CHAPTER-1
INTRODUCTION

1.1 THE PROBLEM

Marketers are addressing consumer newfound interest in designing the packages that decorate even as they reinforce the brand. Gone are the days when interior design did not accommodate branded consumables. Packages of paper goods, dish soap, condiments or any container emblazoned with a brand name or logo were to be stored out of sight.

The notion is rapidly changing, as brand owners feel it necessary to design the packages so attractive that consumers buy the product with the express intention of dressing up even kitchen counter, coffee table, bureau or vanity. In some cases, it may be evident with the fact that consumers like a package, that they keep it long even after the product is consumed. They like it to use the container as a storage device, collectible or memento.

The basic objective of packaging is the safe delivery of the product to the consumer by preserving the composition of the packaged goods till its end usage with aesthetic values of the product.

Packaging is optimal if it fulfills the service expected in a favorable way for both the producer and the consumer. Apart from the protection function, package plays a very important intermediate role in the modern marketing. Being a link between production and consumption, the package carries a message from the producer to the consumer.

The choice of a packaging system is a very complex decision and is based on the following main group of factors: protection of the product, available packaging...
Today the job of the Marketer is becoming tough day by day, as numbers of resources are available for packaging. These resources are:

- Plastic
- Paper
- Glass
- Aluminium
- Steel

Plastic have the most negative image, albeit of being lightweight and sturdy, thus giving the advantage of maximal service with minimal resource use. Plastics and composites are optimal packaging materials, therefore considered as environmentally preferable. The judgment of environmental friendliness cannot be based solely on the basis of type of packaging material.

Paper uses a renewable source, thus can and will continue to be used widely for packaging purposes. On the other hand, recycling of paper requires fossil sources, because of transportation demand and reprocessing. This paper recycling has a positive environmental impact.

The use of glass for packaging is a state-specific question. The raw material is in plentiful supply and there are no technical barriers to its reuse or recycling. If there is a well working system of glass use in our country, changing of it may involve significant expenditures as well as environmental impacts. In several countries, where transportation distances are high, reusable glass was superseded from the market. The future trend of glass collection may be of mixed collection, with wider use of green glasses.

1 http://www.tis-gdv.de/tis_e/verpack/funktion/funktion.htm
Aluminum, for its lightweight and the high savings offered with its recycling can also be an effective packaging material in our countries, where aluminum is in common use, and the recycling infrastructure works well.

The increasing use of steel in packaging is not probable. Its usage is restricted to a narrow horizon of goods, such as perishable food (fish, meat, vegetables, and fruits etc). Considering their light weighting, and the expansion of other packaging materials usage, the percentage rate of steel use will probably decrease.

The Environmental Protection Agency estimated that in 1979 roughly 18,500 tons municipal solid waste landfills existed. In 1986, the EPA’s estimate was 9,300 tons. This figure is expected to drop even farther as EPA imposed regulation continue to force more and more landfills out of existence\(^1\). The Environmental Protection Agency estimated that Municipal Solid Waste and Types of packaging waste, which is depicted in figure\(1.1\) (a) and figure \(1.1\) (b) respectively.\(^2\)

\textbf{Figure-1.a}

\textbf{Composition of Municipal solid waste}

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{composition_municipal_solid_waste.png}
\caption{Composition of Municipal solid waste}
\end{figure}

\(^1\)http://mofpi.nic.in/industryspecificinformation/
\(^2\)http://mofpi.nic.in/industryspecificinformation/
According to figure-1.1(a), the component of Municipal Solid Waste are Packaging, total durables, yard waste food waste, non-durables and miscellaneous. Major component of Municipal Solid Waste is Packaging with 30 percentage of contribution. Figure 1.1 (b) shows that major component of packaging waste is paper with 47 percentage of its contribution.

It can be expected that the amount of smaller portioned goods will grow, for the reason of urbanization, rising percentage of one-person and small households, but this is not avoidable that the product not consumed will be wasted.

For assessing or comparing different packaging systems, a full life cycle assessment has to be used. It takes considerable time, money and work to make even a proper life-cycle inventory for packaging systems. Also there are several parts of LCA that can significantly change the results of the study e.g. when defining the functional unit and system boundaries. Another traditional problem is the allocation of multi input and/or output systems and allocation of recycling when it is outside of the studied system. When whole packaging systems are assessed and the results may affect the material flows in the society, it is not
enough to assess only ecological consequences. An environmental assessment does not mean only ecological impact analysis.

One would consider that the available *packaging technology* is the most important factor. The history of packaging development showed, that new packaging technologies were found first of all from the wish to improve the protection functions of packaging. So, researcher tried to find out the better packaging technology.

*Economics* is another important factor which is to be studied, it is crucial for the packager to be profitable and spend the least possible on packaging the product.

*Market considerations* are another important factor, especially at present level of "supermarket societies". If a producer wants the consumer to choose his product from the wide range of goods available, he has to do a lot more than only produce a good product. The product shall be packed to protect and enhance distribution. Pleasing, arising attention, image creation, helping the using ease and most important: information supply, are top functions of packages.

Another motive is the *environmental concern*: simpler shapes use *less material*, and more effective collection to secondary packages also means *reduced resource exploitation*. It is sensible and legally required that waste management options are considered already at package design. Design for reuse, recovery or eventually disposal, are newly emerged tools of environmental marketing. Using less material, less energy mean less money as well. Also another important driving force is to please consumers and one way is to create a green image of the company with refillable, reclaimable packages or using recycled materials for packages. The benefits of green packaging development were listed as: reduced production costs, increased shelf space and sales promotion.

Researcher’s focus is which factor marketers should consider to adopt a better *packaging system* and to study the individual *packaging material* because the image of individual packaging materials is diverse.
1.2 SIGNIFICANCE OF THE STUDY

This study will be helpful to identify the significance of packaging, to find out the packaging strategies and the actual difference between the documented and implemented packaging strategy. So, with the help of this study researcher will find out that how much packaging strategy is helpful in attracting the customers for processed food.

1.3 CONCEPTUALIZATION

Packaging plays a very important function in today’s life. It is very difficult to answer whether packaging is based on the requirement of the products or on view of consumers. The package is tailor-made for the product but one shall not forget that all the products are made for consumers. From the consumer point of view the function of the package is to protect the product. In the case of bulk goods, the product cannot be used without the support of the package. So, the packaging is helpful in the usage of the product. Without packaging, most of the goods, especially food products couldn’t reach up to the consumer. The need for packaging and the development of packaging was based on the fact that the production and the consumption took place at different places and times.

The most important function of the packaging is the protection of the product, to develop the aesthetic values of the product and make availability of the product in good condition to the consumer. For the producer, the package is also a value-creating media of the product. With the help of the good packaging, the product can be sold to the consumer very eagerly. Effective packaging means that packaging which fulfils its function with minimal use of resources and minimum overall wastage.
Many researchers have given the definition of Packaging in their words. Some are below:

- According to P. Kotler\(^1\), "Packaging as all the activities of designing and producing the container for a product."

- According to Zikmund/D'amico\(^2\), "Packaging provides a containment function, a protection-in-function, a promotion function, a storage function, a usage facilitation function, a promotion function and an ecological function".

- According to Onkvisit and Shaw\(^3\), "Packaging serves two primary purposes- Functional and Promotional.
  1) First, a Package must be functional in the sense that it is capable of protecting the product at minimum cost.
  2) Second is promotional, so that a marketer can easily attract the targeted customer".

- According to Charles A. Taft\(^4\), "Packaging is divided into two distinct types- Industrial and Customer.
  1.) Industrial (exterior)-The aim of industrial packaging is to prepare and protect merchandise for shipment storage and this type of packaging account for 7cents of each retail dollar as well as 30% of total packaging cost.
  2.) Customer (interior)-Customer packaging is designed for the purpose of affecting sales acceptance."

- "Processed foods are ‘value-added’ products, referring to the fact that a raw commodity or commodities are transformed into a processed product through use of materials, labour and technology."\(^5\)

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“Any product that requires some degree of processing is referred to as a processed product, regardless of whether the amount of processing is minor, such as for canned fruit, or more complex, such as snack foods.”

Food processing industry consists of segments like processed fruits and vegetables, cereal based products, dairy products, meat, poultry and fishing products, beverages and confectionery.

Segmentation of different sectors in Food Processing Industry is as follows:

1) **Dairy**- whole milk powder, skimmed milk powder, condensed milk, ice-cream, butter, ghee and cheese.

2) **Fruits and vegetables**- beverages, juices, concentrates, pulps, slice, frozen and dehydrated products, potato wafers/chips etc.

3) **Grains and cereals**- flour, bakeries, starch glucose, cornflakes, malted foods, beer and malt extracts, grain based alcohol.

4) **Fisheries**- frozen and canned products mainly in fresh form.

5) **Meat and poultry**- frozen and packed mainly in fresh form, egg powder.

6) **Consumer food**- snacks food, namkeen, biscuits, ready-to-eat, alcoholic and non-alcoholic beverages.

Since packages are made exclusively for the product’s sake, the packaging system is a part of the product’s system. That is why it is very difficult to set the boundaries of the packaging system. To set system boundaries is a dynamic process and a basic step of life-cycle study of the packaging system shall be conducted.

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1 [http://www.referenceforbusiness.com/encyclopedia/Oil-Per/packaging.html](http://www.referenceforbusiness.com/encyclopedia/Oil-Per/packaging.html)


A first evaluation is made in a screening LCA (Life Cycle Assessment) to identify the key processes. Three aspects can be distinguished in these consecutive steps:

1) Boundaries between the packaging system and the environment,
2) Boundaries between the packaging system and the system of the packed product,
3) The distinction between relevant processes related to the product system under study.

There are many types of packaging technologies available in the market, but basically two types of packaging technologies are currently being used by food processing industry. These are as follows:

1) Flexible packaging
2) Aseptic packaging.

Flexible packaging consists of multilayer laminated sheets of plastics, paper, cloth or metal foils that are used separately or in combination for various packaging application. Plastic lamination has a unique set of properties that ensure toughness, moisture resistance, heat seal ability, printability, low odour and taste. These find use in packaging food, tea, coffee, spices, chewing tobacco, bakery, confectionary, oils and in certain other non-food applications such as household detergents, health and personal care, soaps and shampoos.

Aseptic packaging can be defined as the filling of a commercially sterile product into a sterile container under aseptic conditions and hermetically sealing the containers so that reinfection is prevented. The term “aseptic” is derived from the greek word “septicos” which means the absence of putrefactive micro-organisms.

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Aseptic packaging consists of following:

- 77% paper to provide strength and stiffness from renewable forests,
- 18% polyethylene to make packages liquid tight and to provide a barrier to microorganisms and
- 5% aluminium foil to keep out air light and prevent flavour changes things that can cause food to deteriorate.

1.4 REVIEW OF LITERATURE

A small number of studies have been carried out in the area of packaging strategies and related problem of food processing industry in India. Research done till now in the field of packaging is not sufficient in the light of importance of the field, because these research covers only a small portion of it and also studies taken up so far do not exhaustively cover Indian aspect and its evaluation.

It is necessary to review the existing related literature, so that the present study will be able to focus those aspects of the problem which have not been duly covered by the earlier researchers. All the literatures have been classified in to following six categories:

1) Packaging technology
2) Economics
3) Marketing considerations
4) Environmental concern
5) Regulatory issues
6) Miscellaneous

1) Packaging technology- The history of packaging development shows that the purpose of new packaging technologies were to improve the protection functions of packaging, but today packaging is a also a tool of exhibition. Beside the practicality, the aestheticism also is of great importance. The

1 http://suppliers.jimtrade.com/138/137733/30965.htm
package’s role, however, is not only to give appearance to the product, but also to distribute the product, to protect the product during distribution and to sell the product. In the retail shops the information on the package takes the role of the shopkeeper by carrying a message about the product from the producer to the consumer. Related paper in this category are as follows:

- **“Paper products”**\(^1\), the focus of this paper is on the increased relevance of packaging by influencing purchase decision at the point of sale. The stress is on the innovation and pedigree, growth market, out performer rating, and investment argument. Their focus is on role shift from protecting what is sold and selling what is protected to creating desire at the self. It also includes how PPL offering innovative packaging solutions at competitive prices.

- **“Eco-friendly ‘tinplate packaging’ for consumer convenience”**\(^2\), in this paper the focus is on the importance of tinplate packaging which is used for processed food and to find out the main advantage of tinplate packaging over other packaging material.

- **“Out of the laboratory and on to our plates”**\(^3\), the main focus is to find out the role of nanotechnology in food and agriculture. In this study one section includes the use of nanotechnology for food packaging and food contact material. It also shows how EU regulations potentially applicable to nanofood and nano food packaging.

- **“Food processing industry in India”, minimum-packaging technology for processed food”**\(^4\), this study is based on to find out the problems and current status of packaging in food processing industry in India. It also includes the future prospects in packaging.

- **“Challenges faced by the Indian tinplate packaging industry: an analysis”**\(^5\), the purpose of this study is to find out the market share of tinplate packaging industry and to find out the strategies to face up to the challenges.

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\(^1\) http://www.business-standard.com/india/storypage.php?autono=263775  
\(^2\) http://www.tpcindia.org/projects.htm  
\(^3\) www.foeeurope.org/activities/nanotechnology/Documents/Nano_food_report.pdf  
\(^4\) http://www.apo-tokyo.org/projreps_acd/03_SME-OS1-01/03Country2_SME-OS1-01.pdf  
\(^5\) http://hrcak.srce.hr/file/40232
“Innovative, ecological flexible packaging”, this study outlines the development of biodegradable & compostable packaging films. With this it also find out the role innovia films is playing to satisfy the needs of retailers and consumers alike to achieve the goal of better utilization of sustainable or renewable materials.

“Sustainability in packaging”, the focus is on the factors which are responsible for sustainable packaging innovation. It also creates a system that leads to identification of current problems and derive the continuous elimination of waste. Through understanding customers value proposition it offer products that also derive their waste reduction efforts. It also install accountability for results at all levels.

“Flexible packaging-the Indian opportunity”, this paper focuses on the development of packaging industry in India and the major Indian players in flexible packaging. It also stresses on the crucial role, demand and consumption of flexible packaging playing in India as well as world wide.

“Flexible packaging on a roll”, the focus of this paper is to know the current drivers and future trends of flexible packaging because flexible packaging has been witnessing a robust growth and is expected to continue its expansion on account of several factors like rising consumption of packaged foodstuff etc.

2) Economics- economics is another important factor, it is crucial for the packager to be profitable and spend the least possible on packaging the product. Related paper in this category are as follows:

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➤ "Asia-enterprise food processing 2002"¹, it highlighted the considerable potential for enhancing both trade and investment between EU and India in the processed food sector. It also talked about a new program to develop trade and investment between EU and India.

➤ "Food processing industry poised for growth"², the main focus of this paper is to find out the potential of the food processing industry by focusing on the quantities of processable food items that the country produces. With this, it also included market opportunities available for food processing industry and export scenario of processed foods. It also highlighted the role of technology to play in not only harmonizing quality norms but also by developing good manufacturing practices, including confronting to traceability norms hazard analysis at critical control points (HACCP).

➤ "Processed food market: major contributor to the Indian economy"³, this paper includes the various levels of processing in food processing sector in India. It also includes the expected value addition for future market and what are the fresh steps that have to be considering in value addition. With this what are the quality standards that govern the food industry includes.

➤ "Overview of the food processing sector in India"⁴, this report is on food processing in India and gives an overview of the food processing Industry and its segments in terms of size and growth over the last five years. This report also examines the detailed information on products, exports, imports and outlook for the segment.

➤ "Packaging: the key driver to catapult growth of processed food"⁵, focus of this paper is on the role played by processed food industry in the growth of India. The focus is also on market share of packaging industry in comparison with other. It also studies the factors which effect the growth and

³ http://www.streetdirectory.com/food_editorials/cuisines/asian_food/processed_foods_market_major_contributor_to_the_indian_economy.html
⁴ http://www.centroesteroveneto.com/pdf/Osservatorio%20Mercati/India/Ricerche%202007/Food%20processing%20Sector.pdf
⁵ http://www.tpcindia.org/projects1.htm
development of food processing sectors and the major contributor in exports. Despite all these it discussed the hot packaging alternatives which are available in Indian market with technology upgrade.

➢ "Indian processed food industry"¹, the purpose of this study is to find out the market share of all food processing industry and their comparison. The focus is also on the major key players of food processing industry and to find out what are the opportunities and challenges for investing in food processing industry.

3) Marketing considerations- marketing considerations are another important factor especially at present level of "supermarket societies". If a producer wants the consumer to choose his product from the wide range of goods available, he has to do a lot more than only produce a good product. The product shall be packed to protect and enhance distribution. Pleasing, arising attention, image creation, helping the using ease, and most important: information supply, are top functions of packages. Related paper in this category are as follows:

➢ "Nothing says brand like the package"², this article traces the importance of packaging in today's scenario. How the brand identity and package design are increasingly important component of corporate branding strategies and how they contribute significantly to marketing or branding success.

➢ "Driving forces for food packaging development in Sweden - a historical perspective"³, the purpose of this study is to identify the key drivers in society, in the food industry and elsewhere that have affected the development of food-retail packaging.

➢ "The food processing sector in India"⁴, the focus of this study is to find out the major players of food processing industry and their market share.

¹ http://contri72.googlepages.com/SSKI-IndianProcessedFoodsIndustry-Ma.pdf
² Ted Mininni, (2005), "Nothing says brand like the package", Advertising Express, The ICFAI University Press, Hyderabad, May, pp.33-34
³ http://luur.lub.lu.se/luur?func=downloadFile&fileOld=625933
⁴ www.researchandmarkets.com/reports/687785/the_food_processing_industry_in_india.pdf
➤ "Packaging in India: ‘it’s more than packs, it’s package engineering’\(^1\),
this study on packaging draws the attention of brand owners towards the role of packaging in creating and protecting brands.

➤ "Effective packaging-effective prevention"\(^2\), the purpose of this study is to find out how the packaging should be in accordance with the product demand. How it should not be under packaged nor over packaged.

➤ "Modern retail sector to help food processing industry"\(^3\), according to this paper most of the processed foods produced in small and micro sectors in India are not properly develop and branded yet, so, it highlighted the way how modern retail sector will create the right environment for the growth and development of food processing industry in the country.

4) Environmental concern- simpler shapes use less material, and more effective collection to secondary packages also means reduced resource exploitation. It is sensible and legally required that waste management options are considered already at package design. Design for reuse, recovery or eventually disposals are newly emerged tools of environmental marketing. Also another important driving force is to please consumers and one way is to create a green image of the company with refillable, reclaimable packages or using recycled materials for packages. The benefits of green packaging development were listed as: reduced production costs, increased shelf space, and sales promotion. Related paper in this category are as follows:

➤ "The environment effects of packaging"\(^4\), this study analyzes the effects of packaging on environment. The purpose is also to draw a holistic view. Besides all these the aim is also to analyze the packaging system, point at problematic parts, show improvement options and predict possible changes in the structure of the packaging system.

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\(^1\) http://www.packworld.com/print.php?id=22104
\(^2\) http://www.ecoembes.com/es/documentacion/Prevencion/Documents/PREVENTION.pdf
\(^3\) Sahay Subodh Kant (2008), "Modern retail sector to help food processing industry", Modern food processing, Ringer trade publishing, Vol.3, No.12, August, p.14.
\(^4\) http://cc.oulu.fi/~pongracz/Licthes/ch4.htm
“UK implementation of the EU packaging waste directive: can a market based system achieve economic and environmental goals?”

The discussion focuses on the market failures of the UK system. It suggests some modifications including targeted and limited state regulation of the market, raising of public awareness and lessons that could be learned to avoid similar problems when implementing the forthcoming implementation of the directive on the landfill of waste.

“Biobased packaging materials for the food industry”, the main focus is on the promotion and use of biological, renewable materials for the production of packaging materials.

“Environmental impact of packaging in the UK food supply system”, the purpose of this study is to understand the need of more balanced view of the environmental aspects of packaging and one should be working to identify and correct the areas where action is needed.

“Packaging reduction doing more with less”, the purpose is to study the environmental and social effect of packaging and to find out the importance of packaging waste directive. It helps to ensure that the packaging policy benefits the environment, encourages industry to continuously improve environmental and social aspect of packaging;

“Finding out- about managing waste”, this study includes the basic meaning of waste and to find out the major steps that every one should take into consider in a daily practice.

“Solid waste management”, the purpose of this study is to find out the major key players of packaging materials and the major steps taken by the state government to manage solid waste.

3 http://www.incpen.org/pages/data/Foodsupply.pdf
4 http://opensigle.inist.fr/handle/10068/670759
5 www.forthenvironmentlink.org/Waste%20Biblog-long.doc
5) **Regulatory issues**—government policies and regulatory issues in the field of food processing industry are necessary so that it results in increase in investment and trade in food processing.

- **“Food and drug industry in India—an overview”**¹, this paper discusses the present government and regulatory policies and business trends in food and pharmaceuticals industry in India. With this it also find out how these sectors of industry (both domestic and foreign) provide multifarious opportunity to potential investors. It also focuses on the several policy initiatives which are undertaken by the government of India liberalization in August 1991?

6) **Miscellaneous**—

- **“The point of packaging”**², this paper highlighted the few measures that reinforced the fact of low trial rates from category users and a variety of misunderstanding about the product all stemmed from misperceptions that evolved from the packaging. With this it also talked about self impact and concept communication which led to an improved perception of value for the money and intend to purchase.

- **“The use of packaging in Dutch households”**³, this study deals with the use of packaged products in the Netherland. The purpose is to know the external factors which affect the use of packaging and in what way they affect. Such type of research is generally made by industry to limit energy use and also offers a financial incentive.

- **“Finding out—about packaging”**⁴, this study is to know what exactly the packaging is all about, such as what packaging means, what is the future of packaging, types of materials available for packaging, packaging is good or bad etc.

These are few literatures which researcher found during the conduction period of research work. None of the research paper/white paper/article has included or discussed the latest trends of packaging followed by food processing industry in

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¹ [http://www.sethassociates.com/food_and_drug_industry_in_India.php](http://www.sethassociates.com/food_and_drug_industry_in_India.php)
² [http://www.mrlibrary.com/wwwboard/archive/packaging.html](http://www.mrlibrary.com/wwwboard/archive/packaging.html)
⁴ [http://www.incpen.org/pages/data/FOAP.pdf](http://www.incpen.org/pages/data/FOAP.pdf)
India. With this the focus is also on how much expense these food processing companies are made in packaging, the real market share of packaging material in food processing industry, is this a wise decision to spend more on packaging. The relation between packaging, sales and profit. What are the draw backs/deficiencies faced by food processing industry by using these packaging strategies. With this what are the major recommendations for further improvement in packaging system. By this way researcher wants to draw the attention towards package design and consumer mind set through this study.

1.5 FOCUS OF THE STUDY

This study will analyze the effects of packaging strategies of food processing industry in India. The intention is to draw a holistic view, where besides the ecological, the social, technical, legislative and economical aspects will also analyze. The aim is to analyze the packaging system point at problematic parts, show improvement options and predict the possible changes in the structure of the packaging system.
1.6  OBJECTIVES OF THE STUDY:

The main objectives of the research study are:

1) To study the trends in packaging in food processing industry in India,
2) To study the main roles of packaging in food processing industry in India,
3) To study the packaging strategies followed by the food processing industry in India,
4) To study the attitude and response of the customers and the middlemen towards packaging in food processing industry in India,
5) To find out the deficiencies in the existing packaging strategies in food processing industry and to recommend the most viable packaging strategies.