different form from what we know today. The earliest form was by the use of animal skins, shells, broad leaves and hard “skin” fruits and vegetables. Liquids were stored in containers made from animal skins, hollowed out logs, gourds, coconut and shells. In the Ancient Egypt and Roman Empires times, containers were made of clay and other materials. Later on glass, metal and paper were introduced when their technologies were discovered and these materials were used for packaging most of their wares. Butter and cheese were kept in baskets, vinegar in barrels, and tea in chests whilst grains were put in sacks during the Victorian times (“The History of Packaging”, 2007).

The above information drew the researchers’ attention to the indigenous packaging practices in Ghana. Most food made of corn, such as the ‘Ga kenkey’ and ‘nkyekyera’ for example, are wrapped in corn husk and it is still being practiced to this day. Firewood was bundled for sale using twisted palm fronds. Foodstuffs were transported from the farm to market places or homes contained in woven palm fronds called “*Bede*” in Twi language. From this the researcher can confidently conclude that packaging is not new to Ghanaians but it is the branded packaging that is new.

The first ever branded package was introduced in England in 1746 by one Dr. Robert James who packaged his “Fever-Powder” in a box for retailing (Ariev, 2007). Other people followed suit by introducing other forms of packaging by using

different materials such as metal and glass. A. F. Pears, an Englishman established the first soap packaging company (Ariev, 2007). Yardley of London also packaged his famous lavender water in glass bottles, whilst Crosse and Blackwell also branded olive oil and mustard in jars (Ariev, 2007).

Packaging as a method for food preservation began in the later part of the 16<sup>th</sup> century. In 1795, when the French War was raging, the demand for food preservation increased that led to the development of canning. The famous French warrior Napoleon Bonaparte realising the need to preserve and transport food to his army offered a prize to reward anyone who could find answer to his demands. In 1809, one Nicholas Appert, a confectioner, invented the process of canning by introducing an airtight glass jars to win the prize. By this, he introduced canning into the system which was further developed to light weight cans we have today. A lot of development took place around this period (“History of Packaging”, 2006).

The Encarta encyclopaedia (2006) considers the developments in packaging in the early 19<sup>th</sup> century as the beginning of Modern Packaging. It continues that in 1810 two inventors, Augustine de Heine and Peter Durand, patented an iron and tin containers, called cans, for food preservation. More improvements on the canning processes were discovered in the late 19<sup>th</sup> century and early 20<sup>th</sup> century.

Canned product was first used by the army before it came to the consumer's domain. The British Army first used the canned food during the Crimean wars (1853 – 1865); In the American Civil war (1861 – 1865) the militant groups used these bulky cans for food preservation and transportation (“History of packaging”, 2006). It is interesting to note that light cans that we have today and are easy to open used to be bulky and required the use of hammer and chisel for opening when it was first introduced (“History of packaging”, 2006). Product packaging became very

important during the World Wars. Therefore, the author finds this contradictory to Herdeg (1961) assertion that the problem of packaging may appear of a relatively little importance to people when they face problems that involve their survival. The author is of the view that although war is bad but this development of food product packaging is one good thing that was initiated by the demands of war at that period in history.

The 19<sup>th</sup> century was the period when advancements in canning and paper containers fabrications we use today got started. The packaging industry at that time availed itself with the development of mechanical printing processes, photoengraving and process colour printing. Many packages were decorated using the printing processes to make them more attractive to the buyers, to bear the names of the products and their manufacturers' information. This marked the beginning of packaging, branding and labelling.

#### **2.4 Packaging Materials and their Efficiency**

Different materials have been used to package things in one form or the other. People all over the world have improvised various materials to serve the purpose of packaging for their items or products. However, as it has already been identified, packaging materials come from two sources – natural and artificial sources. The first materials used for packaging were acquired from natural sources. Some of those obtained from natural sources are more or less ready-made or require rudimentary method to make them. They include animal skins, gourds, shells, hollowed wood, leaves, coconut shell; bamboo and any other thing that can serve similar purposes which nature has endowed that require no scientific processes for conversion (“History of Packaging”, 2007).

These natural materials served the purpose of packaging but not to the fullest. Many limitations were discovered as man progresses in life. Amongst the problems identified with these natural materials include: uneven sizes or capacity to hold same amount of content, limitation in supply, easy acquisition and unhygienic nature of some of them.

The researcher is of the view that another greater limitation of some of these packages is their rigid natures which do not allow them to be remoulded into different shapes for the variety of products we have today. There could also be limited opportunity or much difficulty, if not impossible, to brand or decorate some of them with the printing and treatment (sterilization) processes we have today. The quest for more efficient materials for packaging brought about the research into artificial materials. The modern packaging materials and technologies we have today are the result of mankind's effort to do efficient packaging. Presently, the basic materials for packaging include paper, paperboard, plastics, glass, wood, cellophane, steel, aluminium and textiles. These materials are processed or fabricated into the various forms of packaging we have today.

To effectively review the packaging materials available today, it is better to categorise them into flexible, semi-flexible, rigid and semi-rigid packaging materials. Some of these may be transparent, translucent or opaque in nature. The materials that fall under the flexible category are: rubber sheets, textiles fabrics, cellophane and some plastics, polyethylene and foils (Export Packaging, 2007). The semi-flexible/semi-rigid included plastics, paperboards, veneer and micas. Under the rigid category we have steel, iron, silver, copper, wood, and some plastics. Each of all these materials for packaging has different properties, so they are processed using different technologies. They also have different advantages and disadvantages over

each other. The suitability of each depends on what product it is to contain and the purpose it is to serve.

## **2.5 The Nature of Packaging**

From the history and development of packaging we can realise that the term packaging is complex as it can be put into a different contexts. Packaging has so many forms as different materials and purposes influence it. It is imperative at this point to look at what kind of packaging is under review and how some people with requisite knowledge about packaging have described it.

Hanlon (1971) opens the studies on the nature of packaging by looking at its familiar form as the box on the grocer's shelf and the wrapper on a candy bar or the crate around a machine or a bulk container for chemicals. He further explained it in a broader sense as any structure that contains or limits its contents such as crates, nests, cocoons as well as displays, utensils and conveyances.

Leonard (1980) as quoted by Ockumpah-Bortei (1991) indicated that "A package...consists of both structure and appearance". Thus, a package can be looked at in two different ways: The structural design, that is, the construction of package from the technical point of view, and the visual design, that is the appearance of the package and its promotional value. Ockumpah-Bortei (1991) explained that these two aspects may be distinct but inseparable.

Ockumpah-Bortei (1991) made some observations on this statement and categorised it into three main parts: consumer packaging, industrial packaging and military packaging. This means there are different approaches to consumer packaging, industrial packaging and military packaging. What goes into consumer



packaging for both export and the local market also holds for the consumer products packaging.

The author, comparing the views of the two authors, observed that though they seem to agree, but their interpretations differ in context. Leonard's statement is applicable to all forms of packaging; for every package has a form and appearance which can be beautiful or ugly. The author is of the view that Ockumpah's interpretations can only be applied to only manufactured packages which the manufacturer and the client have some control over or can pre-determine its appearance for promotional purposes. Again, it is not every package that is meant to promote sales. It could only be as a wrap for transporting the product, for temporal storage of product in the warehouse or just for transporting the goods to a different location.

Ariev (2006) observed that "Virtually all manufactured and processed goods require packaging during some phase of their production and distribution". The statement "...during some phase of their production" indicates that some packages are not for promotion or for marketing, but to help in the production of other products. The statement also buttresses the need for packaging in production and distribution of goods. During production of some commodities especially alcoholic beverages, some of the ingredients must be stored in vats for some time for fermentation to take place before the alcohol can be produced. So packaging is very vital to modern production and distribution processes.

## **2.6 Traditional Purposes and Functions of Packaging**

Packaging has gone through a lot of innovative changes as a result of gradual improvements in machinery and technology over the years. Packaging may look



different in these modern times from the old but its basic purposes and functions are still the same. The most important aspect of packaging is its functions. In general, packages perform a lot of functions which most packaging researchers such as Byett *et al*, Judd *et al*, Pilditch, and Hanlon have written a lot about. This shows that most of the researchers' interests are geared toward the study of the functions and purposes of packaging. From the purpose of packaging we can also determine the functions of packaging. The traditional purposes and functions of every product packaging are to contain products, protect products, to preserve the products, to facilitate transportation and storage.

#### **2.6.1 Containing and Keeping of Content**

The first function of a package is to contain or keep its contents (History of Packaging, 2006). This function of a package made Hanlon (1971) defined packaging simply as the structure that contains or limits its contents. Therefore, if that structure cannot keep its contents efficiently, then it fails to be a good package for that particular product. It means that the package must keep the content from spilling, spreading or evaporation until the user of the product decides to do so.

#### **2.6.2 Protection of Product**

The package is to protect its contents. The protective function comes in two forms. Firstly, it must protect the content from the external environment to prevent contamination. Secondly, if the product is poisonous or toxic to human and environment the package must protect it from coming into contact with human and the environment. Also, if the content can deplete or is volatile it must protect it from depleting or evaporation. Commenting on this function, Pilditch (1961) said the

primary job of a pack is to protect its content against shock, vibration, light, odour, bacteria, moisture, climate, pilferage, chemical reaction and physical risks.

From Pilditch's (1961) observation, the protective functions of packaging are many and very important to both the producer and the consumer. It is a pertinent function all producers must consider when choosing the appropriate packaging material for their products in order to get maximum protection for their goods in all conditions to avoid loss of products and revenue. He added that the package exists to protect the product, if it is not purchased now on the market, for the future.

This function of packaging acts as an assurance to the producer that after all if what he has packaged and brought to the market is not bought immediately, it can wait on the shelf for a considerable length of time for the prospective buyer to come and buy it. For the package to keep the product for a long time means that it must be made with the right kind of materials and it is given the right environment. Therefore, for packaging to serve its purposes and functions it requires that it is properly constructed using the right kind of materials and is given the right climate or environment that best suits it.

### **2.6.3 Product Preservation (Product Quality Maintenance)**

The preservation function of packaging enables products to retain their quality (freshness or its standard state) from the factory to the market and even to the time it is bought and consumed (Pilditch, 1961). That is, it must be able to extend the product's 'Shelf-life', which is the period the product can last on the shelf before it goes bad (Hanlon, 1971). Packaging therefore extends the life span of products. A good packaging is undoubtedly the one that can best perform this function creditably. As an assurance to the seller, it gives the seller confidence that the products will not

go bad if they are not bought immediately from the shelf. Information on the life span of the product is also provided on the packaging to inform both sellers and buyers the date of expiry and the required storage conditions for the product (Ghana Standards Board: General Labelling Rules, 1992 (L.I. 1541)).

It must also be mentioned here that storage conditions are very important in complementing the packaging in its product preservation functions. This is one of the reasons why manufacturers, who know and understand packaging materials they use and the nature of the products they package, are required to provide information on the storage conditions suitable for the products they package. If proper information on storage is not provided on the package a good package may not be able to preserve its content well.

It can be deduced from this function that packaging acts as 'life support' covering to packaged products. If a package fails in this function buyers may feel reluctant in patronising the product, whereas consumers may find it unsafe to use. A seller may reject or will just buy a few quantity of the product in question that he/she can quickly sell off to avoid losses. The customers may also avoid losses by just buying a few quantity they may need to consume quickly. All these culminate into low or poor sales of the product in question.

#### **2.6.4 Facilitating Transportation of Goods**

This function of packaging made export and import trade possible as well as the movement of goods from factories to the various markets and consumers' homes (Pilditch, 1961). Goods can efficiently be transported because of this function. Without packaging some products, by their nature, cannot be convey in any physical

form. For example liquid products such as Coca-Cola, mineral water and the likes from the beverage industry could not be possibly sold out and carried away easily.

Different packages are specially designed for products transport purposes. These packages are referred to as secondary and tertiary packages. The primary package is basically the one that contains the actual product for retailing purposes. The primary package is what is put on the shelf to attract the buyer's attention and to induce the feeling of buying. The secondary packages are made large enough to contain more of the primary packages and they are usually made of corrugated cardboard. Tertiary package is usually the last package given to products that are to be transported over a long distance. Tertiary packages are more involved in Export and import trade operations where bulks of goods are transported over long distances ("Packaging Design", 2005).

These tertiary packages are made to contain more of the secondary packages to facilitate palletisation and containerisation for quick and easy transportation of bulk supplies. Palletisation is the operations involved in stacking and securing the packages to be transported on a low platform referred to as pallet. Containerisation means stuffing products into the compartment of a big rectangular metal case referred to as container. To enhance efficiency these packages are standardised for easy transportation.

What is required of every manufacturer who may need to use these standardized packages is to design their secondary packages to smaller standard dimensions of these packages to fit well into them to prevent or to minimise damages to their products during transportation activities at the various ports ("Packaging Design", 2005).

Much graphic art works are not done on both secondary and tertiary packages since they are not designed to attract customers but only to transport bulk of the packaged goods. However, since transportation of goods involves handling, lifting and conveying the graphics incorporated on secondary packages only give instructions on how to handle the package, the identity of the products it contains, the weight, dimension of the package and the manufacture's information as well as other information needed for tracing the product in the warehouse ("Packaging Design", 2005).

#### **2.6.5 Facilitating Product Storage**

The last traditional function of packaging to be discussed is how it facilitates storage of products. This function is made possible by the package's ability to contain, protect and to preserve products it contains. This function therefore depends on these other three functions for its efficiency.

This function of packaging makes warehousing possible, enabling wholesalers and retailers to stock their goods until they are needed for sale. This in effect also helps in regulating or managing supply of goods to the market. Whenever there is the need to create artificial shortage product distributors fall on this function to succeed. Some industrial processes of product development require packaging to store the product at different stages. The Encyclopaedia Britannica (1984) definition of packaging captures this function: "Virtually all modern manufactured and processed goods need some sort of packaging at some stage in their production." Packaging may be used in the industry for fermentation and preservation processes.

All these traditional functions of packaging are basic to all forms of packaging; be it primary, secondary or tertiary. The existence of many competitive



brands of products today makes the packaging of modern consumer products focus more on how the packaging would help sell the product on the market rather than just protecting the product. However, the basic functions of packaging have not been neglected in the overall design of modern consumer product packaging.

Modern consumer product package design has added more functions to these traditional ones. Judd *et al* (1989) exposed these new functions of packaging by saying that “Today a package design has so much to do as attraction, reassurance and persuasion that each helps to precipitate the purchase decision”. Byett *et al* (1997) also added that “As an aid to marketing, packaging goes much further... Sometimes the package itself can help widen the satisfaction provided by a product.” For these reasons packaging designers need to be concerned with how their designs can market the products they contain in the highly advanced competitive markets. Therefore, packaging designers must understand how the elements in their designs will impart on the consumers’ satisfaction in order to sell the products.

#### **2.6.6 Product Positioning Functions**

Packaging helps in positioning products in the market as it gives answers to the three basic product positioning questions: *who? what? and whom?*. Product positioning, according to Judd *et al* (1989), in marketing terms is selecting a market section for which the product is particularly made appropriate. Manufacturers use market segmentations to sell to different categories of people within a specific market. The process of choosing and aiming more precisely at specific market segment is referred to as positioning. In any of the market segments the packaging is designed differently to suit that segment taste or requirements. In brand positioning Judd *et al* (1989) identified three elements (also fundamental questions) which are:

*who?* sells *what?* to *whom?* The packaging does provide and communicate the answers to the questions to the purchasers as it acts as the product's "Silent salesman".

From the above discourse, the author deduced that modern consumer packaging design should achieve the following:

1. The design of the package must ultimately appeal to almost all the senses of the targeted consumers. It must appeal to **sight** (aesthetically pleasing, elegant looking), **touch** (feel good, portable or easy to handle), **smell** (smell good), **taste** (good or appetising) and **hearing** (precise information).
2. It must either create or touch the right emotion(s) of the buyer to persuade or encourage purchasing of the product, to make purchasing of the product inevitable and worth buying.
3. It must create a positive impression or image in the prospective buyer's mind. It must appear to be strong, high quality, firm, durable, professional and excellent. Thus, the buyer should see the package and associate it with good or high 'quality'.
4. It must be able to sell or sustain the market of the product for an appreciable length of time. That is, how long the design can last as it competes with other designs of similar products on the market. This depends on the strength of the design, both the structure and the graphics.

## **2.7 Labels and Labelling Rules in Product Packaging**

### **2.7.1 Labelling of Packages**

Label is any identifier material attached to a product to give information about the product and or to embellish the package for marketing ("Labels", 1997). The

information carried by a label may be only textual or in addition bear a company logo, illustrations and photographs. The label, as current local and international regulations demand, should indicate the content, nature, manufacturing and expiry dates, ownership, direction of use, and place of origin on the object it has been affixed to or inserted in (Ghana Standards Board General Labelling Rules, 1992). The application of labelling in packaging is no more based on the choice of the manufacturer as it used to be but now a mandatory backed by both local and international legislations. As a mandatory requirement, the label design and application in packaging must be carefully done according to the rules to pave way for a product in both local and international markets and to appeal to the targeted market.

### **2.7.2 Labelling as market strategy**

Labelling is the art of applying or attaching a label to a particular surface, item, or product, (“Labels”, 1997). The label does not only serve as a source of product information but can also serve as an advertising piece (“Labels”, 1997). Various labels are specially designed and printed to embellish the container or the pack on which they are fixed so that they can appeal to the targeted customers.

Labels have been used as identifiers for some products that have similar packages on the market (“Customer Satisfaction” 1995). Acting as an identifier and distinguishing brands the labelling facilitates the use of one common package design for different products from the same manufacturer or different manufacturers. A label with powerful features in its design would distinguish the product better and attract shoppers’ attention much better than a dull one. The *Financial Times* article: “Customer Satisfaction” (1995), suggestion that an effect labelling would help

consumers to choose “between rows and rows of almost identical products” goes to buttress this claim. Nancarrow *et al* (1998) also opined that “Effective labelling on the packaging would underpin the main forms of marketing communications of advertising, personal selling, publicity, public relations, direct marketing and sponsorships”, to emphasize the various areas under labelling marketing functions.

The author deduced that a product label is its identifier and that any major changes done on a label will have an influence on the customers.

### **2.7.3 Local and International Labelling Rules**

Product label, nowadays, is supposed to be a useful source of information, primarily to inform and or to protect consumers of the product it identifies. For this reason modern labelling legislations demand specific information to be provided by consumer product manufacturers and importers and also detailed out how it should be presented on the label (General Labelling Rules, 1992). The International Standards Organisation (ISO) is the body mandated to set standards for the international market from which a member country can modify to suit their country needs. Labelling regulations are not static but keep changing to meet current labelling demands prevailing in a local or international market.

In reference to this, labelling rules vary from country to country making it important that the manufacturer or the exporter consult the official trade office of the target market for that country’s labelling specifics. Inadequate information on these labelling and other packaging regulations in different markets creates marketing problems for exported goods from most third world countries as observed by Judd *et al* (1989). Inferring from this observation it is clear that a potential product in a well decorated or attractive package may not be allowed for sale if the label does not meet

the requirements of the country in which it is to be sold. In other words improper labelling can create a trade barrier to a product in both the local as well as the international market.

In Ghana the Food and Drugs Board (FDB) is responsible for food and drugs packaging and labelling. The Food and Drugs Boards emerged from the Food and Drugs Law 1992, PNDCL 305B which was enacted to control the manufacture, importation, exportation, distribution, use and advertisement of food, drugs, cosmetics, chemical substances and medical devices. They act in both advisory and enforcing capacities in matters related to food and drugs packaging and marketing in collaboration with from the Ghana Standards Board (GSB). The Legislative Instrument, L.I. 1541, 1992 spells out the Ghana Standards Board (Food, Drugs and other Goods) General Labelling Rules, 1992. The reference document on Ghana Standards for labelling is GS 45, which was prepared by the Ghana Standards Board (GSB), (See Appendix 1).

The current task of institutions concerned with labelling is to help make sure that manufacturers give consumers the right information they need about their products in an understandable form as part of the packaging.

#### **2.7.4 Types of Labels and Materials**

Materials on which labels are printed include paper, laminates, metallic foils, plastics, fabrics, leather and synthetic substrates (“Labels”, 1997). Some label materials may have adhesive back and other nonadhesive. In all, label materials may be coated or uncoated, pressure-sensitive or heat-sensitive, conventional gummed or particle gummed (“Labels”, 1997).



The most commonly used label material worldwide is nonadhesive plain paper type which was originally used on products (Labels, 1997). In recent times self-adhesive labels are picking up and new breed of labelling such as shrink labelling, in-mould and heat transfer labels have been introduced. The use of shrink labels and sleeves are becoming more and more popular in the beverage industry ("Printing products- Shrink labels, 2006). In-mould labelling is popular in the plastic packaging (Labels, 1997). In Ghana the author observed that plain paper non-adhesive labels are cheaper and mostly used by the small scale private enterprises. Products from the multinational companies and imported packaged products mostly have high quality adhesive labels on them.

Labels may be applied manually or automatically by using electronic label applicators along the packaging line (Labels, 1997). The placement and how well the label is fixed to the surface are very important as they can mar the beauty of it and may also flout a labelling regulation. Hence, label application stage must be considered a critical point where quality measures must not be compromised to create financial losses and bad reputation for the company.

## **2.8 Printing Inks used in the Packaging industry**

Inks are chemical substances used for printing information or image on substrates. It is the ink that makes the information and images visible on the substrate. For a packaging material to be decorated with colour and or to carry textual and images the printing ink is a sine qua non. Millions of tonnes of inks are manufactured every year for many different printing purposes. About 250 manufacturers produce the bulk of ink used worldwide (Karsnitz, 1997). Inks are produced from over 5000 different ingredients from both natural and synthetic raw

material sources. The natural raw materials for ink which are considered environmentally friendly constitute 20% whilst the remaining 80% come from the petro-chemical industry. There are general purpose inks formulated to print on many substrates, whilst there are also special inks formulated for specific kinds of substrates. Special effects inks are also available for elegant looking prints (Karsnitz, 1997).

In spite of the differences in ink formulations the principal ingredients are pigments, vehicles, (solvents) and additives (“Printing and Packaging”, 2005). *Pigments* give inks their colours and they have characteristics such as opacity, permanence, and bleed. Organic colour pigments form the largest group of pigments used in ink production. The inorganic colour pigments are mainly from minerals such as lead compounds chromium, cadmium, and iron compounds. Aluminium ore is ground into powder and used as pigment for silver colour ink, ground brass and copper ores are used as pigments for gold colour inks. *Vehicles* are resinous materials for binding the pigment particles and also for adhering them to the substrate. *Additives* are added to give inks more characteristics. They act as catalysts to speed up the ink drying rate. Some are added to soften the ink to reduce tack, to quickly set the ink to reduce set-off in the delivery tray and to improve scuff resistance. Other additives such as body gums and binding varnishes are added to soft inks to increase their viscosity and tack and also to prevent chalking problems.

### 2.8.1 Ink Types and their Uses

Based on inks drying methods they can be categorized into four main types: varnish or oil-based inks, Hot (Heat) set inks, liquid, water based emulsion inks, and Intermediate consistency inks –also referred to as Printing pastes (Karsnitz, 1997).

The available printing methods can also be used to distinguish inks base on the specific ink type required by each of them. Letterpress inks are oil or varnish-based inks, viscous and tacky, and dry by oxidation. Lithographic inks are oil-based inks with high concentration of pigment. High concentration of pigment is required because of the thin film of ink deposits they lay on substrate. Sheet-fed offset inks are quick-set type with hard resins which gives it high gloss finish. Web-fed offset uses low viscosity and tack inks. They could be heat-set or non heat-set inks. Flexography inks are low-viscous and volatile liquid inks which dry by evaporation used for printing on nonporous substrates. For absorbent paper such as Kraft paper water-based inks are used.

Gravure inks are low viscous liquid inks which dry mostly by oxidation method. Screen printing inks are intermediate consistency inks (paste ink) even though some other ink types can be used in screen printing. Digital printers make use of three different types of inks. Water-soluble inks are used by desktop printers and solvent-based liquid inks for large format printers which are used for outdoor displays. The LaserJet printers use powdered pigment colours referred to as toners which are heat-set pigments ("Printing and Packaging", 2005).

Special finish or coating can be given to a printed material to protect or secure the ink on a substrate by applying vanishes after printing. The coating may make the surface waterproof or resistant to abrasion. The finish can make the print appear glossier, embossed, or to have a gel-like look on the substrate. Different types of inks are developed for the diverse substrate types available today. Inks used for printing on plastic materials are different from those for paper stocks. Inks for glass are made differently from those for fabrics.

It is important that the appropriate ink for the chosen substrate is used to avoid possible printing problems that may arise from using incompatible inks. For this reason, ink testing on the chosen substrate is very important. Ink smear-test, which is basic and easier to do, can be done to ensure that the ink sets well on the substrate before actual printing starts. Smear-test is done by applying a small amount of the ink on the substrate to be used, after drying the surface can be scratched, creased or folded to check if the ink film will peel or not.

### **2.8.2 Safety and Environmental Issues on Ink for Packaging**

Some of the mineral constituents of inks are known to have harmful effects on humans and the environment. These harmful ink ingredients include lead compounds, mercury, cadmium, and chromium. Inks that contain these ingredients are noted for their high resistance to light and other chemical agents and therefore do not fade easily and are rich in appearance. However, the discouragement of their uses is that they generate “hazardous waste” (Karsnitz, 1997). The gasses they emit are harmful when inhaled or ingested and improper disposal of waste inks containing these chemicals also adversely affects the environment.

Therefore, there are legislations against the use of inks containing these ingredients especially for printing on packaging material that have direct contact with food. The Environmental Protection Agency (EPA) and the Food and Drugs Board (FDB) as well as Non Governmental Organizations (NGOs) are fighting against the use of such inks for printing applications worldwide. New inks are being developed to replace the toxic ones, they are vegetable oil and water-base inks (“Packaging Design”, 2005). These new inks are not yet the perfect substitutes for those fading

away because they are not light-stable and are also susceptible to UV radiation that are used to cure varnishes.

The question of food grade inks has come to the fore in the food packaging industry. What matter most to all the FDBs concerning food safety and inks used for the printing of the food container is where there is a possibility of the food coming into direct contact with the ink on the food container. Although there are inks considered as food grade inks that are not harmful when ingested, there is no list of inks approved by the FDB in anywhere as food grade inks (“Food Grade Ink”, 2006). Rather, they have list of ingredients in inks that should not come in contact with food products. If none of these ingredients are present in the ink then it is safe to use for printing packages for foods.

Some packaging materials by their nature have barrier properties to prevent contamination of their contents. Examples of such materials are glass, coated metal plates and some plastics. These materials can be printed on with the right ink that will adhere well on them. Some natural foods have their own protective coverings to prevent contamination from the ink so it is the processed foods in the ready-to-eat state that are more prone to ink and other forms of contaminations even when packaged.

It is required that food and drugs and their containers be prepared under proper hygienic conditions and environments. Therefore, the printing of the packages or the labels be done in a press that follows proper hygienic practices. It is also important that quality checks be done to see if there are no set-off inks on the inner surfaces of the packages for food products where the food content may possible come in contact to cause contamination.



## 2.9 Application of Computers in Packaging

Computer applications in packaging design and printing have made significant impacts in the packaging design and production workflow (“Software for Packaging Design & Pallet Loading”, 2007). Computer software applications are being used for generating some design elements and for layout design of packages in a more flexible and easy way. Mechanicals needed for colour separation on films and plate making are now done on computers (Karsnitz, 1993). This was a complex and time consuming process which required photographic experts to handle the process cameras but have been reduced to the clicks of buttons in computer software applications. Process cameras have been replaced by high resolution ‘image-setter’ equipment. New technology equipment referred to as ‘computer-to-plate (CTP)’ systems are also replacing ‘image-setters’ and film making by directly linking a computer to the plates processing units on press machine (“Computer to Plate”, 2006). CTP is a revolutionary technology in the printing industry which is expected to bring down printing cost, time and errors.

Packages can be modelled and previewed on the computer’s virtual reality environment in 3Dimensional applications such as Maya, Rhinoceros and 3D Studio Max (Besel, 2007). These 3Dimensional software are not purposely designed for the packaging industry yet they are being used efficiently in the industry, especially for advertisements and for pre-testing of shrink labels and sleeves designs. The only professional software for packaging design is the CAPEPack, which has in-built features for all the technical process involved in packaging design stage to palletisation stage (“Software for Packaging Design & Pallet Loading”, 2007).

Computers are being employed in packaging pre-testing and other consumer surveys. Application software for Tachistoscope tests and artificial intelligence (AI)

software are being used to create virtual markets for test market surveys. Computers allow packaging designers to generate different designs for a single packaging project more easily and quickly, and also to test different colour schemes for the designed packages easily and quickly on the computer without additional financial costs. Colour separation, films making, packages samples and prototypes can be previewed or printed in-house at lower costs (“Computer to Plate”, 2006). Computers are facilitating quick transfers of packaging design documents from the design section in one locality to another, to be printed and, or previewed on different computerised machines anywhere around the globe at cheaper costs (Comer, 2007). Much in the same way they are used to advertise the products through the internet.

Computers are made to be user friendly and can therefore be used by any computer literate person to do some form of design work. However, packaging design is a professional field which requires professional packaging designers who collaborate with other professionals or technicians to share ideas from the concept design stage to the actualization of the final packages for the products to be marketed. A computer is a tool used in packaging design and it requires a person with the requisite knowledge to use it. The output from the computer, therefore, depends on the competence of the user, for it is in the public domain that a computer is a “garbage in garbage out” type of gadget.

## **2.10 Packaging Testing**

Manufactured products intended for distribution go through a lot of hazards. The packaging of products is intended to protect them against all possible hazards until they are finally consumed (Pilditch, 1961). It is important that the packaging components that provide these protections be tested to ascertain their efficiency and

reliability in protecting the contents. Over the years many of the known hazards products and their packages go through are simulated for pre-testing newly developed packages. Equipments, tools and methods of testing have been developed to test and determine the efficiency of the packaging material against each of the major possible hazards that product may encounter from the floor of the manufacturer to the last consumer. These tests may be carried out to test the structural design strength of the packages. The results obtain can then be used to help improve the quality of the packaging and also to predict the performance of the packages when finally used to contain the products. The data gathered from the various test can be used in future for analysing any hazard that may occur and to justify any claim on the packaging performance.

The three most important ways by which information are gathered on a package are through Comparative testing, Assessment testing and Investigational testing (Byett *et al*, 1997). **The comparative** testing simply involves comparing the new design package with an existing known one to determine the degree of differences between them. This can be carried out by the manufacturing company developing the packages for their products and not the third party company.

**Assessment testing** is done to find answers to question raised about the new package on what advantages and disadvantages it has or what it can do and what it cannot do in respect of its intended performance. **Investigational testing** is an in-depth investigation to determine the strength and weaknesses in the packaging material (Byett *et al*, 1997). This particular test is usually carried out by the engineers of the packaging materials to find out the material strength and causes of its weakness. Laboratory test are also involved in investigational testing. Packaging testing laboratories are set up with experts in each of the specialised fields to carry

out the tests. Depending on the type of test to be done the package or the container may be filled with the actual product intended to be packaged or could be emptied so that only the container is tested.

The general packaging tests that are performed include drop test, stacking test, vibration test, climatic treatment, vertical and horizontal impact tests, compression test, leakage test, permeability test and torque test. The Ghana Standards Board (GSB) has the standard facility for carrying out packaging testing and issuing certifications.

The testing results will help the manufacturer to do the necessary changes needed to make the package fulfil all its functional requirements. This will assure the manufacturer that the packaging will be able to maintain the products integrity from plant site to the final consumer. It will in effect eliminate or reduce spoilage, the risk of product recall, and sellers/consumers' complains that could tarnish the product's image as well as the company's image in the eyes of customers.

Packaging testing is usually carried out by accredited organizations such as the Standards Boards and those accredited by these bodies. In Ghana the Ghana Standards Board (GSB) is the accredited body which has a standardized laboratory, equipment and approved procedures for testing packages and granting certifications. In summary, it is the responsibility of the manufacturer to ensure that all testing on the package is done by an accredited organization such as the National Standards Boards throughout the world.

## **2.11 Market Research and Consumer Testing Methods**

As observed, the various packaging tests focus on the physical and chemical components of the packaging material and the structural strength of the design. It is

therefore a test on the functional performances of the package to determine its efficiency in protecting its content. A good score of the package in all these tests do not count at the “moment-of-truth” when the customer/shopper first experiences the product on the shelf. It is the graphic design aspects of the packaging that matters most. Therefore, the packaging material, its structural design and graphics must be tested to ensure its market success.

The design acts as the “silent salesman” (Judd *et al*, 1989), communicating the product’s information and benefits to shoppers to induce purchasing. The packaging design concept testing, although vital to the success of product marketing, is not given due attention by most manufacturers. Judd *et al* (1989) stated that “Quite often package designs are not consumer tested even in large international market-oriented companies”. The strangeness of this situation compelled them to write extensively on the importance of packaging design, both the graphic and structure, to the marketing of consumer products. It could be deduced from the statement that it is not only in Ghana that manufacturers do not test their packaging design concepts before they launch their products; it seems to be an international problem.

Some of the few companies that could afford to do consumer testing may commission research organisations to carry out the consumer research on their behalf. According to Judd *et al* (1989) consumer testing involves the use of both qualitative and quantitative research tools. The major qualitative research techniques include Individual interviews and Group discussions, whereas the quantitative method uses Tachistoscopic test, Find-time testing Market simulations, and Test market methods. They further stated that the qualitative research method is a bit easy to do and less expensive to employ, which means that many manufacturers can afford the cost of this research method.



In an **Individual interview** method the interview questions are pre-structured according to the objectives of the research and the new package sample are discussed individually within 10 to 20 minutes with each respondent. The responses are then analysed qualitatively (Judd *et al*, 1989).

The **Group discussion** method, also called focus group discussion, involves the use of sets of respondents to discuss the product samples. Each group is homogeneous representing special interests in a real market situation. The number of respondents in each group may range from 10 to 20 people. Market research specialists are required to guide the discussions on each of the design samples and the issues raised are recorded and then analysed by market research specialist or group to draw conclusions and recommendations. This method helps the manufacturer to identify major areas that the final design must cover to aid marketing of the final products. Although this method is extensively used, it has been found out that, there is always the tendency that the group members influence each other's views which can give rise to misleading results (Judd *et al*, 1989).

These two qualitative research methods have the advantage of giving the manufacturer an idea of consumers opinion on the samples used to identify flaws, oversights and reactions of consumer to the designs. Sampling size used for these two qualitative approaches are generally too small to represent the actual market population, for this reason (Judd *et al*, 1989) advised that they should not be used to determining the buying potential or market –potential in the new packaging designs. Using much larger sample size for any of these two approaches will be very expensive and time consuming, yet it will yield results that can be generalised.

Quantitative research methods that are employed in consumer testing include Tachistoscope Test, Find-Time Testing, Market Simulations and Test Market. The

Tachistoscope Test employs a method of exposing the designs to the respondent(s) briefly and then solicits their observations through follow up questions. This method was adopted from the field of psychological research into marketing research. The principle is similar to the camera principle where exposure time is based on the conditions and effects wanted. The exposure time of the designs varies in accordance with the objective of the test. It is used in consumer packaging testing to compare the visual impact or memorable elements in the design of the package for marketing considerations. In this method the image of the new design is projected on a wall or screen to enable respondents have a better view of the image within some seconds. Live objects (prototypes) are also used when the respondents need to have a real look or a 3-dimensional view all in a split of seconds (Judd *et al*, 1989).

This procedure can also be referred to as flash exposure test. Since the image is exposed in a brief moment. It is real perception test employed to test how fast the branding of the packaging works. In some test the new design and the old design may be used or competitive brands on the market may be compared using the Tachistoscope test.

Although this test is mostly used by manufacturers the associated risk is that comparing an existing brand design with newly designed brand may give misleading results (Judd *et al*, 1989). They are of the view that brands “awareness is an important factor in the recognition of packages” which is true because people might have had enough time to experience the old package design to recognize some of its features as against the new package design which they are only exposed to in a matter of seconds. Inferring from this issue the author is of the view that more dependable results can be achieved when the respondents are not aware or not much

aware of the old brand. This will require more screening time for selection of respondents and may delay the process.

**Test Market** is a carefully planned and monitored market environment situated in an area where the demand for the product can best represent the areas where the product will eventually be sold. The new products are put on the market in the selected area with supporting advertisements. The demand for the new product is monitored for a period of one to two months. The result from the test is used to determine the demand patterns for the new product and can also be used for strategic marketing plan for the product. It gives a more realistic picture of how the demand for the products would be when they eventually come to the markets. The cost involved in producing the samples, transportation cost, the cost of getting space to display the products, and the cost of design and airing the advertisement make this research very expensive which a small scale manufacturer would find difficult to finance (Judd *et al*, 1989).

**Find-Time Testing** combines both the Tachistoscope and the Test market principles in that, in this test, the products are displayed among other products like a real supermarket or shop environment and the respondents are allowed to see the products on the shelf in a few moments to see what they can recognize about the new products in the midst of other brands. In this case the exposure time is controlled just like the Tachistoscope. Unlike the Test market where the shoppers have enough time with the products on the shelf, the respondents in this test experience the products but only for a specified short time to test the elements in the new packages that they could recognize in that short time. After the respondents have experienced the products each one is asked of the products packaging features he or she noticed and could remember (Judd *et al*, 1989).

This test is used to determine how fast the branding can attract shoppers and what features on the packages can be used to identify the products on the shelf. The need for this test is based on research finding that consumers make choices between products within seconds when shopping (Judd *et al*, 1989), and the new design must be able to attract them within that limited time frame. As this test shares similarities with Tachistoscope and the Test Market it also shares in some of their risks such as the influence of existing brands awareness on perception of the respondents, their individual cognitive abilities to memorise and describe the features on the packages. Many strategies have been adopted by the researcher to neutralize some of the negative influences through sensitization prior to the test (Judd *et al*, 1989). It must be noted that a good score in the recognition test of the product would not directly translate into purchasing potential; it therefore cannot be used to predict sales of products but only for their recognition time when displayed among other products.

**Market Simulation** imitates the real market situation in a smaller environment for the respondents to shop based on persuasive audiovisual commercials. A special shop or part of a shop is prepared and stocked with different products and the new products to be tested are also included. Television advertisements are also developed for the new products and the other products being used for the test. The respondents are allowed to watch the TV commercials for all the products for some time and then they are given monies to go and shop in the designated shop. The quantity of the new product bought by the respondents is then compared to each of the other products bought. The results are used to determine the demand of the new product in relation to the existing ones (Judd *et al*, 1989).

The researcher observed that one important issue confronting manufacturers in recent times is how they can satisfy consumers with the quality of their products or

services. Consumers, as rational beings, have their own perceived qualities that they feel satisfied when provided in a product or service (Kano *et al*, 1984). These qualities are what manufacturers seek to provide in their new products when they do market research. However, none of the aforementioned qualitative and quantitative tools actually tests or measure the consumers' perceived qualities in the samples used on the respondents.

There has been growing interest among manufacturers to measure and know how their products and services satisfy their customers. Customer Satisfaction is defined as the extent to which customers are happy with the products and services provided by a business ("Customer Satisfaction", 2006). There are many literatures written on the importance of the customer satisfaction concept to the success of modern business. The need to achieve customer satisfaction has now become a marketing concept generally accepted by big time product manufacturers worldwide. They spend huge amount in researching and developing more innovative products and services to achieve this customer requirement to enable them stay competitive. Customer satisfaction is considered a key differentiator element in strategic business practices in this modern time of global market competition ("Customer Satisfaction", 2006).

Customer survey methods are used to measure how products or services supplied by a company meet or surpass its customers' expectations ("Customer Satisfaction", 2005). Customer satisfaction is measured to determine customer loyalty and the tendency that they will recommend the product or the service to others. The inputs used to measure customer satisfaction are data gathered about sales volumes, customers' states of mind, and the customers' complains frequency all gathered using customer survey tools. The data gathered from these researches is



used as strategic weapon against competitors and it drives the company's business decisions as it gives the company information about its performance and direction to improve products and, or service quality to gain competitive edge; to retain customers and win new customers to sustain the business on accrued profits.

The survey methods used in customer satisfaction research are transaction survey and relationship survey (Derek, 2004). Some companies effectively combine these two methods. Transactions surveys solicit customer feedbacks on interaction or experiences they have on a specific product or service quality. It focuses on the specific set of events that defines the interactions or the experience they have on a specific set of events that defines the interactions or the experiences the customers have with specific product or service rendered. In consumer product packaging the set of events in the transaction include; seeing of the product on the shelf, handling it, using or dispensing the content from the package and keeping the content in the package after first use.

Relationship survey solicits customer satisfaction out of how they relate to the product or the service in general but not on the feedbacks on specific event. It is more general in scope than the transaction surveys as it avoids specificity of events. This survey covers the general satisfaction of customers to the products, the services offered, the brand image and channel or access to the products on the market. With respect to the product packaging design, this survey solicits how customers relate to the design and the structure in terms of colour scheme, images used, the shape and size of the package, the ease of use, to mention but a few.

Customer satisfaction surveys are conducted after the products have been purchased or used for some time. This makes them post-mortem methods for accessing a company's performance through its product or service quality. However,

it helps the company to improve upon its past products or service quality as and when they implement the survey results in the design and development of products or services. Customer satisfaction surveys may be carried out by the company offering the products or the services to be measured, or they may contract expert organizations.

Satisfaction is subjective, what may satisfy one customer may not satisfy another and this can affect the results of the survey, so large sample sizes may be required in the customer surveys. Issue of biases in the questionnaires for the survey as well as the customers' understanding of the questions can have negative impact on the results. According to Swaddling and Miller (2002) only a handful of manager benefit from customer satisfaction survey results whilst the majority are unable to find the correlation between the results and their ability to grow their businesses. They claimed that good customer satisfaction score do not often translate into customer loyalty since customers make choices whenever they are making purchases and the result of their decision determine their loyalty. They therefore proposed that measuring Customer Perceived Value (CPV) is a better alternative to measuring customer satisfaction.

The CPV approach solicits the prospective customer's evaluation of the cost and benefits of the product or service offered as compared to the customers' perceived alternatives. The measured components in the CPV construct are attributes, relative importance, and relative performance. It questions and finds answers about values and needs of customers, thereby expanding the scope of using customer satisfaction survey to give the manufacture understandable and more useful results for making business decisions (Swaddling and Miller, 2002).

The fact that these measurements focus on past experiences of customers with the object being measured, the author is of the view that the indirect objective is to find customers' expectation out of their own experiences with products or services. Fulfilling these expectations lead to customer satisfaction.

Customer satisfaction has a direct link with product or service quality. No customer will ever be satisfied with low quality product or service. Even if customers are compelled to buy inferior quality product they would still complain about the product to express their dissatisfaction. The correlation between customer satisfaction and quality has been the focus of modern consumer research. Businesses are also focusing on producing goods and services that meet customer requirements.

Both 'quality' and 'satisfaction' are subjective. Quality has three attributes which are perceptual, conditional, and subjective, and these make it have diverse interpretations by different people ("Quality Business", 2006). It is therefore important that the product quality that will satisfy customers be sought by using a test that can solicit customers' perceived quality or value in the intended product or service. A method that effectively combines customer satisfaction and product quality would be very helpful in developing and testing of packaging concept designs that can satisfy consumers.

The researcher proposes that since product and packaging go hand in hand (Hanlon, 1971) the packaging must also give satisfaction to the customer. The explanation given by *The Times Newspaper* article "Customer Satisfaction", 2008, which stated that "..... Providing the goods that customers want, in the packaging that they want, .....", supports this claim, hence the need to research and also to test the packaging concept on the target consumers. Newly designed packages may have to go through more than one of these customer tests since each test serves different

purposes of the packaging design and the respondents give different answers and react differently in each test. A design that goes through more tests can produce better results for predicting its market success before it is finally launched. It saves the product manufacturer and distributors the monies that could have gone waste as a result of defects in the packaging design, and the difficulty or the cost of marketing the product in an unsatisfactory packaging design.

## **2.12 Customer Satisfaction and Packaging**

Customer satisfaction in business terms is defined by the *Wikipedia* as a measure of how products and services offered to customers by a company meet or surpass the customers' expectations ("Customer Satisfaction", 2007). The ISO 9001:2000 Quality management system regards customer requirements as an important input in product design and development. This ISO standard was developed to help businesses meet customer requirements through quality Management system. This document stated that, "It focuses on the effectiveness of the quality management system in meeting customer requirements" to emphasize its aim to achieve enhance customer satisfaction in addition to quality assurance of products. This statement in the modern quality management systems document underscores the need to satisfy customers or consumers in every product offered to them in any form.

The researcher observed that packaging serves some purposes to the manufacturer as well as to the customer or the consumer in different ways. The manufacturer considers packaging as a means of containing, protecting, transporting, communicating and marketing of his or her products, but the customers/consumers look for the benefits of the packaging in terms of how it appeals, user friendliness,

protection of the content after first use, and other useful purposes it can serve which have no connection with the product it carries, such as displaying it as decorative item, and its re-use for other products and services. This makes packages; which can serve some of the extra-purposes or service, have competitive edge over those without customer/buyer's purchasing considerations.

For packaging to serve both manufacturers' purpose and that of the customers/users the packaging design must have inputs from both sources so that the resultant product would meet the quality requirements of both. Hence, the need for product research, customer research, concept testing and verification. The need for packaging design to have input from customers side cannot be over-emphasised as businesses are moving from product-base concepts to customer-based concepts in meeting customer satisfaction requirements.

The theory of customer satisfaction propounded by Professor Noriaki Kano and his team offers manufacturers understanding into customer quality dimensions and offers ways to solicit these qualities from customers/respondents by using pairs of close-ended questions in a questionnaire format which can be adopted and used by the SMEs in Ghana at cost effective way to get customers' input for packaging design.

### **2.13 Theoretical Review of Customer Satisfaction and Packaging**

Customer satisfaction has become a major concern of modern businesses in general since their successes hinge on how their products or services satisfy customers (Byett *et al*, (1997). A lot of research works have been done and some are still ongoing to enable people in business to measure their consumers' satisfaction and also to improve the quality of their products or services. These include the



SERVQUAL or RATER, Kansei Engineering, Six Sigma and Taguchi methods developed for quality management systems. All these are employed by businesses to produce goods and services that will satisfy customers in order to maintain their loyalty.

According to Hanlon (1971), the product and its packaging are interdependent and inseparable.

According to Byett *et al* (1997) businesses strive on profits and more profits come as customers make repetitive purchase of the products or services. Repetitive sales of a product also depend on how the packaging promotes the sale the product (Herdeg, 1961). It follows that the packaging must give satisfaction to customers in order to sustain their loyalty and to gain more profits.

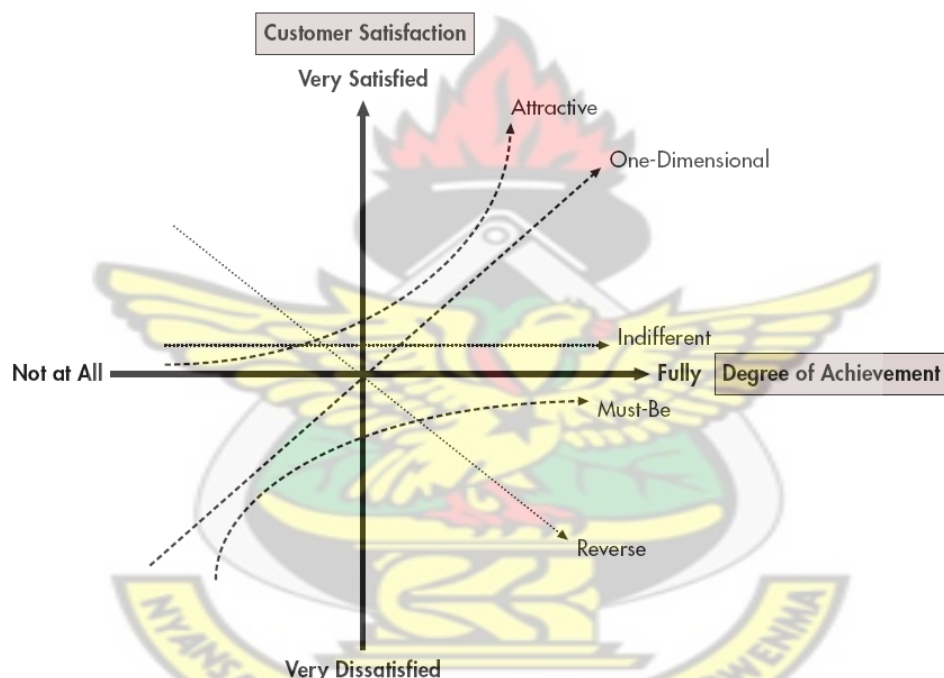
In the light of this the author is of the view that customer satisfaction in the product packaging is of prime importance and has to be considered in the product development and marketing. The ISO 9001:2000 (Third edition) document states that customers play significant role in any organisation as their requirements must be used as inputs and the need for the organisation to find out if it has been meeting the customer requirements. Satisfying customers mean delivering to them goods and or services they desire at affordable or reasonable cost. The best way to know what customers want is to ask them. Therefore sampling customers to get their inputs for the packaging development will help produce packages that satisfy customers.

### **2.13.1 Kano's Theory of Customer Satisfaction and Packaging**

Kano's Theory of Customer Satisfaction is a quality management theory proposed by Professor Noriaki Kano and his colleagues: N. Seraku, F. Tokahashi and S. Tsjui, in 1984 (Lofgren & Witell, 2005).

Kano and his team propounded the Kano's Theory of Attractive Quality with the view of helping manufacturers to understand how customers evaluate and perceive quality attributes in a given product or service. It explains the relationship between degree of sufficiency and customer satisfaction with a quality attribute.

Kano *et al* classified the quality attributes into five categories of perceivable qualities. These are: Attractive quality, Must-be quality, Reverse quality, One-dimensional quality, and Indifferent quality. Fig. 2.1 shows a diagrammatic representation of these qualities.



**Fig.2.1:** An Overview of the Theory of Attractive Quality

**Attractive quality (Excitement Factors):** This quality in a given product or service delights the consumer when fully provided but does not cause dissatisfaction to the customer when not provided (Kano *et al.* 1984). This quality is also referred to as the surprise, delight and excitement attributes. This unique quality is not expected by the customers and therefore when provided surprises them and 'delight' is

generated for the product or the service. Since the customers do not usually think about the feature that brings this quality into the product or service its absence in the product or service has no effect on them and therefore does not cause dissatisfaction in them. Customers usually demand what they know about and do not bother about what they do not know about a product or a service.

This quality has the greatest influence on how satisfied a customer will be with a given product or service (Matzler *et al.*, 1996). It is also the quality that some producers use to distinguish their brands from a similar product on the market. An example of this quality in a product can be seen in the provision of inbuilt automatic lighters in gas stove knobs. Consumers do not expect a gas stove with inbuilt lighter because there are lighters and matches available which make the use of the gas stove easier. The availability of this feature in a gas stove will delight the consumers and increase their satisfaction with the use of the product. In the area of service an example of attractive quality could be an issuance of a custom-made thank you card.

***Must-be quality (Basic Factors):*** Must-be quality, also referred to as the basic requirement, is the one when fully fulfilled customers do not cause satisfaction in the customer but when not fully fulfilled will generate dissatisfaction in the customers (Kano *et al.*, 1984). Customers do not really bother themselves about the fulfilment of this quality because they presuppose that its fulfilment is fundamental to the product or the service. This quality must therefore be achieved at the product development stage before the product can qualify for marketing.

The quality of a pack to hold its content is an example of a must-be quality. The pack is designed to do that job so if it is performing that duty the customer becomes unaware of it but will complain if it fails to contain its content and the customer will be dissatisfied.

***One-dimensional (Performance Factors):*** This is the quality by which the customer satisfaction or dissatisfaction is proportional to the level of its fulfilment (Kano et al. 1984). It means the more the product or service fulfils this quality the greater the satisfaction of the customers but failure to fulfil it will cause dissatisfaction to the customer. This kind of quality is usually spoken of by customers.

For example if a radio receiver is said to receive signals from five more stations than others sold at the same price customers will be satisfied if it can receive the five more signals but if customers realise it can only receive two signals instead of five the customers will feel cheated and it will result in dissatisfaction in them. Therefore this feature in the radio receiver presents a one-dimensional quality.

***Reverse quality:*** The reverse quality is the one which when highly achieved will result in dissatisfaction but low degree of achievement of it will result in satisfaction (Kano *et al.*, 1984). This quality comes about as a result of the fact that all customers are not alike in their taste and preferences. This presupposes that the reverse or the opposite of the feature with this quality was rather expected by the consumers.

An example of this can be taken from a radio set with too many knobs on it with the intention of making it user friendly. Customers will see that as nuisance and will complain about it, but keeping it simple with few knobs will be preferred by the customers. The knobs on the radio set then present the reverse quality in the product. An example of a service with a reverse quality is excessive questioning of a client on his comfort and security at a hotel. The more the client is questioned the more the client may find it disturbing and would be dissatisfied. However, considerable amount of questions would make the client happy and satisfied.

**Indifferent quality:** This is the quality that the customers do not care about in a given product or service (Kano *et al*, 1984). It is neither considered good nor bad and therefore does not cause satisfaction or dissatisfaction in the customers.

One interesting phenomenon that Kano and his team found about the quality attributes is their dynamic nature which makes them change from one perceived quality category to another. Thus an attractive quality can overtime change to a must-be quality. Kano *et al* (1987) observed that a television remote control was first perceived as an attractive quality at its early introduction but has changed to a must-be quality within a decade. The author is of the view that in spite of their dynamic nature none of the qualities can change into an attractive quality since no customer ever expects or demands an attractive quality before they become aware of it.

The theory predicts that quality attributes are dynamic, in that one attribute can change over time from being a satisfier to a dissatisfying attribute and vice versa means that all quality attributes are not equally important and what is an important attribute today may not forever remain important due to their dynamic nature. It is therefore imperative for any business not to consider the provision of one quality attribute which gives it competitive advantage as an everlasting quality feature.

### **2.13.2 Kano's Questionnaire for Customer Research**

To enable manufacturers to gain information from the customers to determine how they perceive quality, Kano *et al* (1984) developed a questionnaire consisting of pairs of customer requirement questions in positive and negative forms. By giving the questions in both positive and negative forms the respondent answer his / her feeling towards the presence and absence of each quality attribute in a given product.



Kano *et al* (1984) considered the positive (if the attribute is provided) as the functional question, and the negative (that is if that quality attribute is not provided) as the dysfunctional form of the question. These pair of questions and alternative answers provided help in determining the product quality requirements from the responses.

In Table 2.1, the question (a) is the functional form of the question whilst (b) is the dysfunctional form of the question. The customer is provided with this close-ended question with five (5) alternative answers to choose one that best answers the question from the customer's perspective of quality.

**Table 2.1: A pair of Customer Requirement Questions in a Kano Questionnaire (adopted from Lofgren and Witell, 2005)**

<p>(a)</p> <p>If a package is manufactured in a recyclable material, how will you feel?</p>	<p>I like it that way</p> <p>It must be that way</p> <p>I am neutral</p> <p>I can live with it that way</p> <p>I dislike it that way</p>
<p>(b)</p> <p>If a package is manufactured in a non recyclable material, how will you feel?</p>	<p>I like it that way</p> <p>It must be that way</p> <p>I am neutral</p> <p>I can live with it that way</p> <p>I dislike it that way</p>

Berger *et al* (1993) observed that in the Kano's methodology the wording of the alternative questions is the most critical choice, it is therefore advisable to structure the wording of the alternative in accordance with the respondents one is working with so as to get the right responses for evaluation.

### 2.13.3 Kano's Evaluation Table

Kano *et al* (1984) developed the Kano evaluation table for classifying each quality attribute to one of the five quality categories. According to Kano *et al* (1984) all the responses to the questionnaire must be interpreted or evaluated with the help of the Kano's Evaluation Table (Table 2.2). The Kano's evaluation table compares each the five alternative answers to the functional question to its similar response in the dysfunctional form of the question and then generates the result of the quality type.

**Table 2.2: Kano's Evaluation Table (adopted from Berger et al (1993))**

Quality attribute		Dysfunctional				
		(1)	(2)	(3)	(4)	(5)
		I like	Must-be	Neutral	Live with	Dislike
Functional	I like	Q	A	A	A	O
	Must-be	R	I	I	I	M
	Neutral	R	I	I	I	M
	Live with	R	I	I	I	M
	Dislike	R	R	R	R	Q

A = attractive

O = One-dimensional

M = Must-be

I = Indifferent

R = Reverse

Q = questionable

In matters involving human choices and interpretation there may to be confusing or conflicting results. Evaluation of the Kano's questionnaires is no exception to this problem. This is the reason why we have the questionable category "Q" in the Kano

evaluation table. When a combination of the responses falls in the “Q” cell (Table 2.2), it means that it cannot be assigned to any of the five customer quality requirement categories.

The questionable category (Q) introduced here caters for sceptical (doubtful) answers that are debatable which may be due to respondents misunderstanding of the question (Kano et al, 1984). For instance in cell 1-1 in the evaluation table, if the presence of a quality attribute is liked by the respondent in functional question and at the same time liked if it is not present; then it becomes questionable since common response was chosen for both the functional and the dysfunctional questions.

Different explanations have been given to clarify this questionable category. Most authors are of the view that questionable answers may result from incorrect phrasing of the question(s) or that the person who responded misunderstood the question or ticked out a wrong answer by mistake. Berger *et al* (1993) also proved that a similar problem may also be encountered when dealing with two or more market segments combined on a particular product. In that case a particular feature may be considered differently because of differences in requirements for different markets. For example; one market may consider a particular product feature as a must-be requirement whilst the other market may see that particular feature as an attractive requirement. The product feature in question then becomes ambiguous and therefore cannot be assigned to a particular requirement category. Lee and Newcomb (1997) introduced a classification called “combination” to deal with such situations. For instance, if a product has additional functions, these functions could be a combination of attractive and indifference requirements.

Some authors who have adopted Kano’s theory have disputed some of the entries in the Kano’s evaluation table. Notable among them are Berger *et al* (1993)

and Lee and Newcomb (1997). Berger *et al* (1993) suggested that cells 2 – 2 and 4 – 4 be changed from “I” to “Q” since a requirement rated as must-be functional cannot simultaneously be rated as must be dysfunctional. Lee and Newcomb (1997) identified cells 1-2, 2-1 and 2-2 as questionable combinations in addition to cells 1-1 and 5-5. Both Berger *et al* (1993) and, Lee and Newcomb (1997) agree that cell 2-2 be changed to “Q” instead of “I”. However the two writers disagreed with each other on cells 1-2, 2-1, and 4-4. The author is of the view that Kano *et al*, Berger *et al* and, Lee and Newcomb are not wrong in their suggestions. What the author believes is that further questions or probing must be done in order to determine whether cell 2 – 2 should be “I” or “Q”.

Using the Kano’s evaluation table the customer’s responses can be categorized into one of the six customer requirements. For instance if a customer answers, a functional question such as, “If a package is made of recyclable material, how do you feel?” by saying “I like it that way”, and answers, “I can live with it that way” as regard the dysfunction part of the question which is “if a package is made of non recyclable material, how do you feel? The combination of the two answers will produce category A in the evaluation table, indicating that recyclable material in packaging is an attractive customer requirement. It means that using a recyclable material for product packaging will add up an attractive quality to the products.

#### **2.13.4 Evaluation and Interpretation of the Kano’s Questionnaire**

Kano’s questionnaire evaluation and interpretation can easily be done by using the frequency of answers. That is, the number of times a particular answer was given to a particular product feature. The answer frequencies can be obtained by tabulating the

evaluated results from the Evaluation table into Table of Results. The Result table is composed of product feature against product requirements.

**Table 2.3: An example of Table of Results (Adopted from Matzler et al (1996))**

<b>Product Requirement</b>	<b>A</b>	<b>O</b>	<b>M</b>	<b>I</b>	<b>R</b>	<b>Q</b>	<b>Total</b>	<b>Category</b>
<b>Edge grip</b>	7	32.3	<b>49.3</b>	9.5	0.3	1.5	100%	M
<b>Ease of turn</b>	10.4	45.1	30.5	11.5	1.2	1.2	100%	O
<b>Service</b>	63.8	21.6	2.9	8.5	0.7	2.5	100%	A

With respect to the figures in the Table of Results (Table 2.3), the highest frequency for edge grip is 49.3 in the “M” column making the edge grip feature a must-be requirement. Ease of turn highest frequency is 45.1, which is under “O” making this feature a one dimensional requirement. Service scored its highest frequency of 63.8 under category “A” and it is interpreted as Attractive requirement by customers.

The Table of Results is therefore useful in interpreting the responses to the Kano’s questionnaire as it gives a summary of the responses to the various product features. However, all questionable issues may be resolved by asking questions for more detailed information from the customer (Berger *et al* 1993).

When it comes to decision making on combinations; the evaluation rule “M>O>A>I” provided by Matzler *et al* (1996), has proven to be useful and modest. This rule says that must-be requirement are important than one dimensional requirement, one dimensional is more important than Attractive and Attractive more important than indifference requirements. It is imperative to fulfil all requirements which have the greatest influence on the perceived product quality in descending order of importance. First, the requirement which, if not fulfilled, would cause



customer dissatisfaction must be met before any other and this is what the evaluation rule proposes.

Berger *et al* (1993) suggested that an average impact of the customer requirements must be calculated to determine the extent of customer satisfaction. The Better and Worse formulas used to determine the customer satisfaction extent are given as:

$$\text{Better (Extent of Satisfaction)} = \frac{A + O}{A + O + M + I}$$

$$\text{Worse (Extent of dissatisfaction)} = \frac{O + M}{(A + O + M + I) \times (-1)}$$

For any product to achieve customer satisfaction it must at least meet the two most important customer requirements which are the Must-be and One-dimensional requirements. However, to stay competitive attractive requirements must be added to these two requirements. When all these customer requirements are met, which are regarded by all customer segments as important, in a particular product, that product has unbeatable features that can make it stay competitive on the market.

The customer satisfaction co-efficient is a determinant of whether customer satisfaction can be increased by meeting a certain quality attribute or whether fulfilling this quality attributed merely prevents the customer from being dissatisfied (Berger *et al* 1993). The positive customer satisfaction co-efficient ranges from 0 to 1; the closer the value is to 1, the higher the influence on customer satisfaction whilst when it approaches 0 signifies that there is little influence on customer satisfaction.

A minus sign in front of the co-efficient of customer dissatisfaction emphasis its negative influence on customer satisfaction if that quality is not fulfilled. It

follows that if the negative co-efficient approaches -1 the influence on customer dissatisfaction is extremely strong if the quality is not fulfilled. A value of about 0 indicates that the feature will not cause dissatisfaction when not fulfilled.

The Kano's theory reveals that quality is not a one-dimensional construct but a multidimensional construct. The satisfaction of the customer depends on how the three most important quality requirements, the One-dimensional, Must-be, and Attractive, are fully fulfilled in a given product. Therefore, these three qualities must not be taken for granted to ensure market success of a given product.

Although three out of the five customer quality requirements are the most important qualities, the two other qualities, Indifferent quality and the Reverse quality, are also very important to the producer in the sense that cutting down cost on providing them would reduce the total cost of production, which in turn make the product affordable on the market. The market price of a product is a major factor. The decision to buy is greatly influenced by the price factor of the product (Byett *et al*, 1997). Therefore, all things being equal, a reasonable pricing of a product with all customer qualities fulfilled will ultimately be a success.

The author is of the view that product packaging also has these five qualities identified by Kano and his team, hence can be employed in packaging research.

Kano's questionnaire can be used to get all the needed customer's quality requirements in product packaging, while the evaluation table provides the basis for analysing the results for clear understanding so that it can be implemented. The theory offers an easy way to get customers inputs for product packaging that will give them satisfaction.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Overview**

This chapter gives account of the processes used for the data acquisition; including how the research was planned, the research design that was used, the sample used and data collecting procedures for each of the three objectives this study sought to achieve; as well as the data analysis plan.

#### **3.2 Research Design**

The study concerned activities and perception of quality in the context of packaging and labelling in Ghana. Two of the country's major metropolis- Kumasi and Accra- were chosen as the study areas. Some of the large and small scale business enterprises and organisations within the packaging industry were visited to enable the researcher reach experts in the field of work and also to be acquainted with how the packaging and its related activities are performed in the industry. Some of the local packaging companies within the packaging industry visited include the Coca Cola Bottling Company of Ghana –Accra and Kumasi, Guinness Ghana Limited- Kumasi, Unilever (Gh) limited- Tema, Voltic (Gh) Limited (Accra), Nestle (Gh) Limited (Tema), Poly Pet Limited (Accra), Nkulenu Industries Limited (Accra), Polytex (Gh) Limited (Accra), Gelato Delite Co. Limited (Kumasi). The rest are Ambar Quality Foods Limited (Accra), Athena Foods Limited (Tema), Burger Foods Industries (Accra), Cocoa Processing Company (Tema), Elsa Foods Limited (Tema), and Polykraft (Gh) Limited (Tema).

The researcher made several observations in the companies visited and got both primary and secondary data on quality practices and processes involved in packaging by both the private enterprises and the multinational companies. However, the researcher did not participate in any of the operational processes.

Both qualitative and quantitative research methods were used based on their ability to strengthen each other and also to enhance the validity of the findings (Allen & Babbie, 2001). Qualitative research method enables researchers to describe, analyse and interpret events they discover (Leedy & Ormrod, 2005). Therefore, it enabled the researcher to analyse the data gathered in the form of words and those through observations made. Quantitative method, on the other hand, enabled the researcher to quantify some of the related responses to the interview questions for statistical analysis using the Statistical Package for Social Sciences (SPSS) software.

The researcher collected the data personally for this research. This gave the researcher the advantage to follow details to understand the process of events for proper analysis. Data was analysed as they were gathered so that based on the analysis further questions were asked for better clarification and understanding.

In order to obtain collective responses for analysis; the packaging industry was divided into sectors namely: packaging design sector, food products manufacturing sector, packaging material conversion and printing sector, packaging ancillary organisations and the customers sector. An interview guide was designed and administered to each of the sectors. The interviews were recorded with the help of digital audio recorder and transcribed later.

### **3.3 Population**

The study population were chosen from Accra and Kumasi, the two major metropolises in Ghana where the bulk of both local and imported packaged consumer products are produced, distributed and sold in big supermarkets and shops. In addition there are many small retailers spread in almost everywhere in their suburbs. The population in these areas is considered to have more exposure to the packaging of both local and imported products as a result of their daily experiences with these products. Their accumulated knowledge and experiences with various packages were of great value to this study. The human resource, companies and machineries involved in packaging, especially made in Ghana products, are mostly found in the regions where these two metropolises serve as their capitals.

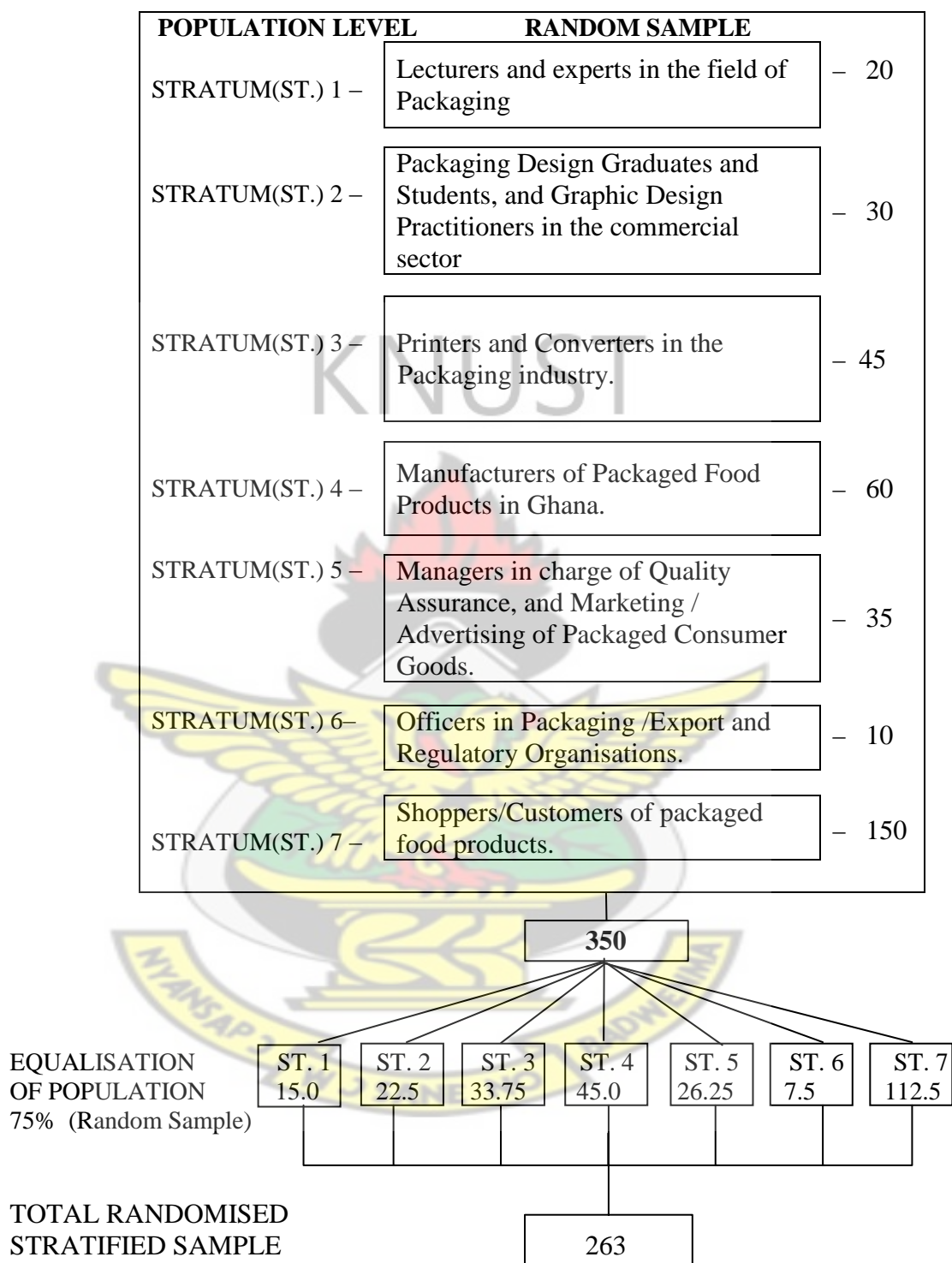
### **3.4 Sampling**

In order to reach experts in the field, and also to find out the machinery and processes involved in product packaging for specific needs in the study the purposive sampling method, as proposed by Leedy and Ormrod (2005) was used. Another sampling method used was the stratified random sampling method because of the heterogeneity of the population. Thus, the population for the study was categorised into seven. Table 3.1 shows a schematic diagram of the sample size that was used.

The total respondents were 350 made up of the following: STRATUM (ST.) 1 comprised 20 respondents made up of Lecturers and experts in the field of Packaging. STRATUM (ST.) 2 was made up of packaging design graduates and students, and graphic design practitioners in the commercial sector. STRATUM (ST.) 3 was composed of printers and converters in the packaging industry.



**Table 3.1: Schematic Diagram of the Stratified Sampling Procedure for selecting respondents**



STRATUM (ST.) 4 is made up of manufacturers of packaged food products in Ghana. STRATUM (ST.) 5 is made up of managers in charge of quality assurance, and marketing / advertising of packaged consumer products. STRATUM (ST.) 6 is composed of officers in packaging /export and regulatory organisations, while STRATUM (ST.) 7 were shoppers/customers of packaged food products.

The interview method was used and it enabled the researcher to successfully interview the total number of respondents set for this study. It also facilitated good response rate (Allen & Babbie, 2001).

### **3.5 Instruments for Data Collection**

The data gathered were in two forms; primary and secondary data. The primary data were collected through interviews and observations made from these sources: experts, manufacturers and consumer of packaged products. The interview guides used were validated by colleagues, respondents in each category and the supervisor.

The secondary data were obtained from documented sources such as books, publications, periodicals, magazines, audio materials, and unpublished theses. These documents were gathered from libraries visited which include the following:

- The various libraries, KNUST, Kumasi;
- The British Council library, Kumasi;
- The Ghana Standards Board (GSB) library, Accra
- The Institute of Packaging, Ghana (IOPG) library, Accra.
- The personal libraries of Lecturers
- Internet facilities inside and outside KNUST campus

### **3.6 Data Collection Procedures**

#### **3.6.1 Objective One**

The first objective of this study is to identify challenges inherent in the packaging design and production chain in the local packaging industry. To achieve this, the researcher reviewed literature relating to packaging and labelling design, and printing processes. Using the information gathered as the basis for the scientific enquiry to get empirical evidence from the local people involved in packaging design and production, open-ended interview questions were developed. The purpose for using open-ended questions is to allow the respondents to express themselves as best as they can.

**Interviews:** The researcher personally conducted the interview with the respondents using the open-ended interview guide (Appendix 3). The researcher first introduced himself and then briefed the respondent on the purpose of the interview and issues the interview covers. The researcher read out each question and allowed the respondent to finish answering it before the next question was asked. The researcher asked follow up questions where necessary to enable the interviewee to clarify any ambiguity in his or her response to the question asked. The researcher then recorded the responses to each question. The researcher after the interview reads over the recorded responses to the interviewee to approve what was recorded. The data gathered were assembled and analysed.

**Observations:** The observation method was used alongside the interview method in gathering the primary data. In order to gather data based on the researcher's personal observation, the researcher took an observation tour of the respondent's place of work before or after the interview. The researcher used the observation checklist (Appendix 4) to record data on the various machines being

used and their conditions. Photographs of some printing machine parts, packaged products and labels were taken during the study to support the overall data.

### 3.6.2 Objective Two

The second objective seeks to find out what methods local manufacturers use to get customers' input for their packaging design concepts and development which could lead to customer satisfaction in their products packaging. To achieve this second objective, literature on customer satisfaction were reviewed. The information gathered helped in the development of open-ended interview questions designed for soliciting empirical data from the local packaged food product manufacturing sector.

**Interviews:** The researcher personally conducted the interview with the respondents using the open-ended interview guide (Appendix 3). The researcher first introduced himself and then briefed the respondent on the purpose of the interview. The researcher read out each question relating to how local food product manufacturers conduct customer research. The researcher allowed the respondent to finish answering one question before the next question was asked. The researcher asked follow up questions where necessary to enable the interviewee to clarify any ambiguity in his or her response to the question asked. The researcher then recorded the responses to each question. The researcher after the interview reads over the recorded responses to the interviewee to approve what was recorded. The data gathered were assembled and analysed.

**Observations:** The researcher's quest to see how customer interviews are conducted by the respondents, the researcher asked each of the respondents to demonstrate how the research is conducted after the interview. The researcher

recorded what he observed such as the method and the approach the respondent used in the demonstration.

### 3.6.3 Objective Three

The third objective of this study is to assess the impact of the packaging ancillary organisations' programmes on product packaging in Ghana. Interview questions were developed to solicit the views of the personnel in the packaging ancillary organisations on local food product packaging, issues in the local packaging industry as well as the capacity building programmes they organise for the personnel in the local packaging industry.

**Interviews Conducted:** A cross-section of personnel in the local packaging industry was interviewed on the programmes run by the local packaging ancillary organisations and their impact on the packaging of locally made products. The researcher personally conducted the interviews with the respondents using the open-ended interview guide (Appendix 3).

The researcher first introduced himself and then briefed the respondent on the purpose of the interview. The researcher read out each question relating to activities of the local packaging ancillary organisations to the SMEs in Ghana. The researcher allowed the respondent to finish answering one question before the next question was asked. The researcher asked follow up questions where necessary to enable the interviewee to clarify any ambiguity in his or her response to the question asked. The researcher then recorded the responses to each question. The researcher after the interview reads over the recorded responses to the interviewee to approve what was recorded. The data gathered were assembled and analysed.



#### 3.6.4 Questionnaire Administration

Fifty (50) copies of questionnaire, based on the Kano's questionnaire model (Kano *et al*, 1984), were administered to solicit respondents' quality requirements in the packaging of food products and also to test the possibility of using Kano's questionnaire in determining customer requirements for food product packaging. A hypothetical new cocoa drink product was used as a case study and questionnaires, consisting of 15 functional and dysfunctional questions on its packaging (Appendix 2) were developed and used.

Fifty (50) respondents were randomly selected from the customer sector and the researcher personally administered the questionnaires to them on one-on-one basis. This enabled the researcher to personally experience the conditions likely to be encountered in administering Kano's questionnaire and also to retrieve all the copies of the questionnaires used. All the data gathered were put in the Table of Results and then analysed using the Kano's Evaluation Table (see Table 4.7)

## **CHAPTER FOUR**

### **PRESENTATION AND DISCUSSION OF FINDINGS**

#### **4.1 Overview**

This chapter gives a presentation and discussion of findings from the data obtained from the sampled population of 350 respondents from the packaging design sector, packaged food product manufacturing sector, packaging printing and conversion sector, packaging auxiliary organisations and customers sector, in the local packaging industry. The data are organised and discussed under each sector heading.

#### **4.2 Categorization of Respondents**

To help analyse the data, respondents with homogeneous characteristics were put together (Table 3.1). Respondents in ST 1 and ST 2, totalling 50 in number representing 14.29%, were put together as respondents from the packaging design sector because they all tend to offer design services to the packaging industry. ST 3 representing the packaging material printing and conversion sector with 45 respondents constitutes 12.86%. ST 4 stands for Manufacturers of Packaged Food Product in the Packaged Food Product Manufacturing sector with 60 respondents representing 17.14%, ST 5 and ST 6 with a total number of 45 respondents representing 12.86% were put under the Packaging Ancillary Organisations, and ST 7 with a total population of 150 respondents were considered under the Customer

Sector of the packaged food products representing 42.85% of the total population for the study.

With the exception of respondents from ST 7, the Customer sector, one primary respondent was selected from each of the establishment visited for interview. However, those who offered themselves up to be interviewed, in addition, were given the opportunity and their responses added to that of the primary respondent. Data from such benevolent people were also used to authenticate or verify the data given by the primary respondent.

The summary of findings and the author's proposed solutions to the identified challenges in each sector are presented at the end of the sector's data analysis.

#### **4.3 Data Presentation and Analysis of Findings**

The data obtained from interviews are presented in a table form for each category. Table 4.1.1 to Table 4.5.3 show all the data gathered. Data from the Packaging design sector begin with Table 4.1, data from the Food product manufacturing sector begins with Table 4.2, Printing and conversion sector begins with Table 4.3, Packaging ancillary sector begins with Table 4.4 and data from the Customer sector also begins with Table 4.5 . Each table consists of five major columns: Questions, Number of Respondents, Responses, Frequencies and Percentages. The Frequency column shows the number of respondents who gave the same or similar answer to the corresponding question; it therefore gives account of the multiple answers given by some respondents to a particular question. The percentages were calculated based on the frequency against the total number of respondents. It must be noted that because some respondents gave multiple answers

to some of the questions adding up all the figures in the percentage column for each question would exceed 100%.

#### **4.4 Presentation and Interpretation of Data from Interviews Conducted in the Packaging Design Sector**

Data gathered from the interviews conducted in the packaging design sector (as indicated in Table 4.1.1) revealed that 68% of the respondents consider local product manufacturers as people who are not very particular about the packaging of their products, whereas 32.0% were of the view that local manufacturers are doing the best they can but the result is not the best. Some of the reasons given by those who answered “NO” to the question related to financial constrain, lack of adequate understanding of packaging, failure to consult packaging design experts, and their unwillingness to invest more into quality packaging.

The researcher also considers these reasons given by the designers as what constrain local manufacturer's efforts in developing good packages for their products. The two most popular explanations given by all the 34 representing 68% of the population were about the manufacturers' fear of high cost of good quality packaging reflection on the price of their products in the eye of their customers, and the imbalance importance local manufacturers attach to products and their packaging. This confirms what Judd *et al* (1989) observed about packaging for the local market. They observed that manufacturers producing for their local market do not attach much importance to their packaging because they are mostly known by their customers and they may enjoy monopoly or oligopoly market situation.

Some manufacturers of food products in Ghana might have operated in these two market situation for some time, but now there is much competition in the food industry at every level these days because of the trade liberalisation policy adopted

**Table 4.1.1: Packaging Designers' Views on Local Product Packaging in general**

No.	QUESTIONS	No. OF RESP.	RESPONSES		FREQ	(%)
1	Do you consider our local product manufacturers as people who are very particular about the design and quality of their packages?	50	Yes 16=32%	They do but just that they do not go for the best quality	16	32
				Some are doing their best in their own small ways	13	26
			No 34=68%	They are financially constrained to afford quality packaging	28	56
				They do not have adequate understanding in marketing roles played by packaging	30	60
				They do not seek advice from experts or involve them in their packaging planning.	23	46
				They do not want to spend much on packaging because the cost involved will make their product price go high	34	68
				Because packaging seems to be of little importance to them	34	68
				Their focus is only on the quality of the products than the packaging	23	46
				Because their customers do not strongly complain about their packaging	20	40
2	Do you appreciate the way the small-scale business enterprises package their goods?	50	Yes 19=38%	That is what they can afford	5	10
				That makes their products affordable	19	38
				Because it is good or acceptable in their kind of market situations	10	20
			No 31=62%	Most of them are not appealing or attractive to customers	25	50
				They look too simple to help sell the products well	22	44
				They do not use quality materials and good graphics	28	56
				It cannot make their products competitive on other markets	31	62
3	What are some of the challenges facing the packaging industry in Ghana?	50	Poor market or customer research culture		34	68
			Inadequate packaging machinery and inefficiencies in the available packaging machinery		32	64
			Poor labelling of some products		23	46
			Lack of variety or types of good quality packaging materials		38	76
			Misuse and high dependency on preformed containers		33	66
			Manufacturers poor attitude towards capacity building or improvement on quality standards		31	62
			Lack of packaging structural designers		16	32
			Financial constraints / small business capitals		41	82
			The influx of imported products creating unfair completion in the local market		12	24

Source: Field Survey, February 2008 - April 2008



by Ghana almost two decades ago. There is therefore the need for local food manufactures to value high quality packaging and to adopt innovative packaging design concepts to sustain their market share and may be open doors for their products to enter into the international market arena.

#### **4.4.1 How Local Designers Appreciate the Packaging of Local Products**

Interviewing the respondents to find out whether they appreciate the way small and medium scale (SME) manufacturers do their products packaging, 38.0% of the respondents said they do appreciate the way they package their products (as indicated in Table 4.1.1). However, none of the explanations they gave indicated that their way of packaging makes their products competitive even as it seems to make their products affordable to their customers. It can be deduced from their responses that they do not appreciate it because it makes their products competitive but because it suits their market type and financial status.

Sixty-two percent of the respondents said they do not appreciate the way small and medium scale manufacturers package their products. It can be deduced from their explanations that 28 of them talked about their use of poor quality material and the decorations on them as the reasons why they do not appreciate the packaging. 25 of them spoke about the unattractiveness of the packages in the eyes of the local consumers whereas 22 of the respondents dislike their packaging concept because of its poor market impacts. The most common reason why the 31 respondents said they do not appreciate the local packaging is the fact that their packaging concepts cannot market their product outside Ghana.

This indicates that the respondents agreed that the local packaging style cannot compete with foreign products whose packages are designed based on strong

marketing concepts. It is important that local manufacturers have to base their products packaging on strong marketing concepts to enable their products to be competitive in all markets.

#### **4.4.2 Challenges Facing the Packaging Industry as Identified by Local Packaging Designers**

Various challenges facing the packaging industry that the respondents have identified include inadequate packaging machinery and lack of different types of packaging materials, misuse and high dependency on preformed containers, poor market or customer research culture, manufacturers' poor attitude towards improvement on quality and capacity building activities, financial constraints and low business capitals were said to have been compelling local manufacturers to spend less on packaging (as shown in Table 4.1.1). In addition to these problems, poor packaging and labelling, and the influx of imported foreign products which has created competition for them on the local market were mentioned.

Most of these problems are being addressed by the various packaging ancillary organisations. If all these challenges are resolved the packaging industry will experience significant improvement.

#### **4.4.3 Factors that Account for Poor Packaging**

In response to the question that solicits for factors that account for poor packaging of locally packaged products, ten different factors were mentioned in Table 4.1.2. The high number of times each of these ten factors was mentioned indicates that they are recognised by all the respondents. Three of these identified factors relate to packaging graphic design, four of them relate to packaging structural

design, one relate to printing, and the remaining two relate to the finish or how packaging processes are completed at the product manufacturer's company. The packaging material used and the way the structure is designed and sealed were found to be the most contributing factors of poor packaging by all the 50 respondents.

It can be inferred from the data that in spite of the quality of the packaging material used and the graphics on it, finishing activities such as sealing and packing can ruin the whole packaging concept leading to poor packaging. It is important that manufacturers be more careful on how their packages are handled on the packaging line to ensure proper sealing and packing to maintain the integrity of their packages.

**Table 4.1.2: Causes of Poor Packaging as Identified by Local Packaging Designers**

No	QUESTIONS	No. OF RESP.	RESPONSES	FREQ.	PERC. (%)
1	<b>What are the possible factors that account for poor packaging of made in Ghana products?</b>	<b>50</b>	Poor packaging graphics	46	92
			Packages that cannot contain their contents	44	88
			Fragile or weak packages	50	100
			Improper sealing of packages	50	100
			Poor printing on the packaging material	42	84
			The use of inappropriate closure devices	43	86
			The use of poor packaging materials	50	100
			Poorly constructed packaging	42	84
			too simplistic packaging concept	18	36
			Overdesign of the packages	32	64

Source: Field Survey, February 2008 - April 2008

#### **4.4.4 Why some People Consider Imported Food Products better Packaged**

In sampling respondents' views to find out whether they consider imported products better packaged than the local ones, 32 of the respondents, representing 64% share a common view that imported products are better packaged as compared to those packaged locally by small and medium scale product manufacturers (as indicated in Table 4.1.3). Among the reasons why they considered the foreign ones better packaged are that they see them as well crafted, attractive with good graphics and good looking prints on them. In addition, they said they are made of better quality packaging materials than the local ones. All the qualities indicate that the packages are designed based on promotional concepts that make them appealing to their foreign consumers and highly competitive on the foreign market.

The remaining 18 (36%) respondents disagreed that imported products are better packaged than local ones. Their reasons indicate that the imported goods come in varieties of packages such as thermoformed plastic containers, Tetrapak packages, cans and tins that are not commonly used by manufacturers in Ghana. 6% of the respondents were of the view that the manufacturers of the imported products sort out packages with defects and export the unblemished ones to the foreign markets. 12% claimed that both local and foreign product packages are made from similar packaging materials and same printing methods are used in decorating them; therefore they are of the same quality. 20% also claimed that the imported products are not better packaged than the local ones because their attractiveness does not mean better packaging. Inferring from this point made by the respondents, a product package may be made of good quality material and may look attractive to customers yet it cannot be a better package because it must meet all required ergonomic

functions such as easy to open, easy to dose and easy to grip, which make consumers feel comfortable and satisfied in using the product (Löfgren & Witell, 2005).

#### 4.4.5 Packaging Designers' Grading of Locally made Packages

52.0% respondents consider locally designed packages as low in quality (as indicated in Table 4.1.3). Their claims were that most packages are poorly printed; some have unattractive decorations, poor layout design and distortions in the shape or form of the packages. 34.0% rated them as medium quality because they have observed that some packages have good graphics but may be poorly printed or vice versa. Whereas 14.0% rated them as high quality because some of them have good graphics and print, and good materials are used to produce the packages.

**Table 4.1.3 Packaging Designers Views on the Quality of Local Packaging**

No.	QUESTIONS	No. OF RESP.	RESPONSES		FREQ.	PERC. (%)
1	In your view do you think the packages of imported goods on Ghanaian market are of better quality than our local ones?	50	Yes (32) = 64%	They are well crafted and suggest good quality	31	62
				They are attractive looking	32	64
				They have good graphics with high quality prints	24	48
				Those packages are made of good materials	32	64
			No (18)=36%	They only come in varying nice looking packaging materials	8	16
				They sort the bad ones out and bring the good ones to our market	3	6
				It just that most customers regard them as good packaged products because of their foreign origins	3	6
				We all use the same materials and printing methods	6	12
				They only appear to be good and attractive but not better packaged	5	10



No.	QUESTIONS	No. OF RESP.	RESPONSES		FREQ.	PERC. (%)
2	By your assessment how will you grade the quality of packages designed and printed in Ghana? Please give reasons.	50	High Quality (7)=14%	Because some have good graphics and nice print on packages	3	6
				Good or appropriate use of packaging materials	7	14
			Medium Quality (17)=34%	Good materials but bad graphics and poor prints	13	26
				Good graphics but poor print on packaging materials	15	30
			Low Quality (26)=52%	Poor prints on packaging materials	19	38
				Unattractive decoration and label designs	26	52
				No orderliness /poor layout design	13	26
				Most package have distorted structure or form	16	32
3	What can help make packaging of Ghana made products competitive on all markets?	50	Intensive customer research on target market		42	84
			Quality consciousness and practices		23	46
			Complying to national and international quality standards		31	62
			The use of good and attractive looking packages		50	100
			By using the right kind of packaging materials for the right kind of products		37	74
4	Have you observed any significant improvements in the quality of packaging of locally manufactured products from the SME sector in Ghana over the last decade?  What can it be attributed to?	50	Yes (28)=56%	Because of the growth of the packaging industry	22	44
				Local manufacturers and consumers are becoming more aware of good packaging	18	36
				Some products are repackaged anew in different packaging materials and forms	41	81
				As result of the competition with imported and multinational companies products	22	44
				The impact of economic development in Ghana	18	36
				Introduction of new machinery	16	32
				Availability of new, good and different packaging materials	28	56
				The use of imported printed packages	25	50
			Not much (22)=44%	They seem to be doing the same old concept of packaging	22	44

Source: Field Survey, February 2008 - April 2008

#### **4.4.6 Designers' Suggestions that would help make Locally Designed Packages Competitive**

On the question of what can help make packaging of local products competitive, the need for intensive customer research on the target market was mentioned by 84% of the respondents (as shown in Table 4.1.3). Local manufacturers of packaged product need to be more quality conscious and to follow quality practices was mentioned by 46% of the respondents. Although the need for enforcing quality practices among local manufacturers was mentioned by few respondents, the researcher is of the view that if all the local manufacturers become quality conscious it would help eliminate shoddy works in the packaging industry and whatever comes out would be of good quality. Compliance to national and international packaging quality standards was mentioned by 62% of the respondents. Conformance to all packaging standards and regulations are important to both foreign and domestic products packaging.

Attractive and good looking packages were the most popular point which all the respondents mentioned. This stems from the fact that the actual colours of most packaging materials are usually not attractive but the colours in the design used as decoration and the shape of the package are what make packages attractive to customers. Seventy four percent of the respondent mentioned the practice of using the right packaging materials for the right kind of products. Linking this to observations made by the researcher it appears that some local manufacturers do not study the nature of their products well before choosing the packaging materials or selecting containers for their products. Problems such as spillage or leakage, short shelf-life and easy bursting of packages can be attributed to the use of wrong packaging materials or inappropriate containers. This is one of the causes of poor packaging of locally made products identified in this research.

#### **4.4.7 Recent Improvement on the Quality of Local Product Packaging**

In spite of all the challenges facing the local packaging industry, 56.0% of the respondents from the packaging design sector said they have observed significant improvement in the quality of local products packaging (as indicated in Table 4.1.3). Whereas 44.0% said they have not seen much improvement because most local manufacturers seem to be doing the same old concept of packaging which are not for promotional purposes but only as containers for the products. The improvement was attributed to new forms of packaging with plastic materials, the current market competitions and the willingness of some local manufacturers to compete well.

The researcher commends the performance of the local packaging sector in recent years. According to ITC report in 2007, Ghana attained an annual steady growth of about 17% of packaging material imports from the year 2000-2005. This indicates that more and more packaging materials are being used leading to the improvement in the local product packaging.

#### **4.4.8 Design Elements that Manufacturers put Emphasis on in the Graphics on their Packages**

In finding out what elements or items in the design that local manufacturers put emphasis on in their packaging (as indicated in Table 4.1.4), all the 50 respondents mentioned that more emphasis is put on the brand names of the products. The emphasis on colours used in the design scored 82%, the manufacturer's identity scored 68%, whereas the use of photographs and illustrations scored 68% of the responses. The much emphasis on brand name means that the product positioning is highly based on brand concept. This confirms what Judd et al (1989) observed that the packaging or label designs from developing countries concentrate heavily on the brand concept.

It is important that the brand name be clear and visible on the pack, such as on the OMO pack, but the product identity or the unique selling point (USP) must also be strong enough to complement the brand name. Thus a balance must be achieved between the uses of all the product positioning concepts. The product positioning concepts are the *brand*, the *product*, and the *target* (Judd et al, 1989).

**Table 4.1.4: Local Packaging Designers' Views on the Local Packaging Graphics**

No.	QUESTIONS	No. OF RESP.	RESPONSES	FREQ.	PERC. (%)
1	What items or elements used in the design of labels or packages do local manufacturers put emphasize on to attract customers?	50	Brand name	50	100
			Manufacturer's name or identity	37	74
			Colours	41	82
			Photograph / illustration	34	68
2	What makes the graphics on locally designed packages / labels poor?	50	Incorporation of less relevant information /objects	26	52
			Poor proportions of the objects used in the design	18	36
			Poor layout design	32	64
			The use of multiple typefaces in single design	35	70
			inappropriate use of typefaces	25	50
			Over design or lack of simplicity	26	52
3	What factors account for poor graphics on some locally designed packages?	50	Designer's inability to establish the difference between packaging graphics and any other graphic design works	22	44
			Lack of adequate professional packaging designers	32	64
			Manufacturers, inability to seek or consult packaging experts advise.	32	64
			The services of nonprofessional designers working in the packaging industry.	25	50

Source: Field Survey, February 2006 - April 2006

#### 4.4.9 Identified Flaws in the Graphics of Locally Designed Packages

With respect to the flaws in the graphic artworks that account for poor designs on local packages the following were identified in the responses: poor layout

design, poor proportions of the objects, the use of multiple type faces in the single design work, and over designing or lack of simplicity (as Table 4.1.4 indicates). All these errors show that there are incompetent designers offering design services to the packaging industry. The incorporation of irrelevant or less relevant information and objects were blamed on clients who sometimes insist that they are incorporated in the design. The author is of the view that incorporating irrelevant information and images in a design can make the design look clumsy and also take up space which could have been used to highlight the relevant elements in the design.

#### **4.4.10 Identified Factors that Account for the Poor Packaging Graphics**

Factors that respondents think account for poor graphics on some locally designed packages include; the inability of some graphic designers to establish the difference between packaging graphics and all other graphic design works, lack of professional packaging designers, unwillingness of some manufacturers to seek packaging experts advice and services and the operations of none professional graphic designers working in the industry (Table 4.1.4).

From all the 50 respondents the following were found to be lacking in the packaging design and production chain: effective collaboration among the stakeholder in the packaging sector, lack of professionals and professionalism in handling packaging design, lack of packaging research organizations, lack of packaging design innovations, and inadequate number of modern packaging machinery and materials.



#### **4.4.11 Awareness of the various Printing Methods**

Data gathered from the respondents in the design sector, Table 4.1.5 revealed that most of the printing processes and methods are not well known among local designers. Gravure printing, flexography, dry-offset printing, letter press and screen printing were least mentioned as the percentage score of the responses were 32%, 32%, 16%, 24% and 16% respectively. This indicates that most of the designers in the local packaging industry have little knowledge in the various methods of printing with which their designs are reproduced in mass quantities.

A designer who is unfamiliar with the reproduction method to be used may produce a work that the press cannot reproduce exactly. This leads to an increased cost of production and undue delays in job delivery because the client may be required to pay a fee for the prepress work and more time may be needed to accomplish all the necessary prepress activities. In some situations the entire artwork may be redesigned to suit the printing process to be used.

It must be noted here that some of the designs sent outside Ghana for printing, may be due to the quality of print expected or because of unavailability of the required printing machine in Ghana. The cost of money and time involved in sending the document to the printing press again may be borne by the client. As Henrion (1962) and Kweifio (1981), all quoted by Ockumpah-Bortei (1991), rightly said that it is important for the graphic designer to know the materials, machinery and processes in their profession. It is imperative then that the designers get some level of knowledge in all the printing processes, packaging materials and be well briefed by their clients on the type of printing method intended to be used.

#### **4.4.12 Assessment on the Local Packaging Design Sector Performance**

Data gathered from the respondents own assessments on the general performance of the design sector to the local packaging industry (as Table 4.1.5 shows), 34% of the respondents said the sector is providing the right kind of service to the local packaging industry. Their reasons indicate that most of the good packages on the market were produced locally. On the international scene packages for export products are also performing well. Ten percent (10.0%) of the respondents also said that some of the locally designed packages have won international packaging design awards. The researcher gathered that the award winners were students trained in the Kwame Nkrumah University of Science and Technology in an address by Mr. Kofi Essuman, President of IOPG at the Maiden Packaging Exhibition at KNUST in 2008.

Majority of the respondents, forming 66%, claimed that the design sector is not providing adequate service to the packaging industry. Inferring from the reasons they gave, the non professionals outnumbering the professionals is a major problem in the design subsector in the local packaging industry. Hence the problem of poor graphics on some packages and the great demand for more trained packaging professionals.

Motivation was found to be lacking as a result of clients' attitude and the nature of their demands. This was made evident in their claim that their clients are unwilling to pay the price that would motivate or encourage them to explore more innovative packaging design ideas. Also they usually demand for only labels and already existing type of packages, these give them limited room for creativity.

**Table 4.1.5: Local Packaging Designers' views on the Issues in the Local Packaging Design and Production Chain**

No.	QUESTIONS	No. OF RESP.	RESPONSES	FREQ.	PERC. (%)	
1	In your view what do you think is lacking in the packaging design and production chain?	50	Effective collaboration among all stakeholders	46	92	
			Lack of professionalism and adequate number of professionals	33	66	
			Lack of varying packaging material and packaging methods	27	54	
			Inadequate modern packaging machinery	32	64	
			Lack of Packaging research organisations	13	26	
2	What are the various printing processes that are used for printing on packaging materials?  (b) Can you briefly describe each of the methods?	50	Offset lithography	50	100	
			Gravure	16	32	
			Flexography	16	32	
			Dry-Offset	8	16	
			Letterpress	12	24	
			Digital Printing	26	52	
			Screen Printing	8	16	
3	Is the design sector in general offering the right kind of services to the local packaging industry as needed to make them competitive internationally?  Please give reasons	50	Yes (17) =34%	Most of the packages of best selling products were done locally	8	16
				Some locally designed packages have won international awards	5	10
				Because the locally designed packages for export products are performing well	9	18
			To some extent (33) =66%	There are more nonprofessional than professional designers operating in the industry.	18	36
				Packaging designers are not motivated by their clients' actions and demands	12	24
				The equipment needed to support them are inadequate or are not available	14	28
				There are no locally made innovative packages	8	16
				There are inadequate packaging structural designers.	8	16
				Because well trained designers are few in the packaging industry	12	26

Source: Field Survey, February 2008 - April 2008

In such situations, the creativity of the designers may be stifled and that may be one of the reasons why there are no innovative packages developed for products on the local market. Packaging testing equipment or machinery needed to carry out

vibration test, crush out test and compression test are very limited in the packaging industry. It is only the Ghana Standards Board (GSB) that has recently installed some of the equipment for packaging testing.

#### 4.4.13 Designers' Awareness of General Packaging and Labelling Rules used in Ghana

The data gathered from the interviews indicates that a greater number of the designers, 74%, are aware of the existence of the general packaging and labelling rules (as Table 4.1.6 indicates). The author is of the view that since a greater number of designers are aware of the packaging rules and yet produce poor or improper labels for local products indicates that they do not comply with the rules spelt out in the document. The compliance problems can be resolved by the Ghana Standards Board and the Ghana Food and Drugs Board who are mandated by Ghana Government to enforce the packaging and labelling rules.

**Table 4.1.6: Local Packaging Designers' views on Packaging and Labelling Issues**

No.	QUESTIONS	No. OF RESP.	RESPONSES		FREQ	PERC. (%)
1	<b>Are there packaging / labelling rules in Ghana by which the design of every product label must follow or comply? If there are any, where can the documents be found?</b>	50	<b>Yes (37) = 74</b>	Ghana Standards Board	35	70
				Ghana Food and Drugs Board	22	44
			<b>Not aware (13) = 26</b>	We use those on existing packages on the market	13	26
2	<b>To what extent do locally made products labels comply with the existing labelling rules?</b>	37	<b>High compliance</b>	Products for export trade markets	15	30
				Products from big and multinational companies	28	56
			<b>Poor /Low compliance</b>	Products from small and micro businesses	33	66

#### **4.4.14 Locally Designed Packages and Labels Compliance with the General Labelling Rules**

Examining the extent to which locally designed packages and labels comply with the General Packaging and Labelling Rules from the respondents, packages and labels used by big companies such as the multinationals and products for exports trade were found to comply highly with the rules. This was made known from the responses given by 37 respondents (as Table 4.1.6 indicates).

Poor or low compliance levels were found to be high among labels on products from the small and micro businesses as 66% of the respondents mentioned it. Monitoring and supervision activities carried out by Ghana Standards seem to be more effective on the large scale industries and but more relaxed on the small scale business enterprises.

#### **4.4.15 The need for Pretesting of Packaging and Labelling Design Concepts**

Pre-testing of packaging design and labelling concepts was much supported by 31 respondents representing 62% with three varying explanations. Twelve (12) of the respondents, accounting for 24%, claimed that pre-testing is not needed for products from small scale manufacturers (as Table 4.4.7 indicates). The remaining 14% of the respondents said it is good but products with simple packages need no concept testing.

The follow-up question to find out if the designers do vigorous concept testing on their designs for packages, all the respondents (100%) said they do not perform rigorous concept testing on their designs for packages. 10.0% of the respondents claimed that they do pre-testing in their own small ways yet not vigorous for meaningful conclusions to be drawn 56.0% of the respondents claimed that their



clients do not find it necessary to do the test or are not aware of such testing, whereas 34.0% also claimed that they do not provide concept testing services to their clients.

It can be deduced from the responses that packaging design concepts are not vigorously tested for most locally packaged products. However, it must be emphasized here that some form of testing are done by the individual or the firm handling the packaging design project but that is not a test to determine its market success .

**Table 4.1.7: Local Packaging Designers' views on Pretesting of Local Products Packaging**

No.	QUESTIONS	No. OF RESP.	RESPONSES		FREQ.	PERC. (%)
1	<b>Do you consider pretesting of locally designed packaging and the labelling design concepts important to products from the SME sector? Please give reasons</b>	<b>50</b>	<b>Yes (31)= 62%</b>	That will help them to get customer requirements	23	46
				It will help them to assess the products marketability	31	62
				To identify design errors or oversights	31	62
			<b>No (12)=24%</b>	It is not necessary for their kind of market	7	14
				Their market is not competitive	10	24
				Most of their packaging are non promotional type	10	20
				Their market sizes are small and manageable to them	8	16
			<b>Not for All (7)=14%</b>	There are packages that are too simple to require pretesting.	7	14
2	<b>Do your establishment carries out rigorous pre-testing of their design works for products packaging?</b>	<b>50</b>	<b>No (50) = 100%</b>	We do sometimes but not all that intensive	5	10
				Because some clients do not consider it necessary and others not aware of it	28	56
				We do not provide that service	17	34

Source: Field Survey, February 2008 - April 2008

With respect to the need for design concept pretesting, the explanations given by the 31 respondents show some of the benefits in concept testing as mentioned by Judd *et al* (1987). From the explanations given by the 12 respondents who responded 'NO' to the question, 7 of them said that they do not find concept testing necessary for their client's kind of marketing because their customers are not too sophisticated to convince them with advanced packaging concepts (as Table 4.1.7 indicates).

In all 20.0% of the responses indicated that their clients do not have to do pretesting of their packaging concepts because their products are not in strong market competition. Sixteen percent of the respondents do not support packaging concept pretesting for manufacturers with smaller market sizes. Also 16.0% of them claimed that their clients' market sizes are small and manageable to them and therefore need not to do pretesting. The 14% who said pretesting must be done but not for all product packaging were of the view that most of the packages from the small scale sector are too simple to require pretesting (as indicated in Table 4.1.7).

It appears that most of the respondents tie packaging concept testing to the market size and the strength of a product market competition. However, packaging concept testing was found to be independent of all these market situations. Considering the purpose of concept testing, which is to help the manufacturer to make go or no go decision on a new product that is about to be introduced and all its associated benefits, it is important that a pretesting be done for all marketable products to ensure its market success irrespective of its market situation. The packaging concept testing has the potential of helping the manufacturer to solicit consumers' views and to incorporate them in the final product packaging. This will help the manufacturer to achieve customer satisfaction (ISO 9001:2000(E)).

#### 4.4.16 Packaging Designers' Opinions about the Roles of Local Packaging Ancillary Organisations

Data gathered from the interviews conducted in the design sector on their opinions about the services of the packaging ancillary organisations (as Table 4.1.8 shows), 32.0% said the ancillary organizations are playing their roles well. However as many as 62.0% have the opinions that they are not really playing their roles effectively as expected of them.

**Table 4.1.8: Local Packaging Designers' views on the Roles of the Packaging Ancillary Organisations**

No.	QUESTIONS	No. OF RESP.	RESPONSES		FREQ	PERC. (%)
1	In your opinion do you think the various packaging ancillary organisations, such as the Ghana Standards Board, Export Promotion Council and Institute of Packaging Ghana, are playing their roles effectively?	50	Yes (19) =38%	They regularly organise seminars and workshop for local companies	16	32
				They do offer technical advice and assistance to companies.	16	32
				They make proposals that influence Government policy formulations and implementations	8	16
				They are championing the course of their members	14	28
			Not really (31)=62%	Due to lack of logistical supports	18	36
				They show poor attitude towards their work	10	20
				Because of acts of corruption in their operations	12	24
				They do not regularly organise their programmes	10	20
				Ineffective collaboration	10	20
				The impact of their programmes are not much felt in the product packaging in general	13	26
				They are not effectively enforcing their rules and regulations.	26	52
				Because few of the organisations are seriously working	8	16
				Their supervision and monitoring roles are not all that effective on the small scale sector	5	10

Source: Field Survey, February 2008 - April 2008

The reasons given by those who responded yes to the question were based on the programmes of the auxiliary organizations, whilst those who said they are not really playing their roles well gave reasons based on the limitations or the challenges facing the auxiliary organizations in their operations.

#### **4.4.17 Local Packaging Designers' Knowledge about Packaging as the "Silent Salesman"**

The "Silent Salesmanship" role of a package is very important in modern day consumer product packaging. The respondents' answers, as in Table 4.1.9, such as good colour scheme, the use of appropriate materials and layouts are the basic ingredients needed in designing good packaging graphics. Judd *et al* (1989), who introduced the term "Silent Salesman" in packaging design, talked about how these graphic elements could be put together on a package for it to help precipitate the purchasing decision. As the respondents have knowledge in what make packages communicate the values of the products they contain, the problem of poor packaging graphics therefore could be blamed on designer's inadequate knowledge in packaging graphics communication skills.

**Table 4.1.9: Responses of Local Packaging Designers to Product Packaging as "Silent Salesman"**

No.	QUESTIONS	No. OF RESP.	RESPONSES	FREQ.	PERC. (%)
1	What can make local product packaging acts effectively as the "Silent Salesman"?	50	Good colour scheme	28	50
			Proper layout of the elements in the design	32	64
			Appropriate use the packaging materials and the design of the pack	23	26
			The use of attractive illustrations/ photographs/ typography	43	86

Source: Field Survey, February 2008 - April 2008

#### 4.4.18 Designers Recommendations to the Local Packaging Industry

Respondents from the packaging design sector recommended the following as important in bring changes to the local packaging industry: education and sensitization programmes towards achieving quality packaging for their products, marketing, innovative packages for marketing made in Ghana products and more investments into packaging machinery. In addition, more packaging designers have to be trained, more consumer research activities need to be carried out to feed the industry with dependable customers data, and all stake holders must collaborate in the campaign for quality packaging of made in Ghana products. The government of Ghana policies should be focused on protecting and supporting the local packaging industry development (as Table 4.1.9 indicates).

**Table 4.1.10: Local Packaging Designers Recommendations that could help Solve the Problem of Poor Packaging of Local Products**

2	<b>What would you recommend to bring change to the local packaging industry?</b>	50	Local product manufacturers be sensitised to understand the role of quality packaging in marketing of their products	9	18
			More innovative package designs should be introduced to market our products competitively	8	16
			More packaging design professionals have be trained to support the industry	11	22
			More investment go into packaging machinery acquisition to develop the industry.	7	14
			Government policies should protect and support the packaging companies	9	18
			More consumer research activities	8	16
			Collaborative effort by all packaging stakeholders towards quality packaging of made in Ghana products.	12	24

Source: Field Survey, February 2006 - April 2006



#### **4.5 Summary of Findings from the Packaging Design Sector**

1. Majority (68%) of the local packaging designers, who provide design services to the local packaging industry, share the view that local product manufactures are people who are less particular about their products packaging. Therefore, most of the designers do not appreciate local product packaging.
2. 92% of the designers do not appreciate the designs on local product packages because they consider them as poorly done. However, they do appreciate the graphics on imported ones.
3. Factors such as the use of inappropriate packaging material, sealing and closure devices contribute to the poor packaging of local products.
4. Customer research and adherence to quality packaging standards would help make packaged local products competitive.
5. Economic growth, awareness creation, technological advancements in the packaging material and machinery have impacted on the quality of local products packaging in recent times.
6. Most of the printing processes used in the packaging industry are less known by most of the local designers offering services to the local packaging industry.

#### **4.6 Proposed Solutions to the Identified Problems in the Packaging Design Sector**

##### **4.6.1 Capacity Building Programmes for the Untrained Packaging Graphic Design Personnel**

The data reveals that both the graphic artworks on local packages are poor and the knowledge base of some of the graphic designers in the packaging printing processes are low, capacity building training would be required to help them improve in their service delivery.

## **1. Training in Packaging Graphics**

Considering the advantages they have in using the tools and equipment for designing coupled with the little experience they have in designing, the researcher proposes that building capacity in packaging graphics through seminars and workshops would be useful. These programmes are to be organised in every region for all graphic designers in the local packaging industry from time to time. The topics to be treated should include:

## **2. Calibration and Colour Matching Processes**

- How to ensure colour matching among display devices in the design setup (*The Calibration Processes*).
- How to get exact colour for reproduction with the help of colour chart along with the design software.
- Understanding colour spaces of the colour display devices used in packaging. This would help them to understand the in-Gamut and Out-of-Gamut colours in their artworks.
- How to incorporate the packaging regulations and standards in packaging design and production.

The Institute of Packaging Ghana (IOPG), the National Board for Small Scale Industry and the Communication Design Department in Kwame Nkrumah University of Science and Technology (KNUST) can combine their resources to support this noble programmes. During such programmes other local packaging issues or concerns can be addressed.

Building the capacities of these personnel will go a long way to help improve their packaging and label designs as well as their compliance to regulations. There

will be significant improvement in the quality of their design services to the various small scale manufacturers who seek their services.

#### **4.6.2 Increasing Awareness Level in the Packaging Printing Processes**

In the packaging professional workflow it is important that the designers understand the printing process that may be used to reproduce their designs in large quantities and the colour reproduction limitations involved so that they can design to suit the printing methods with colours that can be exactly reproduced. However, majority of the local designers providing services to local product manufacturers do not have adequate knowledge in the printing processes used the packaging industry.

It is imperative that packaging planners and designers know and understand the principles and processes involved in packaging printing, the printing machines capabilities and limitations, the terminologies used, and most importantly the print qualities of each of these printing methods for effective packaging decoration and label printing.

The printing methods used in the packaging industry are the Relief (Letterpress), Lithographic/Planographic (Offset), Dry-Offset, Flexographic, Intaglio (Gravure), Serigraphy (Screen Printing), and Digital (Computer) printing. The differences in these available printing technology or methods in terms of their image carrier type, mode or principles of image transfer, printing ink type, the form of substrate whether sheets or rolls (for web press) the nature of the substrate types they can print on as well as their print quality and characteristics have to be explained to them. The design and economic considerations for any of these printing methods and the quality of the print output must be well explained with hardcopy samples of prints from all the printing machines.

## 4.7 Presentation and Interpretation of Data from Interviews Conducted in the Food Products Manufacturing Sector

### 4.7.1 Respondents' Company Data

Majority of respondents from this sector were small scale food manufacturers, constituting 83.3% and the medium scale manufactures forming 16.7% of the total respondents. 6.7% were found to be using their own custom designed packages. 73.3%, the majority, use ready-made or existing designed package, whilst 20.0% use both custom and existing design packages, (as shown in Table 4.2.1).

**Table 4.2.1: Respondents' Company Data**

No.	QUESTIONS	No. OF RESP.	RESPONSES	FREQ.	PERC. (%)
1	What business category does your firm belong to in terms of size?	60	Small scale	50	83.3
			Medium scale	10	16.7
2	Do you produce your own designed package(s) or you buy them ready-made from the market?	60	Custom –made designs	4	6.7
			Ready –made /Existing designs	44	73.3
			Custom and existing designs	12	20.0
3	What type(s) of packaging materials do you use?	60	Paper-based material	6	10
			Solid plastic material	16	26.7
			Flexible plastics material	30	50
			Both paper and plastics materials	8	13.3

Source: Field Survey, May 2008 - October 2008

### 4.7.2 Packaging Material Types being used

The most common packaging materials used by the respondents were plastics. 50% used flexible plastic packaging materials, and 26.7% used rigid plastic packaging materials. Paper based packaging materials were used by 10% of the respondents, whilst 13.3% use both paper and plastic materials for packaging their products, (as indicated in Table 4.2.1).

**Table 4.2.2: Packaging and Labelling Testing done by Local Food Manufacturers**

No.	QUESTIONS	No. OF RESP.	RESPONSES		FREQ.	PERC. (%)
1(a)	<b>Do you test the package or the label design concept on the target consumer before launching the product? Please give reasons for your answer</b>	<b>60</b>	<b>Yes (60) =100%</b>	I need to find out what other people think and say about the designs	<b>42</b>	<b>70</b>
				Test how beautiful the design is for the product	<b>39</b>	<b>65</b>
				To find out how it can compete with other brands	<b>22</b>	<b>36.7</b>
1(b)	<b>If you do; how do you conduct the concept test and how many respondents do you use?</b>	<b>60</b>		By showing the designs to some people to select one good for the product	<b>27</b>	<b>45.0</b>
				By my personal assessments and comments from my workers and customers	<b>14</b>	<b>23.3</b>
				I do ask few people around to give their comments on the designs	<b>19</b>	<b>31.7</b>
1(c)	<b>Are there any other methods or ways of concept testing that you are aware of?</b>	<b>60</b>	<b>Yes (22)</b>	By displaying the newly designed packs among competing brands for comparison	<b>22</b>	<b>36.7</b>
			<b>No (38)</b>	Have no alternative	<b>38</b>	<b>63.3</b>
2(a)	<b>Do you go for packaging testing when you develop new product packaging? Please give reason(s)</b>	<b>60</b>	<b>Yes (6) =10%</b>	To test the product in the pack, but not the pack physical test itself	<b>6</b>	<b>10.0</b>
			<b>No (54)=90%</b>	The containers we use are already tested	<b>46</b>	<b>76.7</b>
				I don't think my packaging requires that testing	<b>8</b>	<b>13.3</b>
2(b)	<b>If you do; where were the packages tested?</b>	<b>6</b>	Ghana Standards Board		<b>6</b>	<b>100</b>

Source: Field Survey, May 2006 - October 2006

#### 4.7.3 Packaging Concept Testing done by Manufacturers

All the respondents, that is 100%, claimed they conduct packaging design concept testing when they develop new packages (Table 4.2.2). The reasons they gave show that they do the concept testing to find out other peoples' views about the



new designs to determine their beauty, that is how the design embellishes the package in the eyes of the respondents, and also to determine how it can compete with other brands on the market.

In response to the question on how they conduct their concept testing, 76.7% of the respondents do it by either showing the new designs to both their workers and non-workers to express their respective views about the new designs. A total of 23.3% test their newly designed packages or labels on their own staff and, or use their own personal assessments to judge the designs. 36.7% of the respondents said the alternative method of concept testing they employ, or they are aware of is by displaying the newly developed packages together with some competing brands for respondents to compare and give their comments about them. 63.3% of the respondents gave no alternative method of concept testing, meaning that they depend on only one of the available concept testing methods.

The manufacturers' method of concept testing appears to be similar to the individual interviews method mentioned by Judd et al, 1989. However, they differ in that they tend to allow their respondents to personally assess and give their responds without guiding them with well pre-structured interview questions to gain detailed information from them. The researcher therefore finds the local manufactures' concept testing method less effective since they do not use pre-structured interview questions to gain more detailed and reliable data from the respondents.

The researcher considers the two alternatives of concept testing employed by the respondents as complementary in an *in-depth* individual interview method. The other concept testing methods such as test market, techistoscope test, find-time testing and market simulation methods are not used by the respondents. These methods could be used to get different customer response data on the new packaging

concept to determine the success and failures in the entire packaging concept and its market success before the product launch.

The researcher deduced from the data that packaging concept testing is not seriously considered by majority of local small-scale manufacturers and as results they do not enjoy the full benefits it offers. According to Judd *et al* (1989) if a packaging concept tested results are made known to retailers, they are able to persuade buyers more easily to buy the product to increase the sale of the product.

#### **4.7.4 Product Packaging Testing**

Packaging testing is done to determine the physical strength of the packaging material, its construction, chemical reaction with the product and the external environment. Ten percent of the respondents claimed that they go for packaging testing but they do not actual test the pack's physical strength at the GSB, whilst the 90% majority do not go for any packaging testing. From their reasons they do not go for official testing because some presumed that their packaging materials have been tested already by the material producer, whereas others think that their kind of packaging do not require packaging testing (see Table 4.2.2).

The research believes that because few of the product packages are fully tested, the many packages with problems such as spillage, leakage, easy bursting, collapsing and short shelf-life can be attributed to manufacturers' failure to test their packages to detect and to correct them before they get to the market. Packaging testing will help local manufacturers to improve on the quality of their packaging to enhancing the image of their products and also to save them the cost of using poor packaging materials.

#### 4.7.5 Factors that Account for Poor Packaging of Products

The respondents in this sector identified four distinct factors that account for poor packaging. All the 60 respondents identified poor construction of the packaging material into unit packs, and the weakness of the packaging material itself as the major contributing factors. About 90% of the responses related poor packaging to the poor sealing of packaging containers by the use of unfitting caps, crowns, lids and improper thermal edge sealing. Thirty eight percent of the responses also identified improper handling of the material which causes damage or distortions to the pack as one of the factors of poor packaging (see Table 4.2.3).

Many of the respondents mentioned these factors as causes of poor packaging. It could be deduced from their responses that they attribute poor packaging to the structural aspects of packaging more than its graphics. According to most authors, especially Judd *et al* (1989), poor handling of either the graphics or the structure could lead to poor packaging.

**Table 4.2.3: Local Food Products Manufacturers' views on Poor Packaging and Labelling of Locally Packaged Products**

No.	QUESTIONS	No. OF RESP.	RESPONSES	FREQ.	PERC. (%)
1(a)	What factors account for poor packaging?	60	Poor construction of the material into packages	60	100
			Poor closer or sealing leading to spillage or leakage	54	90
			The use of weak / poor quality packaging material	60	100
			Poor or improper handling of the package such that it appears badly done/dirty or unattractive	23	38.3

Source: Field Survey, May 2008 - October 2008

#### 4.7.6 How Local Manufacturers Assess the Quality of the Design and Print on Packaging Materials

On finding out what quality checks local manufacturers perform on printed materials delivered to them, all the 60 respondents said they check the quantity supplied and the quality of the print (as indicated in Table 4.2.4). 88.3% of the responses indicate that they perform quality check on the materials, whilst 60% of the responses also show that they also sort out prints with defects beyond their acceptable tolerance levels. Further explanations they gave revealed that some of them sometimes ignore the task of sorting out the prints because of time constraints, the trust they have in the press house that handled the job, and also when the randomly picked ones are all good. The respondents claimed that when the quantity to be rejected is considered few they bear the cost, but if it seems to be more then they push the cost back to the press house.

**Table 4.2.4: Quality Checks Conducted by Local Food Products Manufacturers on Designs and Printed Packages**

No.	QUESTIONS	No. OF RESP.	RESPONSES	FREQ.	PERC. (%)
1(a)	What do you do when you receive printed packaging materials and why?	60	I check the quantity supplied if it meets my requested quantity	60	100
			I sort them out to remove the bad prints	36	60
			I check the quality of the print	60	100
			I check the material quality	53	88.3
1(b)	What do you do when samples/ prototypes of your new package or label designs are delivered to you?	60	I check if the design looks good and attractive	60	100
			We check for errors in the typesetting and the information provided on them	60	100
			I show it to some people to comment about them	60	100

Source: Field Survey, May 2006 - October 2006

The researcher found no documented contractual agreement between the manufacturer and the printer in which they have established quality assurance procedures and strategies for resolving any issue of conflict that may arise in determining the quality of job delivered. Judd et al (1989) proposed that for packaging quality assurance to thrive both parties must enter into an agreement on quality level required, defects tolerance levels, and procedure for testing.

With respect to the check on design samples or prototypes, all the 60 respondents said they do personal assessments on the designs and then show them to others to comment on them.

The researcher observed that none of the respondents has developed a comprehensive packaging design check list with which the person charged to assess the design may use as guiding document. The researcher's interactions with some of the personnel in the big packaging companies revealed that each one of them have developed a comprehensive packaging design check list which they use to check the detailed labelling information and the label design from the L.I. 1541 document (Appendix 1).

#### **4.7.7 Identified Competing Brands on the Local Market**

On the issue of market competition, 90% of the respondents said their products are facing direct competitions in the local market, whereas 10.0% said their products do not face direct competitions, (as Table 4.2.5 indicates). Of all the competing brands 27.8% of them were found to be manufactured locally. 22.2% were imported brands, and 50.0% of the respondents said they compete with both local and imported products. Out of the 42 respondents who said they compete with local only local products and those who compete with both local and foreign



products, 28.6% of them compete with large scale manufacturing companies. 23.8% compete with products from medium scale manufacturers, whilst 66.75% compete with small scale production companies.

It could be deduced from the frequencies that 8 of the respondents, this is 19.0% of them, compete with more than one of the three business categories. Those competing with large companies are undoubtedly in much stiffer competition than those competing only with small scale production companies.

#### **4.7.8 Observed Differences in the Competitors' Packaging**

The respondents have identified some differences in their packaging and that of their competitors. 14.8% said their competitors packaged their products in packaging materials that are different from theirs. 33.3% said they both use the same packaging materials but the only difference is in the quantity of product per package, (as indicated in Table 4.2.5). In this case the respondents considered the price and quantity differences as the major factors in their products' competition with little regard for the graphics on their packages. 7.4% of the respondents claimed that their competitors use attractive looking packaging materials, whilst 44.4% said the only differences are in the designs that decorate their competitors' brands. It could be deduced from this that they may be using the same designed containers sold on the market but their competitors labels are more attractive than theirs.

In response to the question that solicits their view on what difference improvement on their packaging can make to the sale of their products, 43.3% said the improvement can bring positive impact on their sales, whilst 56.7% were of contrary opinion. 23 out of those who disagreed that an improvement will bring a better change to their sales explained that the improvement will bring cost that will

lead to an increase of the price of their products which would adversely affect their sales.

**Table 4.2.5: Local Market Competition faced by Local Food Product Manufacturers**

No.	QUESTIONS	No. OF RESP.	RESPONSES		FREQ.	PERC. (%)
1	Are your product(s) facing strong competition with other products on the local market?	60	Yes	We use same major ingredients	54	90
			No	Our products are unique/different	6	10
2	Are the competing products imported or locally made?	54	Locally made		15	27.8
			Imported		12	22.2
			Both local and imported		27	50.0
3	If locally made, are they produced by large scale, medium scale or small scale company?	42	Large scale		12	28.6
			Medium scale		10	23.8
			Small scale		28	66.7
4	What differences have you observed in the competitor's product(s) packaging?	54	They use different packaging materials		8	14.8
			They use attractive looking packaging materials		4	7.4
			We use the same packaging materials or containers but differences in the quantity of product per pack.		18	33.3
			The only differences are in the design or decorations on the packages		24	44.4
5	By your assessment on the market situation; can improvement in your packaging help your products to better or compete well against the competitors' brands?	60	Yes (26) =43.3%	The products can compete much better	10	27.8
				They will look better to attract customers	16	26.7
			No (34) = 56.7%	It will increase the price of my products	23	38.3
				The competition does not involve the packaging of the products	11	18.3

Source: Field Survey, May 2008 - October 2008

The remaining 11 respondents also said the improvement on their product packaging would not bring any difference since the competition does not involve the packaging of their products. They claimed that the competition is on their products quantity and affordability to their customers.

It can be inferred from the responses that most food manufacturers would not accept any improvement on their products' packaging if it would increase their product prices. The researcher believes that it is not every improvement in the packaging that could cause significant change to the prices of products. Considering the benefits in quality packaging, the packaging improves the product's shelf-life, enhances the product's image and boosts its sales. All things be equal these benefits could cater for any price increase effect on the sales and bring in more profits to the producer. The researcher recommends that more education in the role of packaging and its benefits must be given to local manufacturers for them to understand why they need to improve on their products packaging.

The researcher believes also that there is no packaged product competition that the packaging concept can be ruled out, even if the competitors are using same packaging materials. Innovative packaging design that increases the functionality of the package and increase the product's shelf-life can make much difference. Taking a cue from the functional design of the "WC Duck" container and the mayonnaise "upside down" concepts, they added value to the product each one contains and that led to high increases in their sales (Judd *et al*, 1989).

#### **4.7.9 Graphic Design Outsources to Local Manufacturers**

From the responses the local manufacturers were found to be outsourcing graphic design services from four (4) categories of design service providers, namely: freelance, business centre, printing press and graphic design/advertising agency, (as indicated in Table 4.2.6). The freelance designers were found to be graphic designers who have no special office setup. They work as individuals and scout around for jobs.

**Table 4.2.6: Graphic Design Outsources to Local Manufacturers**

No.	QUESTIONS	No. OF RESP.	RESPONSES	FREQ.	PERC. (%)
1	Who handles your design jobs for you locally?	60	Freelance designer	7	11.7
			Business centre, printing press	29	48.3
				16	26.7
			Graphic design / advertising agency	8	13.3

Source: Field Survey, May 2008 - October 2008

The business centres were identified as small business setups that offer variety of services such as secretarial and telecommunication services to the general public. They use computers for designing, typesetting, scanning and printing services.

Some of the printing firms have in-house design studios that take up design projects as separate commercial venture as well as providing services to the main press firm. Their services to the main press house include colour separation, retouching and updating artworks submitted to the press for printing.

The graphic design/advertising agencies are considered as more organized professional firms that are solely into design and advertising business. They tend to have more professional graphic designers and advertisers who work together on design projects that come into their firm.

11.7% of the respondents outsource the services of freelance graphic designers. 48.3% of the respondents use the services of business centres, 26.7% of the responds send their design jobs to the various in-house design studios in the press firms, whilst 13.3% of the respondents utilize the services of Graphic

Design/Advertising Agencies in the local packaging industry (as Table 4.2.6 indicates).

It can be observed from their percentages that greater number of the packaging and labelling jobs go to the business centres whilst few jobs go to the Graphic Design/Advertising Agencies, which are considered as professional design setups that could provide better services than all the rest.

#### 4.7.10 Prominent Features in Local Manufacturers Packaging Graphics

The respondents from this sector were found to put more emphasis on products' brand names (as Table 4.2.7 shows). This was made evident in the fact that all the respondents (100%) mentioned emphasis on brand names in their responses. 56.7% of the respondents also mentioned colour scheme in addition to the brand name, whilst 18.3% also added photographs/illustrations to the brand name.

**Table 4.2.7: Prominent Graphical Elements in Local Manufacturers Packaging**

No.	QUESTIONS	No. OF RESP.	RESPONSES	FREQ.	PERC. (%)
2	In the design for your packages what item or elements do you emphasize to attract customers?	60	Brand name	60	100
			Colour scheme	34	56.7
			Photographs/ illustrations	11	18.3

Source: Field Survey, May 2008 - October 2008

Packaging graphics determine the product positioning strategy on the market (Judd *et al*, 1989). Product positioning, as Judd *et al* (1989) defined, is the selection



of appropriate market section, such as *Who (brand)? What (product)?* and *To Whom (Target)*, for promoting the sale of a product.

As all the respondents put emphasis on the brand name means that they are using brand concept positioning in marketing their products. This justifies Judd et al (1989) in their assertion that the current packaging/label designs from the developing countries concentrate heavily on the brand concept. According to them using the brand concept of product positioning is not the best, especially in competitive market, because it tends to be very expensive. The other positioning concepts are the *Product* which uses what the product promises, and the *Target*, which also uses photographs/illustrations. Judd et al (1989) recommends the use of product and target concepts in competitive market situation.

#### **4.7.11 Local Manufacturers' Awareness and Compliance with Packaging and Labelling Regulations:**

The respondents in this sector were found to be very much aware of the existence of packaging/labelling general rules being used locally, thus the L.I.1541. In Table 4.2.8, all the respondents (100%) were able to locate the documents and mentioned the Ghana Standards Board as the main custodian. 58.3% also added the Ghana Food and Drugs Board as another custodian of the labelling rules being used in Ghana. These two organizations are the national institutions mandated to enforce Government policies on packaging and labelling standards in Ghana.

With respect to compliance with the L.I. 1541, which spells out the general packaging and labelling rules, 36.7% of the responses indicated that the respondents use the regulatory document when designing new packages or labels for their new products. 53.3% representing the majority of the respondents claimed that they gain all the needed information on existing packages on the market and therefore they do

not consult the L.I. 1541 document. 10.0% of the respondents also claimed that they know all that is required on the pack or on the label so they do not consult any document.

**Table 4.2.8: Local Food Product Manufacturers Awareness of Packaging Labelling Rules in Ghana**

No.	QUESTIONS	No. OF RESP.	RESPONSES	FREQ.	PERC. (%)
1	<b>Are you aware of packaging and labelling regulatory requirements? And where can one get such information in Ghana?</b>	60	Yes	Food and Drugs Board- Ghana	60 100
				Ghana Standards Board	35 58.3
2	<b>Do you usually use the regulatory document as a guide when designing your packaging or labels? Give reasons</b>	60	Yes	If new products packages are to be designed or when redesigning existing ones	22 36.7
			No	The needed information are on the existing packages	32 53.3
				I know all the required label information	6 10.0
3	<b>Do you have a copy or access to the General Labelling Rules document?</b>	60	Yes I have a copy		8 13.3
			I contact FDB or GSB offices for the needed document		13 21.7
			I don't have a copy		23 38.3
			I used to have a copy		16 26.7
4	<b>What reference materials do you use to get the required label information for your new label design(s)?</b>	60	My own packaging label samples		4 6.7
			Samples of competing brands		17 28.3
			Any sample that interests me, including my own		26 43.3
			I do not go with samples; I leave it to the designer to do it		13 21.7

Source: Field Survey, May 2008 - October 2008

In finding out if the respondents have copies of the L.I. 1541 document, 13.3% claimed they have copies of the regulatory document. 38.3% said they do not have a copy of the document. 21.7% claimed they access the document they need from either the Ghana Standards Board (GSB) or the Ghana Food and Drugs Board

(FDB) offices, whilst 26.7 percent said they used to have the document but might have either misplaced it or lost it.

It could be deduced from their responses that most of the local manufacturers scarcely consult the L.I. 1541 and also do not care or bother much about having a copy or using the document as guide, hence the poor labelling of products on the local market.

The Ghana Standards Board (Food, drugs and other goods) Labelling Rules, 1992 (L.I. 1541) is made available to the general public in their library and also on their website on the internet. However, some manufacturers are not aware that they can easily access the document free of charge at these two sources. The GSB and FDB may be required to increase their awareness campaigns on the availability and the importance of this and any other documents related to packaging to local manufacturers in order to make the documents more meaningful to them.

#### **4.7.12 Manufacturers' sources of labelling information**

In finding out the reference materials local manufacturers consult when designing new labels for their products, 6.7% of the respondent said they only use their own existing labels as reference. 28.3% of the respondents use samples from competing brands, 43.3 claimed that they use any sample they could find in addition to their own old labels, whilst 21.7% claimed they allow the designers to use their ideas and experience to design their new labels, (as Table 4.2.8 indicates).

Using one's own existing labels as reference in designing new ones could help the designer to maintain consistency in the labels designed for all the manufacturer's products. The consistency in all the labels is referred to as *products family appeal* by Judd et al (1989) and it has the advantage of making buyers easily

identify the products with the manufacturer. However, most of the labels on products from the same local manufacturer lack this important feature which Judd et al (1989) recommended.

It must be noted here that none of the respondents mentioned the use of any legal document on packaging and labelling rules as a reference material. This means that most of the manufacturers do not consult the L.I. 1541, which spells out the General Labelling Rules that has been in use since 1992. As some manufacturers allow the designers to provide some details requires that the designers must have some level of knowledge about the labelling requirements for each particular product they design labels for, else their designs may not meet the stated requirements in the L.I. 1541 document.

#### **4.7.13 Manufacturers' views on how their Packaging Markets their Products**

In response to the question of how their products packaging help in the marketing of their products, 13.3% of the respondents said their packaging sell their products very well. 25.0% claimed that it moderately sell their products, whilst 61.7 said they have not actually done any assessment on their packaging's contributions to the sale of their products and therefore could not determine it, (as Table 4.2.9 indicates).

Most of the respondents guessed what to say and none had any empirical proof to back their claims. All these indicate that they have not being assessing the performance of their packaging to know how it is contributing to the marketing of their products. As a result of this they do not seem to consider packaging to be very vital to the sale of their products.

**Table 4.2.9: Local Food Product Manufacturers' Views on the Marketing Roles of Packaging**

No.	QUESTIONS	No. OF RESP.	RESPONSES	FREQ.	PERC. (%)
1	How well does your packaging help in the marketing of your products?	60	Very well	8	13.3
			Moderately	15	25.0
			I have not done that assessment	37	61.7
2	From your experiences what makes a product sell on the market?	60	Its quality	60	100
			Its packaging	46	76.7
			Its price	60	100
			Its advertisement / promotion	37	61.7
3	What percentage of your product marketing success can you attribute to the products packaging?	60	10 - 15 percent	4	6.7
			20 - 25 percent	18	30.0
			30 - 35 percent	12	20.0
			40 – 45 percent	8	13.3
			I cannot tell / I have not assessed it	18	30.0
4	What do customers usually complain about on food packages sold on the market?	60	Some packages are difficult to reseal or cannot be sealed after opening	23	38.3
			Packages that easily burst, dented cans/boxes, torn, crumpled or collapsed packs	60	100
			Labels that easily peel or rip-off / stained or scratched	42	70

Source: Field Survey, May 2008 - October 2008

#### 4.7.14 Manufacturers' Views on what makes a Product Sell

In sampling respondents' views on what makes a product sell well on the market, all the 60 respondents said it is the quality of the product itself, (as shown in Table 4.2.9). From various answers to the question, 76.7% of the respondents also mentioned the product's packaging. All the responses also mentioned the price of the product in relation to the products' quality and quantity in the package. 61.7 percent of the responses also acknowledged advertisements and promotions that are done to support the product marketing. Most of the respondents said their



advertisements and promotions are generally channelled through their products sellers, thus their products whole sellers and the retailers. They use their wholesalers and retailers not only because of high cost of mass media advertisements but also they are considered to be directly in contact with the customers and therefore more effective channel.

By allowing the respondents to determine the percentage of their packaging contributions to their products marketing, 6.7% gave a range from 10 to 15 percent, 30.0% gave range from 20-25 percent, 20.0% fell within 30-35 percent, whilst 30% said they cannot quantify the percentage of their packaging to the market success of their products.

It could be deduced from the manufacturers' responses that they consider their packaging performance to be below the average in contributing to the marketing of their products. One of the reasons may be that they do not use promotional packages for the marketing of their products. Again, because some of them have not actually researched into the performance of their products packaging they usually attribute greater percentage of the products market success to the product's intrinsic quality and less or no value to its packaging.

#### **4.7.15 Food Product Manufacturers' Awareness of Customers' Complaints about their Packaging**

With respect to customers complaints on food product packaging known to the respondents, 38.3% of the responses were centred on the difficulty consumers have in resealing some of the packages to protect the product after using some (as Table 4.2.9 indicates). Packages that were associated with this problem were mostly flexible plastic materials used for packaging solid and liquid food products that are designed for multiple serving times. On the issue of damage that occurs to packages,

all the respondents, 100%, mentioned the easy of bursting, indentations, torn, crumpled or collapsed package. These damages may occur as a result of poor structural design of the container, weak packaging material strength, and also from using the packaging material for packaging a food product it was not designed for. 70% of the responses showed that customers complain also about peeling and stained labels. These problems are likely to be caused by poor gluing and the use of glue with poor adhesion or not appropriate for the container's surface.

#### **4.7.16 Where Manufacturers Print their Jobs and the Print Faults they have Identified**

Majority of 86.7% of the respondents said they print all their packages and, or labels locally, whilst 13.3% receive some of their packages and labels from outside Ghana, (as shown in Table 4.2.10). It is evident in this that the bulk of the packages and labels are printed locally. However, some of the flexible packages were found to be imported in ready-printed state because they are considered cheaper than when made locally.

#### **4.7.17 Print Faults Identified by Local Manufacturers**

With respect to print faults that manufacturers sometimes find among the batches of printed packaging materials, 95.0% of the respondents mentioned incorrect or imperfect registration, 51.7% identified inconsistent colour values among batches of printed stocks, 73.3% mentioned sheets with scum, whilst 88.3% also mentioned that they sometimes received printed stocks in which some of the printed sheets look better whilst others have faint prints on them, (as indicated in Table 4.2.10). 83.3% of the respondents said they get some of these identified print

faults in every batch of stock they receive, whereas 11.7% said they notice some these faults once in a while.

It is evident from the high frequencies that these print faults are commonly known to all the respondents and they do receive printed stock with these faults most often. Print faults such as scum, improper registration and fade print can adversely affect the readability of textual matter and visual appearance of the packages.

#### **4.7.18 Amount of money Manufacturers pay for Printing and its Effect on the Quality of Print**

In determining whether the price manufacturers pay for printing has any influence on the quality of printing they receive, 68.3% of the respondents directly agreed that it has influence on the print quality, whilst 31.7% disagreed with the question, (as Table 4.2.10 shows). From the reasons given by those who agreed with the question; the respondents are aware that some local printing firms can give them satisfactory print quality. However, they claimed that those presses charge high printing fee which making them expensive to do business with them.

From the reasons given by the respondents who disagreed with the question, it is still evident that depending on the press in question, the amount one pays may influence the quality of the print. The quality of material surface that receives the print also was found to be one of the influencing factors by 16 out of the 60 respondents. It can be concluded that the amount a client is able to afford may have some influence on the quality of print he or she receives, however, much also depends on the quality of the material surface to be printed.

**Table 4.2.10: Local Packaging Printing Problems Identified by Local Food Product Manufacturers**

No.	QUESTIONS	No. OF RESP.	RESPONSES		FREQ.	PERC. (%)
1	Do you print all your packages or labels locally?	60	Yes	All prints are done locally	52	86.7
			No	Some prints are done outside Ghana	8	13.3
2	What are some of the defects or errors in the printed stocks you receive?	60	Incorrect registration		57	95.0
			Inconsistent colour values among batches		31	51.7
			Sheets smeared with scum		44	73.3
			Dense and faint prints in delivered stock		53	88.3
3	How often do you get such defects or errors in the prints?	60	In almost every batch delivered		53	83.3
			Once a while		7	11.7
4	Do you think the amount of money one pays for printing has influence on the quality of print? Please give reason(s)	60	Yes (41) = 68.3%	If you cannot pay high price you cannot get better print from the “big” press houses	21	35
				Low cost firms give low quality print	11	18.3
				Because the good printing firms charge high for their quality services	8	13.3
				If you do not have enough money you may have to reduce the number of colours in your design which affects its beauty	18	30
			No (19) = 31.7%	It depends on the press: Some Press charges are high yet same printing quality	12	33.3
				It depends on the quality of one’s material surface	16	26.7

Source: Field Survey, May 2008 - October 2008

#### **4.7.19 Assessing Manufacturers' Attitude towards Capacity Building Programmes**

On the issue of local manufacturers' general attitude towards capacity building programmes, 71.7% claimed they have been attending some of the programmes that are organized for them by any of the organizations operating in the packaging ancillary sector. 28.3% said they have not attended any of the programmes before, (as Table 4.2.11 indicates).

With respect to their attendance rates 3.3% said they were regular attendants, 15.0% claimed they were not regular, 21.7% said they used to attend such programmes but they have stopped going for such programmes for some time now, whilst 31.7% said they have not attended more than two occasions (as indicated in Table 4.2.11).

It could be deduced from their responses that their general attendance is not the best and therefore, discouraging organisers of such programmes and retarding the achievements of their objectives.

In finding out how often some of these programmes are organized for the local manufacturers and how they are effectively communicated to the manufacturers, 48.3% said they usually hear about programmes on Business Management and Entrepreneurial programmes. 35.0% said they quite often hear about seminars on financial issues. 30.0% said once a while they hear of seminars on packaging and labelling, whereas 21.7% said they used to hear about Publishing and Printing Seminars or Workshops some time back (as indicated in Table 4.2.11).

It could be deduced from the responses that seminars that relates to packaging and labelling as well as printing are not usually organised for the local manufactures as programmes organized for business and entrepreneurial skills training.



**Table 4.2.11: Local food Product Manufacturers Attitude towards Capacity Building Programmes**

No.	QUESTIONS	No. OF RESP.	RESPONSES		FREQ.	PERC. (%)
1	<b>Have you been attending some of the programmes organised for the local industries in Ghana? And how often?</b>	<b>60</b>	<b>Yes (43) = 71.7%</b>	Most times/Regularly	2	3.3
				Not all the time	9	15.0
				I used to but I have stopped for some time now	13	21.7
				I have just attended once or twice	19	31.7
			<b>No (17) = 28.3%</b>	I have not attended any of such programmes	17	28.3
2	<b>How often do you hear of seminars/workshops for SMEs And what subject areas do they usually cover?</b>	<b>60</b>	Most often	Business Management /entrepreneurial programmes	29	48.3
			Quite often	Topics on Financial issues	21	35.0
			Once in a while	Packaging and labelling issues	18	30.0
				Publishing and printing issues	13	21.7
3	<b>What can you say about the general attendance at such programmes?</b>	<b>43</b>	Good or Not all that bad		12	27.9
			Poor or not encouraging		21	48.8
			I cannot really tell		10	23.3
4	<b>In your opinion are these seminars and workshops beneficial to your business? Please explain.</b>	<b>60</b>	<b>Yes (29) = 48.3%</b>	They help me to improve upon my entrepreneurial skills	22	36.7
				They have taught me how to manage my business and to develop it	29	48.3
				It has given me insight into financial management and acquisition	22	36.7
			<b>Not really (21) = 35.0%</b>	They do not actually address our specific business issues / needs	9	15.0
				Because they keep treating same old topics most often for us	12	20.0
5	<b>What would you like to suggest or recommend regarding the organisation of such programmes?</b>	<b>60</b>	They should make it more affordable		43	71.7
			More convenient venues must be chosen		32	53.3
			They should check their timings		16	26.7
			They should vary/widen the scope of their seminar themes/topics		28	46.7
			Whatever they organise in Accra should also be organised in other regions		26	43.3
			They should reach out to those in the micro sector as well		16	26.7

Source: Field Survey, May 2008 - October 2008

However, seminars and workshops on packaging design and printing is the most effective channels for addressing packaging quality issues and for disseminating information on regulations and standards to the stakeholders in the local packaging industry. The rate at which these seminars and workshops are organised to address packaging issues directly affects the period required to address the problem of poor packaging in Ghana. Hence the slow rate at which these programmes are organised is dragging the problem far too long.

From the assessment on their patronage, 27.9% of the 43 respondents who have attended some of the seminars/workshop before described the patronage as good. 48.8% described it as poor and not encouraging number, whereas 23.3% said they cannot actually tell whether it is good or bad (as indicated in Table 4.2.11).

Inferring from the responses it is obvious that the patronage is not all that encouraging to majority of the participants. It means that most of the local manufacturers do not regularly participate in programmes organised for them by the ancillary organisations to gain the needed skill and information to improve upon their performance and to compete well in the market. Those who are not showing interest are losing so much because these ancillary organisations research into many problems, which most of the local manufacturers do not have to expertise and time to investigate. The findings and the strategy to address the identified problems are made known through the seminars they organise for those confronted with the problem.

#### **4.7.20 Benefits Manufacturers gain from Workshops and Seminars**

Programmes that are organized for local manufacturers were said to be beneficial by 48.3% of the respondents (as shown in Table 4.2.11). Out of the total respondents 36.7% of the respondents said it helps them to; improve upon their

business skills, 48.3% said they help them develop their managerial skills, and 36.7% claimed they gain insights into financial management and loan acquisition. 35.0% said they do not really benefit from the programmes because 15.0% of them claimed that most of the programmes topics do not actually address their business issues peculiar to their type of business, whereas 20% said they do not really benefit because the organizers sometimes repeat their topics over and over in their seminars, this make the programmes sometimes unappealing to them.

In as much as it is important to repeat some of the seminar topics in order to pass the same information to those who have not heard it before, the seemingly excessive repetitions seems to be discouraging some of the targeted people. This breeds disinterest in them which leads to poor patronage or attendance of such programmes. Although majority claimed the workshops are beneficial to them, some find their programmes to be addressing general issues most often then their business specifics.

The researcher recommends that organizers of such programmes for the local manufacturers have to conduct research into the various operations of the local manufacturers to gain insight into their problems and address them in addition to their own chosen topics. This will enable them to have varieties of topics to minimize on repetitions and to address the specific concerns of the local manufacturers.

#### **4.7.21 Respondents' Recommendations to Workshop/Seminar Organisers**

Recommendations given by the respondents indicates that seminars and the workshops seem to be expensive to majority of the local manufacturers as 71.7% of the responses suggested that they should be made affordable to participants (as

indicated in Table 4.2.11). In general the venues where they organize these programmes were found to inconvenience 53.3% of the respondents. The timing of the programmes, which include the date, the start time and the duration of the programme, also seems to be a worry to 26.7% of the respondents. 46.7% of the respondents suggested that they should widen the scope of their seminar topics to address other issues concerning them. 43.3% of the respondents recommended that whatever programme they organize in Accra must be repeated in other places in Ghana.

It could be deduced from their responses that they have opinion that more of such programmes are held in Accra than any other places in Ghana. Whereas 26.7 percent of the respondents recommended that they should reach out to those in the micro sector with more programmes for as well. Their explanations indicated that the high cost of participation indirectly eliminates those in the micro-sector who cannot afford, and also more programmes are usually organized for the big companies than those in the micro sector. Therefore, special programmes affordable to those in the micro sector could be organized for them to enable them gain experts knowledge to develop their businesses.

#### **4.8 Summary of Findings from the Food Product Manufacturing Sector**

1. Most local food product manufacturers do not make their own custom packages but use existing or ready-made packages for their products' packaging.
2. Local food product manufacturers do packaging and label concept testing by either showing a sample to selected people for their views or by their own personal assessments.

3. Few local food product manufacturers do packaging testing at the Ghana Standards Board.
4. Most local food product manufacturers do quality checks on their design and printed packages on delivery
5. There are more competitors in the local small scale food manufacturing enterprise. Also, there are few who also compete with large and medium scale enterprises based in Ghana or abroad.
6. Most local food product manufacturers use the same packaging material for their products but with different labels and/or decorations on the packages. However, some are not interested in improving upon their products packaging because it may raise the price of their products or their products' packaging has no influence on the market competition they face.
7. Most of the packaging graphic artworks are done by designers in the "Business centre" units.
8. Local manufacturers use the Brand Concept Positioning to market their products.
9. Most local food product manufacturers are aware of the existence of the packaging and labelling regulations document yet they do not usually use it as reference material.
10. Most local food product manufacturers have not done in-depth assessment on how their product packaging contributes to the sale of their products. They rate their packaging contribution to the marketing of their products at below 50%.
11. Majority of local food product manufacturers print their packages and labels locally and most often find faulty prints in their printed stocks.



12. Local product manufacturers find capacity building programmes beneficial.

However, their concern such as high attendance fee, unfavourable timing and repetitive topic treatments influence their attendance negatively.

#### **4.9 Proposed Solutions to Identified Problems in the Food Product Manufacturing Sector**

##### **4.9.1 Education in Packaging and Food Product Positioning**

It was observed in the review that packaging concepts that focus on the product and the target consumers are the best product positioning strategies that sell better in a competitive market situation, however, the local food product manufacturers in the SME sector are not adopting this strategy in their product positioning as revealed in the study. There is also lack of understanding in the marketing role play by modern packaging since most of the small scale manufacturers consider the quality their products much more important to the sale of their products than their packaging.

It is important that local food products manufacturers as well as packaging designers be given education in all the packaged product positioning concepts, most especially the *Product* and the *Target* concepts.

In view of the fact that the *Product* concept uses what the product promises, local product manufacturers may be taught how they could scientifically determine all the benefits their products offer and how to justify the claims according to the existing packaging and labelling regulations. The packaging designers, on the other hand, could also be taught how they can effectively incorporate them in the designs for the packages.

With respect to the *Target* concept, which makes use of photographs and illustrations, capacity building course in advertising illustration and photography could be organised for both local photographers and graphic designers.

#### **4.9.2 Consumer Research Methods used in Packaging Concepts Testing**

Most of the local small and medium scale manufacturers do not solicit consumers' views to know their requirements and use them as input in their packaging design concepts. Consumers' views are usually solicited in product designing and modern approach to customer satisfaction requires that input from them must be taken into consideration in the production of goods and services offered to them.

In the study some of the food product manufacturers were found not to be conducting effective consumer research because some of them think that it is expensive and time consuming, whilst some consider it as not very important or were totally not aware of the methods and procedures involved in this kind of research.

Packaging Concept testing is very important to conduct, although it may be expensive, to pre-determine consumers' reactions to the product and its packaging and also for predicting its marketability prior to its launching so that design flaws may be identified for necessary adjustments to be made early enough to avoid huge losses. It is important that education in basic consumer research methods be given to them to understand the usefulness of customer research and how they can employ it in their product packaging development.

**Proposed Concept Testing Methodologies to be used:** Data gathered indicate that the local manufacturers are aware of only one of the research methods, the Individual interview method, employed in consumer research yet they do not

effectively use it. The researcher proposes that education in all the available research methods such as the Individual interviews, Focus group interviews, the Test markets, Market simulation, Find-time testing and the Tachistoscope testing be given to both packaging designers and the manufacturers. This is to enable them understand the purpose, approach and the kind of data each one provides.

The Advertising and Market Research organisations in Ghana and experts from abroad could be hired by any of the packaging ancillary organisations to give training to the local packaging designers and product manufacturers.

#### **4.10. The use of Kano's Questionnaire in determining Customer Requirements for Food Product Packaging**

The Kano's Theory of Customer Satisfaction model can offer local product manufacturers and concept testing research workers ways to test new packaging concepts and also to distinguish data gathered into different consumers' quality requirements to make *go and no go* decisions. To prove its usability in packaging concept testing the researcher used it in testing the packaging of a new cocoa drink product.

##### **4.10.1 Testing the Kano's Questionnaire on a Cocoa Drink Product Packaging**

To test the feasibility of using Kano's Questionnaire to determine customer requirements for product packaging, a cocoa drink product, which was well known to all the respondents, was used in the study. Fifteen (15) questions, each composed of functional and dysfunctional forms of the question, were developed (See Appendix 2) from the packaging of the cocoa drink brand which is not on any market. 50 copies of the Kano's questionnaire were given to 50 respondents. All the copies sent out were returned to the researcher with all the questions answered. Table 4.3.1 to

Table 4.3.5 show the tabulated scores of the respondents' answers to both the functional and the dysfunctional forms of the questions. Each of the mark "x" in the table represents the result of a respondent's answers to the two forms of the question in the Tally Table. The position of the mark "x" is the meeting point of the respondent's answer to the functional question on the row against the dysfunctional question in the column.

**Table 4.3.1: Kano's Questionnaire Responses Tally Table**

**Question 1**

Quality attribute ↓      ⇒		Dysfunctional				
		(1) I like	(2) Must-be	(3) Neutral	(4) Live with	(5) Dislike
Functional	(1) I like		xxxxx xxx			xxxxx xxxxx xxx
	(2) Must-be					
	(3) Neutral			xxxxx xxx		
	(4) Live with					
	(5) Dislike	xxxxx xxxxx xxxxx xxxxx x				

**Question 2**

Quality attribute ↓      ⇒		Dysfunctional				
		(1) I like	(2) Must-be	(3) Neutral	(4) Live with	(5) Dislike
Functional	(1) I like			xxxxx xxxx		
	(2) Must-be					xxxxx xxxx
	(3) Neutral					
	(4) Live with					xxxxx xxxx
	(5) Dislike	xxxxx xxxxx xxxx			xxxxx xxxx	

**Table 4.3.2: Kano's Questionnaire Responses Tally Table**

**Question 3**

Quality attribute ↓      ⇒		Dysfunctional				
		(1) I like	(2) Must-be	(3) Neutral	(4) Live with	(5) Dislike
Functional	(1) I like		XXXXX XXXX	XXXXX XXXX		XXXXX XXXX
	(2) Must-be					XXXXX XX XXXXX
	(3) Neutral			XXXXX		
	(4) Live with					
	(5) Dislike	XXXXX x				

**Question 4**

Quality attribute ↓      ⇒		Dysfunctional				
		(1) I like	(2) Must-be	(3) Neutral	(4) Live with	(5) Dislike
Functional	(1) I like		XXXXX XXX	XXXXX XXXXX XXXX	XXXXX XX	XXXXX XX
	(2) Must-be					
	(3) Neutral					
	(4) Live with				XXXXX XX	
	(5) Dislike	XXXXX XX				

**Question 5**

Quality attribute ↓      ⇒		Dysfunctional				
		(1) I like	(2) Must-be	(3) Neutral	(4) Live with	(5) Dislike
Functional	(1) I like		XXXXX XX	XXXXX XX	XXXXX XX	XXXXX XXXXX XX
	(2) Must-be				XXXXX XX	
	(3) Neutral					
	(4) Live with				XXXXX	XXXXX
	(5) Dislike					



**Table 4.3.3: Kano's Questionnaire Responses Tally Table**

**Question 6**

Quality attribute ↓      ⇒		Dysfunctional				
		(1) I like	(2) Must-be	(3) Neutral	(4) Live with	(5) Dislike
Functional	(1) I like		xxxxx xx	xxxxx xx	xxxxx xx	
	(2) Must-be					
	(3) Neutral					
	(4) Live with			xxxxx xx	xxxxx xxxxx	
	(5) Dislike				xxxxx	xxxxx xx

**Question 7**

Quality attribute ↓      ⇒		Dysfunctional				
		(1) I like	(2) Must-be	(3) Neutral	(4) Live with	(5) Dislike
Functional	(1) I like		xxxxx xxxxx xxxxx			xxxxx xxxxx xxxxx xxxxx xxxxx
	(2) Must-be					xxxxx xxxxx
	(3) Neutral					
	(4) Live with					
	(5) Dislike					

**Question 8**

Quality attribute ↓      ⇒		Dysfunctional				
		(1) I like	(2) Must-be	(3) Neutral	(4) Live with	(5) Dislike
Functional	(1) I like		xxxxx xx	xxxxx xxx	xxxxx xx	xxxxx xx
	(2) Must-be					xxxxx x
	(3) Neutral			xxxxx xxxxx		
	(4) Live with			xxxxx		
	(5) Dislike					

**Table 4.3.4: Kano's Questionnaire Responses Tally Table**

**Question 9**

Quality attribute ↓      ⇒		Dysfunctional				
		(1) I like	(2) Must-be	(3) Neutral	(4) Live with	(5) Dislike
Functional	(1) I like				xxxxx xx	xxxxx xxx
	(2) Must-be					xxxxx xx
	(3) Neutral					xxxxx xxxxx xxxx
	(4) Live with	xxxxx xx				xxxxx xx
	(5) Dislike					

**Question 10**

Quality attribute ↓      ⇒		Dysfunctional				
		(1) I like	(2) Must-be	(3) Neutral	(4) Live with	(5) Dislike
Functional	(1) I like		xxxxx xxxx	xxxxx xx		
	(2) Must-be		xxxxx xxxxx xxxxx xxx			
	(3) Neutral					
	(4) Live with					xxxxx xxxx
	(5) Dislike					xxxxx xx

**Question 11**

Quality attribute ↓      ⇒		Dysfunctional				
		(1) I like	(2) Must-be	(3) Neutral	(4) Live with	(5) Dislike
Functional	(1) I like					
	(2) Must-be					
	(3) Neutral			xxxxx xxxxx xxxxx	xxxxx xxxx	
	(4) Live with				xxxxx xx	
	(5) Dislike	xxxxx xxxxx xx				xxxxx xx

**Table 4.3.5: Kano's Questionnaire Responses Tally Table**

**Question 12**

Quality attribute ↓      ⇒		Dysfunctional				
		(1) I like	(2) Must-be	(3) Neutral	(4) Live with	(5) Dislike
Functional	(1) I like			XXXXX XXXXX XXXXX		
	(2) Must-be					
	(3) Neutral					
	(4) Live with					
	(5) Dislike	XXXXXX XXXXX XXXXXX XXXXX XXXXXX				XXXXXX XXXXXX

**Question 13**

Quality attribute ↓      ⇒		Dysfunctional				
		(1) I like	(2) Must-be	(3) Neutral	(4) Live with	(5) Dislike
Functional	(1) I like		XXXXXX XXXX			
	(2) Must-be					XXXXXX XXXXX XXXXXX XXXXX XXXXXX XXXXX
	(3) Neutral					
	(4) Live with				XXXXXX XXXXXX XX	
	(5) Dislike					

**Question 14**

Quality attribute ↓      ⇒		Dysfunctional				
		(1) I like	(2) Must-be	(3) Neutral	(4) Live with	(5) Dislike
Functional	(1) I like			XXXXXX XXX		
	(2) Must-be					
	(3) Neutral	XXXXXX XXXX		XXXXXX XXXXXX XX		
	(4) Live with					
	(5) Dislike	XXXXXX XXXXX XXXXXX XXXXX X				

### Question 15

Quality attribute ↓      ⇒		Dysfunctional				
		(1) I like	(2) Must-be	(3) Neutral	(4) Live with	(5) Dislike
Functional	(1) I like			XXXXX XXXXX XXXXX XX	XXXXX XXX	
	(2) Must-be					
	(3) Neutral	XXXXX XX		XXXXX XXXX	XXXXX XXXX	
	(4) Live with					
	(5) Dislike					

To evaluate the responses to determine the various customer requirements for the packaging, Kano's evaluation table (Table 4.7) was used. Each of the customer requirement categories was determined by tracing the answer to the functional question along the column against the answer to the dysfunctional along the row to the cell where they intersect in the evaluation table (Table 4.7). The results were then tabulated in the Table of Results (Table 4.8).

**Table 4.3.6: Kano's Questionnaire Evaluation Table**

Quality attribute ↓      ⇒		Dysfunctional				
		(1) I like	(2) Must-be	(3) Neutral	(4) Live with	(5) Dislike
Functional	(1) I like	<b>Q</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>O</b>
	(2) Must-be	<b>R</b>	<b>I</b>	<b>I</b>	<b>I</b>	<b>M</b>
	(3) Neutral	<b>R</b>	<b>I</b>	<b>I</b>	<b>I</b>	<b>M</b>
	(4) Live with	<b>R</b>	<b>I</b>	<b>I</b>	<b>I</b>	<b>M</b>
	(5) Dislike	<b>R</b>	<b>R</b>	<b>R</b>	<b>R</b>	<b>Q</b>

Key:

**A** = attractive  
**I** = Indifferent

**O** = One-dimensional  
**R** = Reverse

**M** = Must-be  
**Q** = questionable

#### 4.10.2 Interpretation of the Kano's Questionnaire Results

The Table of Results (Table 4.3.7) revealed that both the **flexible and the rigid types of packaging materials** tested have reverse (42% and 46% respectively) quality, meaning that the more flexible it is the more the customers would be dissatisfied with it. On the contrary, the more rigid it is, the more it would dissatisfy the customers. Therefore a semi-rigid or semi-flexible material would be ideal for packaging the cocoa drink as it may have less reverse impact.

Packaging a liquid food product such as **cocoa drink in a recyclable packaging material** was considered as an attractive (36%) quality. This question was added purposely to test how customers' will perceive the use of recyclable material for packaging the product. Since they do not expect the use of recyclable material for the packaging it is an attractive quality added by the manufacturer, and the response from the customers also confirmed it as an attractive quality.

It means that the material will give the product a competitive edge over the others which are not packaged in recyclable materials. However, since some customer may not be aware of the material quality, the manufacturer may have to make it known to the customers before they can respond favourably.

**Allowing the product to be seen** through the decorations done on the container or on the label would be perceived as an attractive (58%) quality requirement. This means that customers will be delighted to see the colour of the cocoa drink as well as the level of it in the container so that they may be able to monitor the content in the container at all times. Should the decoration or the label blocks or conceals the product the customers will not be delighted.



**Table 4.3.7: Table of Results**

Product Packaging requirements	M	O	A	I	R	Q	Total Response	Category
(1) If a cocoa drink product is packaged in flexible plastic material		13	8	8	21 = (42%)		100%	R
(2) If a cocoa drink product is packaged in rigid plastic container	9+9		9		14+9= 23 (46%)		100%	R
(3) If a cocoa drink product is packaged in a recyclable material	12	9	9+9 = 18 (36%)	5	6		100%	A
(4) If the decoration on the package allows the drink to be seen in the container		7	8+14+7 = 29 (58%)	7	7		100%	A
(5) If the package of a cocoa drink product can be resealed after opening	5	12	7+7+7 = 21 (42%)	7+5			100%	A
(6) If a cocoa drink product is sold in 1 litre container			7+7+7	7+10	5	7	100%	A
(7) If the package of a cocoa drink product has an attractive and nice looking print	10	25 = (50%)	15				100%	O
(8) If the packaging of a cocoa drink product has a national identity of Ghana	6	7	7+8+7 = 22 (44%)	10+5			100%	A

Product Packaging requirements	M	O	A	I	R	Q	Total Response	Category
(9) If brown colour is mainly used to decorate packages of a cocoa drink product	7+14+ 7 = 28 (56%)	8	7		7		100%	M
(10) If the label of a cocoa drink product has lots of information about the products	9	9+7		18 = (36%)		7	100%	I
(11) If the package of a cocoa drink has a picture of a popular figure				15+9+ 7 = 31 (62%)	12	7	100%	I
(12) If the package of a cocoa drink product is a returnable (reusable) container			15		25 (50%)	1 0	100%	R
(13) If the package of a cocoa drink product bears FDB or GSB certification symbols	29 (58%)		9	12			100%	M
(14) If the containers for packaging cocoa drink product are similar to those used for packaging other products			8	12	9+21 = 30 (60%)		100%	R
(15) If the shape of a cocoa drink product package looks like a cocoa pod			17+8 = 25 (50%)	9+9	7		100%	A

Using packages that can be resealed is an attractive quality requirement as 42% is the highest. This means that if the customers can reseal the pack again to protect the left over they would be delighted because it will preserve and prevent spillage when stored again after first use.

**Packaging the cocoa drink in 1 litre pack** is an attractive quality (42%). From the table of results the 1 litre package will delight customers. It may be that customers want to have more of the cocoa drink in a single container that is why they would be delighted.

**The quality of the print** on the package in terms of its attractiveness is a one dimensional (50%) customer requirement for the cocoa drink package. Being one dimensional means that the more attractive the print looks the more customers would be delighted with the packaging. On the contrary, the more the print looks unattractive the more the customer will dislike the packaging. This requires that the packaging material or the label material must have a good surface finish, and the printed image must look attractive.

**Designing the cocoa drink package to have a national identity** would be perceived by customers as an attractive quality (44%). In the Kano's questionnaire Ghana was used and it is a cocoa producing country. The packaging showing national identity of Ghana would delight the customers as it may suggest original and high quality product to them.

**Choosing a brown colour like that of the cocoa drink product** would be perceived as a must-be (56%) requirement for the packages. This indicates that customers consider the brown colour as one of the basic colours required on the packages. The brown colour for the packages being a must-be requirement means that using brown colour to decorate the packages does not cause satisfaction to the customers but if brown colour is not used it would generate dissatisfaction in the customers and they would be asking questions about the colours used in the design.

**Information provided on the package** is perceived as an indifferent (36%) requirement to the customers. This implies that the more or less information provided

on the package has no major influence on the customers' satisfaction. This customer requirement then gives the manufacturer the opportunity to add little other information to the mandatory ones so that the text will not disturb the visibility of the content which the customers perceived as attractive requirement.

**Using an image of a popular figure as sales icon** for the cocoa drink product is perceived as an indifferent (62%) requirement. The use of a popular figure's image on the package being an indifferent requirement means that the presence or the absence of such image on the pack has no influence on customer satisfaction. It follows that any amount spent on contracting the popular figure, the photography and the printing would yield no customer satisfaction. Therefore there is no need spending money to achieve this customer requirement.

**Selling the cocoa drink product in a returnable or reusable pack** is perceived as a reverse (50%) customer requirement. The nature of a reverse requirement is such that the more it is achieved the more dissatisfied customers would be with the product packaging. It means that the opposite of its achievement would rather satisfy the customers, so the more the packages can be reused the more dissatisfied the customers would become. None reusable packages would be preferred by the customers. There is therefore no need for the manufacturer to spend more money on developing robust packages that can withstand the multiple uses.

**Printing the Ghana Standards Board (GSB) and Food and Drugs Board (FDB) certification symbols on the packages** is a must-be (58%) customer requirement. This means that the customers consider the use of the symbols as a basic customer requirement for the cocoa drink product. The use of these symbols may give them assurance that the product meets acceptable quality and food safety standards making it wholesome for human consumption. Therefore, the product must

be certified by Ghana Standards Board to enable the manufacturer use the certified symbol on the labels.

**Packaging the cocoa drink in commonly used packages** is perceived as a reverse (60%) requirement. If the packages for the cocoa drink product are similar to those that are commonly used for packaging other different products on the market would be disliked by customer, and they will dislike it the more if more other products use that very package.

**Designing the structure of the package to look like a cocoa pod** is perceived as an attractive (50%) customer requirement. Thus, customers would be delighted to see the pack in a shape and form of a cocoa pod from which the product comes from.

#### 4.10.3 Calculating the extent of satisfaction and dissatisfaction

It is important that the extent of satisfaction and dissatisfaction of each of the customer requirements for the packaging be determined to know how much influence each one has on customers' satisfaction. To calculate the extent of satisfaction and dissatisfaction of each of the packaging features from the Table of Results (Table 4.8), the formula proposed by Berger et al (1993) was used.

$$\text{Better (Extent of Satisfaction)} = \frac{A + O}{A + O + M + I}$$

$$\text{Worse (Extent of dissatisfaction)} = \frac{O + M}{(A + O + M + I) \times (-1)}$$

For instance the extent of satisfaction and dissatisfaction of the use of flexible packaging material was calculating as follows:



$$\begin{aligned}\text{Better (Extent of Satisfaction)} &= \frac{8 + 13}{8 + 13 + 0 + 8} = \frac{21}{29} \\ &= \underline{\underline{0.7}}\end{aligned}$$

$$\begin{aligned}\text{Worse (Extent of dissatisfaction)} &= \frac{13 + 0}{(8 + 13 + 0 + 8) \times (-1)} \\ &= \frac{13}{29 \times -1} = \underline{\underline{-0.4}}\end{aligned}$$

Berger *et al* (1993) stated that the impact on satisfaction ranges from 0 to 1, and the closer the value is to 1 the higher the influence on customer satisfaction. The impact on dissatisfaction also ranges from 0 to -1, and the closer the value is to -1 the higher the influence on customer dissatisfaction.

Considering the use of flexible packaging material the value for extent of satisfaction being 0.7 indicates that it has a high influence on customer satisfaction. The Table of Results (Table 4.3.7) shows that the use of flexible packaging material is a Reverse customer requirement, it means that if a more flexible material is used the influence of the reverse requirement would be great. On the other hand, the dissatisfaction value of -0.4 indicates that its influence on customer dissatisfaction is low, therefore, a less flexible material will have less reverse influence on customer dissatisfaction. The extent of satisfaction and dissatisfaction of all the customers' requirements are presented in Table 4.3.8.

**Table 4.3.8: Extent of Satisfaction and Dissatisfaction of the Packaging Features**

Product Packaging Requirements	Extent of Satisfaction and Dissatisfaction	
	Better	Worse
(1) If a cocoa drink product is packaged in flexible plastic material	0.7	- 0.4
(2) If a cocoa drink product is packaged in rigid plastic container	0.3	0.7
(3) If a cocoa drink product is packaged in a recyclable material	0.6	-0.5
(4) If the decoration on the package allows the drink to be seen in the container	0.8	-0.2
(5) If the package of a cocoa drink product can be resealed after opening	0.7	-0.3
(6) If a cocoa drink product is sold in 1 litre container	0.6	0
(7) If the package of a cocoa drink product has an attractive and nice looking print	0.8	-0.7
(8) If the packaging of a cocoa drink product has a national identity of Ghana	0.6	-0.3
(9) If brown colour is mainly used to decorate packages of a cocoa drink product	0.3	-0.8
(10) If the label of a cocoa drink product has lots of information about the products	0.4	-0.6
(11) If the package of a cocoa drink has a picture of a popular figure	0	0
(12) If the package of a cocoa drink product is a returnable (reusable) container	1	0
(13) If the package of a cocoa drink product bears FDB or GSB certification symbols	0.2	-0.6
(14) If the containers for packaging cocoa drink product are similar to those used for packaging other products	0.4	0
(15) If the shape of a cocoa drink product package looks like a cocoa pod	0.6	0

#### **4.10.4 Summary of findings from the use of Kano's Theory of Customer Satisfaction in Determining Customer Requirements for Packaging Development**

##### ***Advantages:***

1. Kano's Theory of Customer Satisfaction is flexible to use in determining or distinguishing the various customer requirements.
2. This theory would enable local manufacturers and packaging designers to know what packaging features would satisfy or dissatisfy customers in design of both the pack structure and graphics.
3. The use of the theory would help local packaging designers and manufacturers to develop packages that would bring satisfaction to both local and foreign customers.
4. Its use would save local manufacturers of packaged products the cost of investing in packaging features that will bring no satisfaction to their customers.
5. It would enable local manufacturers of packaged products to gain essential customer inputs into the developments of their packages that would satisfy their customers.

##### ***Challenges:***

1. The Kano's Theory of Customer Satisfaction is capable of distinguishing between different customer requirements for the packaging, however the researcher must first investigate the customer needs or complaints before the results can be put into the Kano's questionnaire to determine the various customer requirement types.
2. The researcher is of the view that it is important to find out why each feature of the packaging tested would satisfy or dissatisfy customers, however, the Kano's theory cannot be used for that purpose. It requires

that the user gathers more information about the product, the packaging and current market situation to understand why the customers require each of the perceived packaging features in the Table of Results.

### ***Recommendations***

1. The researcher believes that local packaged products manufacturers would find the Kano's Theory of Customer Satisfaction easy to understand, interpret the results in the Table of Results and use the outcome as customers' input in the design of their packages.
2. They will find it useful in investigating the different customer requirements for packaging development.
3. It is a less expensive method to customer quality requirements investigations for packaging development.

### **4.11 Proposed Method for Achieving Consistency in Manual Label Application: Using Labelling Jig**

Manual labelling is time consuming and it requires extra care and good sense of judgment to maintain consistent positioning of the label material on all the containers. This ability, in most cases, is not found in many of the personnel contracted to do manual labelling. It costs a lot of money and time to train personnel to attain the requisite level of skill to do manual labelling effectively.

The researcher proposes that if labelling jigs are used greater accuracy can be achieved and maintained by almost everyone assigned to do manual labelling after a short demonstration of its use. Jig is a work-holding device mostly used in manufacturing by product designers as quality assurance measure for achieving same output in standardized operations employed to ensure consistency in a task done repeatedly. Jigs enable components to be reproduce much quicker, it ensures that

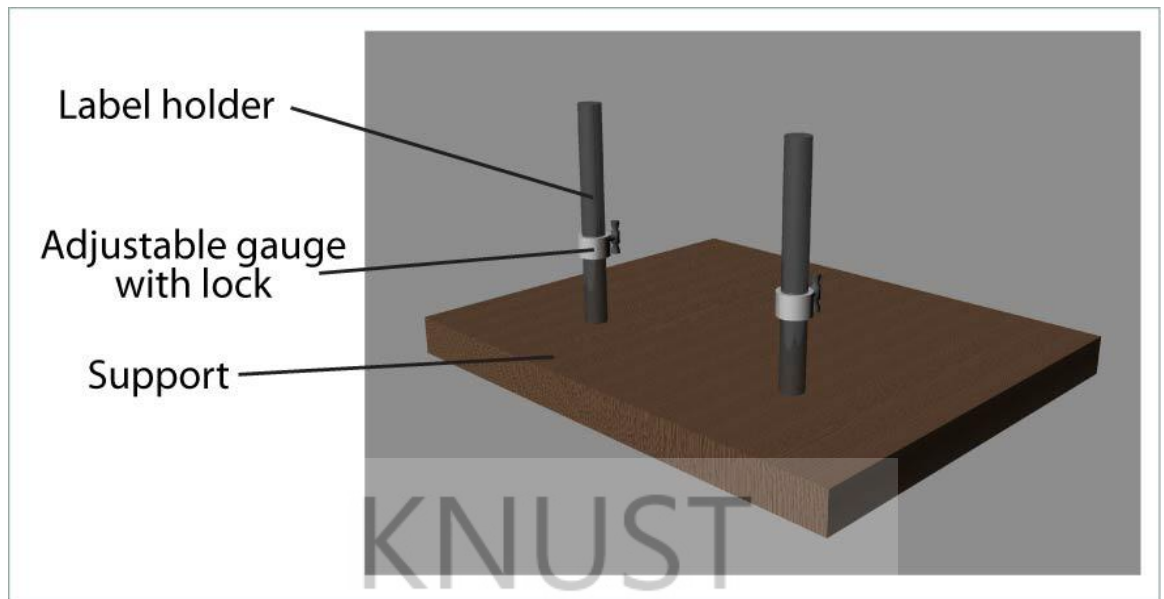
accuracy can be achieved and maintained. Most importantly jig enables unskilled or semi-skilled labourer to use it to achieve the same quality of results repeatedly. This makes it ideal to be employed in manual labelling since unskilled personnel are mostly used by small scale manufacturers to manually paste labels on product containers.

Jigs designed for manual labelling must be able to hold the container in place and provide a window or guides for the label positioned and pasting operations. The material to be used must be water- resistant so that the wet glue cannot soak it when used. Material such as plastic and metal can be used. The design of the jig must be simple and easy to use so that make-ready time would be short and can be used by any personnel. The jig must be cleaned from time to time to remove any glue on it so that it will not be tacky to trap the label material when it comes in contact.

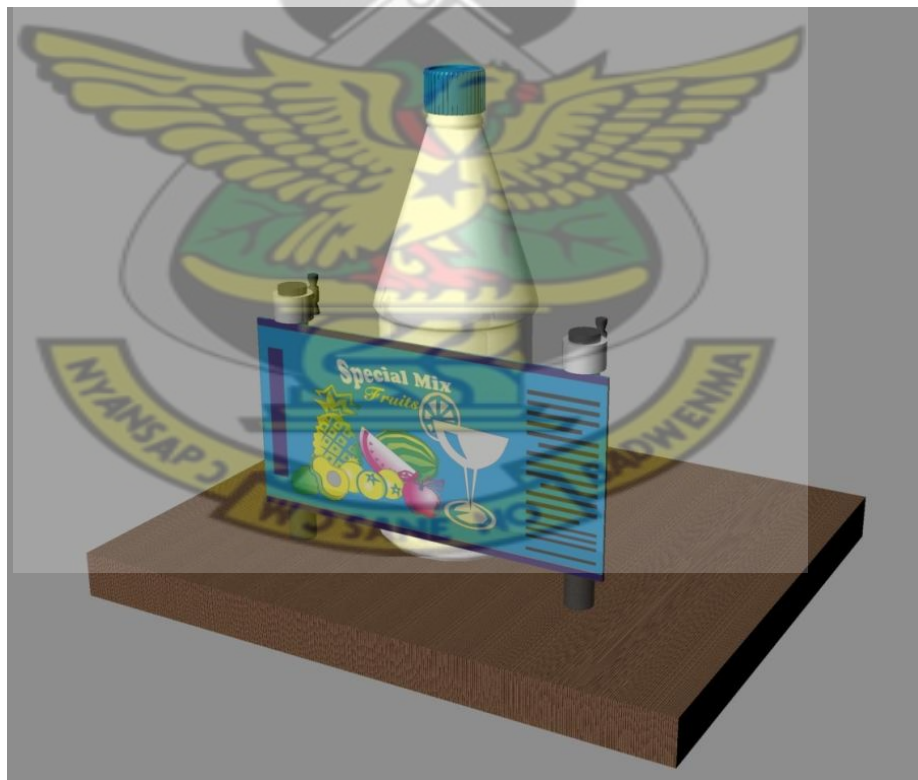
The jig, as shown in Plate 4.1, consists of a flat wood block as its base support, level gauge which is used to set the level for the label material, and two vertical poles which hold to label upright. The user first has to set the level for the label by adjusting the positions of the level gauge attached to the label holders with help of a ruler. Plate 4.2 shows a label fixed on the label holders after the gauge has been set.

The wet glued label is attached to the label holders with its top edge touching the base of the two level gauges. The container to be labelled is placed on the wooden block support and then drawn through the space between the two label holders. In the process, the glued label material attaches itself to the container as it detaches from the label holders when the container moves away from them. The user can finish it up by fixing the ends of the label material to the container firmly. Plate 4.3 shows the finished labelled container.





**Plate 4.1: An illustrated sample of a jig for manual label applications**



**Plate 4.2: An illustration showing a label material attached to the label holders of the jig**



**Plate 4.3: An Illustration showing the Container with the Label Applied by using the Jig**

## 4.12 Presentation and Interpretation of Data from Interviews Conducted in the Packaging Material Printing and Conversion sector

### 4.12.1 Printing Business Type and Print Products for Packaging

The data from Table 4.4.1 indicates that all the 45 printing firms visited are into general commercial printing business. It also indicates that all of the printing firms are offering printing services to the local packaging industry by printing directly on the packs or on packaging label materials. The basic packaging materials they print on are paper-based packaging materials, such as chipboard for constructing the packages, and art paper materials for printing labels.

**Table 4.4.1: Packaging Printing and Conversion Company Data**

No.	QUESTIONS	No. OF RESP.	RESPONSES	FREQ.	PERC. (%)
1	How do you classify your printing business?	45	General commercial printing	44	97.8
			publishing house	1	2.2
2(a)	Do you print packages or labels for products?	45	Yes	45	100.0
2(b)	How many different product packages/labels do you print or have you printed?	45	1 product	6	13.3
			4 products	16	35.5
			5 products	7	15.6
			9 products	8	17.8
			Unknown quantities	8	17.8
3	What type of packaging materials do you print on?	45	Art paper	23	51.1
			Chipboard	41	91.1
4	Do you specialise only in packaging printing? Give reason for your answer	45	No (45) = 100%		
			Because of being publishing house	1	2.2
			Because of the general nature of printing business	32	71.1
			Because printing jobs are seasonal	8	17.8
			Because packaging jobs are not regular	43	95.6
5	Where do you keep or store packaging material stocks until they are finally delivered?	45	In one particular section of the press	9	20.0
			We keep them separately in our material store	6	13.3
			We keep them temporarily on the floor of the press	12	26.7
			We keep all the material together	18	40.0

Source: Field Survey, February 2007 - March 2007

All the 45 printing firms involved in this study are into general printing business and none specialising in packaging printing alone. The reason why they do not specialise only in packaging, 43 out of the 45 respondents representing 95.6%, said it is from the fact that packaging printing jobs are not regular and therefore appear unprofitable to concentrate on alone. 32 of the respondents representing 71.1% attributed it to the general nature of the printing business which makes it possible to use the printing machine for different printing of jobs. Most of the printing firms in Ghana operate as general commercial printing presses.

#### **4.12.2 Identified Packaging Material Storage and Handling Issues**

In the responses to the question on how packaging materials are kept until delivery, all the responses suggest that they are not given special storage in the printing houses (as Table 4.4.1 indicates). The researcher's personal observations also confirm this issue. The researcher observed that the packaging materials were not properly kept to prevent migration of chemical used in the press, any odour and dirt that may get into the stock. Material for packaging food and drug products that are to be ingested must be well protected and preserved against any possible contamination in any form so that the products they contain will be wholesome for their consumers.

#### **4.12.3 Identified Factors that Account for Poor Packaging Printing**

In determining the factors that account for poor packaging printing as many as eleven factors were mentioned, (as indicated in Table 4.4.2). All the 45 respondents representing 100% made mention of poor colour separation as a major factor critical to print quality. The amount of money the client decides to pay also

has significant impact on the quality of print as 31 of the respondents, representing 68.9%, made mention of it in their explanations.

**Table 4.4.2: Factors that Affect Print Quality as Identified by Local Printers and Convertors**

No.	QUESTIONS	No. OF RESP.	RESPONSES	FREQ.	PERC. (%)	
1	What factors lead to poor printing of packaging materials?	45	poor paper surface quality	38	84.4	
			fault in the printing machine used	22	48.9	
			poor colour separation	45	100.0	
			The amount of money that clients pay for the printing	31	68.9	
			lack of printing machines for various packaging materials	2	4.4	
			old method of printing	2	4.4	
			Inaccurate press control usually by inexperienced printers	15	33.3	
			low quality ink	18	40.0	
			lack of variety of inks	11	24.4	
			poor finishing	7	15.6	
			2	What factors account for good printing on packaging materials?	45	Press machine in good condition
The level of skill or competence of the printer	45	100.0				
The quality of the ink	37	82.2				
The quality of image on each plate used	45	100.0				
The quality of the substrate	38	84.4				
3	From your experience with clients who bring in packaging jobs, what do they do or suggest when they realise the cost of printing is on the high side for them?	45	opt for lower grade paper which cost less	45	100.0	
			They reduce number of colours in their artwork	29	33.3	
			They may take their job away to another press	38	84.4	
			Some reduce the quantity of the print copies	17	37.8	
4	Do such customer decisions or actions have any effect on the quality of print they receive?	45	Yes (25) = 55.6%	The reduction of colour may affect the beauty of their designs	18	40.0
				Lower grade paper material may not be good for their product packaging	13	28.9
			No (20) = 44.4%	Because they know what is good for them	20	44.4

Source: Field Survey, February 2007 - March 2007



In the responses to questions that solicit for what clients do when the printing cost is expensive for them, all the 45 respondent, thus 100%, said the clients usually opt for low grade or low quality paper material and 29 representing 33.3% of the total respondents claim the client may reduce the number of colours in their job to be printed. The responses as to whether such clients' decisions or actions have any effect on the printing of their materials 25, equivalent to 55.6%, of them responded *YES* and 20, thus 44.4%, responded *NO* to the question. These responses support the fact that the amount clients pay has effect on the printing of their job.

The implications are that the visual qualities of the design may be affected by the reduction of colours in the original design or the client has to bear the cost of redesigning in both time and monetary terms. A low grade paper or low quality paper material surface can affect the print quality required on the packages, whilst low grade paper can drastically reduce the packaging material performance in terms of protection of content and resistance to all transportation hazards it may go through.

#### **4.12.4 Factors that Account for Good Packaging Printing**

With respect to factors that account for good printing on packaging materials good press machine, the quality of the image on the plates and the skill level of the printer have 100% each (as indicated in Table 4.4.2). The ink quality, although very important, was least mentioned along with the quality of the substrate to be used. It could be deduced from this that the respondents consider both the ink and the substrate quality as always the same making them have less impact on the quality of their print output.

#### 4.12.5 Packaging Printing verses Other Printing Jobs

Finding out from the respondents whether packaging printing is different from any other printing job, 29 of the respondents representing 64.4% responded *YES* to indicate that packaging printing is different from other kinds of printing jobs (Table 4.4.3). However, their explanations centred mainly on the post printing activities such as vanishing, lamination and folding. Only 7 respondents said special attention is required due to the shape and sizes of the packaging blank as what makes packaging printing different.

16 out of the 45 respondents, representing 35.6% responded *NO* to the question; meaning that packaging printing is not different from any other printing jobs. Their reasons seem to suggest that *printing is printing no matter what job it is*, because the same machine and printing processes are used in all kinds of printing jobs.

The researcher believes that packaging printing differs from all other printing jobs not in terms of machine and processes but in the quality of print on the material, which in itself contributes to the attractiveness of the package to the buyer. It also requires an ink that is lead-free ('Packaging Design', 2005). Packaging printing requires adhesion and scuff tests, which may not be seriously required in other printing jobs, because of different materials with different surfaces that are used in packaging and food safety issues. There is food safety and hygiene implications that are involved in packaging printing, which requires that the storage and handling of the packaging material in the press house should be done in a manner that prevents contamination.

The researcher is of the view that because all the respondents print only on paper type packaging material and have inadequate knowledge in packaging they do

not seem to understand the difference between packaging printing and any other printing jobs.

#### **4.12.6 Packaging Printing Procedures**

In the question which seeks to find out if there are quality assurance procedures that are followed in the press to ensure the quality of print on the packaging material 21, representing 46.7, responded agreed with the question, whilst 24 of them representing 53.3% said there are no such procedures specific to packaging printing since they all follow same general printing procedure (as indicated in Table 4.4.3).

Considering the explanations given by those who said there are procedures to be followed, their explanation seems to point to the same general printing procedure said by those who answered *NO*. It implies that there are no special procedures that they follow to ensure quality of print on packaging materials.

However, seven post printing activities mentioned were die-cutting, gluing, lamination, trimming, sorting, vanishing and packaging for delivery, which they claim make packaging printing different. The mentioning of these activities indicates that some of the packaging materials are made ready for filling at the press house before delivery.

#### **4.12.7 Client's Instructions to Printers**

In response to the question which queries the respondents on whether they receive instructions and what kind of instructions they receive from clients with packaging printing jobs, they all agreed that their clients give them instructions (as indicated in Table 4.4.3). This means that the clients know what they want from the printer and what they expect to receive. Notable among the instructions were the

number of copies they need, the finish size and the colours to be printed. 17 of the respondents representing 37.8% of the total respondents said the clients give instructions because they want their packages to appear nicer than those on the market.

**Table 4.4.3: Quality Considerations in Packaging Printing**

No.	QUESTIONS	No. OF RESP.	RESPONSES	FREQ.	PERC. (%)
1	Is packaging printing different from any other printing job? Please explain your answer(s)	45	Yes (29) = 64.4%	7	15.5
			Some require vanishing or lamination	15	33.3
			They requires special cutting and folding	29	64.4
			No (16) = 35.5%	16	35.6
2	Are there procedures that have to be followed to ensure quality print on packaging material? Please give reasons for your answer		Yes (21) = 46.7%	16	35.6
			depends on material type and its quality	5	11.1
			No (24) = 53.3%	24	53.3
3	What post printing activities do you carry out on the printed stock before delivery?	45	Die cutting	45	100.0
			Gluing	38	84.4
			lamination	22	48.9
			Trimming	20	44.4
			Vanishing	26	57.8
			Sorting	38	84.4
			Packaging	45	100.0
4	Do clients with packaging printing jobs give any specifications or instruction(s) as to how they want their printing done for them?	45	Yes (45) = 100%	45	100.0
			They quote the quantity or the number of copies they need	44	97.8
			They specify the final /finished sizes	41	91.1
			They give colour specifications	23	51.1
			Some bring samples / specimen	17	37.8

Source: Field Survey, February 2007 - March 2007

Some of the clients were also found to accompany their jobs with samples they want their print quality to match or exceed. The responses suggest that the clients are of the view that a better print on their packages can make a difference in the market competition.

#### 4.12.8 Identified Printing Problems/Errors/Defects

From Table 4.4.4, all the 45 respondents use Offset printing machine. 18 out of the 45 respondents also have letterpress machines in addition to the Offset machines. Six major printing problems, errors and defects were found to occur in printing, namely: *scumming*, *poor registration*, *ghosting*, *picking*, *colour inconsistency*, and *colour matching problems*.

**Scumming:** Scum, in printing terms, is an unwanted streak of colour registered on nonimage areas. **Poor or imperfect registration:** Is the displacement of the printed colours forming an image.

**Ghosting:** Is an unwanted faint image registered in a position with the actual image being printed. **Picking:** Is the stacking of the printed sheets as a result of wet or non drying ink on the substrates. **Colour variations:** Is an inconsistent value of a colour across a sheet or from sheet to sheet being printed. The World Packaging organisation (WPO) advised that the printer running a Heidelberg Offset press must carefully control ink flow in order to avoid colour variations in all forms (“Packaging Design”, 2005). This means that colour variations can easily occur in printing on this offset press, so careful control of the inking system is very important.

**Imperfect colour matching problems:** Imperfect colour matching produces an image with a colour appearance different from the original. **Weak or hardened rubber blanket** on the blanket cylinder affects printing quality as chemicals in the



inks reactions with the rubber blanket to lose its resiliency such that it become less efficient in picking and offsetting the image on the substrate. This state of the blanket is referred to as **glazed** (Karsnitz, 1997).

**Table 4.4.4: Identified Causes of Print Defects and Problems by Local Printers and Convertors**

No.	QUESTIONS	No. OF RESP.	RESPONSES	FREQ.	PERC. (%)
1	What printing equipment do you use for printing on packaging materials?	45	Offset press (Kord)	45	100.0
			Letterpress	18	40.0
2	What are some of the print faults, defects or problems that do occur in printing?	45	Scumming	45	100.0
			Poor/imperfect registration	43	95.6
			Ghosting	19	42.2
			Picking	8	17.8
			Colour variations		
			Imperfect colour matching	8	17.8
3	What are the possible causes of printing faults, defects or problems?	45	Mechanical fault in the press	45	100.0
			Power outages	19	42.2
			Plates interchanged	12	26.7
			Ink quality	45	100.0
			Poor machine maintenance	32	71.1
			Wrong printing order of the colours	8	17.8
			Roller malfunctioning problems	45	100.0
			Weak or hardened blanket	36	80.0
			The competence or the skill level of the printer running the job on the press	38	84.4
			Lack of concentration or poor attention to regularly check the print outs	11	24.4
			Improper machine setting /adjustment	45	100.0

Source: Field Survey, February 2007 - March 2007

The researcher is of the view that these printing problems, as identified by the respondents, may not be common to all printing methods used in packaging since all the respondents were using Kord offset printing machine made by the Heidelberg Company (as Table 4.4.4 indicates).

#### **4.12.9 Identified Causes of Poor Printing**

From the follow-up question, which seeks to find out the cause of printing problems or errors, the causes identified include mechanical fault in the press, ink quality, rollers malfunctions and improper setting of the press. These were the most common problems identified by all the respondents (as Table 4.4.4 indicates).

***Mechanical fault:*** Mechanical fault in the press may be due to the degree of wear and tear that might have occurred in the course of its use. Mechanical fault in the press may lead to intermittent stoppages during runs. In the running of the press stoppages do not only affect job completion time but also the delivery time, and the consistency of the print since after every restart the press takes some time before it attains consistency in the prints. The researcher recommends that the prints that are made between the restart of the press to the time the press reassumes print consistency have to be discarded to ensure uniformity in the print on packages.

***Plate interchange:*** Plate interchange occurs when a plate for a particular colour is mistakenly used to print a different colour. For instance, a cyan plate may be used to printing magenta colour. This error was said to occur in multicolour printing but they do rarely occur. The respondents said these errors are quickly detected by comparing the colours on the printed image with the original or the master copy. Follow-up questions revealed that such printed copies are usually not delivered to the clients.

***Ink quality problem:*** Ink quality problem was commonly mentioned by all the 45 respondents. The ink is what registers the image on the plate into the substrate and therefore very critical to the quality of image printed. The ink quality depends on its fastness and hue properties. The fastness of an ink is its ability to dry and bind the pigment onto the substrate surface (Karsnitz 1997). Ink can expire and printing with an expired or inappropriate ink for a particular stock can cause a lot of problems such as scuff print, chalky, non-drying print and set –offs.

***Poor machine maintenance:*** Poor machine maintenance was mentioned by 32 of the respondents; represent 71.1% of the total respondents as one of the causes. Poor press machine maintenance was said to involve improper cleaning of the press, improper lubrication, delay in changing worn out or faulty parts and lack of regular general check-up on the machine.

***Wrong print order of colours:*** Wrong printing order of the colours, although mentioned by only 8 of the respondents with a percentage of 17.8, was found to be one of the factors that cause colour matching problems. The respondents said there is no strict rule in printing that a particular colour must always be printed first, therefore the print determines which colour to be printed first and the order of the subsequent colours, but the black colour is usually printed last in process printing.

There are overlapping colours in the print as one colour registers on another because of the screen angles used in converting the image into the various halftone dots. The resultant colours produced by the overlapped colours and the varying negative spaces in between halftone dots makes the printed image simulates a continuous tone image. When the order of printing the colours is wrong the colour illusion created makes the image appears a little different from the original.

The effect of wrong printing order may not be detected when a sample copy is viewed in isolation but it becomes evident when compared to the original copy. The respondents said depending on the defect levels such printed stocks are delivered to the client because the colour differences are not easily discernable.

***The competence or skill level of the printer:*** The competence or skill level of the printer running the press is considered an important factor in determining the quality of the print. 38 of the respondents, thus 84.4 percent, mentioned this as one of the cause of printing errors that occurs. The explanations given indicate that the ability to set up the machine and to control the press to maintain its ink and dumping solution supply to the plate in the press depends on the skill or the competence level of the printer. The control of scumming and registration require a high level skill or competence in printing. Hence the skill level or the competence of the printer to control the press has connection with the print quality.

***Improper press setting/ adjustment:*** Improper setting or adjustment of the press was identified as another cause of print defects as all the 45 respondents mentioned it. Press settings done at the pre-flight stage include registration, ink flow, fountain solution control and the press feeding. Registration settings are done initially to register the image at the right position on the substrate and consequently to register the other colours. Ink duct keys settings are done to control amount of ink flow to the plate.

The dampening system settings are done to regulate the flow of fountain solution to wet the plate of the press. At the feed section adjustments are made to the suction system to effectively pick the sheets from the tray to feed the press. Proper setting of the press depends largely on the competence of the printer to meet the various print job demands. The printer must be able knowledgeable enough to

handle all stock types and images as different stock surface requires different amount of ink deposit (Byett et al, 1997) and differences in image sizes also require different amount of ink base on their location on the plate (Karsnitz, 1997). It is important that the competence level of the printer be high and knows the settings of the machine at hand in order to tune the machine to achieve the desire quality of print on the substrate with no print defects.

***Poor attention of the printer running the press:*** 24.4 percent of the respondents claimed that poor attention of the printer in the course of running a job on the press contributes to errors in printing. They explained that as the press runs vibration can cause slight adjustment to some of the settings, a sheet may be trapped or foreign material particles may get to the plate which can only be detected by those attending to the press. If the printer is not giving due attention to the job to consistently check the print, clean the plate or readjust the settings as required, the printed copies may have defects on them.

It can be deduced from this that irrespective of the press machines good condition and skill level of the printer, incident such as sheet trapping and unwanted materials getting to the plate can occur at any time which require the printer's prompt attention to the press. The printer's prompt attention to the press is important to the maintenance of the quality of print and the prevention of print defects on packaging materials.

It could be inferred from the identified causes of print defects and problems that most of them are due to human errors, which the printer can prevent or minimise their occurrences.



#### 4.12.10 Printers' Training and Capacity Building Issues

Data gathered on the respondents' training and how the programmes of Ancillary organizations are building their capacities, 62.2% of the respondents who form majority received full informal training, 28.8% got both formal and informal education in printing, whilst 8.9% had full or intensive formal education in printing, (as indicated in Table 4.4.5).

**Table 4.4.5: Local Packaging Printers' Training and Capacity Building Issues**

No.	QUESTIONS	No. OF RESP.	RESPONSES	FREQ.	PERC. (%)
1	How did you acquire your printing training?	45	Formal training	4	8.9
			Partly formal	13	28.9
			Informal training	28	62.2
2	Have you been attending workshops and seminars for printers?	45	Yes (8) = 17.8%	8	17.8
			No (37) = 82.2%	23	62.2
			Because of time constraints	13	35.1
			financial factors	14	37.8
3	How often do you hear of such programmes?	45	Once in a long while in some years back	22	48.9
			I have not heard of any	23	51.1
4	How beneficial are the programmes organised for printers?	8	They expose us to modern trends in print technology	8	100.0
			We acquire knowledge in publishing practices and issues	8	100.0

Source: Field Survey, February 2007 - March 2007

82.2% of the respondents claim they have not been attending workshop and seminar programmes that are organised for printers because such programmes are no more organised for printers, financial and time constrains. 23 of the respondents claimed they do not hear announcement or advertisement on such programmes (as Table 4.4.5 indicates). The respondents who have been attending such programmes

also do not hear about such programmes these days even though they find it beneficial. It can be deduced from the responses that advertisements done on the programmes were not effective in reaching majority of the targeted audience in the industry. It also reveals that it has been a long time since such programmes were organised for printers to refresh them and also to expose newly trained ones to current printing demands.

The researcher is of the view that although these seminars and workshops were beneficial to the participants; their direct impact may not be much felt in the local packaging industry since their focuses were usually on printing and publishing but not specifically on packaging printing. It is important that the channels of information dissemination be opened up again and packaging printing issues also be addressed to support the development of the local packaging industry.

#### **4.13 Summary of Findings from the Packaging Material Printing and Conversion Sector**

1. Most of the printing firms offering services to the local packaging industry are into general commercial printing business; therefore, their setups are not specifically for packaging material printing and have no special storage facilities for the printed packaging stock awaiting delivery.
2. The local printing industry prints more on paper based packaging materials than other packaging materials. Hence, the printing of plastic packaging materials is not very common in Ghana.
3. Although there are many printing firms in Ghana, to supporting the packaging industry, about 95% of them do not print on other packaging materials apart from the paper-based types.

4. Most of the printers in the local packaging printing firms acquired their training through the informal sector.
5. Local printers have adequate knowledge in the causes of both poor print and good print on packaging materials they usually print on.
6. The local printers agree that the client's budget has some influence on the quality of the print.
7. Most of the local printers do not see much difference between packaging printing and any other printing jobs they handle. Hence, there is the likelihood that they treat packaging material stock like any other stock they print on and take no food safety and hygiene measures during printing of packaging materials for food products.
8. Local packaging printers do not follow any procedure to ensure
9. Bulk of the paper-based packaging materials are printed on Offset printing machines.
10. Most of the print defect and problems are caused by the printer handling the packaging printing job in the press then the printing machine used.

#### **4.14 Proposed Solutions to Identified Problems in the Packaging Material Printing and Conversion Sector**

##### **4.14.1 Capacity Building Programme for Local Printers in Packaging Printing**

Based on the local printers' low level of knowledge and experience in packaging printing, the researcher proposes that the local printers be given a top-up education in packaging printing by the local packaging ancillary organisations. They could invite resource personnel from the local printing industry as well as invite experts from around the world through the World Packaging Organisation (WPO) to train the local

printers. The training should focus on printing machines, techniques and method used in printing on any material used for packaging. The ink types suitable for printing on the various substrates and ways to store inks for future use have to be covered in the training programme. Issues relating to hygienic handling and storage of packaging materials in the press house should also be addressed.

### **Capacity Building Programme in the use of the Heidelberg Kord Offset Press**

The researcher observed that most of the Heidelberg offset press used in the printing industry are old and less efficient in its functions. The researcher proposes that advanced training in the running of the Heidelberg Kord offset press would go a long way in helping local printers to reduce print faults that usually occur and its associated costs.

The local ancillary organisations and the universities offering education in printing technologies could liaise with the Heidelberg Company to bring resource personnel to help in the training of the local printers in the use and maintenance of their machines. The areas of interest should include:

1. Instilling good maintenance culture in the use of the press machines
2. How to maintain colour consistency during printing
3. How to efficiently control or prevent the occurrences of scum, emulsification and other printing faults associated with offset printing.
4. The available technical support centres that owners of Heidelberg printing machines can get assistance.

Periodic training programmes could be organised to enable newly trained printers who will come into the industry to gain advance knowledge in packaging printing and the use of the available machinery.



#### 4.14.2 Proposed Procedure for Recording Press Settings to Achieve Colour Consistency among batches of Print from the Heidelberg Kord Offset Printing Machine

Printing firms operating with Kord offset press machines sometimes find it difficult to achieve the same press settings they used to run a particular job the first time. For this reason inconsistent print quality in terms of colour values do occur among batches of stocks they print at different times even on the same offset press machines they used. The Heidelberg Kord offset press machine is noted for high quality print on paper based packaging materials with efficient registration system. However, colour inconsistency usually occurs among batches of stocks printed at different times and also among the copies of the same stock being run on the press.

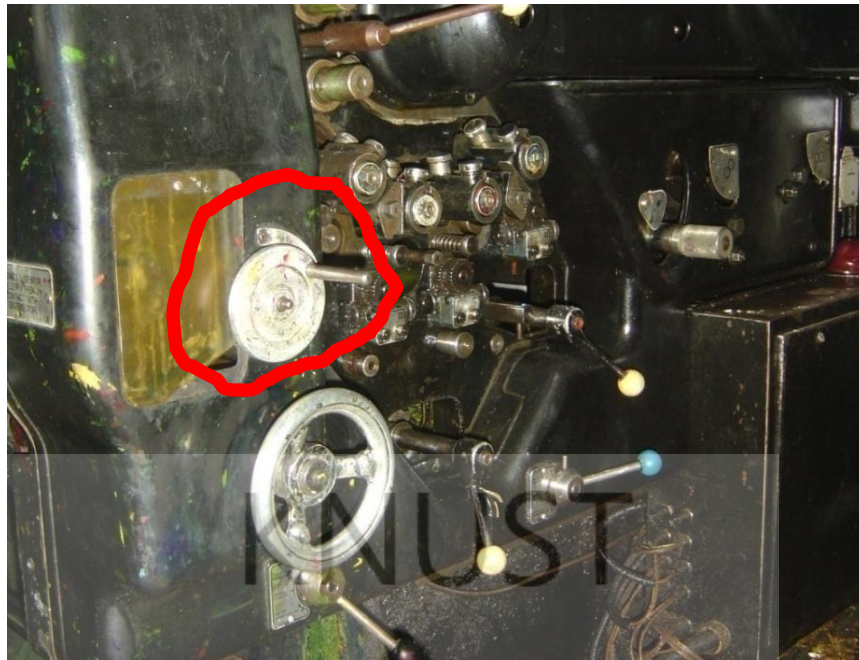
**Identified cause:-** The study revealed that this problem occurs based on the fact that the press settings are under the discretion of the printer running the job, who uses his knowledge and experience in printing. Also no records of the press settings are stored for use in the future when the same job is to be run.

**The press settings:** The Heidelberg Kord offset press machine has a set of *Ink Duck keys* (Plate 4:4) and also a *Duct Roller Control Lever* (Plate 4.5) that are adjusted to control the flow of ink to the plate on the press.



**Plate 4.4: The Ink Duct Keys on Heidelberg Kord printing machine**  
(Highlighted by red outline insert)





**Plate 4.5: The Duct Roller Control Lever on Heidelberg Kord printing machine (*Highlighted by red outline*)**

The issue of colour inconsistency among batches of reprints on this machine at different times arises mainly because these ink control devices are usually adjusted to suit the amount of ink deposits required by the different jobs run on a particular Kord press machine. Professional jobs such as packaging printing where colour consistency is important and re-prints are usually done it is important that ways must be found to record press settings and materials used so that the quality of print attained can be attained again whenever that same job is to be reprinted on the same machines in a time saving manner. The researcher therefore proposes the following procedure for recording the press settings for future use.

***Suggested procedure for Recording Press Settings on Heidelberg Kord Machine***

1. The first step requires that all the keys be reset to close all the ducts. One end of the cross-bar handle can be marked with a masking tape or paint to

differentiate them and to use it for identification. The same end of the handles should be marked on all the keys.

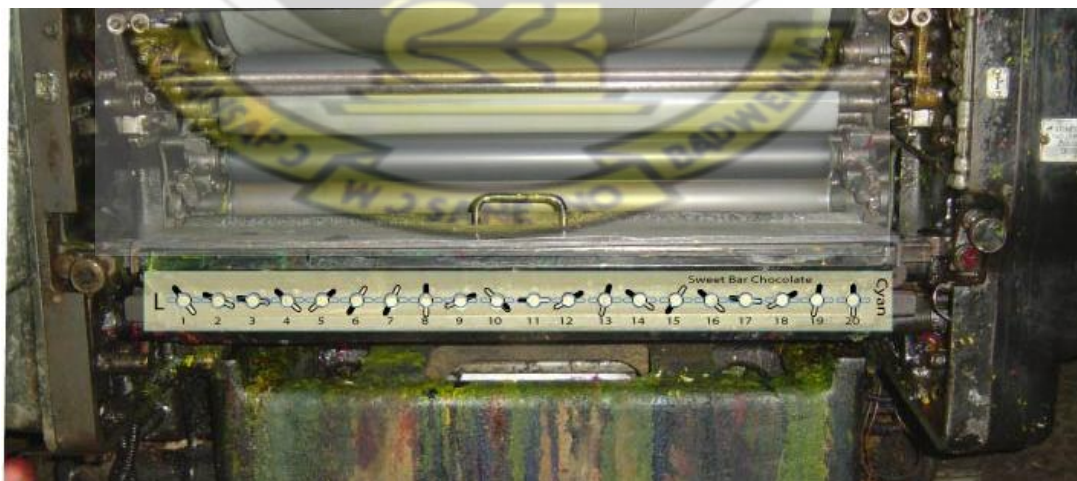
2. Recorder sheet must be prepared for each of the colours to be run. It must have all necessary information about the job such as the number of colours to be run, the manufacturer's ink brand to be used, and the plates to be used. Columns must be provided for all the keys and labelled accordingly for easy identification (Plate 4.8).
3. The number of turns of each of the keys must be recorded accordingly in a tally form. A turn that opens up the duct may be recorded as 1 and a turn that closes up the duct as -1. A full turn may be recorded as 1, another full turn +1 in that order. Every full turn backwards is -1 as it closes up the duct.
4. The setting of the Duct Roller Control Lever, which determines the stroke (the manner of rotation) of the duct roller, should also be recorded (Plate 4.5).
5. When the initial settings are done test prints must be done and further adjustments to the keys may be required to fine tune the ink distribution, all the little adjustments must be recorded. When the test print is good and no further adjustments to the keys are required photograph can be taken or a tracing sheet be used to register the current angles of all the key handles. The procedure must be followed for all the colours to be run. If photograph were taken they can be transferred onto a computer and vector application software can be used to blow each of the photograph to the exact dimension of the key area on the press. A graphical representation of the key handles can be traced over the photograph to get the outlines of the key angles to be used as templates. The outlines should be printed on cardboards and be cut out as

templates. The image recorded on the tracing sheet can also be transferred onto a cardboard and cut out as template (Plate 4.6).

6. Each template must share common label information with the recorder sheet and the plate name it represents as well as any other necessary information needed for easy identification. The recorder sheet and the templates must be put together as one print job document for future references.



**Plate 4.6: Templates of the various Ink Duct Keys settings**



**Plate 4.7: An Ink Duct Keys settings template mounted over the ink duct key area on a Heidelberg offset machine**

SWEET BAR CHOCOLATE

Job No.: SwCho/02/008 Date: 12/06/08

PLATE: Cyan

SETTINGS:

Duct Roller Control Lever: Stroke: Short = 1.08

Ink Duct Keys turn(s):

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.
18.
19.
20.

KEY NUMBERS

Remarks:

**Plate 4.8: Sample of a Recorder Sheet**



### ***Usage of the Press Settings Recorder***

When the same job is to be printed again the ink duct keys must all be turned back to close the ducts. The recorder sheets provide information on the number of turns of each key for each particular colour to be run. After the keys are turned according to what is on the recorder, the template can then be mounted over the keys in the key area to guide the printer to set the keys to match the angles of the holes in the template before it is removed (Plate 4.7). Test prints must be done to ensure that the colours are well matched. The procedure must be repeated for the rest of the colours using their templates and their recorder sheets.

Using this method, the researcher is of the view that much of the make-ready time will be saved because much of the job has already been done and less time will be required to finish it up the settings. If the records were properly done the first time and the same records are being properly used with the same materials as was used before then the print can be assured to match the same quality as the previous batch.

#### **4.15 Presentation and Interpretation of Data from Interviews Conducted in the Packaging Ancillary Organisation Sector**

##### **4.15.1 Respondents' Data**

The data from this sector indicate that the packaging ancillary organisations are doing the best that they can in supporting the growth of the local industries in Ghana, (Table 4.5.1). There are many ancillary organisations or institutions offering services in the areas of business administration and financing to the small and medium scale manufacturers in Ghana. They have also been creating the enabling environment for industrial growth by researching and addressing issues they have identified in the business sector in Ghana through seminars and workshops with the stakeholders.



#### 4.15.2 Ancillary Organisations' Priority Areas

In response to the question that solicits their areas of interest; 88.9% of the responses indicate that managerial skills training is the top priority, financial issues follow with 80.0%, (as Table 4.5.1 indicates). Their high percentages indicate that many efforts are being directed toward addressing managerial and financial issues in the small and medium scale business sector. Few of the responses were directly linked to issues relating to product packaging, such as wrong use of packaging materials (7.8%), poor packaging graphics (35.6%), and non adherence to packaging labelling rules and standard (22.2%).

With respect to the programmes they organise and how they relate to products' packaging, 82.2% representing the majority claimed their programmes do not focus on product packaging, whilst only 17.8% directly do programmes related to product packaging. The researcher deduced from the data that most of the packaging ancillary organisations are not addressing the issue of poor packaging problems among the local manufacturers.

However, there are few organisations which were said to have been championing the course of quality packaging of locally made products. The Institute of Packaging, Ghana (IOPG), in collaboration with Department of Communication Design, CASS, KNUST, and the Ghana Standards Board were found to be directly dealing with packaging issues among the general products packaging in Ghana.

**Table 4.5.1 The Role of the Local Packaging Ancillary Organisations**

No.	QUESTIONS	No. OF RESP.	RESPONSES	FREQ.	PERC. (%)
1	<b>Please to what extent are the packaging ancillary organisations' programmes helping local companies to improve upon the quality of their product packaging?</b>	45	A lot of education and extension services in business and financial management are being offered by these organizations to the local packaging industry	39	86.7
			Ghana Export Promotion Council (GEPC), Ghana Export Trade Information Centre (GETIC) and the Institute of Packaging, Ghana (IOPG) have been forging dynamic relationships between industry and the various stakeholders in the packaging industry.	16	35.6
			The ancillary organisations have been educating them on all that it takes in quality management, production, and marketing.	6	13.3
2	<b>What are the major areas of concern in small-scale business enterprises that these organizations usually address?</b>	45	Business management/ entrepreneurial skills	40	88.9
			Financial management/ credit sourcing	36	80.0
			The major areas of concern are sloppy or unimaginative packaging graphics and inadequate provision of mandatory information on labels	16	35.6
			Wrong use of certain packaging materials for certain food types.	26	57.8
			Manufacturers' non-adherence to labelling requirements and standards.	10	22.2
			Export / import trade issues	6	13.3
3 (a)	<b>How often does your organization run programmes for the SMEs in Ghana?</b>	45	An average of twice a year workshop / Seminar	16	35.6
			Once a year seminar/workshop	5	11.1
			Twice a year seminar/workshop	7	15.6
			At least once in all the major regions	12	
3 (b)	<b>Do some of your programmes relate to product packaging for the SMEs in Ghana?</b>	45	<b>Yes (8) =17.8%</b> There is an average of twice a year workshop/Seminar on product packaging for SMEs.	8	17.8
			<b>No (37) =82.2</b> That is specifically not our focus	37	82.2
4 (a)	<b>From your assessment, how would you describe the patronage of the programmes?</b>	45	Quite positive / encouraging	33	73.3
			Gradually the patronage has been increasing as much awareness is being created.	12	26.7
4 (b)	<b>Please, what are some of the general complaints participants make about such programmes?</b>	45	About high entry fees charges	36	80.0
			The medium of communication used and the level of language used	6	13.3
			Other unanticipated events such as PA system malfunctions and power outages in the course of the programme	36	80.0

Source: Field Survey, June 2007 – August 2007

#### **4.15.3 Standard of Local Product Packaging as Perceived by the Ancillary Organisations**

The general comments made by the respondents on the local product packaging show that the local product packaging is still not better in spite of the recent development and the growth of the local packaging industry in recent years, (as indicated in Table 4.5.2). The major areas of concern were on poor compliance with packaging standards and labelling rules. Packages designed for products for the export market were said to be better by 17.8% of the respondents, whilst 31.1% of the respondents complained that packaging in general is not all that good, most especially those for the local market.

#### **4.15.4 Quality of Local Product Packaging as Compared to Imported Products**

The respondents' personal assessments on the quality of locally made packages in comparison with that of imported products revealed that they regard the local ones as of inferior quality, (as Table 4.5.2 shows). 35.6% of the respondents were in favour of question, whilst 64.4% were not in favour. 35.6% of the responses indicate that there are similarities in the use of packaging materials whilst 64.4% opposed to it. 26.7% of the responses indicated that the quality of the graphics on the packages is similar, but 40% said they are not on the same level. 17.8% of the responses were in agreement that the quality of print on local packages can be compared to that of imported products, whilst 64.4% of the responses opposed to the fact that their prints are equal in quality.

The researcher is of the opinion that some of the products are common to both local and imported goods; however, it is the ways they are sealed that bring out the differences. In terms of print quality there are few press houses with efficient

printing machines that can give high quality print output, but their charges appears to be on the high side for most small scale manufacturers.

**Table 4.5.2 The Local Packaging Ancillary Organisations' Views on the Quality of Local Product Packaging**

No.	QUESTIONS	No. OF RESP.	RESPONSES		FREQ.	PERC. (%)
1	What can you say about the quality of the packaging of locally manufactured products by the small and medium scale industry?	45	Much needs to be done on compliance with labelling and packaging requirements both locally and internationally.		33	73.3
			Quite good now but much better with the export products		8	17.8
			They are generally not good, more room for improvement especially those for the local market.		14	31.1
2	Please, what are some of the problems you have experienced or identified on some local product packages?	45	About the graphics/visuals (45) = 100%	Unattractive designs on the packages	45	100
				Designs that do not match the products in the pack/container	11	24.4
				Improperly labelled products	45	100
				Unclear / poor prints	22	48.9
				Poorly printed labels	45	100
				Packages with faded/fading prints	32	71.1
			About the physical structure (38) = 84.4%	Very weak paper packages	38	84.4
				Poorly sealed packages	32	71.1
				Irregular and non uniform shaped packages	18	40
				Products packaged in wrong containers	22	48.9
3	In general, can the quality of local products packaging be compared to that of the imported products packaging?	45	Yes (16) = 35.6%	In terms of the use of packaging material	16	35.6
				In terms of the graphics quality	12	26.7
				In terms of the print quality	8	17.8
			No (29) = 64.4 %	In terms of the use of packaging material	29	64.4
				In terms of the graphics quality	18	40.0
				In terms of the print quality	29	64.4

No.	QUESTIONS	No. OF RESP.	RESPONSES		FREQ.	PERC. (%)
4	In your view do you think the available packaging machineries and the manpower resources in Ghana can support the packaging industry to meet international packaging standards?  Please give reasons for your answer	45	Yes (18) = 40.0%	Because the packaged products currently being exported meet the importing countries standards	18	40.0
				More professionals are out there and more students are being trained in packaging design to meet all standards.	6	13.3
			Not adequate (27) = 60.0%	Most of the existing machinery are obsolete and less efficient	15	33.3
				Packaging testing equipments are inadequate.	6	13.3
				There is inadequate number of packaging professional/experts services in the industry.	13	6.7
				Modern packaging machines for the various packaging applications are limited and some unavailable locally	13	28.9

Source: Field Survey, June 2007 – August 2007

#### 4.15.5 Contribution of Available Resources to the Local Packaging Industry

Forty percent (40.0%) of the respondents were of the view that the available machinery and manpower resources in Ghana can support locally packaged products to meet international standards, whilst 60% said it is inadequate to help to meet the international standards, (as indicated in Table 4.5.2). The reasons given by those who responded “YES” to the question were based on the current performance of the packages for the export market, the increasing number of packaging professionals who have received training and are offering services to the packaging industry. Those who said the available packaging machinery and manpower are inadequate based their reasons on the fact that many obsolete machines are being used that



cannot produce the required output, the inadequate number of experts in the field of packaging working in the industry and the lack of modern packaging machinery and technology for the various packaging applications.

The researcher is of the view that the inadequate number of experts in the packaging industry is one of the reasons why local manufacturers seek services from non- professional graphic designers to handle their packaging projects. The limited number of packaging machineries for handling the modern packaging operations and the perceived high cost of local production compel some manufacturers to import pre-designed and printed packages.

#### **4.15.6 Problem with Local Products packaging Identified by Respondents in the Packaging Ancillary Sector**

Among the number of problems respondents have experienced or identified on some of the locally designed packages, all the respondents, thus 100%, mentioned problems that were related to the graphics and the printing. 84.4% of the respondents have found problems with the structural design of some packages, (as indicated in Table 4.5.2). Those that related to the graphics and printing include unattractive designs, designs that do not match the products, poor labelling, bad prints and faded prints. The problems identified in the structure of the packages include the use of weak packaging materials, improperly sealed packages, distorted pack forms and wrong use or application of packaging materials.

#### **4.15.7 Packaging Concept Testing Issues**

The responses to the question on how local manufacturers conduct their packaging concept testing indicate that they all do concept testing, however, the extent to which they are conducted was found to be less effective.

Soliciting respondents' view on the impact of the concept testing employed by local manufacturers, their responses indicate that the ineffectiveness of their concept testing methods make it difficult for them to properly assess their customers' reactions and to detect design errors in the early stages.

In addition, they are also unable to know and to incorporate their customers' needs into the packaging concepts to help sustain their respective markets. The improper concept testing approaches that they employ make them package their products anyhow because they do not get the right customers' feedback to improve on their packaging.

#### **4.15.8 The Need for Packaging Testing**

All the respondents were in favour of packaging testing for products from the small scale manufacturing sector. Some of the benefits respondents claimed the manufacturers would gain include: early detection of the packaging structural problems, identification of hazards that can destroy their products, (as Table 4.5.3 indicates). It will also help them to determine the strength and quality of their packaging materials, and the impact of the chemical reactions that may occur with the product and the packaging material.

Other benefits they mentioned include the kind of credibility these packaging testing and the use of certified symbols on the label may give to the products. Lastly, how it will save manufacturers the cost of poor or improper use of packaging material as errors would be detected early before they are mass produced.

**Table 4.5.3 Local Packaging Ancillary Organisations' Views on Packaging Concept Testing by the Local SMEs**

No.	QUESTIONS	No. OF RESP.	RESPONSES		FREQ.	PERC. (%)
1 (a)	<b>Do local manufacturers in the SME sector do proper packaging concept testing? Please give reasons</b>	45	Not really (45) = 100%	They do a little or partial packaging concept testing	8	17.8
				Casual design testing	14	31.1
				What they do is the very basic type	23	51.1
1(b)	<b>How is their packaging concept testing methods impacting on their products' marketing?</b>	45		It does not enable them to assess or predict their customers' reactions to their concepts	9	20.0
				They cannot detect the design errors in the graphics	16	35.0
				They are unable to sustain their market	10	22.2
				That is why they do their packaging anyhow	3	6.7
				It makes them fail to streamline their packaging concept to suit their consumers' need	8	17.8
1 (c)	<b>Do they also need to conduct packaging testing for their newly developed products?</b>	45	Yes (45) = 100%	To enable manufacturers to detect structural problems before they are mass produced	32	71.1
				To help manufacturers know how their product can be destroyed or damaged	17	37.8
				That will give their products some credibility in their quality	8	17.8
				Manufacturer will know their packaging material strength and their influence on the products contained in them	38	84.4
				That will help them reduce losses due to inappropriate packaging material usages	26	57.8
2	<b>Have you observed any improvement in the packaging of products for the local market by the locals SMEs?  What can it be attributed to?</b>	45	Yes (45) = 100%	Because of the use of imported printed or readymade packages.	5	11.1
				Due to availability of imported low cost packaging equipment from India and China.	8	17.8
				Most manufacturers are now using good quality flexible packaging materials.	18	40.0
				Some manufacturers are improving their packaging to compete with imported brands	16	35.6
				There are improvements in the use of quality materials but not the graphics and the labelling	13	28.9
				Partly due to contract packaging	8	17.8

#### **4.15.9 Observed Improvement in Local Product Packaging**

All the 45 respondents said they have observed some improvements in the general product packaging in Ghana in recent years, (as indicated in Table 4.5.3). The respondents attributed the developments to factors such as the use of imported printed packages, availability of low cost packaging equipment and the more use of good flexible packaging materials for product packaging. 28.9% of the responses attributed the development to the improvement in the use of quality packaging materials but observed no significant improvement in the quality of the graphic art works on them, whilst 17.8% of the responses also claimed much improvement in the products packages designed for the export market as against those for the local market.

It is highly commendable that in spite of the challenges facing the local packaging industry there are significant improvement in the packaging of locally made products. This means that the stakeholders in the industry are still active in doing the best they can in the current state of affairs.

#### **4.15.10 Issues and Challenges in the SME Sector Identified by the Packaging Ancillary Organisations**

As many as 93.3% of the responses were about business financing, which indicates the local manufacturers' high demands for capital injection into their business, making it a major concern to the small and medium scale manufacturers in Ghana, (as indicated in Table 4.5.4). The issue of foreign packaged products competing with locally made ones on the local market also had 93.3% responses making it also major issue. Their quest for the government to protect their business in the face of the competition is of equal importance. 84.4% of the responses show that local manufacturers complain about Ghanaian customers' desire for imported

products as against locally made ones. They therefore implore Ghanaians to buy locally made brands more than the imported brands. 26.7% responses were on some manufacturers' complaints about high cost of required resources needed to make them highly competitive. This indicates that they have the desire to improve upon the quality of their products and to enhance their packaging to enable them compete favourably on the market. However they are unable because of the high cost involved.

**Table 4.5.4 Some of the Challenges facing the SMEs Identified by the Local Packaging Ancillary Organisations**

No.	QUESTIONS	No. OF RESP.	RESPONSES	FREQ.	PERC. (%)
1	<b>What are some of the major issues or challenges the SMEs face in their business?</b>	45	Some of their main concerns are about the need for Ghanaians to patronise Made-in-Ghana products	38	84.4
			They want the Government to protect the local industries from foreign goods competition on the local market	42	93.3
			The high cost of required input to make their products competitive and to expand their businesses	12	26.7
			Most complaints are centred on the need for capital injection into their business as they continuously face liquidity problems.	42	93.3
2	<b>In your view do you think an increased financial assistance to SMEs would help them to package their products better?</b>	45	Yes (21) = 46.7%	5	11.1
			Because lack of adequate capital makes some go in for cheap packaging materials or poorly package their products.	16	35.6
			Not really (7) = 5.6%	7	15.6
			It depends (17) = 37.8%	12	26.7
			Based on the conditions attached by the financing organisation	5	11.1

Source: Field Survey, June 2007 – August 2007



#### **4.15.11 The Impact of Financial Assistance on Improvement of Packaging**

In accessing respondent's views on the impact of financial assistance given to local manufacturers on their product packaging, 46.7% said yes it would have a positive impact on their packaging quality. 11.1% of them were of the hope that an increase in financial assistance would enable the manufacturers to invest into high quality packages, use good graphics, and to go for product testing and certification, whilst 35.6% also shows that the financial assistance would increase the manufacturers' capital base and would resource them to improve upon the quality of their products' packaging, (as Table 4.5.4 indicates).

A total of 15.6% respondents claimed that an increase in financial assistance would not really help them to improve their product's packaging but rather more education on quality packaging practices. Their views suggest that with their capital in hand, they can better package their products if they gain more insights into techniques or strategies in quality packaging. Quality packaging would lead to good sales for their products and the profit accrued can be reinvested to develop the company and its products.

About 47.8% of the respondents were of the view that the use of the money would depend on how the recipients would invest the money or the conditions upon which the loan facility would be granted. They explain that some manufacturers would rather use the money to expand their productions rather than improving on the packaging. Those who claimed that it depends on the conditions attached to the granting of the loans explained that, the loans granted to local manufactures are basically for expanding their production capabilities rather than for improving their products packaging.

#### **4.15.12 What Ancillary Organisations suggest would make Locally Designed Packages meet International Standard**

Respondents from the packaging ancillary sector proposed that local packages must comply with international standards in both structure and labelling (as Table 4.5.5 indicates). Research into the product packaging would enable the manufacturer to know which material type would be appropriate and the designs that can meet the taste of the target market. Packaging testing by an accredited body would help them know how they can protect their products against transportation hazards and also to meet food safety standards. This will enable the manufacturer to use certified logos or symbols on their products packages to boost their products images.

They suggested that the labelling and the use of required symbols must be properly done and well positioned on the package. They also mentioned the need for the packaging design to meet the consumers' taste and their country's packaging requirements. The high frequency values of these responses indicate that these suggestions are generally supported by good number of the personnel in the packaging ancillary sector as keys to making locally packaged products meet international standards.

#### **4.15.13 Proposed Solutions to Problem of Poor Packaging by the Ancillary Organisations**

In response to the questions on how the problem of poor packaging of locally made products can be resolved, all the 45 respondents, that is 100% of the responses, proposed that more education on international and local packaging standards and labelling regulations be given to local manufacturers (Table 4.5.5). This is to educate them on the use the regulations so that they can comply favourably. Their responses

indicate that they believe that most manufacturers in the small and medium scale brackets do not know much about the packaging standards and labelling rules.

**Table 4.5.5 Local Packaging Ancillary Organisations' recommendations**

No.	QUESTIONS	No. OF RESP.	RESPONSES	FREQ.	PERC. (%)
1	<b>What can help address the issue of poor packaging of Made-in-Ghana products?</b>	45	Much interactions between stakeholders to address the poor quality packaging issues	16	35.5
			More education on the need for local manufacturers to comply with both local and international standards of packaging.	45	100
			The governmental institutions mandated to enforce packaging regulations must intensify their activities on products for the local market.	32	71.1
			More education on the need for local manufacturers to seek/consult experts in the various packaging domains	18	40.0
			If all the stakeholding institutions in the packaging industry put their resources together to help bring significant improvement in the packaging practices.	7	15.6
			The packaging industry in Ghana needs to be resourced with packaging machinery and the needed technical support.	18	40.0
5	In your view what can help make the products' packaging meet international packaging standards?	45	The packaging must strictly comply with international packaging and labelling standards	45	100
			Research into the products packaging	16	35.5
			Product with its packaging tested and certification to meet transportation and food safety standards/requirements	41	91
			The packages must be appropriately labelled with all important symbols appropriate positioned on them	26	57.7
			The packaging branding must meet the consumers' taste and the country's packaging requirements	18	40

Source: Field Survey, June 2007 – August 2007

Therefore, they should be educated to know the benefits they will gain if they comply with the standards. 35.5% of the responses called for the need of collaborative effort by all stake holders to confront the problems of poor packaging of local products for sale on the local market. Contrasting this suggestion with the responses to the programmes they organise, it becomes clear that most of these organisations are aware of the problem of poor packaging but only few of the stakeholders in the local packaging industry are actually dealing with the problem.

A total of 71.1% of the responses called on the mandated government bodies with the authority to enforce packaging regulations to intensify their campaigns on packaging and labelling rules on products for the local market. The respondents were of the view that products packaged for the local market usually do not comply with the national labelling rules as they should. Linking this to the 17.8% who said export products are better packaged and the 31.1%, who also said there is more room for improvement on packages for the local market, it appears that the enforcement of these regulations are more relaxed on the products for the local market. There is therefore the need for them to intensify their campaigns on local products packaging.

Forty percent (40.0%) of the respondents advocated the use of experts' services in the product packaging. They suggested that the ancillary organisations have to educate the local manufacturers to consult experts in the field of packaging structural and graphic designing, and packaging material sciences. Using expert services would surely result in better packaged products. The use of experts' services in products packaging, as mentioned by 40.0% of the respondents, is one of the contributing factors that make imported products better packaged than the local ones. The education on the use of experts is to encourage manufacturers of packages consumer products to consult and to utilise the services of experts in products packaging. If all

the manufacturers are to employ the services of packaging experts the problem of poor packaging will be resolved.

Also 40% of the respondents suggested that the packaging industry be resourced with modern packaging machinery with the needed technical and manpower resources to support the industry. This would enable the local packaging industry to offer the needed services to support quality product packaging in Ghana.

Inferring from the suggested remedies the packaging ancillary organisations have much of the tasks to be performed in bringing the problems of poor packaging of locally packaged products to its timely end.

#### **4.16 Summary of Findings from the Packaging Ancillary Organisations Conversion Sector**

1. The packaging ancillary organisations are providing the needed technical assistance the other players in the local packaging industry mostly in the areas of business management, entrepreneurial skill training and financial management but with little emphases on product packaging.
2. The packaging ancillary organisations are aware that their programmes fees are perceived to be on the high side by participants.
3. There is significant improvement in local product packaging but the problem of poor compliance with labelling and other packaging regulations still persist with products for the local market.
4. In general the quality of local product packaging is perceived to be lower than that of the imported ones because of their low graphics and print quality.
5. The available machinery and manpower resources are considered inadequate to support the local packaging industry to meet international packaging standards



because of their inefficiencies, lack of fully equipped testing labs and inadequate packaging design professionals working in the industry.

6. The local product manufacturers' packaging concept testing methods are considered ineffective which affect their products' packaging and marketing.
7. The packaging ancillary organisations fully support the idea of packaging testing for products from the SME sector.
8. Some level of improvement in local product packaging has been observed as a result of competition, availability and the used of different packaging material and low cost packaging machinery.
9. The challenges facing the SME sector centre on how to regain larger share of the local market against competitors with foreign products and to increase their financial capacities.
10. Financial support with flexible conditions and backed by education in quality packaging could help local product manufacturers improve upon the quality of their products packaging.
11. Unavailability of efficient packaging research centres, testing labs and poor enforcement of packaging regulations are considered key contributing factors to low packaging standards in the local SME sector.

#### **4.17 Deductions made on the Findings from the Ancillary Organisations Sector**

1. It could be deduced from the findings that the packaging ancillary organisations are not infusing programmes that can address the problem of poor packaging in their operations. Since they most often organise seminars and workshops for the other sectors the researcher proposes that they collaborate Institute of Packaging, Ghana (IOPG), the Ghana Standards

Board (GSB) and other institutions that can give education in quality packaging to address participants on the issues of product packaging for local and the export markets in most of their programmes.

2. Non-performance of packaging testing and ineffective methods of packaging concept testing contribute significantly to the problem of poor packaging and labelling of locally packaged products. It is important that both the local product manufacturers and the packaging designers be educated in packaging and concept testing.
3. It could be deduced from the findings that the conditions attached to loans given to local product manufacturers indirectly deter them from investing more into their product packaging. Since quality packaging adds value to products and makes their marketing profitable, the researcher proposes that the conditions attached to loans have to enable local manufacturers invest some into their product packaging as well.
4. It could be inferred that establishment of efficient packaging research centres, testing labs and strong enforcement of packaging regulations are essential to making local products meet international packaging standards. For this reason the available testing labs have to be well equipped and more centres be set up in strategic areas to provide services to the local product manufacturers to help make their products meet required standards.

#### **4.18 Presentation and Interpretation of Data from Interviews Conducted in the Customer Sector**

##### **4.18.1 Composition of the Interviewees**

During the interview 100, thus 66.7%, of the respondents consumed the packaged products they bought, whilst 50 representing 33.3% retailed the products they bought, (as indicated in Table 4.6.1).

##### **4.18.2 Packaging Features that Attract Customers**

The customer sector was found to be more attracted to the designs decorating the packages, the colour scheme used, and images used on the packs as more than 90% of the respondents mentioned them, (as shown in Table 4.6.1). However; the strange or unique look of a food product package and the attraction generated by how packages are arranged gained 35.5% and 42% respectively. It can be deduced from this that making the package look unique or strange may not attract customers as expected however it may be a powerful identifier that customers may use to differentiate it from other packages. The attraction created when similar packages are arranged together is important factor to consider when designing packages for products that go to the supermarkets. The attraction was found to be generated by the repetitive patterns of the design on each pack and how they are placed on the shelf. It is important that both the designer and the client (the product manufacturer) visit shops and supermarkets to assess the impact of the packages as they are arranged on the shelf for design review and to generate design concepts for future projects.

**Table 4.6.1: Local Customers' General views on Local Products Packaging**

No.	QUESTIONS	No. OF RESP.	RESPONSES	FREQ.	PERC. (%)
1	What do you do with the products you buy from the shops?	150	I retail them	50	33.3
			I consume them	100	66.7
2	What features on food product packages do attract you to them on shelf display?	150	The decorations on the package	150	100
			Colours used on the pack	150	100
			Pictures / illustration on it	138	92
			Its strange or unique looks from others	53	35.3
			The arrangement of the packs on the shelf	63	42
3	What do attractive or elegant looking packages communicate to you about the products?	150	It shows the is good / expensive looking product	42	28.0
			“What is inside reflects on the outside”	18	12.0
			It is of high class quality	28	18.7
			It is well or carefully made	42	28.0
			It is nicely done but the product might not be good	20	13.3
4	What items or elements in the design of food packages do attract you?	150	The colours used in the design	150	100
			The type style and decoration of the product brand name	57	38
			The photographs used on the pack	150	100
			The shape / form of the pack structure	147	98
5	Please, what are some of the things you dislike in the designs of packages/labels	150	Small lettering size	128	85.3
			Too much writings	57	38
			Unclear or unreadable text information	57	38
6	What do you look for when you are examining a food product package?	150	Expiry date	83	36.9
			Country of origin	72	48
			Direction of use	72	48
			To see if the package is intact / without blemish	150	100
			To check if the product is original or fake / imitation	90	60

Source: Field Survey, October 2007 – March 2008

#### 4.18.3 What Attractive or Elegant Looking Packages Communicate to customers

Assessing the responses to find out what attractive or elegant looking packages communicate to customers, 28% of the responses claimed that it communicates good and expensive looking products, 12% said it tells them that the unseen product is as good as what the outer package is to them. Those who said it

suggests high class quality product formed 18.7%, whereas 28% said it shows the carefulness with which it was made. However, 13.3% were with the idea that the package may be nice looking but the product inside it may not be as good as the pack may reflect (as indicated in Table 4.6.1). It appears that customers with such an idea may be very sceptical about attractive looking packages in their first experiences with the products.

#### **4.18.4 Design Elements that Attract Customers**

Response to the question that identifies the items or element in designs of packages for food products, colour scheme, and photograph or illustration used gained 100% in each category. The shape and form had 98%, whilst brand name decoration and style of lettering had 38%, (as indicated in Table 4.6.1). This indicates that decorated food product packages appeal to the customers more than the undecorated ones.

#### **4.18.5 What Customers Dislike in the Design of Packages and Labels**

In finding out what customers dislike in the design of packages and labels, small lettering size was the most mentioned with 85.3%, too much or excessive text and illegible textual information gained 38% each, (as shown in Table 4.6.1). It appears that what customers dislike most on food product packaging is the excessive textual data on the package or label. It is mandatory that the package must be well labelled (L.I. 1541), however, care must be taken to present the necessary mandatory information and just a little additional information necessary to promote the sale of the products.



#### **4.18.6 What Customers Expect on Product Packages**

In determining what customers expect on food product packages when they examine the products on the shelves, the check on the condition of the package was the most mentioned, having 100%, check on the originality of the product had 60%, the check on expiry date had 36.9, whereas checks on country of origin and direction of use had 48% each, (as indicated in Table 4.6.1). In spite of the fact that expiry date, country of origin and direction of use are mandatory by law (L.I. 1541) customers do check out for all these on packages.

#### **4.18.7 What Customers use to Distinguish between Local and Imported Food Products**

Responses to the question on how customers distinguish between local and imported products, all the respondents mentioned the style of the packaging, (as Table 4.6.2 shows). The differences in the packaging material used, the finish given to the packages, the images used, as well as the price differences were also found to be equally important determinants as each had a high score. The researcher considers these determinants, used by the respondents, as less reliable as they based mostly on the customers' imaginations and assumptions.

Differences in the print, which is one of their determinants, may be misleading because some locally designed packages are printed outside Ghana which may be of the same quality as any other printed outside Ghana. There are also packages printed locally that match the print quality of those from outside Ghana. Almost all the packaging material used worldwide can be found in Ghana, however, the differences are in how they are designed, converted and used for packaging.

The two most significant differences revealed by the responses are the packaging style and the quality of the finish given to each of the packages.

Packaging style is also based on culture and the strategic marketing functions embedded in the total design of the packaging. The quality of finish given to locally made packages is generally considered as very poor as compared to that of imported products.

The local product manufacturers need to be more critical on how their products are handled throughout production to the delivery. Understanding how customers distinguish between competitive products would help both the local designer and the manufacturer to come up with packages that will give their products competitive edge.

**Table 4.6.2: What local Customers use to Differentiate between Local and Imported Packaged Products on the Market**

No.	QUESTIONS	No. OF RESP.	RESPONSES	FREQ.	PERC. (%)
1	<b>If both local and imported brands of a similar food product are on a shelf what would you use to differentiate them?</b>	150	The differences in their print quality	78	52
			The differences in the packaging material quality	123	82
			By their packaging style or outlook differences	150	100
			The quality of their finish	123	82
			The differences in their price; if provided.	134	89.3
			The images (pictures or illustrations) used in the design	143	95.3
			Country of origin or the manufacturer's address	73	48.7
2	<b>What do you use to identify a particular brand packaged product from other competing brands?</b>	150	Some by their unique shape, size or form of its package.	150	100
			Its colour or the decorations on the package	150	100
			Its brand name and style of the lettering	123	82
			The illustration or photograph on it	150	100
			Its lid or crown design / colour(s)	128	85.3
			The label on it	126	84

No.	QUESTIONS	No. OF RESP.	RESPONSES		FREQ.	PERC. (%)
3	When you come across a product for the first time; what do you use to determine its quality?	150	The style / decorations on the package		150	100
			The manufacturing and expiry date on the package		92	61.3
			The origin or source of the product		89	59.3
			Its looks and feel of its packaging		121	80.7
4	What do you use to identify imitated /fake consumer products in the shops?	150	Their colour are usually slightly different from original ones		143	95.3
			Their packages are not good		68	45.3
			They may be packaged slightly different from the original		54	36
			Their price are usually cheaper		107	71.3
5(a)	From your experiences, if two packages of a product have all things in common but with little differences in their colours, would you consider them as from the same manufacturer?  Please give reasons	150	Yes (58) = 38.7%	One might have been on the shelf longer than the other	27	18
				The producer might have done the changes	13	8.7
				May be one was not well printed out	26	17.3
			No (92) = 61.3%	One of them may be an imitation/faked product	63	42
				One may be a shoddy or inferior product	38	25.3
5 (b)	If you were to buy one of them; which one will you buy?	150	The one with pure / rich / nice / good / original colours		141	94
			Any of the two		9	6
6	Have you ever purposely picked some packages out from the same products displayed together when shopping?	150	Yes (134)=89.3%	If some are crumpled or have some dents	126	84
				If the container is torn or busted	134	89.3
				If the label material is peeling, peeled off, stained or have some scratches	134	89.3
				If some look old, faded or faked ones among	118	78.7
				When I suspect that some have expired or close to expire	98	65.3
			No (16) = 10.7%	We sort out them out on delivery	16	10.7

Source: Field Survey, October 2007 – March 2008

#### **4.18.8 What Customers use to Identify a Particular Brand Product from other Competing Brands on Market**

Six different items were found to be used by customers in identifying packaged products on shelves. These include the uniqueness of its shape/size or form, the colour scheme or the decorations, brand name and style of the lettering, illustration or photograph on it, lid or crown design / colour(s), and the label design, (as Table 4.6.2 indicates).

The high frequency values for each of these identifiers suggest that they are commonly known to most customers of packaged products. Most of the preformed packages or containers tend to share most of these identifiers in common which may confuse customers. Therefore, it is imperative that the label, shape the product's brand name and any other object added as identifier must be clearly presented on the container to facilitate easy identification.

#### **4.18.9 What Customers use to Assess the Quality of a Product in their first time Experiences**

In response to what customers use to assess the quality of a product in their first experiences, the style and decoration on the pack and its looks and feel, which are all visual appeals, were the most mentioned with 100% and 80% score respectively, (as indicated in Table 4.6.2). The uses of textual information, such as date of manufacture and expiry date as well as the country of origin, have comparatively low frequencies of 61.3 and 59.3 respectively. This indicates that local customers usually use the visual qualities of the product's package than the textual information to determine a product quality.

#### **4.18.10 What Customers use to Identify Original and Imitation/Faked Products**

Respondents from the customer sector were found to be identifying imitation or faked products largely by colour differences as 95.3% said it is one of their identifiers, (as Table 4.6.2 indicates). Price differences is also a strong determinate as it scored 71.3% in the responses, but it does not relate directly to the packaging quality characteristics. The researcher is of the view that the accuracy in using colour differences greatly depends on the how the original colours are registered on the minds of the customers or having the two different packages around for comparison.

#### **4.18.11 How Customers React to Product Packages with Colour Differences**

In finding out how customers will react to a particular product packages with difference in their colours that may result from their printing, 38.7% of the respondents said they will consider them as same products from the same manufacturer, whilst as many as 61.3% claimed they will not be from the same product manufacturer, (as indicated in Table 4.6.2). 18% of the reasons given attributed the colour differences to fading as a result of long exposure to the sun, 8.7% of the reasons linked the differences to the manufacturers' intentional changes and 17.3% associated it to errors in the printing. 61.3% of the respondents claimed they will consider the two packages as from different manufacturers because one of the packages may be a faked, imitation, or a shoddy product. Inferring from the respondents reasons given; if in the course of printing the packages something goes wrong which results in colour differences, the packages with the different colours values may be considered as fake or imitational products even though they contain the same product. It is more likely that customers will reject or not buy them.



The question as to which of the two packages they would buy as many as 94% said they prefer buying packages with the rich, pure, nice colours that look original; whilst 6% said they will buy any of them. It can be deduced from this that in spite of how customers would interpret the colour differences among the packages of a particular product when it comes to purchasing they would choose the one that looks original to them. It is important that colour values be consistent on all the packages for a particular brand to prevent customers mistaken some for fake or shoddy products.

#### **4.18.12 Why Local Customers buy Imported Products**

Reasons given by respondents as to why they will buy imported food product instead of the same product packaged locally, 46% of the reasons pointed to the quality of the product contained in the pack. 35.3% was about the quality of packaging, whilst 28% was about the wholesomeness of the product, (as indicated in Table 4.6.3). The reasons given by the 42% who said they will buy the locally packaged food product were based largely on their common relationships to the place where the product was packaged. Again, none of their reasons related to the quality of the packaging and it indicates that the packaging of the local brand has no strong impacts that influence the decisions of the customers.

It can be concluded that it is not only the attractiveness of the packaging that makes a product sell but also the quality of the product and the wholesomeness of the product, all of which the quality of the packaging material plays a supportive role. Food products manufacturers need to improve their products quality and the packaging to reflect quality and wholesomeness to enable them compete with any

imported brand. Having the advantage of been packaged locally the improvement on the packaging will give them the competitive edge to reign in the local market.

**Table 4.6.3: Why some Local Customers Prefer imported Consumer Products**

No.	QUESTIONS	No. OF RESP.	RESPONSES		FREQ.	PERC. (%)
1	<b>If both local and imported brand of a particular food products are sold on the market; which one will you buy?</b>  <b>Please give reasons</b>	150	<b>Imported brand (87) = 58%</b>	They are good / high quality products	69	46
				They look attractive / nice / appealing	53	35.3
				They are richer and safer to consume	42	28
			<b>Local brand (63) = 42%</b>	Because it is locally made	11	7.3
				To help promote local production	42	28
				I must be patriotic	18	12
2	<b>Where do you think products with good packaging come from?</b>	150	From local big companies		37	25.3
			They come from abroad / advanced countries		91	60.7
			They can be locally made or imported products		21	14
3	<b>Would you appreciate packaging for food product that makes it less expensive but not attractive looking?</b>	150	<b>Yes (59) = 39.3%</b>	It makes it affordable	59	39.3
				If it is to be retailed from that package	16	10.7
			<b>No (91) = 60.7%</b>	It should look neat	87	58
				It must attract	54	36
				Look beautiful	91	60.7
				It should be appealing	91	60.7
				Because “good product sell itself”	62	41.3
				It will make the product inferior	62	41.33
				Because products in attractive looking packages sell faster	43	28.7
				The sale of attractive products gives more profit to me	42	28

Source: Field Survey, October 2007 – March 2008

#### **4.18.13 Where Customers think Good Packaged Products come from**

In finding out where the respondents in the customer sector think good packaged products come from, 25.3% mentioned the local big companies, which includes the multinationals, 60.7% said they are from abroad or advanced countries, whilst the remaining 14% said they may be from either local or international companies, (as indicated in Table 4.6.3). The small and medium scale companies were not mentioned indicating that their packaging quality in general is not the best. Much attention must be channelled to this sector to develop and to improve its products packaging quality.

#### **4.18.14 Packaging that Customers Appreciate**

In response to the question which seeks to find out if customers appreciate packaging that do not decorate the products to make them look attractive but makes the products prices less expensive, 39.3% responded yes based on the fact that the product will be affordable. Majority of the respondents representing 60.7% were not in favour of that kind of packaging, (as Table 4.6.3 indicates). Among the reasons why they do not support that idea include the fact that the product must look appealing and communicate good quality features to attract them. 28.7% of the reasons indicated that attractive looking food product packages sell the products faster, and 28% also said the sale of attractively packaged products give them more profit. 41.3% of the responses suggest that the price increase as a result of making the packages attractive will rather make the products sell better. It can be concluded that manufacturers who have adopted this packaging strategy are rather losing than gaining and their products cannot compete with those with attractive packages.

#### 4.19 Summary of Findings from the Customer Sector

1. Local customers are attracted to packages with well decorated and unique looking features.
2. Local customers generally associate elegant or attractive looking packages with good or high quality.
3. With respect to design elements they are more interested in the colours and photograph used as well as the shape of the package.
4. Local customers dislike packages that have more text matter on it, unclear text print and small point size letterings.
5. Local customers expect to see mandatory label information on packages.
6. Local customers differentiate between local and foreign products by the differences in the style of packaging, images used, print, price and country of origin on the package.
7. Distinct colour, shape/form, brand name styling, and other graphic elements are used by local customers for identifying a brand from other competing brands.
8. Local customers differentiate between fake and original products by their colour differences, the quality of packaging and their price differences.
9. Most local customers would buy products in packages that appear to be original to them.
10. Products with structural and print defects are not preferred by local customers.
11. Local customers prefer imported products because they are considered better packaged and contain quality products than the local ones.
12. Local customers do not appreciate less expensive packaging of food products.

#### 4.20 Deductions made on the Findings from the Customer Sector

1. It is important that local food product packages be well decorated and to appear unique to attract local customers.
2. Local customers' attraction to colour and photograph used on the packages indicate that the *Product* and the *Target* product positioning concepts will be well accepted by them.
3. Customers appreciate the provision of mandatory label information and few textual information on local food product packages.





## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Summary**

The underlying objective of this study has been to study the challenges facing the packaging design and production chain in the Ghanaian packaging industry and to propose solutions to help solve them. To this end it was important to study the industry to identify the challenges inherent in it. The players in the local packaging industry were categorised into five major sectors namely: Packaging Design, Food Product Manufacturing, Printing and Conversion, Ancillary Organisations and the Customer. Personal interviews conducted and observations made in these sectors provided data on the challenges facing the local packaging industry. Some of the major findings include low level expertise in packaging design and production providing services in the industry, poor supervision and adherence to packaging standards and regulations, ineffective packaging and labelling concept testing, poor product positioning, colour inconsistency and print defect issues, the misapplication of substandard packaging materials and the use of limited and obsolete packaging machinery.

Local food product manufacturers were found to be using the Personal Interview Approach in gathering information about their product packaging. This method was found to be less effective because they use it casually and also do not go into much detail analysis. Based on the concept testing method they use it makes it difficult for them to gather enough customer input information to incorporate in their

product packaging to achieve higher customer satisfaction levels and to make the products compete well on the markets. Ineffective packaging testing also prevents them from getting information on structural defects and the effect the packaging materials have on the quality of their products. The Kano's Theory of Customer Satisfaction used to distinguish the various customer requirements for the hypothetical brand of cocoa drink product proved useful and offers an easy approach by which local food product manufacturers can adopt to gather and analyse customer input data for their product packaging.

Proposed solutions to the identified challenges in the packaging design and production chain provided in this study took into account the financial and time considerations as well as the competence levels of the users. The proposed solutions are easy and less expensive to adopt yet providing effective ways that would help improve the quality of local food products packaging.

## **5.2 Conclusions**

Poor or improper labelling of packaged products for the local market can be blamed largely on inadequate enforcement of labelling regulations by the mandated organisations. Both packaged product manufacturers and packaging graphic designers can also be blamed partly because of their poor interest in using the labelling rules and standards documents as reference material in their works.

Product manufacturers in Ghana attach imbalanced importance to product and its packaging. That is they are more biased towards their products' quality far more than the packaging. This is one of the reasons why they do not want to spend much on packaging and little regard for the packaging graphics.

Most of the packages designed locally are not based on any special concepts that promote the marketing of the products they contain. Promotional packages are designed based on commercially viable structural and graphic design concepts to give high quality and commercial image to the products; however, the locally designed packaging graphics concepts seem to be just for only decorating the packaging materials. This is one of the reasons why local manufacturers do not fully appreciate its role in their products marketing, hence, not willing to commit much of their capital into it.

The packaging styles being used by the SMEs are not fully helping the marketing of the products to enable the manufacturers' businesses to grow as expected, hence less profit, slow growth of the market and their inability to have enough monies for better packaging.

Ghanaian manufacturers of food products have not come to the full realization of the competition they are in now and for that reason they still rely heavily on the products quality with little regard for effective packaging concepts to enable them compete well on the local market and to go international.

The roles being played by all the ancillary organizations are commendable yet majority of them are not directly promoting quality packaging as their main focus is on business management and financing.

Intensive consumer researches are not carried out by majority of local manufacturers to gain the necessary customer inputs for their product packaging design. The consumer research approaches used by most of them are not effective as they undertake the task too casually. This condition can cause their respondents to take the exercise less serious. This makes it difficult for them to detect errors and customers' reactions to their packaging concepts at the early stage of their packaging

development. It also makes it difficult for them to satisfy their customers with better packaging that meets quality requirements.

Kano's theory of attractive quality could offer local packaged product manufacturers an easy to conduct, easy to analyse and cost effective approach to customer quality requirements investigations. Using the Kano's methodology would help them to distinguish the various customer requirements to know which ones would bring satisfaction to customers in the packaging of their products.

Local packaging designers' creativity has been stifled by the unchanging demands for stereotyped designs and lack of proper appreciation for the packaging graphics by local manufacturers. As a result they do not go the extra mile to produce innovative packages for their clients. Made in Ghana products cannot be appreciated highly if they continue to be packaged in the elementary packaging style. A more innovative and commercially viable packaging style would be required to make locally packaged products more competitive in any market.

Much of the packaging structures used in Ghana are based on stereotyped formats. Lack of adequate knowledge and application of colour psychology and basic design technology in the packaging may have contributed to the development of less than desired packaging graphics. There is therefore the need to explore more creative ways of expressing packaging structural design and its graphics and also to move to the use of other packaging materials, bearing in mind their impact on the environment.

The conditions attached to acquisition of loans to the local manufacturers constrain them to use part of the loans to improve upon their products' packaging. This means that local food product manufacturers do not gain enough monies for

improving their product packaging, hence the use of stereotype and less expensive packaging style.

The problems of poor packaging persists because of inadequacy and inefficiencies of the available machinery and manpower resources coupled with manufacturers' inability to seek experts' advice or service and to pay the price of quality packaging.

Local printers's lack of knowledge in packaging printing technology coupled with limited and inefficient printing equipment contribute immensely to poor printing on packaging materials. Limited or lack of appropriate printing machinery leads to poor printing on some packaging materials that require special printing equipment.

### **5.3 Recommendations**

Based on the findings from this study the researcher recommends that:

The Ghana Standards Board (GSB) and Food and Drugs Board (FDB) could intensify their campaigns on labelling rules to ensure that labels on products for the local market meet the labelling rule requirements in the L.I. 1541. The packaging ancillary organisations could also help by encouraging food product manufacturers and packaging designers to make use of packaging and labelling rules documents.

Local food product manufacturers have to be educated, through seminars and workshops to be organised by the Department of Communication Design in KNUST, Institute of Packaging Ghana (IOPG) and other stakeholders, to appreciate the role of packaging graphics and packaging designers in product development and marketing.

Local product packaging design must be based on promotional concepts that add value to the product's image and worth to compete well in all markets. The



packaging planner, the product manufacturer and packaging designers could come together to develop the promotional concept for the product packaging at the development stage.

The government, in collaboration with local and international packaging ancillary organisations, could initiate and support a nationwide better packaging campaign to create the necessary awareness needed to bring change in the packaging of made in Ghana products. Instituting a national packaging fair programme will help to showcase newly designed packages for the yet unpackaged products, to encourage quality packaging education and practices, to address issues related to packaging. The programme will ultimately give Ghana a better packaging image and that can give credible national identity to *Made-in-Ghana Products* to have competitive edge over other national brands.

The local packaging ancillary organisations could use some of their capacity building programmes to address the issues of poor packaging and to encourage participants to also improve on their product packaging. The IOPG could invite all the ancillary organisations together to develop strategies which would help them to compliment each others' effort in helping to solve the issue of poor packaging of products in Ghana.

Local manufacturers need to invest into customer research and innovative product packaging by employing the services of market research institutions and professional packaging and graphic designers to produce packages that add extra value to their products.

The IOPG and other packaging ancillary organisations could offer local manufacturers and packaging designers training in market research and the use of research data in planning product packaging as part of their capacity building

programmes for the personnel in the local packaging industry. The training should equip them to understand the various consumer /market research methods as well as the use of Kano's Questionnaire and evaluation table. This will enable them effectively undertake their own market research and make good use of the data in their product packaging development.

The tertiary institutions in Ghana offering courses in packaging design need to train more packaging design professionals to meet the needed manpower requirements in the local packaging industry and to bring innovative packaging designs for locally packaged products.

Packaging Design concept testing and market survey courses should be incorporated into the Packaging design course by all institutions offering packaging design course to resource students with customer and market survey research skills.

There is the need to sustain the interest of the young and talented packaging design professionals trained in the university through capacity building tours, scholarships for further studies, national packaging exhibitions and awards programmes, by the Government and the nongovernmental agencies supporting the development of the local packaging industry.

The financial institutions offering loans to the SMEs need to review their loan acquisition term to enable their customers to access loans to improve upon their product packaging. Packaging adds additional value to products and increases its sale and profit, therefore, if the conditions are relaxed it would enable them to use part to improve upon their packaging to attract, increase the sales and retain their customers to sustain their businesses and to service their loans on time.

The local packaging ancillary organisations could collaborate with experts in packaging design and printing to organise more capacity building workshops and

seminars for the local Graphic Designers, Printers and Product Manufacturers with emphasis on packaging concept development and testing, printing processes, materials and machinery. This will enable graphic designers, printers and manufacturers to be informed and to appreciate the role of each other, the materials and machinery they need and to use to achieve better product packaging.

Local manufacturers who use similar designed packages could make their labels look much different from other manufacturers who are also using the same packages for their products. This could be achieved by varying the elements, layout and print method to be used. The variation would help customers to easily identify the product among its competitors on the market.

Local food product manufacturers need to ensure that the packaging of their products suggest both quality and wholesomeness to the customers. This must be backed by their product quality and wholesomeness.

The packaging graphic design concept for products packaged locally must focus on promotion rather than decoration. This requires customer research and concept testing activities in the development of the packages.

Local manufacturers need to properly sort out their packages that are delivered to them and also need to sort out all the filled packages ready for delivery to ensure that those without blemish are sent to the market.

The Ghana Standards Board (GSB) and the Food and Drugs Board (FDB) have to collaborate to develop procedures for packaging material handling and printing that ensure food safety and hygiene for the local packaging printers and converters to follow during printing of packaging materials for food products.

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## APPENDIXES

### Appendix 1: GHANA STANDARDS BOARD (FOOD, DRUGS AND OTHER GOODS)

#### **GENERAL LABELLING RULES, 1992** (L.I. 1541)

In exercise of the powers conferred on the Ghana Standards Board by subsection (1) of section 9 of the Standards Decree, 1972 (N.R.C.D.173) these Rules are made this 29<sup>th</sup> day of April, 1992.

#### **PART 1 - FOOD AND DRUGS**

##### **Labelling requirements for food and drugs**

1. (1) No person shall offer for sale, sell, distribute, import or otherwise dispose of prepackage food or drug, unless the food or drug is marked or labelled with -
  - (a) The name of the food or drug;
  - (b) A list of ingredients in the food or in respect of drugs, active ingredients, showing the amount of each present in the drug;
  - (c) an indication of the minimum durability in the form of
    - (i) date of manufacture and 'expiry date' or 'best before date' or
    - (ii) date of manufacture and expiry date in respect of drugs,
  - (d) Any special storage conditions and handling precautions that may be necessary
  - (e) instructions or directions for use or warnings and precautions that may be necessary in respect of a drug;
  - (f) instructions for use in respect of food, if it would be difficult to make appropriate use of the food in the absence of such instructions;
  - (g) an indication of the net contents in the form of net mass or volume or number of doses in respect of drugs;
  - (h) code marks or numbers indicating the batches of production or packaging to which the food or drug belongs;
  - (i) country of origin of the food or drug; and
  - (j) the name and address of the producer, manufacturer, importer, packer, distributor or of the seller of the food or drug.

## **2. Provision relating to name of food and drug**

- (1) A name that is required to be used for food under Rule 1 shall be the name prescribed by law for the food, if so prescribed.
- (2) Where no name is prescribed by law for a food, a customary name that is to say a name which is customary for that food in the area where the food is sold, may be used for the food.
- (3) Where there is no name prescribed by law for a food and there is no customary name or the customary name is not used, the name used for the food shall be sufficiently precise to inform its purchaser of the name and substance of the food and to enable the food to be distinguished from products with which it could be confused.
- (4) The name of a food may consist of a name of description or of a name and description.
- (5) A trademark, brand name or fancy name shall not be substituted for the name of a food
- (6) The name of a drug as required by Rule 1 (a) should wherever possible include the international or national non-proprietary name of the drug if it is available.

### **FOOD AND DRUGS BOARD – GHANA**

### **RULES AND REGULATIONS FOR FOOD IMPORTERS**

#### **Requirements for Importation of Food**

- ◆ Only corporate bodies duly registered by the Registrar –Generals department shall be permitted to import Food into Ghana.
- ◆ All food products to be imported into the country must be registered with the Food and Drugs Board under Section 18 and 25 of the Food and Drugs Law, 1992 (PNDCL 305B) and Section 4 (b) of the Food and Drugs (Amendment) Act, 1996; Act 523.
- ◆ An Import permit must be obtained prior to confirmation of an order for the importation of any Food product.
- ◆ Permits shall be valid for one calendar year from the date of issue.
- ◆ A fee shall be charged for the processing of each permit submitted for importation. The fee shall be determined by the Board from time to time.
- ◆ All import permits shall bear the full name and address of the exporter and importer, name/description of product, quantity, and registration number of the product, manufacturer/country of origin, total CIF value and country of shipment, port of entry and customs harmonized code.
- ◆ Certification from the Health Authorities, Regulatory Body or the appropriate agency of the country of origin, authenticated and attesting to the status of the manufacturer.
- ◆ Food products are inspected by officials of the Food and Drugs Board at the port of entry before they are released to the importer.



### **LABELLING REQUIREMENTS L.I. 1541**

- ◆ The products brand name or common name must appear on the principal display panel.
- ◆ A list of ingredients by their common names in descending order of quantity added.
- ◆ Additional nutrition information/facts is optional.
- ◆ An indication of the minimum durability in the form of “expiry date”, “best before date” or “use-by-date”.
- ◆ Any special storage conditions and handling precautions that may be necessary.
- ◆ Instructions or directions for use.
- ◆ An indication of the net content in the form of net mass or volume in the metric system. For food packed in a liquid medium, the Board requires a declaration in metric system of the drained weight of the food (liquid medium means water, aqueous solutions of sugar and salt, sauces, fruit and vegetable juices in canned fruits and vegetables only, or vinegar, either singly or in combination). Examples; mackerel in tomato sauce, sardines in vegetable oil, etc.
- ◆ The batch number or lot of the product.
- ◆ The name and complete address of the producer, manufacturers, importer, local agent, packer or distributor. In addition, local manufacturers must indicate complete location address of factory.
- ◆ Country of origin must be provided on the product label.
- ◆ Labelling should be in English. English translation in addition with other languages is permitted.
- ◆ Marks and labels for food must be in indelible ink and be legible.

### **INFANT FORMULAE – BREASTFEEDING REGULATIONS, 200 L.I. 1667**

- ◆ There shall be on the label a clear, conspicuous and easily readable message that breast milk is the best food for infants and prevents diarrhoea and other illnesses.
- ◆ Provide instruction for the proper preparation and use of the designated product.
- ◆ Indicate the health hazards of introducing the product prior to the recommended age. A recommended duration of six months exclusive breastfeeding after the six months period until the child is two years or more.
- ◆ In addition, it is required that labels of the product must not show any photograph, drawing or other graphic representation other than for illustrating the method for the preparation of the designated product.
- ◆ In accordance with L.I 1667, the Board does not permit inscriptions or pictures of babies on labels of products (infant formulae or otherwise) that are suggestive, either directly or indirectly, encourages the administration of such products to infants. JULY, 2004



## Appendix 2: Kano's Questionnaire

(Please kindly answer all the following questions using the alternative answers provided in the Response Column. For each question **Tick** in one of the 5 columns correspond to your choice of answer from the alternative answers provided).

Product Packaging Requirements Functional and Dysfunctional Questions	Responses				
	(1) I like	(2) Must-be	(3) Neutral	(4) Live with	(5) Dislike
(1a) If a cocoa drink product is packaged in flexible plastic material, how will you feel?					
(1b) If a cocoa drink product is not packaged in flexible plastic material, how will you feel?					
(2a) If a cocoa drink product is packaged in rigid plastic container, how will you feel?					
(2b) If a cocoa drink product is not packaged in rigid plastic container, how will you feel?					
(3a) If a cocoa drink product is packaged in a recyclable material, how will you feel?					
(3b) If a cocoa drink product is not packaged in a recyclable material, how will you feel?					
(4a) If the decoration on the package allows the drink to be seen in the container, how will you feel?					
(4b) If the decoration on the package does not allow the drink to be seen in the container, how will you feel?					
(5a) If the package of a cocoa drink product can be resealed after opening, how will you feel?					
(5b) If the package of a cocoa drink product cannot be resealed after opening, how will you feel?					
(6a) If a cocoa drink product is sold in 1 litre container, how will you feel?					
(6b) If a cocoa drink product is not sold in 1 litre container, how will you feel?					
(7a) If the package of a cocoa drink product has an attractive and nice looking print, how will you feel?					
(7b) If the package of a cocoa drink product does not have an attractive and nice looking print, how will you feel?					
(8a) If the packaging of a cocoa drink product has a national identity of Ghana, how will you feel?					
(8b) If the packaging of a cocoa drink product does not have national identity of Ghana, how will you feel?					
(9a) If brown colour is mainly used to decorate packages of a cocoa drink product, how will you feel?					
(9b) If brown colour is not mainly used to decorate packages of a cocoa drink product, how will you feel?					

Product Packaging Requirements Functional and Dysfunctional Questions	Responses				
	(1) I like	(2) Must-be	(3) Neutral	(4) Live with	(5) Dislike
10b) If the label of a cocoa drink product does not have more information about the products, how will you feel?					
(11a) If the package of a cocoa drink has a picture of a popular figure, how will you feel?					
(11b) If the package of a cocoa drink has no picture of a popular figure, how will you feel?					
(12a) If the package of a cocoa drink product is a returnable (reusable) container, how will you feel?					
(12b) If the package of a cocoa drink product is not a returnable (reusable) container, how will you feel?					
(13a) If the package of a cocoa drink product bears FDB or GSB certification symbols, how will you feel?					
(13b) If the package of a cocoa drink product does not bear FDB or GSB certification symbols, how will you feel?					
(14a) If the containers for packaging cocoa drink product are similar to those used for packaging other products, how will you feel?					
(14b) If the containers for packaging cocoa drink product are not similar to those used for packaging other products, how will you feel?					
(15a) If the shape of a cocoa drink product package looks like a cocoa pod, how will you feel?					
(15b) If the shape of a cocoa drink product package does not look like a cocoa pod, how will you feel?					

### Appendix 3: Interview Guide

#### Interview Guide for the Packaging Design Sector

1. Do you consider our local product manufacturers as people who are very particular about the design and quality of their packages?  
.....  
.....
2. Do you appreciate the way the small-scale business enterprises package their goods?  
.....  
.....
3. What are some of the challenges facing the packaging industry in Ghana?.....  
.....
4. What are the possible factors that account for poor packaging of made in Ghana products?  
.....  
.....
5. In your view do you think the packages of imported goods on Ghanaian market are of better quality than our local ones?

- .....
- .....
6. By your assessment how will you grade the quality of packages designed and printed in Ghana? Please give reasons.
- .....
- .....
7. What can help make packaging of Ghana made products competitive on all markets?
- .....
- .....
8. Have you observed any significant improvements in the quality of packaging of locally manufactured products from the SME sector in Ghana over the last decade? What can it be attributed to? .....
- .....
9. What items or elements used in the design of labels or packages do local manufacturers put emphasize on to attract customers? .....
- .....
- .....
10. What makes the graphics on locally designed packages / labels poor? .....
- .....
11. What factors account for poor graphics on some locally designed packages? .....
- .....
12. In your view what do you think is lacking in the packaging design and production chain?
- .....
- .....
13. What are the various printing processes that are used for printing on packaging materials?
- .....
- .....
- (b) Can you briefly describe each of the methods? .....
- .....
14. Is the design sector in general offering the right kind of services to the local packaging industry as needed to make them competitive internationally? Please give reasons.
- .....
- .....
15. Are there packaging / labelling rules in Ghana by which the design of every product label must follow or comply? If there are any, where can the documents be found?
- .....
- .....
16. To what extent do locally made products labels comply with the existing labelling rules?
- .....
- .....
17. Do you consider pretesting of locally designed packaging and the labelling design concepts important to products from the SME sector? Please give reasons.
- .....
- .....
18. Do your establishment carries out rigorous pre-testing of their design works for products packaging?..... (If YES, How).....

19. In your opinion do you think the various packaging ancillary organisations, such as the Ghana Standards Board, Export Promotion Council and Institute of Packaging Ghana, are playing their roles effectively? .....
20. What can make packaging acts effectively as the “Silent Salesman”? .....
21. What would you recommend to bring change to the local packaging industry? .....

### Interview Guide for Food Products Manufacturing Sector

1. What business category does your firm belong to in terms of size? .....
2. Do you produce your own designed package(s) or you buy them ready-made from the market? .....
3. What type(s) of packaging materials do you use? .....
4. Do you test the package or the label design concept on the target consumer before launching the product? Please give reasons for your answer. ....
5. If you do; how do you conduct the concept test and how many respondents do you use? .....
6. Are there any other methods or ways of concept testing that you are aware of? .....
7. Do you go for packaging testing when you develop new product packaging? Please give reason(s)  
If you do; where were the packages tested? .....
8. What factors account for poor packaging? .....
9. What do you do when you receive printed packaging materials and why? .....
10. What do you do when samples/ prototypes of your new package or label designs are delivered to you? .....
11. Are your product(s) facing strong competition with other products on the local market? .....

12. Are the competing products imported or locally made? .....
13. If locally made, are they produced by large scale, medium scale or small scale company? .....
14. What differences have you observed in the competitor's product(s) packaging? .....
15. By your assessment on the market situation; can improvement in your packaging help your products to better or compete well against the competitors' brands? .....
16. Who handles your design jobs for you locally? .....
17. In the design for your packages what item or elements do you emphasize to attract customers? .....
18. Are you aware of packaging and labelling regulatory requirements? And where can one get such information in Ghana? .....
19. Do you usually use the regulatory document as a guide when designing your packaging or labels? Give reasons. ....
20. Do you have a copy or access to the General Labelling Rules document? .....
21. What reference materials do you use to get the required label information for your new label design(s)? .....
22. How well does your packaging help in the marketing of your products? .....
23. From your experiences what makes a product sell on the market? .....
24. What percentage of your product marketing success can you attribute to the products packaging? .....
25. What do customers usually complain about on food packages sold on the market? .....
26. Do you print all your packages or labels locally? .....
27. What are some of the defects or errors in the printed stocks you receive? .....
28. How often do you get such defects or errors in the prints? .....



29. Do you think the amount of money one pays for printing has influence on the quality of print? Please give reason(s).  
 .....  
 .....
30. Have you been attending some of the programmes organised for the local industries in Ghana? And how often? .....  
 .....
31. How often do you hear of seminars/workshops for SMEs. And what subject areas do they usually cover? .....  
 .....
32. What can you say about the general attendance at such programmes?  
 .....
33. In your opinion are these seminars and workshops beneficial to your business? Please explain. ....  
 .....
34. What would you like to suggest or recommend regarding the organisation of such programmes? .....  
 .....

#### **Interview Guide for the Packaging Material Printing and Conversion sector**

1. How do you classify your printing business? .....
2. Do you print packages or labels for products? .....
3. How many different product packages/labels do you print or have you printed? .....
4. What type of packaging materials do you print on?  
 .....
5. Do you specialise only in packaging printing? Give reason for your answer.  
 .....  
 .....
6. Where do you keep or store packaging material stocks until they are finally delivered?  
 .....  
 .....
7. What factors lead to poor printing of packaging materials?  
 .....  
 .....
8. What factors account for good printing on packaging materials?  
 .....  
 .....
9. From your experience with clients who bring in packaging jobs, what do they do or suggest when they realise the cost of printing is on the high side for them?  
 .....  
 .....
10. Do such customer decisions or actions have any effect on the quality of print they receive?  
 .....

11. Is packaging printing different from any other printing job? Please explain your answer(s)  
.....  
.....
12. Are there procedures that have to be followed to ensure quality print on packaging material?  
Please give reasons for your answer.  
.....  
.....
13. What post printing activities do you carry out on the printed stock before delivery?  
.....  
.....
14. Do clients with packaging printing jobs give any specifications or instruction(s) as to how they want their printing done for them?  
.....  
.....
15. What printing equipment do you use for printing on packaging materials?  
.....  
.....
16. What are some of the print faults, defects or problems that do occur in printing?  
.....  
.....
17. What are the possible causes of printing faults, defects or problems?  
.....  
.....
18. How did you acquire your printing training?  
.....  
.....
19. Have you been attending workshops and seminars for printers?  
.....  
.....
20. How often do you hear of such programmes? .....
21. How beneficial are the programmes organised for printers?  
.....  
.....

#### **Interview Guide for the Packaging Ancillary Organisation Sector**

1. Please to what extent are the packaging ancillary organisations' programmes helping local companies to improve upon the quality of their product packaging?  
.....  
.....
2. What are the major areas of concern in small-scale business enterprises that these organizations usually address? .....
3. How often does your organization run programmes for the SMEs in Ghana?  
.....

4. Do some of your programmes relate to product packaging for the SMEs in Ghana?  
.....
5. From your assessment, how would you describe the patronage of the programmes?  
.....
6. Please, what are some of the general complaints participants make about such programmes?  
.....
7. What can you say about the quality of the packaging of locally manufactured products by the small and medium scale industry?  
.....
8. Please, what are some of the problems you have experienced or identified on some local product packages? .....  
.....
9. In general, can the quality of local products packaging be compared to that of the imported products packaging?  
.....
10. In your view do you think the available packaging machineries and the manpower resources in Ghana can support the packaging industry to meet international packaging standards?  
.....  
Please give reasons for your answer. ....  
.....
11. Do local manufacturers in the SME sector do proper packaging concept testing? Please give reasons. ....  
.....
12. How is their packaging concept testing methods impacting on their products' marketing?  
.....  
.....
13. Do they also need to conduct packaging testing for their newly developed products?  
.....  
.....
14. Have you observed any improvement in the packaging of products for the local market by the locals SMEs? What can it be attributed to?  
.....
15. What are some of the major issues or challenges the SMEs face in their business?  
.....  
.....
16. In your view do you think an increased financial assistance to SMEs would help them to package their products better? .....  
.....
17. What can help address the issue of poor packaging of Made-in-Ghana products?  
.....  
.....
18. In your view what can help make the products' packaging meet international packaging standards? .....  
.....  
.....

### Interview Guide for the Customer Sector

1. What do you do with the products you buy from the shops? .....
2. What features on food product packages do attract you to them on shelf display?  
.....
3. What do attractive or elegant looking packages communicate to you about the products?  
.....  
.....
4. What items or elements in the design of food packages do attract you?  
.....  
.....
5. Please, what are some of the things you dislike in the designs of packages/labels?  
.....  
.....
6. What do you look for when you are examining a food product package?  
.....  
.....
7. If both local and imported brands of a similar food product are on a shelf what would you use to differentiate them? .....
8. What do you use to identify a particular brand packaged product from other competing brands? .....
9. When you come across a product for the first time; what do you use to determine its quality?  
.....  
.....
10. What do you use to identify imitated /fake consumer products in the shops?  
.....  
.....
11. From your experiences, if two packages of a product have all things in common but with little differences in their colours, would you consider them as from the same manufacturer? Please give reasons. ....  
.....
12. If you were to buy one of them; which one will you buy? .....
13. Have you ever purposely picked some packages out from the same products displayed together when shopping? .....
14. If both local and imported brand of a particular food products are sold on the market; which one will you buy? Please give reasons. ....  
.....
15. Where do you think products with good packaging come from? .....
16. Would you appreciate packaging for food product that makes it less expensive but not attractive looking? Please give your reasons. ....  
.....

## Appendix 4: Observation Checklist

**Company/Business Type:** Freelance Designer ☐ Business Centre ☐  
Printing Press ☐ Graphic/Advertising ☐

### PACKAGING DESIGN SECTOR

#### Designers' Tools/Equipment

1. Is there a Computer? Yes ☐ No ☐ New ☐ Old ☐ Same Brand ☐
2. Is there a Printer? Yes ☐ No ☐ Laser ☐ DeskJet ☐
3. Is there a Scanner? Yes ☐ No ☐

#### Materials/ Documents used

1. Do they have Packaging and labelling guiding documents? Yes ☐ No ☐
2. They have Samples/prototypes of Packages ☐ Labels ☐

### PACKAGED PRODUCT MANUFACTURING SECTOR

1. How do they apply label on packages? Manually ☐ Automated ☐
2. Is there a special place for keeping or storing packages/ label materials? Yes ☐ No ☐
3. Do they use checklist for checking their packages/labels? Yes ☐ No ☐
4. How is filling done? Manually ☐ Automated ☐
5. How is sealing done? Manually ☐ Automated ☐

### PACKAGING PRINTING AND CONVERSION SECTOR

1. What Printing machines do they use? Offset ☐ Letterpress ☐ Flexo ☐  
Screen printing ☐
2. What Packaging Material type do they usually print? Paper ☐ Plastic ☐
3. Is there an In-house Design section? Yes ☐ No ☐
4. Is there a special place for keeping or storing packages/ label materials?  
Yes ☐ No ☐