Retail and Consumer Perceptions on Paper Packaging for Flour in Indonesia

With Insights on Perceptions of Environmental Sustainability

ANINDYANINGRUM CHRISANT RYSTIASIH

MASTER´S THESIS

Packaging Logistics
Lund University

This Master's thesis has been done within the Erasmus Mundus Master Course FIPDes, Food Innovation and Product Design.

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LUND
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Abstract

Title (in English): Retail and Consumer Perceptions on Paper Packaging for Flour in Indonesia –with Insights on Perceptions of Environmental Sustainability

Title (in Swedish): Handelns och konsumenternas uppfattningar om pappersförpackningar för mjöl i Indonesien - med insikter om hur de uppfattar miljömässig hållbarhet

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Supervisor: Märit Beckeman & Karla Marie Paredes

Issue of study: Concern for environmental sustainability is increasing globally.

Paper-based packaging for flour made from material sourced from sustainable forests in Sweden have the potential to be a more environmentally sustainable packaging option in comparison to the plastic packaging that is currently common in the Indonesian market. A successful implementation of change in packaging material would entail different requirements from the actors in the Indonesian supply chain.

Purpose: The purpose of this thesis is to understand the requirements from two actors of the Indonesian supply change in the event of using paper as an alternative packaging material for flour and propose a strategy to address those requirements. This is done by in investigate the perceptions held by Indonesian retailers and consumers on current plastic packaging compared to alternative paper packaging, and their perceptions on environmental sustainability.

Method: The method employed in this research was an exploratory qualitative study with single case study. Secondary research in the form of literature review, and primary research in the form of online survey and semi-structured interviews were performed in this research. The respondents consisted of flour consumers and Indonesia retailers with merchandising experience.

Conclusion: Consumers associate paper packaging with novelty, uniqueness, premiumness, exclusivity, and high quality. Retailers as well perceive paper packaging as unique and premium, however have major concerns with the strength and durability of the package. Paper as a packaging material is generally regarded as a more environmentally sustainable than plastic. A barrier layer is required to ensure food quality preservation, and survival of the product throughout the entire supply chain.

Key words: Paper-based packaging, flour, Indonesia, environmental sustainability, retail, consumer, perceptions, packaging

Executive Summary

Introduction

Indonesia is the world's fourth populous country with around 250 million inhabitants. To fulfil the needs of all these people the amount of packaged goods produced are continuously increasing. On the other hand, a higher interest in the environment has lead to increased considerations of the environmental impact of the packaging that we collectively produce. Currently the Indonesian market is dominated by plastic packaging. Paper packaging obtained from sustainable sources could be a potential alternative that is more environmentally friendly.

In 2014, Yessica Ariesta worked on a study with support from the Swedish paper manufacturer, BillerudKorsnäs, to investigate the potential of using paper as a packaging for dry products in Indonesia. Using a systems approach, the supply chain in Indonesia was observed and analysed with focus on understanding the dry food manufacturer's role in the system. In continuation of Ariesta's research, the retail and consumers were the focus in the present research.

Objective

The purposes of this research are detailed in these four points:

1. Further deepen the knowledge about retailers and consumers perception of current packaging of flour in Indonesia, and the potential of replacing them with paper packaging.
2. Provide information that could be used as the basis for creating a business strategy to enter the Indonesian food industries market.
3. Provide information that could be used as basis for direction of future technical developments in designing a package.
4. Obtain an understanding of how environmental sustainability and awareness drives purchase behaviours of retail and consumers in Indonesia.

Method

The research was designed using exploratory case study approach. The methodology was carried out in three main stages. An initial overview of the topic was obtained through secondary research of literature review. A preliminary understanding of how Indonesian consumers used flour was then obtained through an online survey. The results of this survey then provided a point of reference in the creation of the semi-structured interview questions. Primary research was conducted in Indonesia through

semi-structured interviews with consumers and modern market retailers, through market visits to modern retail stores. A mixed method technique was employed, using a combination of semi-structured interviews and observational techniques.

Table Methodology Summary

Type of Research	Target group	Method	Objective
Secondary literature review	-	Research based on published references	Obtain a theoretical frame of reference
Preliminary quantitative research	Indonesian consumers	Online survey	Obtain initial understanding of the flour consumer in Indonesia
Market analysis	Retail stores in Indonesia	Store visit	Visual understanding of flour displays in stores.
Qualitative analysis of retail	Merchandiser/ Buyer at Retail	Semi structured Interview	Why and how decisions are made on type and placement of products.
	Key personnel on retail floor	Semi structured interview and observations	Understanding how the product is handled from delivery to display at retail.
Qualitative analysis of consumer	Consumers (Use flour in cooking)	Semi structured interview and observations	Understanding of how the product is brought home stored and used.

Results and Discussion

The results of the online survey indicated that 77% of the respondents within the target group currently kept a stock of flour at home for cooking purposes. The storage location was primarily in the cupboard, in containers or bound with a rubber band. The main problem encountered with flour that was cited in the survey are insects, rancid smell, messy and leaking package. 15% of respondents also found that there was no problem with the current product/packaging.

The primary requirement from the product and packaging for the consumer was a clear indication of protein content. This is important for the consumer as it influences

the results of cooked finished products. Food safety is regarded as a must-have quality attribute in which well-trusted brands are perceived to indeed deliver safety.

The requirements for retailers are displayed in the following figure.

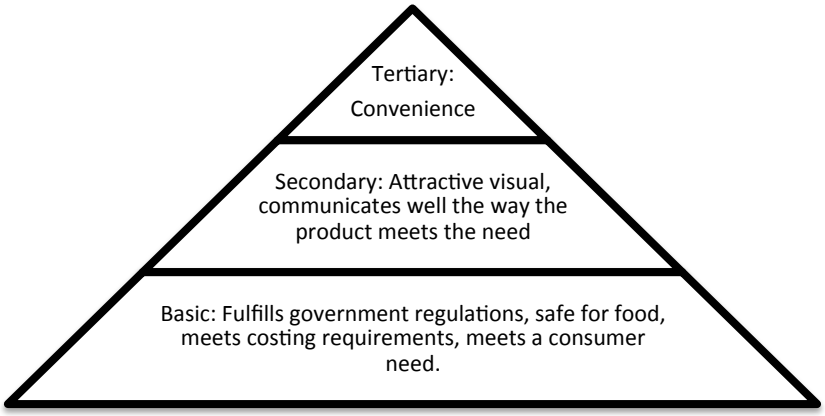

Figure: Hierarchal function of packaging for modern market retail

Environmental attributes are recognized as a beneficial attribute however will not inflict disappointment when not fulfilled, thus fall into the Kano's category of attractive attributes.

The existing plastic packaging was evaluated and compared with the alternative paper packaging.

Table: Perceived strengths and weaknesses of current and alternative packaging by consumers and retailers

	Current Plastic Packaging		Alternative Paper Packaging	
				
	Strengths	**Weaknesses**	**Strengths**	**Weaknesses**
Consumer	Attractive visual Good material quality (thick)	Lack of reseal Messy Spilling content Negative association with plastic	Environmental benefit Unique Attractive Neat Easy to use and store	Lack of strength Unsuitable for humid climate Risk of leaks or punctures
Retailer	Durable Attractive visuals	Leakages still occur	Unique Environmental benefit Nice, premium look Improved display efficiency	Lack of durability Unsure with profitability Unsuitable for humid climate

Consumers had positive perceptions towards the paper packaging. Retailers, on the other hand, had major concerns with the costings, and durability of a paper package. The highly manual supply chain in Indonesia was seen as a large risk, as manual handling occurs during almost all stages of the retailer's logistics including picking for delivery to individual stores, receiving and storage at stores, shelving and also consumer handling in the store.

Conclusion

Consumers associate paper packaging with novelty, uniqueness, premiumness, exclusivity, and high quality. Retailers perceive paper packaging as unique and premium as well; however, they have major concerns about the strength and durability of the package. Furthermore, an important consideration for retailers is

costs. While consumers expressed a willingness to pay more for a product that is safer for themselves and for the environment, retailers were sceptic that such a package would still be profitable. Finally, a major concern is the preservation of food quality due to the humid climate of Indonesia.

As the underlying claim is that paper is more environmentally friendly than plastic, a strong foundation in research is required to support the claim. Future research also includes technical tests on strength and durability, ensure food quality through barrier and material research, and considerations of reasonable costings. Lastly, the ways of communicating environmental attributes to Indonesian consumers can be further investigated.

Acknowledgements

I would like to firstly thank God, for without His blessings this research would not be what it is today.

I would like to thank my supervisors, Marit Beckeman, Karla Marie Paredes from Lund University and Henrik Asp from BillerudKorsnäs for their guidance throughout the entire process of this thesis. A special thanks to BillerudKorsnäs for the collaboration and upmost support in making this research possible.

My upmost gratitude to Ivan Firdausi, one of the most extraordinary people I have ever met. Thank you for your moral support, and for the time you have spent helping me work on this research.

The results of this thesis would not have been obtained had it not been for the help of the respondents of my interviews. I would like to express my immense gratitude for their time, openness, and participation.

Thank you to my dearest family, who always support what I am doing. Thank you Ibu for driving me to interviews when I could not drive.

A special thanks to all my FIPDes classmates, and other friends I have met along the way. Also to old friends from home and around the globe that have lent a helping hand and a kind word. There are too many people to mention that have contributed to this amazing journey.

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Foreword

This MSc. Thesis project addresses the potential of using paper-based packaging for flour in Indonesia as an environmentally sustainable alternative. The author, Anindyaningrum Chrisant Rystiasih, is part of the Erasmus Mundus European MSc. Program named FIPDes (Food Innovation and Product Design). Lund University is the academic partners and the Swedish packaging company BillerudKorsnäs is the main supporter.

Packaging and logistics technology, food technology, and environmental sustainability are the pillars of this research project.

1 Introduction

This chapter includes the background to the study, a brief presentation of the company and a presentation of the purpose and research questions, on which the project is established.

1.1 Background

In Indonesia, growing trend to shop at modern outlets has resulted in increasing amount of products being packaged with modern technology. Currently, it can be clearly observed that the Indonesian market to be dominated with plastic including in the dry food products category. On the other hand, paper bags are the common form of packaging for dry food products in Sweden. Produced from certified sustainable forests, they are a potential form of packaging that is more environmentally friendly.

Environmentally sustainable packaging has been the focus of recent research, in accordance with the EU waste directive. Products packaged in plastic dominate the Indonesian market. Paper as a packaging material has been used in limited applications in this market. With the number of products packaged in plastic, paper provides a potential more environmentally sustainable package if implemented in use.

In the interest of establishing a more environmentally sustainable marketplace in Indonesia, replacing plastic packaging of dry foods with paper packaging is a potential alternative. To realistically introduce the paper packaging, implications at the supply chain and the end consumer's must be evaluated and addressed.

A previous research, completed by Ariesta in 2014 was conducted to explore proposals to develop paper based packaging for Indonesia.(1) Ariesta found a potential for the use of long fibered material in the application of high strength paper bags from sustainable Nordic forests. A holistic evaluation of the supply chain was carried out to determine requirements from the different actors in the supply chain.

To further develop the case of paper bags in Indonesia, a more detailed retail and consumer investigation is thus attempted in this research. An insight into the retail and consumer needs and perspectives will allow for a holistic approach to the design of a paper package. It will also provide valuable information for the food manufacturers as the key actor and stakeholder in a case of change from plastic to paper packaging. This study contributes to the understanding of the Indonesian consumer behaviour and retailer behaviour in regards to packaging and environmental sustainability (green marketing). As a micro-study, this study elucidates two different aspects of the Indonesia supply chain. Firstly, a detailed understanding of consumer

behaviour towards the product of flour is obtained. Secondly, a detailed understanding of the retail activity in Indonesia in terms of supply chain logistics within the retail and merchandising activities.

One of the main focuses of this study is the retail field in Indonesia. The author previously had a job working closely with retail in a sales position of an international food manufacturing company, Mondelez International. In this role, the author was responsible for making sales of a product into retail, and also in the development of the product in a marketing role. During the time, there was little discussion on the environmental impact of a package. In this research, the author attempts to understand the considerations made when a product is evaluated by the retailer or by the consumer. This will provide a snapshot of the activities and considerations that occur in Indonesian retail environment, especially in merchandiser function. This is an important documentation of the field that may be used as reference in future works regarding Indonesian retail, as well support the case of implementing paper as an alternative packaging material.

1.2 BillerudKorsnäs Corporate Overview

BillerudKorsnäs is a Swedish paper manufacturer, with a claim to be one of the world's leading suppliers of high-quality packaging materials based on renewable raw material. The manufacturing takes place in eight plants located in four countries, Sweden, Finland, UK and Latvia. The company has primary market in Europe with 73% net sales contribution, and continues to expand and grow in other regions of the world mainly Asia, Africa, Middle East, and South America with 16%, 5%, 3%, 2% net sales contribution respectively. The total net sales in 2014 were SEK 20.9 billion with SEK 1.9 billion operating profit.

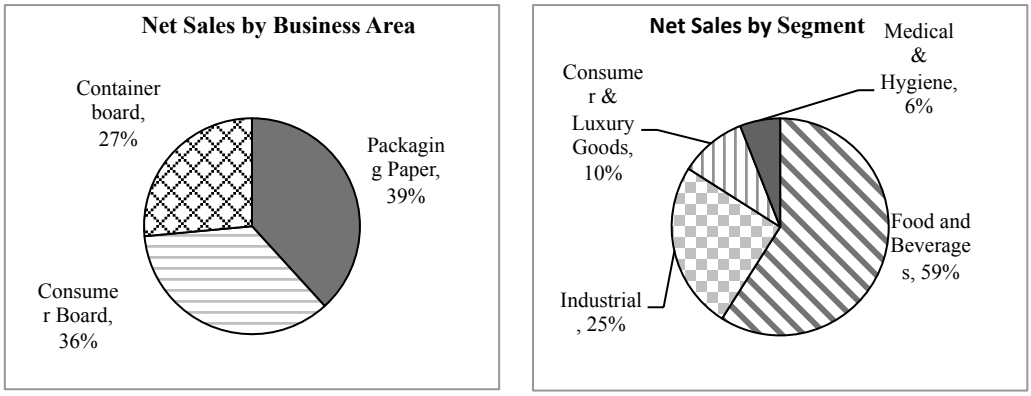

Figure 1 Net sales of BillerudKorsnäs by Business Area and Market Segment in 2014

The largest market segment is Food & Beverages industry with focus on *protection and preserving flavour and nutrition*. The products created in this segment include liquid packaging, bread sugar and flour bags, cups, trays, corrugated boxes for fruits

and vegetables, take-away food packages and fresh food packages. Packaging paper business area is targeted to grow 0-4% per year with a focus in selected segments especially outside Europe.

BillerudKorsnäs makes sustainability as a key part of their strategy. Sustainability is categorized into economical, environmental and social aspects defined as follows:

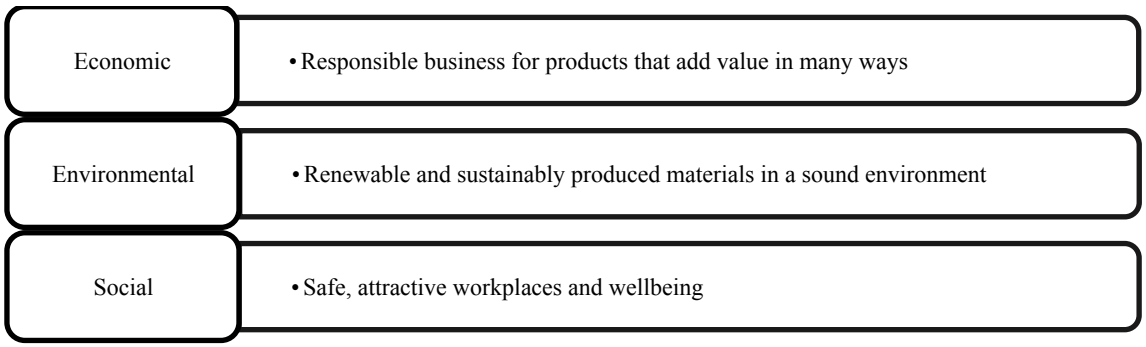

Figure 2 Sustainability at BillerudKorsnäs(2)

In a life cycle assessment based research by IVL Swedish Environmental Research Institute commissioned by BillerudKorsnäs, paper was found to have a 50-70% lower greenhouse gas emission compared to plastic. The source of the raw material used by BillerudKorsnäs comes from sustainably managed certified forests or from controlled origin that is not controversial. A lower greenhouse gas emission would thus support BillerudKorsnäs strategy of environmental sustainability by providing a more environmentally friendly packaging alternative in one of the key markets in Asia.

In Beckeman's research, Swedish packaging companies were found to have limited interest in conducting market research within consumers, instead relying on research i.e. from their customers the manufacturers or retailers. (3) This research aims to elucidate the conditions for a new market by proactively seeking out the conditions and trends found within retailers and consumer in Indonesia. This information will supply BillerudKorsnäs with key information making business strategies and finally entering into this new market.

This master thesis is made possible by cooperation and support of BillerudKorsnäs and it aims to increase the company's insights about the current perceptions from Indonesian retailers and consumers on paper packaging. BillerudKorsnäs also provided the paper bags that were used as an alternative packaging for flour.

1.3 Research Questions and Purpose

The purposes of this research are detailed in these four points:

1. Further deepen the knowledge about retailers and consumers perception of current packaging of flour in Indonesia, and the potential of replacing them with paper packaging.
2. Provide information that could be used as basis for direction of future technical developments in designing a package.
3. Provide information that could be used as the basis for creating a business strategy to enter the Indonesian food industries market.
4. Obtain an understanding of how environmental sustainability and awareness drives purchase behaviours of retail and consumers in Indonesia.

To reach the purpose, the problem is approached through the following research questions.

Research Question 1:
How do the consumers and retailers in Indonesia perceive current plastic vs. alternative paper packaging for flour?

- What do the current applications of paper bags that are available in the market look like?
- What is the perception towards the current packaging? What are the pains and gains of the current packaging?
- How are the packages handled, in the store and after purchase?
- What alternatives to paper packaging are available? What is the perception towards the potential replacing the current packaging with paper packaging?
- What are the foreseen obstacles and considerations to change to paper packaging?
- What are the key considerations and drivers of the consumer when making a purchase? Do different consumer groups have different opinions?
- What are the consumer requirements for flour packaging (i.e. visually, design-wise, and functionally)?

Research Question 2:
How do the consumers and retailers in Indonesia view environmental sustainability?

- What is the current perception on environmental sustainability?
- How can environmental sustainability drive and influence purchase decisions?
- What is the influence of governments, regulations, other country, and trends as a driving force for sustainability?
- How does the end of the life of the current packaging vs. future paper packaging look like?

Research Question 3:
How does the retailer's logistics influence product evaluation?

- What size of product should be chosen to change into paper packaging that has the most potential to integrate into the supply chain?
- How does the buying process of packaged dry foods occur?
- How are the packages handled throughout the supply chain?

1.4 Delimitations

Within this research the scope was limited to obtain insights from 2 groups of actors in the Indonesian supply chain: consumers (flour users who purchase and use flour in cooking) and retailers (modern market retail). The research was carried out in Jakarta, Indonesia during the months of March-May 2015 and reflects the current perceptions at that time.

The interviews were conducted and transcribed in Bahasa Indonesia. The author then translated the interviews into English to the best of her knowledge. The objective in translation was to capture the essence of the meaning rather than literal translations.

The questionnaires were formulated taking into account input from BillerudKorsnäs. Interviewees were approached from academic viewpoint, without bearing any particular representation of the company BillerudKorsnäs.

2 Methodology

This chapter describes the methodology used to collect data through secondary literature review, preliminary qualitative research, store visits, and semi-structured interviews.

2.1 Overall Approach and Rationale

The problem was approached using a systems approach followed by case study design. The system approaches(4) is pursued as the value chain for four products in Indonesia is regarded as a single system. This approach will ensure a holistic view, resulting a whole that is larger than the parts. The retail and consumer perspective are regarded as specific cases of the current modern market of flour products in Indonesia.

The research was designed using case study approach. Using the basis from Yin the case study was deemed appropriate as this research takes the form of an exploratory study as the questions posed are 'How' and 'Why' questions. (5) The research explores how the consumer and key retail personnel come to make their decision in selecting and in the case of the consumer, using flour. Furthermore, the author has an investigative role with an observatory standpoint for this contemporary phenomenon in Indonesia. These aspects also confirm that case study design should be the preferred method.

The methodology was carried out in three main stages. An initial overview of the topic was obtained through secondary research of literature review. An initial understanding of how Indonesian consumers used flour was then obtained through an online survey. The results of this survey then provided a point of reference in the creation of the semi-structured interview questions.

Primary research was conducted in Indonesia through semi-structured interviews with consumers and retailers, through market visit to retail stores. A mixed method technique (6) was employed, using a combination of semi-structured interviews and observational techniques. Both existing plastic package and alternative paper package were presented for evaluation in interviews. The field visits, retail and consumer interviews were carried out during the same time frame to enable unforeseen insights to be incorporated in the following interviews. Thus the method was completed in a dynamic way, enriching the resulting data obtained.

Table 1 Methodology Summary

Type of Research	Target group	Method	Objective
Secondary literature review	-	Research based on published references	Obtain a theoretical frame of reference
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	Key personnel on retail floor	Semi structured interview and observations	Understanding how the product is handled from delivery to display at retail.
Qualitative analysis of consumer	Consumers (Use flour in cooking)	Semi structured interview and observations	Understanding of how the product is brought home, stored and used.

The design thinking approach was used as a framework of thinking to approach the problem in this research. Design thinking uses a designer's methods to discover needs of users, and create business solutions that are technically possible and bring value to both the consumer and the business (7). Design thinking approach was employed in this research as to support a strong business case for BillerudKorsnäs, specifically referring to need finding techniques of the 'Design Thinking: Inspiration Phase'. The emphasis was to discover on what aspects current packaging succeeds or fails to deliver and identify the possibilities that could be delivered or would be required with an alternative material.

Process mapping is a technique in which an understanding of the entire process flow is obtained through mapping of all stages of the process (8). Process mapping is in conjunction with systems approach, as the entire process is analysed as a holistic system. In this research the supply chain, and the processes that occur in retail and at the consumer at observed in more detail.

In conducting interviews, several techniques were used. Semi-structured interviews were used to allow the author to collect insights that had not been anticipated. The MOM test technique recognizes that there exist a lot of potential discrepancies between what a consumer says and does. To avoid false information, the questions are based on actual experience, and focus more on realistic examples that the respondent has already been through (9). Laddering interview technique are used to gain in depth insight based on the technique proposed by Reynolds and Gutman (10). Laddering allows an understanding of the values of the consumer based on the consumers reasoning through the asking of 'Why' questions.

2.2 Selection of Product, Retail, and Consumer Segments

Product: Flour was selected as the product focus as it was studied in Ariesta's 2014 study, and results of the preliminary study also indicate that paper bags are well suited to the size of flour commonly purchased. This limitation of product to just flour, instead of flour and rice allowed for in depth study to be accomplished in the limited time frame. Paper packages were brought from Sweden to Indonesia, and filled with local flour by the author to produce mock-ups that were presented during the interviews. The paper mock-ups were presented after the current plastic packaging was evaluated.

Consumers: The consumers interviewed had a profile of currently storing flour at their home, user of flour themselves, and come from medium-high social economic segment. The medium-high social economic segment is seen as the appropriate market segment for environmentally sustainable products due to higher capability understanding of environmental issues through higher education, and having enough money to buy environmental products which usually come at a premium. Consumers interviewed were of higher social economic segment reflected in their education or the education of their spouse, place of purchase of flour and other parameters based on the author's personal observation and best judgment. Consumers were all women, as the quantitative study indicated that women were the primary users of flour.

Consumers who were literate in environmental issues through education or occupation were interviewed to understand the knowledge gap between a regular consumer and environmentally aware consumer. Small-scale bakers are more heavy users of flour more than the average person thus can provide the study with deeper insight on the requirements of flour and the package.

The quantitative study in this thesis was completed via online survey, spread through various social media such as Facebook, Blackberry messenger, Line, and WhatsApp. The initial point of dissemination was through the author's personal network.

Retail segment: The modern market in Indonesia was selected as the scope of this project. The modern market supply chain in developing countries is generally less complex than the traditional market supply chain (11) thus would provide a less risky entrance point for a novel packaging.

The retailers interviewed were mainly in the role of merchandising or had merchandising experience. As the retail experts were not specifically in charge of dry products, the evaluation question was based on existing previous experience. Merchandisers were appropriate interview subjects as it is in their job responsibility to manage which brands enter the retail's product assortment. Additional interviews were done with a store manager as the actor that comes in contact with the product in the store, and academia to get a wider perspective on the matter.

2.3 Reliability and Validity (Research Design Assurance)

As a predominantly qualitative research, the data is subject to the possibility of a strong bias from the author as explained by Yin (5). Thus reliability and validity of the findings are ensured through the following procedures and to ensure bias or equivocal evidence is not influencing the findings. According to Yin, the quality of a research design can be determined through the criteria of reliability and validity, whereas validity consists of construct validity, internal validity, and external validity.

For the data collection phase, construct validity and reliability are important. To construct validity, multiple sources of data were used. Triangulation is done in the context of establishing corroborating findings between the different sources. The interviews with expert were immediately transcribed and sent back to the interviewee to get confirmation of the information stated.

Using case study protocol, multi-faceted documentation of the data collection, ensured reliability of the research. A reliable research is one with reproducible results, minimizing errors and biases. Detailed documentation was done of all the interviews and evidence finding following a general operational procedure. Interviews were done, immediately transcribed and if applicable sent back for confirmation from interviewees. Retail and consumer fact-finding are carried out during the same period, in order that the results may contribute to improve future interviews. The transcribed fact finding were then analysed.

For the purpose of the research, all the transcriptions have been translated into English, taking care to preserve the original meaning and providing context to make it clear. The semi-structured interviews were highly iterated as the questions were changed accordingly to the on-going change in results.

3 Theoretical Framework

This chapter will start with an overview of the two materials used in packaging paper and plastic. A brief description of current global trends is presented and how the two materials compare against each other as observed in previous research. Then the background of Indonesia and the Market is explored through the product, consumer, and retail. Lastly, an overview of the environmental efforts currently present in Indonesia is explored.

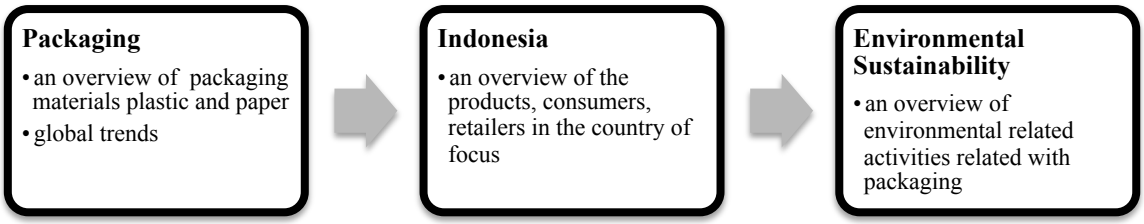

Figure 3 Flow of Theoretical Frame of Reference

3.1 Packaging

As markets develop, more and more products are manufactured with modern methods resulting in an increasing need for packaging. As the need rises, packaging has come under the focus of numerous studies in the attempt to understand the roles of packaging. Lockamy concluded in his 1995 research the principle roles of packaging are containment, protection, communication, convenience, apportionment and unitization (12). Ultimately, the roles of packaging allow a product to be transported from the manufacturer to the end user. Containment and protection ensures the product can be consumed safely, communication allows the consumer to obtain information about the food such as ingredients or ways of use and expiry or best before dates. Convenience and apportionment in terms of the right size or amount in each package ensures the consumer can effectively, efficiently and easily use the packaging or product within. Unitization can be important to consumers when buying products in bulk or multiple units such as packages of diapers or multipacks of beverages.

In the development of packaging, holistic approaches to packaging design have been researched to avoid sub optimization of the package (13), integrate product and package development (14), improve supply chain efficiency (15,16).

For retail, the requirement of communication becomes a key marketing tool that sells the products that are on the shelves. Packaging's role as a 'salesman' is increasingly recognized as brands compete to be selected by the consumer in a retail environment where a multitude of food product choices are available (17,18). This moment in the retail has also been referred to as the 'first moment of truth' in which the consumer decides to select and purchase a product based on its packaging. 'The second moment of truth' occurs when the consumer uses the product. In this occasion packaging contributes to the user experience, satisfaction and decision to repeat the purchase (19). The influence of packaging on the logistics system was found to be recognized with the general consideration that packaging is only a small subsystem of the logistics system and thus has minor influence (20).

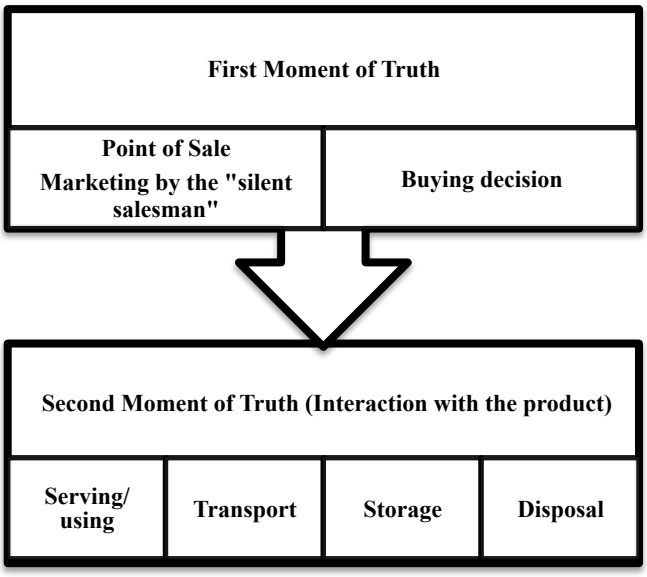

Figure 4 Consumer moment of truth adapted from Löfgren et. al (2008) (19)

In the evaluation of a product, one approach that is widely used is the theory of attractive quality and Kano methodology (21). The theory describes the correlation between customer satisfaction and the degree of fulfilment of quality attribute. The qualities can be categorized into attractive, one-dimensional, indifferent, must-be, and reverse. Attractive qualities are those which provide satisfaction when fulfilled, but do not create dissatisfaction when not fulfilled. One-dimensional qualities have

directly proportionate values between the degree of fulfilment and the satisfaction experienced. Indifferent attributes will not result in either satisfaction or dissatisfaction. Must-be attributes are attributes that require to be fulfilled, creating dissatisfaction when not fulfilled but are taken for granted when fulfilled. Reverse attributes will cause dissatisfaction despite being fulfilled.

Packaging has a function as communicator and marketing. It is the first contact between the product and consumer, initiating the user experience of the product. The performance of the package or product during the point of sale and during use has been recognized as the most important and labelled as moments of truths. In the first moment of truth, the buying decision is made, and in the second moment of truth, the decision to buy again is formed and embedded in the consumer's mind for the future (19).

3.1.1 Paper

Paper as a packaging material has applications that include linerboard, corrugated medium, solid bleached sulphate (SBS), clay-coated recycled board, unbleached folding board, and kraft paper. According to IHS Global Insight 2014 Paper and Paper-Based Packaging Overview, in the USA the highest use of paper as packaging material was for the processed foods industry. However the report also found a decline in the use of paper-based packaging for beverages in 2014 despite a 3.8% output growth. This decline occurred due to a shift towards plastic packages in the beverage industry (22).

The limitations of paper in general are poor barrier properties and inability to perform heat sealing. When used in contact with food an additional layer is used to provide the barrier properties to sufficiently provide protection to the food. This additional layer can be applied through direct treatment, coatings, lamination, or impregnated into the paper fibre (23). The possible advantages of paper are generally low-cost and readily available, can be coated to improve barrier capabilities, can provide rigidity, opaque (light barrier), and is printable (24).

Kraft paper is the strongest type of paper packaging and often used to pack heavy and dense foods such as flour and sugar. The paper itself may be unbleached, natural brown, heavy duty, and bleached white depending on requirements imposed by the food product manufacturer (23).

According to IEA (International Energy Agency) the pulp and paper industry is the fourth most energy extensive industry following iron and steel, chemical and petrochemical, and non-metallic minerals industries. However, the energy required by the industry is largely bioenergy that can be generated by the industries' own biomass residue coupled with efficient combined heat and power (CHP) technology. CO2 emissions are thus not very high when also taking in consideration the role of forests

as carbon sinks as the trees are grown for raw materials (25). Paper is increasingly sourced from renewable material from certified forests, further strengthening paper's position as an environmentally sustainable packaging material.

3.1.2 Plastic

The plastics used for food packaging are mainly thermoplastics. They can be polyolefin, polyester, polyvinyl chloride, polyvinylidene chloride, polystyrene, polyamide, and ethylene vinyl alcohol. The most common being polyolefins such as polyethelene (HDPE, LDPE) and polypropylene (PP), and polyesters such as Polyethylene terephthalate (PET or PETE), polycarbonate, and polyethylene naphthalate (PEN) being the most common.

These plastics have the property of being able to be remoulded as they become malleable with application of heat and then regain the original stiffness at room temperature. Plastics are also relatively cheap and efficient to produce with many functional properties that can be tailored such as heat-sealable, microwaveable, and easily mouldable.

Concerns with plastic are related to health issues and environment within the increasingly environmentally aware consumer (26) .The problem of migration of Bisphenol A into foods has received attention regarding its detrimental effect on health. In relation to environment, the CO2 emissions, fossil fuel usage as raw material, and inappropriate disposal such as in landfill and in oceans disrupting wildlife have been key concerns (23). Since 2007, legislation in the European Union that provides guidelines on the usage of plastics that will come into contact with foodstuffs has been established (27).

The Framework for Strategic Sustainable Development (FSSD) as developed by Karl-Henrik Robèrt and The Natural Step (TNS, a non-governmental organization [NGO] for sustainable development) provides a guide for sustainable practices.

Table 2 FSSD Framework, The four system conditions of a sustainable society (28)

To become a sustainable society we must eliminate our contributions to...	(1) the *systematic increase* of concentrations of substances extracted from the Earth's crust (for example, heavy metals and fossil fuels)
	(2) the *systematic increase* of concentrations of substances produced by society (for example, plastics, dioxins, PCBs and DDT)
	(3) the *systematic* physical degradation of nature and natural processes (for example, over harvesting forests, destroying habitat and overfishing); and...
	(4) conditions that *systematically* undermine people's capacity to meet their basic human needs (for example, unsafe working conditions and not enough pay to live on).

In the case of plastics, the raw material is obtained from heavy crude oil extracted from the earth's crust, thus violating the first principle. It is also a substance produced by society, otherwise not naturally available, thus the increase production of plastic without appropriate degradation violates the third principle. The traditional type of plastic can thus be considered a categorically an unsustainable material.

3.1.3 Global Environmental Trends

Environmental sustainability has become increasingly important to consumers. The sustainable packaging market is estimated to reach $244 billion by 2018 with biggest growth coming from Asia, according to a report by Smithers Pira (29). In this same report, sustainable packaging is predicted to be the primary challenge faced by companies due to sales driven by consumer conscience, increasing government legislation, and profitability. In 2011, Smithers Pira reported that bio based plastics have come into more interest with the rise of green consumers, new technologies in production and composting, rise of crude oil price, alternative source for plastics and government directives. They also project demand will be driven by flexible film of bio based PE, PHA and biaxially oriented PLA (BOPLA). Peelman et. Al. reported in 2013 of the increasing trend to use bio based plastics for food applications (30).

There exist some concerns for biobased plastics. The European Commission in 2011 conducted an online consultation on bio-based plastics, and has found several risks associated with bio-based plastics. 48.7% of 196 respondents from various countries industries across Europe agreed that bio based plastics posed the risk of creating

pressure on food security and resources especially within developing countries where the crops are grown. 43.1 % agreed on the risk of over exploitation of natural resources and decreasing biodiversity, and 31% agreed on increased deforestation due to food and non-food production (31).

Since 1994, the European Parliament and the Council has provided a specific directive on packaging and packaging wastes (32). The Directive aims at providing a high level of environmental protection and maintaining trade. In 2014 the Directive went under review and evaluation. A formal adoption of a proposal from 2013 regarding reducing the use of lightweight plastic carrier bags is expected to occur in 2015. Having a circular economy is becoming more of interest and refers to the condition in which materials used in packaging are viewed as a valuable resource and must be reused back into the system to maximize the use (33).

Efforts to implement a circular economy are supported by the European Union through a specific 2006 directive addressing the management of wastes. This has since been amended in the 2008 directive. (34) The directive provides a framework for waste management with the following waste hierarchy:

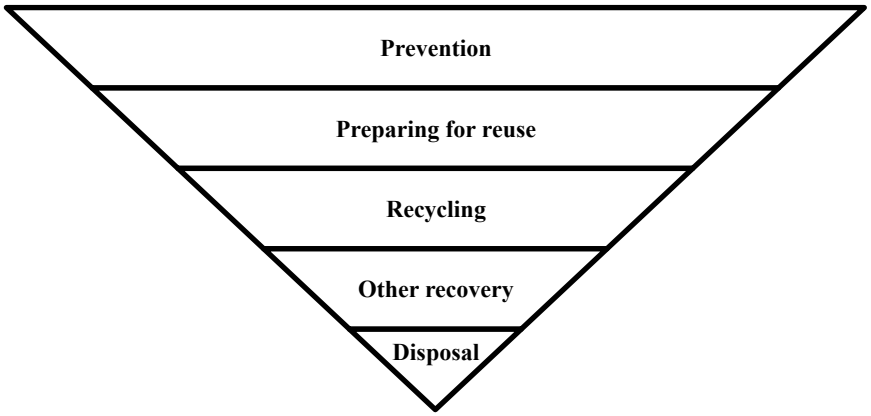

Figure 5 Directive 2008/98/EC Waste Hierarchy

The objective of the directive is to utilize products to their maximum usage, minimizing the waste finally disposed.

In the development of packaging, DuPont reported in a survey in 2011 (33) that the top challenges facing the Global Packaging Industry were sustainability (39%), cost (33%), innovation (15%) and availability of material/quality/performance issues (13%). They also reported the percentage of developments made in packaging using recycled materials or readily recyclable designs (65%), packaging material weight reduction (57%), use of renewable or bio based materials (41%) and use of

compostable materials (25%). The survey was conducted with consumer goods manufacturers and converters.

3.1.4 Plastic vs. Paper

In the evaluation of environmental sustainability of plastic versus paper there are many parameters that may be used. Lewis et al. conducted a research in 2012 in Australia using these 8 following indicators: CO_2 emissions, oxidation, eutrophication, land use, water use, solid waste, fossil fuels, and minerals. (35) On the other hand, the framework built by the SPA (Sustainable Packaging Alliance) takes a look at the overall impact of the packaging material by having guideline categories of effective, efficient, cyclic and safe (36). An effective packaging is optimized for its purpose, an efficient packaging achieves balance between use of materials as well as costs and function, cyclic packaging focuses on the use and reuse of materials and safe packaging aims to maintain a low risk product.

One response seen influenced by EU legislation is the implementation of fees for plastic bags in supermarkets. This has sparked numerous research and discussion on paper vs. plastic in the context of shopping bags. There is limited research on comparisons of environmental performance of specific packaging, especially in Indonesia. The research by Lewis et al. cites many previous researches using LCA approach consistently finding paper bags to perform worse on all the environmental criteria compared to virgin plastic bags. This is due to the large amount of energy and material required in the pulp and paper manufacturing, and the weight of material required per bag (35). The plastic bag is better as it is reused, and the environmental cost is thus spread out per use. This is the case found for shopping bags, however when talking about food packaging, there is little instance in which the packaging will be reused for the same purpose. Thus recycling and waste streams will be of more importance to consider in the case of food packaging.

3.2 General Overview of Indonesia

3.2.1 Supply Chain in Developing Countries

The supply chain in developing countries such as Indonesia, follow two routes: traditional and modern trade. This is observed by Sohrabpour, Hellström and Jahre (2012) and represented in the following figure.

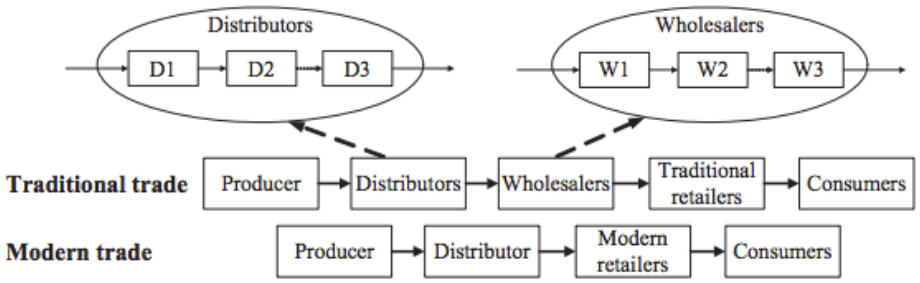

Figure 6: Supply Chains in Developing Countries (11)

BillerudKorsnäs acts as a supplier of material for packaging, which is then sold to converters in Europe or in the market country. This occurs prior to the process represented in the figure. Thus the customers for BillerudKorsnäs are converters. The converters in turn sell packaging to product manufacturers. The products produced will then be distributed through retail and sold to the end-user, the consumer. In contrast, in the Nordic countries the supply chain predominantly follows what is similar to the Modern Trade route in Figure 6 above.

3.2.2 Waste Flow in Indonesia

In the evaluation of a product's sustainability, recyclability and disposal are important to obtain a holistic picture of the environmental impacts. This would be influenced by the waste and recycling system that exists in Indonesia.

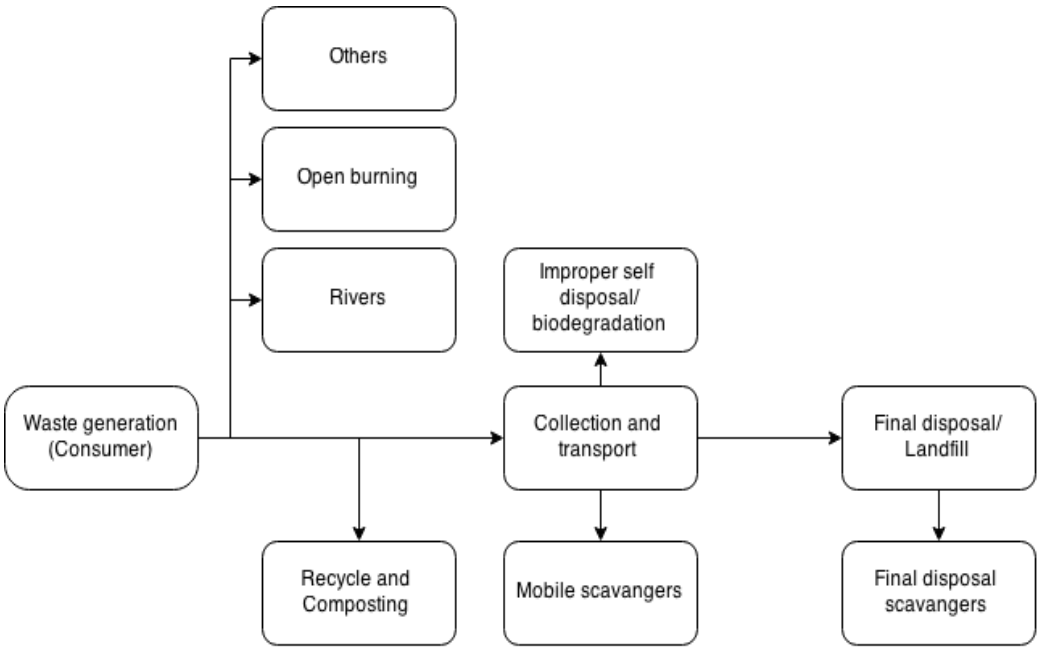

Figure 7 Municipal solid waste flow in urban area of Indonesia, simplified based on Damanhuri et. Al (2009)

This figure provides a general overview of the solid waste flow of an urban city in Indonesia (37). This research was carried out in the city of Bandung in 2009 to address the problem of increasing unsanitary conditions due to the increase in population. Waste generated by consumers is disposed of by burning, throwing into rivers, or to a lesser extent recycling and composting. The majority of the waste however is collected to be transported to landfill. During this transport some waste volume is lost due to improper disposal or biodegradation, and also by collection through mobile scavengers. Upon arrival to the landfill, independent final disposal scavengers will work through the waste.

3.2.3 Wheat and Flour

Indonesia is not a producer of wheat, as it does not possess the correct climate for cultivation. FAO statistics report that wheat was the commodity imported in the highest amount by value and volume in 2011 amounting at 2,194 million USD and 5,604,861 tons respectively. In addition to that, flour of wheat was the 6th most imported commodity by volume amounting to 686,003 tons (38).

Table 3 Indonesia Top Ten Import Commodities (quantity) 2011 (38)

	Commodity	Quantity [t]
1	Wheat	5.604.861
2	Maize	3.207.657
3	Cake of Soybeans	2.938.556
4	Sugar Raw Centrifugal	2.371.250
5	Soybeans	2.088.616
6	Flour of Wheat	686.003
7	Cotton lint	546.997
8	Feed Supplements	539.657
9	Cassava Starch	435.419
10	Garlic	419.090

In an article in March 2014 Bloomberg Business reported that Sutarto Alimoeso, head of government owned food distribution and price control company BULOG (Badan Urusan Logistik / The Indonesia Bureau of Logistics) stated no imports for rice were needed in 2014 as Indonesia strives to reach rice self-sufficiency, bridging the gap by importing more wheat products. Consumers are increasingly exposed to global taste and wheat products are becoming more familiar and accepted to consume (39).

Indonesia, China and India together account for 60 per cent of world rice consumption. Although Indonesia the third largest producer of rice, it is also the top five rice importer. There is a trend to offset rice consumption for wheat, especially in the younger households, as younger Asians are more accustomed to a variety of foods due to a globalized taste (40–42). On analysis of income versus rice consumption, Timmel et al. found that the consumption of rice fell 6% over 39 years whilst the income grew by more than 400%, thus projecting that the consumption of rice will continue to decline in the future (43).

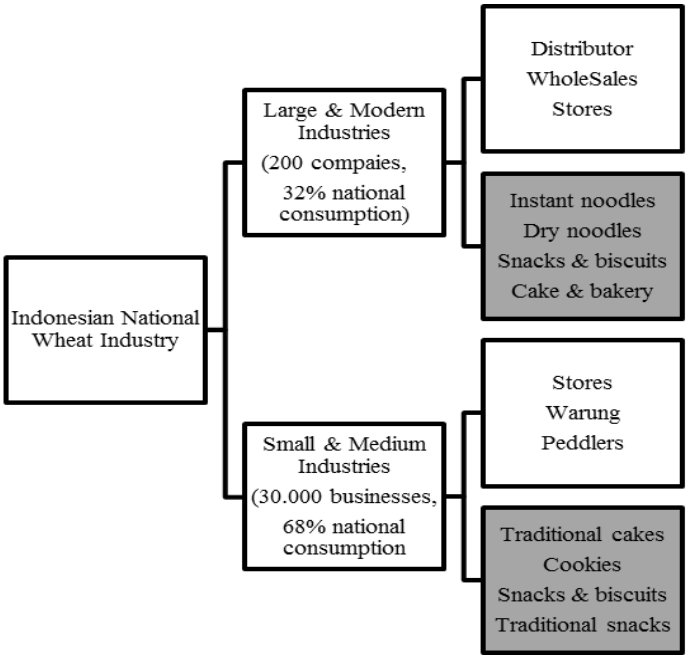

Figure 8 Indonesian National Wheat Industry (44)

The Jakarta Post reported in July 2013 that the Indonesian Bakery Association (APEBI) chairman Chris Hardijaya stated a growth of sales in fresh bakery products such as bread and pastries in 2012 by 12% to 30 trillion IDR. (45) The Tribun Network reported data from the Indonesian Association of Wheat Flour Producers (APTINDO) that flour from Indonesian mills reached export value of 9.4 million US$ for the first quarter of 2014, an increase of 30.6% compared to the same quarter in 2013.(46)

Bread and flour consumption in Indonesia is on the rise as reported by the English online newspaper Jakarta Globe (47,48). It is reported that grain consumption has doubled since 2002 in Indonesia, all of it sourced from imports, as the country's climate does not allow for cultivation of wheat. Bread is considered easy, convenient break from traditional Indonesian dishes. The rise of incomes and higher exposure to western cuisine is influencing a continuing rise in the demand of bread, cakes, and pastries.

Keeping grains safe from high humidity, pests, and mycotoxin infestations are the challenge still present at both farm and retail level (43).

A study by Nanang conducted in 2000 on the effect of branding of flour products on the Indonesian small and medium enterprises, bought flour based on the specific product attribute of which flour would yield the best result in their products be it noodles, traditional cakes, or bread. Price and brand carried less influence in comparison. Nutritional profile and package design were not influential in the

purchase decision (49). In contrast, another research by Fabiola also in 2000 found that in households, high nutritional content, affordable price and smooth flour texture highly influenced consumer choice. Preferences in brand was recognized at two extremes, brand loyal and no preference between brands as the quality is perceived the same (50).

Another research on Indonesian flour processors SME in the island of Madura compared preference between flour products varied in flour texture, packaging type and price. The most preferred product for consumption in home was a dry white flour, sold in plastic bags at 5.000 IDR (0.38 USD) for 1kg. The plastic bag was seen as more practical and can store the product for a longer time compered to sacks. For SME, the preferred format was dry white flour, sold in sacks at higher amount of 10kg or 25 kg depending on the size of the business (51).

Suryaningsih reported in 2002 that consumers in Yogyakarta choose flour based on product attributes but in difference to Nanang's study found that consumers ranked product design and communication of nutritional facts as highly influencing product selection (52).

3.2.4 Legislation for Food and Packaging

The essential role of the government is to regulate the market, and to drive the market in direction of development has been indicated through several past research in Malaysia, a neighbouring country to Indonesia with similar profile (53). If the market is to be driven towards environmentally sustainable development, government policies and regulations can act as the catalyst for change. The regulatory bodies often referred to in the case of food and packaging are found in the table below:

Table 4 Regulatory bodies for food in Indonesia

Name	*Abbreviated Name*	*Name in English*	*Regulation of*
Badan Pengawas Obat dan Makanan	BPOM	National Agency of Drug and Food Controls	Food and drugs
Standar National Indonesia, formulated by Badan Standarisasi National	SNI, formulated by BSN	National Standard of Indonesia, formulated by National Standardization Agency of Indonesia	Products, services and trade
Kementerian Kesehatan Republik Indonesia	KEMENKES	Ministry of Health of Republic of Indonesia	Standards in nutrition and health
Kementerian Pertanian Republik Indonesia	KEMENTAN	Ministry of Agriculture of Republic of Indonesia	Crop cultivation and agriculture
Kementerian Perindustrian Republik Indonesia	KEMENPERIN	Ministry of Environment of Republic of Indonesia	Standards in industry
Kementerian Linkungan Hidup Republik Indonesia	KLH	Ministry of Environment of Republic of Indonesia	Standards toward green economy

The legislation that regulates labels on food packaging and advertisements of food is the Government Regulation of the Republic of Indonesia of 2008 and 2012 Number 18 (54). This legislation aims to ensure honest and fair trade of food, manage and control information conveyed through ads and packaging to consumers.

The legislation that regulates household waste is the Government Regulation of the Republic of Indonesia of 2008 Number 18 and 2012 Number 81 (54). The legislation is based on 3R: Reduce, reuse, and recycle.

The aim of this legislation includes:

- Manufacturers (*Produsen)* are required to take part in the reduction and recycling of wastes either through direct or indirect activities.
- Final processing of waste is done by local government *kabupaten.*
- Waste is managed in controlled landfills, hygienic landfills, or compacted.

- Does not have separate clauses for different types of wastes. Waste is categorized as any waste material produced in the home.

Badan Standarisasi National (BSN) or the National Standardisation Agency of Indonesia is responsible for standardization with objective to improve quality, protect consumers, and facilitate trade of products and services. The technical committee of the BSN formulates the Standar Nasional Indonesia (SNI) or National Standard of Indonesia. This standard is not a mandatory requirement for the creation of products or services in Indonesia, however the government with the objective to protect the society, national safety, national economy or environment may enforce some regulations.

Table 5 SNI related to packaging

Regulation Reference	Content
SNI 7818:2014	Degradable plastic bags
SNI 7626.3:2014	Standard operating procedure on analysis of migration in PVC food packaging
SNI 7741:2013	Standard operating procedure on analysis of migration in plastic food packaging
SNI 8143.1:2015	Standard operating procedure on analysis of polystyrene residue in foodstuffs
SNI CAC/RCP 1:2011	General food hygiene principles

A search for SNI regarding paper packaging for foodstuffs did not show any results, perhaps due to the low number of existing paper packaging in Indonesia.

The Indonesian Ministry of Industry published Permen Industri No24/M-IND/PER2/2010 regarding the use of the food safe label, and recyclable labels (55). The Indonesian Ministry of Environment published Permen LH no. 02 Tahun 2014 regarding Eco-label logo. To be able to display this logo, verification must be given from Lembaga Sertifikasi Eco-label (LSE) or the Eco-label Certification Agency (56). The Eco-label is a non-mandatory label.

The FSC or Forest Stewardship Certification that is approved in Indonesia is the FSC-STD-IND-01-01-2013 Indonesia Natural Plantations and SLIMF (Small and Low Intensity Managed Forests) (57).

3.2.5 Trends towards Sustainability and Green Marketing in Indonesia

There have been increasing amount of research regarding 'green' products and marketing. Green marketing has been described by Oyewole in 2001 as (58):

1. Using packaging and raw materials that are recyclable, reusable, photodegradable and/or biodegradable.
2. Pollution-free production process
3. Aerosol-free raw materials
4. Pesticide-free farming
5. Anti chemical methods of food preservation
6. Less bulky packaging that uses less of the raw material
7. Natural, as against synthetic fertilizer.

Segmentation of the consumer based on personal health and environmental sustainability has been proposed with different levels of 'greenness'. The LOHAS (lifestyle of health and sustainability) segment is strongly motivated for environmental stewardship. Naturalites segment are motivated by their own health. Drifters are motivated by the latest trends. Conventionals are motivated by practicality and frugality. Unconcerned are hardly motivated by the environment at all (59).

A product's 'greenness' or environmental performance is evaluated by the consumer based on a few key product attributes. (60) An increase of environmental knowledge has been found to influence more sustainable consumption behaviour (61,62).

In 2012, the Coca-Cola Company in Indonesia launched a green marketing campaign for their bottled water brand, Ades, called *Pilih-Minum-Remukkan* or Choose-Drink-Collapse. The campaign advertised a water bottle that was designed to be easily collapsed after use to minimize the space taken up in garbage (63). Septindo et. al conducted a research in 2012 to investigate the impact of the green campaign to consumer loyalty in a group of high schoolers in the Indonesian city of Yogyakarta. They found that the campaign led to the product accepted cognitively and affectively (emotionally) as a green product with positive environmental attributes. The consumer behaviour observed in term of brand loyalty was only 'moderate', where the consumer felt the campaign was not persuasive or informative enough, citing reasons that Facebook was used as the main platform yet excluded many other online social media platforms that are popular with the youth (64).

PT Ultrajaya, an Indonesian producer of aseptic beverages produces a ready-to-drink tea called *Teh Kotak* started a green marketing campaign in 2013 called 'Thanks to Nature' also called 'Untuk alam' which literally translates into 'For Nature'. The

campaign focuses on the packaging of the drink which is FSC certified and hosts an educative approach on the website www.untukalam.com (65).

A study conducted by Idaman in 2012 on consumers' attitude towards organic rice in Sukabumi reported that price, nutritional content, and product information on the packaging were the main factors of influence in making a purchase decision. 'Green product attributes' were not highly influential in the decision making process (66). Wen and Li reported that health related attributes increased purchase intention towards green products (67).

3.3 Indonesian Consumers

3.3.1 Consumer Demographics

Indonesia is the fourth most populous country in the world with 248.8 million people in 2012 and a population growth of 1.37%. It is a tropical archipelago situated on the equator and located in southeast Asia. The temperature ranges from 14.4C to 38.8C with an average between 23.4C-28.1C. The relative humidity ranges from 73.8% to 87%. The differences in temperature and relative humidity are affected by the different topographies such as coastal areas, valleys, slopes and flats. Precipitation in 2012 ranged from 760mm to 5041mm, while duration of sunshine ranged from 42.3% to 81.4% (68).

Java Island is the most densely populated island of Indonesia. According to 2013 FAO data, the density ranged from 803 Persons per sq.km in the largely rural province of East Java to 15015 persons per sq.km in the metropolitan city Jakarta, also the nation's capital. Hence 57.44% of Indonesia's population resides in Java. Average household size in 2013 is 3.9 persons. Main agriculture produce is rice, corn, soy, peanuts, cassava and sweet potato (38). Indonesia GDP is increasing over past several years with value of 9083972.2 billion IDR (683 billion USD) in 2013 and a growth rate of 5.78%, which is a slightly decreased value, compared to 2012. The national GDP is in the top 5 of Asian countries in 2012 with second highest growth after China (38).

Table 6 GDP of Asian Countries 2013 World Data Bank (69–71)

Country Name	GDP (current US$) billion US$			2013 GDP per capita (Current US$)	2013 GDP growth (annual %)
	2011 [YR2011]	2012 [YR2012]	2013 [YR2013]		
China	7,322	8,229	9,240	6,807	7.7
Japan	5,906	5,954	1,304	38,634	1.6
India	1,880	1,859	1,875	1,497	6.9
Korea, Rep.	1,202	1,223	1,304	25,977	3.0
Indonesia	**846**	**877**	**868**	**3,475**	**5.8**
Thailand	346	366	387	5,779	1.8
Malaysia	290	305	313	10,538	4.7
Singapore	274	287	297	55,182	23.9
Philippines	224	250	272	2,765	7.2

3.4 Indonesian Retail

3.4.1 General Overview in Indonesia

According to research into the Indonesia Retail sector by the USDA, the modern retail markets are chosen by consumers due to added value in services including food safety assurance, convenience, information, variety and comfort (72). Below is an overview of the retail landscape in Indonesia

Table 7 Retail Categories in Indonesia (adapted from (1))

Trade Category	Type of Retail	Description
Modern Trade	Hypermarket	Very large, modern food stores with ten or more cash registers. Carrefour, Giant, Makro, Hypermart
	Supermarket	Large, modern food stores with 3-9 cash registers. Independent stores or part of chains such as Hero, Matahari, and Yogya.
	Minimarket/ Convenience Stores	Small, modern stores with 1-2 cash registers. Indomaret, Alfamart are the two largest chains asides from other popular stores 7-11 and CircleK.
Traditional Trade	Warung/ Small Shops	Family owned stores located in a building or part of a house, often in residential areas.
	Semi-permanent stands	Vendors who remain stationary selling from a table, stand, cart, or stall that can be moved when the day ends.
	Traditional Wet market	A large space/building area where numerous vendors set up shop at tables or stores.
	Peddlers	Mobile small-scale vendors who sell throughout the day by carrying goods on foot, by bike or cart.

A survey of shopping habits at different retail types in Indonesia was conducted by the International Food Policy Research Institute in late 2010 and early 2011 of 1180 urban households in three major cities (73). Minimarket/Convenience are the retailers with the smallest store area and number of brands. They generally do not provide fresh produce. Supermarkets have a larger store area (500-3.000 m^2) and number of products (around 15.000 brands). Hypermarkets occupy the largest space (5.000 – 12.000 m^2) provide a large assortment of products (25.000 - 50.000 brands) in the largest range of categories from fresh, grocery, to household (74).

Modern retail has a relatively higher price but can be afforded by the rising number in middle class, which looks for the extra value provided in the services at the modern retail. Seventy-three percent of urban population uses modern retail outlets, while practically the entire population visits the traditional market. Traditional outlets are visited more often, while modern markets are visited less and often require travel by motorbike or other vehicle. The analysis conducted by IFPRI indicated that higher income, larger household size, higher education, younger age of household head,

ownership of refrigerator and ownership of vehicle contribute to higher share of shopping at a modern outlet. The research projects a 9% growth per year at modern retailers, reaching more than double over a span of 10 years. The traditional retailers on the other hand, will continue to grow with a slower rate. Traditional trade is the choice for fresh produce, meats and fish (75). Flour is available in modern retail and traditional trade alike. Usually the flour products at traditional are unbranded, or are of Bogasari brand bought in bulk and sold in small portions by the traditional trade retailer.

In Suryadama's research with supermarket managers, supermarkets was perceived as carrying goods with relatively high quality, had proper price tags, compete on price in single purchase and in sometimes in bulk discounts. They also found corresponding findings to IFPRI's research in that supermarkets were more attractive due to clean sanitary conditions, bright environment, closeness to other amenities such as food court and toilet and through increased flexibility of paying through different options such as using cash or using credit cards.

Recent changes in the retail market include entrance of international retailers, Makro has been bought by Korean owned retailer Lotte in 2008, and Lotte continues plans to open supermarket with focus on affluent market and stock imported and high-end products (76). There has been a change in ownership as Carrefour was bought by Indonesian company CT Corp on 19th November 2012. Following the change in ownership, the company's name is changed to PT. Trans Retail Indonesia, previously PT. Carrefour Indonesia (77).

More upper scale markets have been opened especially in metropolitan Jakarta in malls such as Ranch Market, Farmers Market, and Hero. Minimarkets have seen the largest growth of modern retail in the past years as Indomaret and Alfamart both aggressively open stores continually to increase their number of outlets across the country. Both retailers see to provide value through other services, such as Indomaret launch of travel and courier services, and Alfamart's focus on online sales (76).

Almost all Indonesian retailers have private label products. Private label has been seen to be a growing trend in global retail (78). Challenges in the development of private label products are within logistics, maintenance of supply and consumer perception of low quality products. However when successful, private label products have the potential to be profit contributors, and help build brand image.

3.4.2 Modern Retail Practices

Suryadama conducted a research in 2010 where a number of supermarket managers in Indonesia were interviewed and it was found that goods were procured by the merchandising department through both contractual and non-contractual agreements. Contractual agreements are usually for meat and vegetable products that must past the national standard set by the country's Food and Drug Monitoring Agency (BPOM). Contractual agreements are managed through consignment. Non-contractual agreements are negotiated case by case and are applicable to all types of products. A display fee and a long credit period is a normal custom set by the retailer (79).

Category management is the activities surrounding the management of products within categories, instead of by individual brand (80). Category management can occur without input from suppliers however is assumed to benefit from collaboration and complementary knowledge obtain through retailer-supplier partnerships (81).

3.4.3 Power of Retail vs. Suppliers

In the west, it is somehow perceived that retailers have had power over suppliers. In the UK according to WPP communications company CEO Martin Sorrell, with the increase of e-commerce manufacturers are strengthening their position to make sales directly to consumers. (82). In Indonesia, modern retail has developed with the entrance of foreign retail chains such as Carrefour from France and more recently Lottemart from Korea (74). Modern retail is mostly focused in urban area targeted toward AB-socioeconomic group. Manufacturers were just starting to strategically place their focus in supermarkets as a distribution channel for the seven largest cities in Indonesia.

3.4.4 Retailer Environmental Initiatives

Below is a list of existing environmental programs and strategies of Indonesian retailers:

Table 8 Indonesian Retail Environmental Initiatives

Retailer	Initiatives
Alfamart	• CSR: ALfamart Clean and Green Reduction of plastic bag by use of environmentally friendly bag.(83) • Donation of 4500 trees in *Save Tree Save Water For Future* (Mangrove rehabilitation program) (84)
Indomaret	• CSR: 2014 program to initiate awareness on cleanliness of environment (85) 2007 program to educate kids to care for environment by living clean and sparingly.(86)
Hero	• CSR Hero Peduli (Hero Cares) 2014 Community cleaning program (87)
Ranch Market	• Mission: "It is our responsibility to serve customers a top-notch grocery shopping experience with the provision of the freshest products in an environmentally sound manner as well as encouraging a healthy lifestyle through the integration of health and pleasure. (88) • Core Values: "We reassure food storage safety. (Ranch Market is certified with the ISO 22000 for Food Safety and is the only HACCP certified supermarket in Indonesia). We advocate social and environmental sustainability. We nourish fresh products among the customers to promote healthy living. We cater to individual desires. We host a wonderful in-store experience."(88) • 2010 Seafood saver program • 2009 Reforestation of Gunung Rinjani with WWF
Carrefour	• 2013 Sedekah Buah program: donates fruits that aren't sellable to serve as food for endangered species animals (89) • 2013 Plastic Bag Diet: one day without plastic bag program (90)

The environmental programs in current Indonesian retailers are mainly one-time corporate social responsibility campaigns as indicated through inconsistent programs throughout the years and lack of explicit support to environmental sustainability in the vision and mission of the companies. The exception is Ranch Market, which has details on environmental sustainability.

3.5 Business Strategy

3.5.1 Design Thinking

Design thinking is an iterative approach to solving problems and developing solutions based on the following four main rules (91):

1. The human rule : people centric efforts. Design is made not only keeping the end user in main consideration
2. The ambiguity rule: innovation demands experimentation at the limits of knowledge
3. The re-design rule: human needs have existed before and rely on context
4. The tangible rule: making ideas tangible aids communication

Meinel & Leifer provide an outline of the design thinking process in 5 steps: Defining the problem, need finding and benchmarking, ideation, prototyping and lastly testing. These steps are further simplified by Tim Brown into three 'I' stages: inspiration, ideation and implementation (7). Defining the problem, need finding and benchmarking fall into the inspiration stage. Ideation stage consists of ideation, while implementation stage consists of prototyping and testing. The different stages may be encountered in a non-linear fashion as many iterations are made as the process converges and diverges with time.

3.5.2 The Business Model Generation

In order to create a business strategy to further implement the change of plastic into paper, tools from the Business Model Generation by Strategyzer were used (92). The business model canvas is a tool used to design, change, challenge, and drive the way a business is conducted using an entrepreneurial mind-set. The value proposition canvas is a tool designed to aid in designing products and services. Within these tools, the consumer is put at the center of attention, and the consumer's needs and requirements are approached through an empathy map. These tools are copyright of Strategyzer and the website claims that the methodology is practiced by many existing companies including Microsoft, WWF, and Ericsson (93).

4 Results and Discussion

This chapter describes results found from the preliminary qualitative research, the store visits, and the interviews. The results are presented and discussed guided by the three research questions.

- **Research Question 1: How do consumers and retailers perceive (current) plastic flour packaging versus (alternative) paper packaging?**
- **Research question 2: How do the consumers and retailers in Indonesia view environmental sustainability?**
- **Research Question 3: How does the handling by different actors in the supply chain influence the product until it becomes available in the retail outlet?**

To answer the first research question, both packaging alternatives are presented. The current displays in retailers obtained through market visits will also be presented here. This will be followed by the storage and usage patterns of the product by consumers. An analysis of how the consumer and retailers evaluate flour products is made, followed by the perception of both packaging alternatives. Finally, the discussion is then closed with an analysis on the relationship between consumers, retailers and manufacturers.

The second research question is discussed by examining the perception of consumers and retailers towards environmental sustainability.

The third research question is then discussed based on insight from the retail interviews and a risk assessment is presented.

4.1 Data Collected

A preliminary research was conducted in the form of an online survey regarding the usage of flour. This quantitative data collection method was performed to obtain an overview and feel of the market. The survey data was collected from 373 respondents through social media platforms Blackberry messenger, Facebook, WhatsApp and Line. The respondents profile varied. However they have a similar profile of urban dweller and have access to Internet and good understanding of technology in the ability to access the survey. The results represent the behaviour of this particular group and may not be a correct general representation of all flour consumers.

The responses were sorted based on whether the respondent was the purchaser of the flour in their household. Respondents who had purchased flour themselves could answer the questions based on their factual experience, while respondents who had not purchased flour themselves, could answer the questions based on their best knowledge. Of the 373 respondents, 131 respondents purchased the flour themselves, and 153 respondents had not purchased the flour themselves.

Two groups were interviewed for the results of this thesis: flour consumer and retailers. Detailed lists can be found in the appendix.

The consumer interviews were conducted with 9 females between 26-45 years of age, living in Jakarta and they can be considered of middle to high socio-economic level based on combined evaluation of their education level (minimum bachelor), spouses' educational level (minimum bachelor), car ownership and the author's observational analysis. Females were chosen as the quantitative preliminary research indicated females were the primary users of flour. Middle high socio-economic level were chosen as environmental sustainability concepts are more likely to be understood by these persons. Furthermore, this group has higher purchasing power, putting them in the suitable position to buy the more costly environmentally sustainable product

A total of 10 retail interviews were conducted consisting of 1 academia, 1 sales of manufacturing company, 2 merchandisers, 2 private label merchandisers, 1 packaging manager, 2 trade experts and 1 store manager. More details of the interviews and interviewees can be found in the appendix. In addition, 7 merchandisers from various retails, 1 manufacturing sales, 1 marketing manager at Food Hall, and 3 store managers were also contacted however declined to be interviewed.

4.2 Research Question 1: How do consumers and retailers perceive current plastic packaging vs. alternative paper packaging for flour?

4.2.1 Paper Packaging Alternative

Two paper bags were provided in this research, a 1kg and 2kg Kraft paper bag with colour printing. Bleached kraft paper material for the mock paper bags is provided by BillerudKorsnäs. Third party companies whom collaborate with BillerudKorsnäs then convert and print the paper into bags. The potential advantages of this package are environmental sustainable package in comparison to plastic. Plastics violate the second system condition of the FSSD (28), while paper sourced from sustainable forests uphold all four system conditions.

4.2.2 Current Packaging Alternatives

4.2.2.1 Bogasari Flour Mills

The flour market in Indonesia is currently dominated by Bogasari Flour Mills. Bogasari is part of the large Indonesian packaged food company PT Indofood Sukses Makmur, Tbk. The business is focused on providing quality wheat flour for the whole region of Indonesia, improving labour competencies and implementing efficient technologies and processes. Bogasari has two factories, one in Jakarta established in 1971 and one in Surabaya established in 1972. According to the Bogasari website, together these factories have the capacity of producing 3.2 million tons per annum. (94) Besides wheat flour, Bogasari also produces pasta under the brand name La Fonte and has established a baking school Bogasari Baking Center (BBC).

As the market leader, Bogasari's packaging has become the point of reference for other brands. In the development of private label brands, the packaging is made to be as similar as possible to the Bogasari brand. Bogasari has 3 main brands: Cakra Kembar (For breads and noodles), Segitiga Biru (All purpose), and Kunci Biru (For cookies, cakes and biscuits). The protein content information is available in the nutritional composition section on the packaging with Cakra Kembar has high protein content, Segitiga Biru has medium and Kunci Biru has low.

Table 9 Packaging specifications: Bogasari Plastic Bag 1kg

The packaging specifications were made based on author observation and consultation with packaging experts. (95)

Parameter	Description
Print	Color, one side
Manufacturing	Simultaneous fill and form line
Material	LDPE
Weight	6-10g per bag
Width	20cm
Height	28cm
Side gusset	8cm
Additional features of the packaging	See through window on side. Recipe on back.

Packaging attributes:

- Product purpose description (For cakes, cookies)
- Company name
- Brand
- Picture of results
- Halal Logo
- Company address
- Content weight
- Ingredients
- Nutritional Information
- Recipe

Figure 9 Overview of current packaging (94)

Bogasari as the leading brand is regarded as the packaging reference in terms of packaging material but is also possibly regarded as a reference for the layout and packaging composition.

Figure 10 Alternative packaging (3 left products) vs. current packaging (right product)

4.2.2.2 Retail landscape in Indonesia

Based on the interviews and store visits, the retail landscape in Indonesia is portrayed in the diagram below.

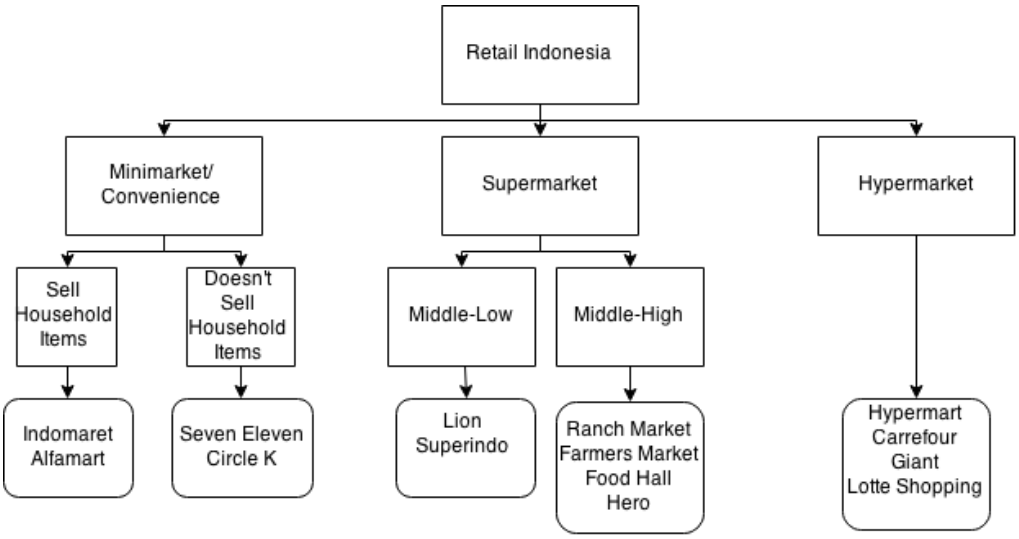

Figure 11 Retail Landscape in Indonesia

*Note, the official status of Seven Eleven and Circle K have restaurant permits, as it is difficult to get a retail permit in the densely populated urban areas.

Premium supermarkets have been identified as the most suitable segment for environmentally sustainable products to be sold as they cater to the more affluent market segment.

Figure 12 Quantitative Survey on Purchase Location of Flour

The figure above is based on 131 respondents who bought the flour themselves**.** Similar results were found within the respondents who did not buy the flour themselves. Warung is the local neighbourhood shop, set up by a local habitant. The results of the survey indicate that within the group of respondents, flour is primarily bought in modern retail outlet, dominated by hypermarket and minimarket with 41% and 20% respectively.

During the user interviews, the cited place of purchase was hypermarket (during monthly shopping) and minimarket. Monthly shopping is a typical Indonesian activity, referring to a trip to the retail store to buy many things to last the entire month. Intermediate visits to stores, or 'top up' shopping is done to purchase items required in small amounts. The traditional market was not the place of purchase for any of the users interviewed, during 'emergencies' they would buy flour at local warung or minimarket as the close distance of these stores from the user's house made it convenient for top up purchases.

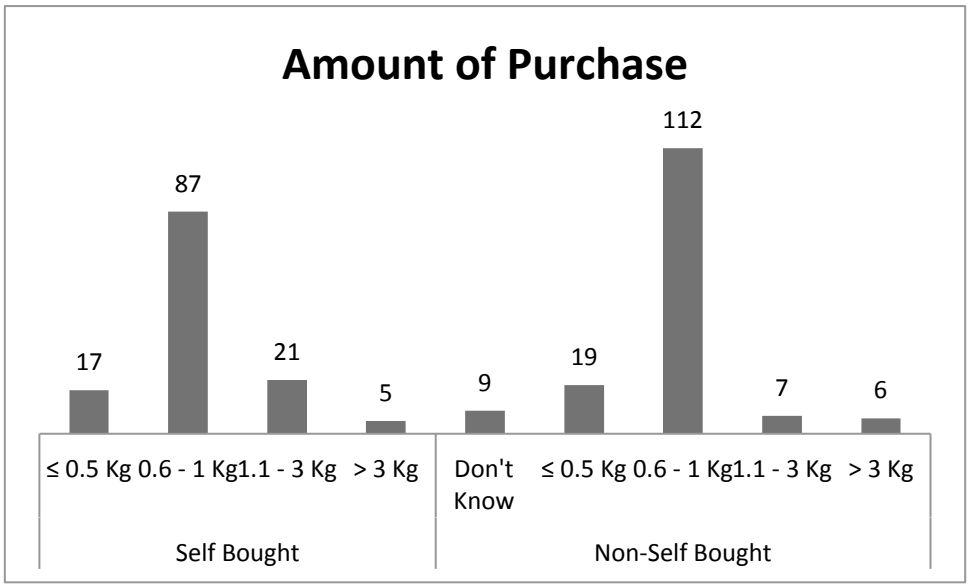

Figure 13 Amount of flour bought per purchase

The most appropriate size of packaging for flour is 1 kg for mass market, 25 kilos in cloth sacks for small industries/stores. One wholesale retailer was exploring 5kg option. This is in reference to the usage of flour by Indonesian consumers, flour is not a main commodity such as rice, however is a staple in most homes. The survey also confirmed that 1 kg was indeed the amount most bought.

Interview results indicate Bogasari flour to be the 'top of mind' brand among consumers. As a result of the store visits, it is clear that Bogasari flour products were observed to be available across all chains with a dominance in the display.

Pictures of the field visit are presented below, with a highlight on the Bogasari brands.

Figure 14 Flour display in Alfamart minimarket

Figure 15 Flour display in Indomaret minimarket

Figure 16 Flour display in Carrefour (left) and Giant (right) hypermarket

Figure 17 Flour display in Hypermarket hypermarket

Figure 18 Flour display in Hero (left) and Ranch Market (right) premium supermarkets

4.2.2.3 Behaviours in Purchase and After Purchase of Current Packaging

The quantitative survey indicated that the majority of people who responded in the survey had a stock of flour at their homes.

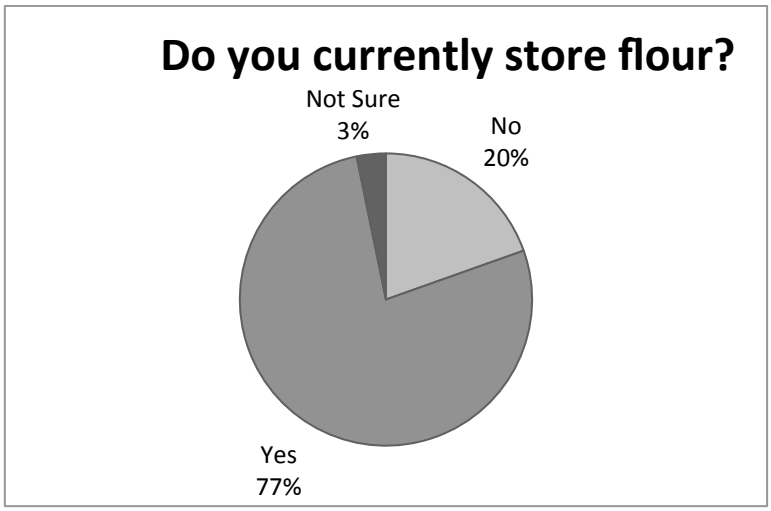

Figure 19 Percentage of consumers with a stock of flour

The usage of flour, as could be expected, is typical for daily side dishes. Families who cook at home will typically have a stock of flour at home. Purchase of flour is planned from home and usually done during the monthly shopping. These results were found both in the quantitative survey and during the interviews.

4.2.2.3.1 Storage

Flour is stored in the home in two primary locations, in the fridge and in the cupboard.

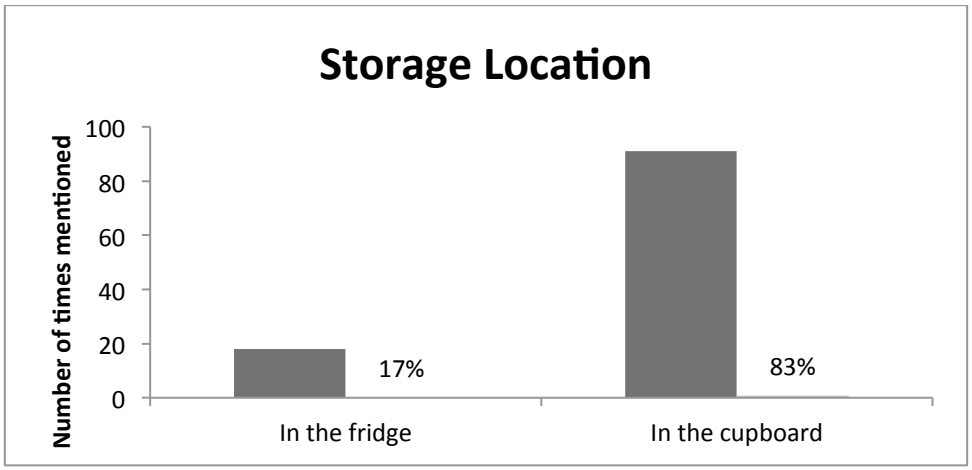

Figure 20 Quantitative results on flour storage location

During the interviews, several consumers claimed to sometimes store flour in the fridge, however did not have any product currently stored this way at the time of the interview. Consumers claimed that they would store in fridge if it would still require some time before they used the flour.

Figure 21 Picture of flour storage in cupboard

Consumer methods of storage found in this research was done in two ways. The first method is by folding and securing the opened package with a rubber band. The consumers who do this are likely to use flour less often. The second method is by using various types of containers container. The container can be a Tupperware or plastic box, or plastic bag. Inserting the flour bag into a plastic bag serves as a double layer. When using a hard container, it's possible to insert the entire plastic bag of flour into the container, or to pour the contents out. Consumers who tend to spend more time in the kitchen, or create baked products on certain occasions will empty the

flour into other containers. The function of this is for cleanliness, convenience, and food safety.

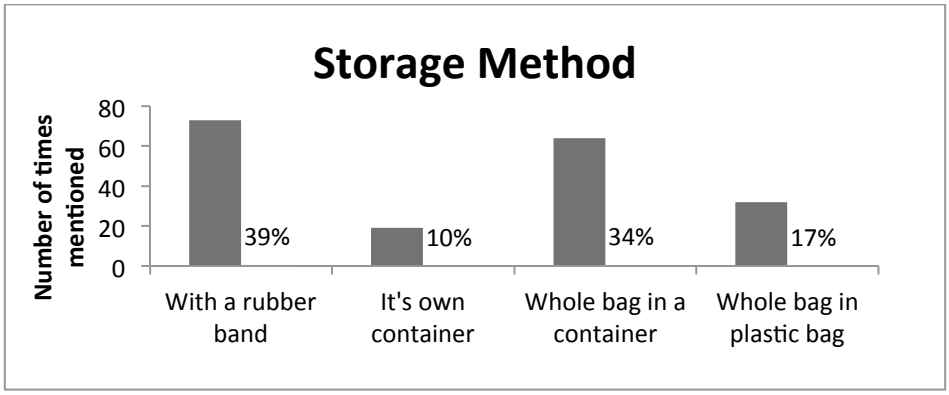

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Figure 22 Quantitative results on flour storage method

Figure 23 Storage of flour with rubber band and close up

Figure 24 Flour storage poured into containers

When consumers have different types of flours, they were found to devise a system to label the different types of flours in their storage. Consumers who often bake cakes at their homes usually have a separate ‘baking’ storage area. The consumers who do this are more serious users for small-scale business or as a hobby, or cited a previous a bad experience with insects.

Figure 25 Baking equipment separate storage

After use, the package is then thrown away afterwards. In one case, the consumer would use the plastic bag to mix dry ingredients of a recipe before throwing the bag away.

4.2.2.3.2 Problems

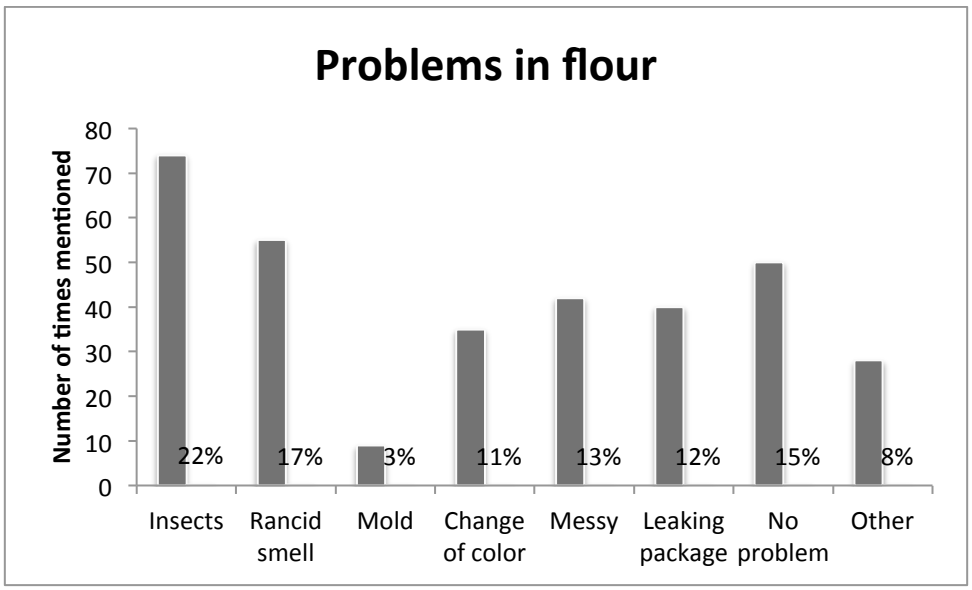

Figure 26 Qualitative results on problems with flour

The other problems mentioned included allergy, and spilling of flour during cooking (because the plastic bag was unable to remain upright on it's own). The main problem found in flour is insect infestation. This was also mentioned during the interviews.

During the interviews, none of the users mentioned having experience with rancid smell, or change of color. The typical problems described messy storage (e.g. Spilling, and leakage) and infestation of insects. The problem with messy storage is tackled by using a dedicated container that is easy to open and close and has a good seal. The flour can then be taken out of the container using a clean spoon. Usage of container is also perceived to prevent insects.

"(I store the flour) In a container. It's more convenient when I use it. Just need to open, take the flour with the spoon and done. Neater and cleaner and better usage of space." Consumer, small business owner.

4.2.3 Requirements for Flour Packaging

Consumers and retailers were asked to explain what aspects came into their evaluation when purchasing a product and in the listing of a new product, respectively. The detailed list of answers can be found in the appendix.

4.2.3.1 Consumer Requirements

The main consideration by users in the purchase of flour is the type of flour based on what they intend to cook. This is expressed through the brand name or through protein level. Price does not come into great consideration because of low variation between prices as there are not many flour brands. The three Bogasari brands are categorically in the same price range. Difference in price may be sought out by purchasing the product at different retailers.

Bogasari's three brands are mentioned and used by all the users. It is recognized to be the most common type of flour available in the stores in large quantities. The subbrands are recognized to have different purposes based on the type of product the user intends to make. Most recognize that the purposes change based on the protein level, although unable to describe how the protein affects the product specifically, claims of changes in appearance and texture of the finished products are made based on the individual experiences of the user. This supports the findings of Nanang in 2000 on the effect of flour branding among small and medium enterprises.(49)

"Different flours have the different function, it's written on the package. So I buy according to what I want to make. My mom used to tell me, if you don't want the cooking to fail, you must use the right type of flour." Consumer, housewife.

Generally speaking, packaging is associated with the visual design of a product. The role of packaging is primarily seen as communication tool for the product. In this sense the packaging is has high priority to fulfil the communication role as defined by Lockamy III (12). The packaging does not only communicate what the product is, it also conveys what type of product it is (i.e. premium, standard, cheap), and the correlating price.

"These days design makes such a big influence. People don't really care what the material is made of, but when they find that the design is very cute, attractive, or classy, then they will buy it. And it's considered a plus that it turns out, the product is also environmentally friendly. So you get a bonus for a cool item!" Consumer, environmental expert.

Convenience is seen as an added value, giving the impression that the standard packaging is not designed to provide convenience.

4.2.3.2 Retail Requirements

The retail experts were interviewed in their capacity as merchandisers and what is evaluated in a new product during the listing process.. The listing process is the process in which a supplier proposes a new product to be included in the retail's assortment. The common practice in the field is that the supplier will provide a technical description of the product and the packaging, a mock or sample product, a pricing description, and sometimes a marketing strategy/plan for the merchandiser to evaluate. As not all the retail experts had specific experience in handling dry food category, the question was answered based on their relevant experiences. However this evaluation is assumed to be directly applicable in the specific case of flour as well.

For a product to be accepted into the retail's assortment, it must fulfil the basic requirements of packaging according to regulation and have appropriate documentation. Compliance to regulation is a must before the merchandiser can make any evaluation based on the product itself. In terms of specific product attributes, the merchandiser will identify what food category the food falls in to, the merchandiser can then make comparisons with existing products within that category. Comparisons are made based on what need the product caters to what different values the product provides, the cost of the product for the consumer and retail profitability. Evaluations will depend on the retail as different retails target different types of consumer.

Profit is of main concern for the retail. Higher profit can be achieved through products with higher profit margins, earning more profit per product sold. Higher profit can also be achieved through products with lower margins, but sell in large volumes. A balance between profit margin and sales turnover is then also considered during product evaluation. The retail recognizes it has limited space in their stores, thus it is essential to optimize this space available and earn the maximum amount of profit in that space.

When evaluating a package, the retail experts were seen to have a quite clear criteria on the requirements. These requirements would also depend on the different retail, as each retailer targets different market segments. Similar to consumer perception, packaging was strongly correlated to the visual design of the product. It is seen of high importance to make the sale. This supports previous research where packaging has function to be the silent salesman, and a key factor in the first moment of truth. (17,19)

"(Packaging is like) the clothes of a person, which draws one to know the product more." Meshvara Kanjaya, trade expert.

"(Packaging is) very important, to call the consumer to choose the product because we cannot stand there and 'offer' the product to each consumer in the store." Merchandiser at Indonesian minimarket chain.

Another function of packaging that was also described by Lockamy III is protection (12). The retail experts expressed the view that protection was seen as a mandatory requirement for the product, citing the safeness of the material towards the contents of the product.

Similar mind-set was found within consumers, as when discussing packaging, the users tend to speak first about the visual attributes of the packaging. It is clear that packaging is directly associated with design and visuals. Food safety, quality, and convenience are functions that came out later in the discussion with consumers and retailers. Despite being mentioned later, food safety and quality are consistently stressed to be of greater importance than the design of the packaging. Often, the food safety and quality is assumed to be met when the product is produced by a trusted manufacturer. On the other hand, convenience was a wanted attribute that was often still left unfulfilled.

In a hierarchical analysis of the results, the functions of packaging could then be assumed as follows:

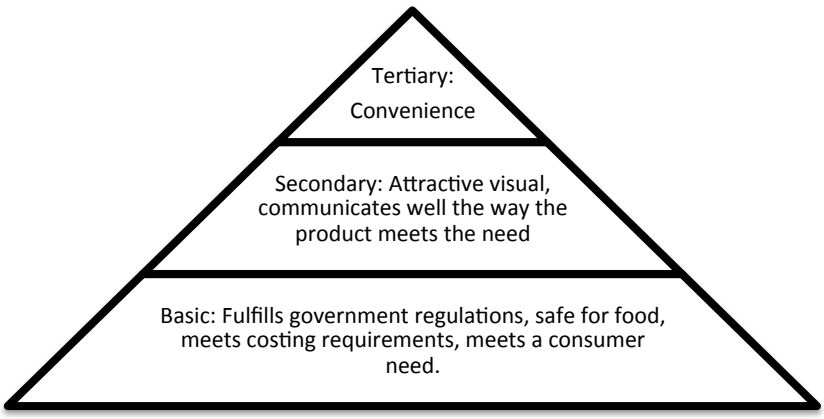

Figure 27 Hierarchal function of packaging for modern market retailers and consumers

Comparing with the holistic method of designing a package by Svanes et.al (2011), the evaluations made by the Indonesian retail merchandisers are quite similar, lacking only in the aspect of environmental performance. Furthermore, the requirements are evaluated in a hierarchical manner and basic requirements must be fulfilled before any consideration for the next level should be made. According to the Kano's terms (21), the attributes categorized into basic requirements here can be regarded as must-be attributes. There is no forgiveness for a product that does not meet these needs. In addition, the communication of protein level was seen as a required information, thus could be categorized as a must-be attribute as well. The way the flour performs during

cooking in accordance to the protein level, is a one-dimensional attribute and the primary evaluator attribute of flour quality by the consumer.

Being a commodity with limited choice, it would seem that secondary attributes of attractive visuals could be categorized as indifferent attributes. Consumers appreciate the packaging design, however do not cite design as main reason of purchase. On the other hand, protein level is much more paid attention to. Thus after the basic requirement is met, it is possible the design of the package will fulfil an attractive attribute role.

Convenience and environmental attributes can be categorized as attractive attributes. It is not a basic requirement, nor is it widely available, thus will not inflict any disappointment when not fulfilled. The development of convenience and environmental attributes in a flour package could then potentially contribute to improved success of the product.

Environmental sustainability was not mentioned to be part of the evaluation process by the retailers. Environmental performance is not perceived to be part of the existing requirements to be evaluated. This is reflected in the interviews as there is a lack of tangible targets regarding environment in the responsibilities of retailer employees. The evaluation of products with environmentally sustainable packaging is not extensively, the general opinion exists that environmentally sustainable packaging equals to higher costs thus lower profits, and lack of viable alternatives to compare with. Environmental product attributes can thus be considered even higher up the hierarchy above the tertiary function of convenience.

4.2.4 Evaluation of Current Plastic Packaging vs. Alternative Paper Packaging by Consumers and Retailers

The current plastic package and alternative paper package were evaluated by consumers and retail experts in accordance to the description in the methodology chapter. The summary of the results can be seen in the table below, detailed comments can be found in the appendix.

Table 10 Perceived strengths and weaknesses of current and alternative packaging by consumers and retailers.

	Current Plastic Packaging		Alternative Paper Packaging	
				
	Strengths	**Weaknesses**	**Strengths**	**Weaknesses**
Consumer	Attractive visual Good material quality (thick)	Lack of reseal Messy Spilling content Negative association with plastic	Environmental benefit Unique Attractive Neat Easy to use and store	Lack of strength Unsuitable for humid climate Risk of leaks or punctures
Retailer	Durable Attractive visuals	Leakages still occur	Unique Environmental benefit Nice, premium look Improved display efficiency	Lack of durability Unsure with profitability Unsuitable for humid climate

4.2.4.1 Plastic Packaging Strengths:

The perceived strengths by both consumer and retailer of the plastic packaging were in the visual appearance of the design and quality of the material.

Users claimed the design to be attractive, eye-catching, and gave various comments on the color and nice pictures of products on the design. The material is perceived to be of good quality, thick and sturdy with low chance of ripping, and could withstand rupture even if dropped.

The current packaging was not heavily commented by retailers until the alternative packaging was shown and used for comparison.

4.2.4.2 Plastic Packaging Weaknesses:

The perceived weaknesses of the plastic packaging were in the usage and convenience aspect by consumers, while retailers had few complaints.

The perceived weaknesses of the plastic packaging were the lack of reseal ability and spilling of content or messiness. The users mentioned different ways they employed to reclose the packaging in storage, using rubber bands and containers, as flour is usually not used up within one cooking occasion.

A secondary comment was a negative association with plastic, in terms of food safety, waste accumulation, and environmental impact. This secondary comment was usually expressed after evaluation of the paper packaging. This gave the impression that the users were accustomed to plastic packaging, as it is the most dominant packaging material on the market. The negative associations seemed to come from negative media coverage on plastics in general, and a referral to 'go green' campaigns in which supermarkets used biodegradable plastics for their shopping bags.

Again, the current packaging was not heavily commented by retailers until the alternative packaging was shown and used for comparison. Several retailers did complain about leakages, as flour could almost always be found on the display shelves. When set in comparison with the paper packaging, the current plastic packaging was said to have more harmful effects on the environment.

4.2.4.3 Paper Packaging Strengths:

The perceived strengths of the paper packaging for both consumers and retailers were similar, including environmental benefits, uniqueness, and attractive design. In addition the consumers expressed the opinion that the paper package would be neat and simple to store, while the retailers identified the benefit of a better display in the store.

In the discussion about environment, benefits were expressed by the terms "*ramah linkungan*" (literal translation: environmentally friendly) and "go green". The paper packaging was perceived as a unique and novel packaging, associated with premium products, imported products, and exclusivity. When asked "*Have you ever seen flour packed in paper?*", the answer was mostly no. The small-scale bakers have seen large paper sacks of cocoa or other ingredients at baking ingredient specialty shops. After shown the product, the consumers often claimed to have seen something similar in the premium supermarkets or specialty shops, however a specific recall of the brand could not be recollected.

Users expressed an interest in buying the product, at a small quantity (1kg) to try the product out. Some users claimed an increase of price would not be a strong deferent as long it was deemed a reasonable increase especially in the case if there was no alternative. The lack of alternatives in the market lead to consumers buying Bogasari flour. Consumer's even expressed that their choice was dictated by what Bogasari decided to provide. For example, if Bogasari's product was packaged in paper, they would have no choice but to buy it.

"I would buy the paperbag one if it was easy to get everywhere. The Bogasari one is more available everywhere." Consumer, cooking hobbyist.

The increase of price was justified through the premium, unique look, and improved food safety or quality. The impression was made that the environmental properties did not wholly justify an increase of price, the users expected the quality of the product to improve as a result of the different packaging.

"If it's not so much it's okay. Rp15.000-Rp20.000 (USD $1.1 – $1.52) would be okay as long as it's not twice the price. (Original price about Rp12.000/USD $0.9 per 1kg bag) That would not make sense." Consumer, single & working.

Other consumers expressed a preference for choosing the cheaper option citing their role as housewives (the woman in the family) as the reason to take calculative considerations on the price. Typically, the women in Indonesian families are responsible in managing the budgets of day-to-day expenses. Ultimately, these responses must be taken with caution, as they are based on the opinion of the consumer rather than on behaviour observations.

4.2.4.4 Paper Packaging Weaknesses:

The perceived weaknesses from both consumers and retailers of the paper packaging were lack of strength, lack of durability, concern with the humid climate in Indonesia, and risk of leaks or punctures. The weaknesses were spontaneously expressed when the interviewees were shown the paper packaging. Even after touching the package, interviewees were not convinced that the paper would withstand the possible risks, such as being dropped, getting wet due to some water spills in the kitchen while cooking, getting punctured by other utensils.

On one occasion at a consumer's home, the consumer panicked when her 2 year old made a grab for the paper packaging, fearing the packaging would be dropped and ruined. However when the child reached for the plastic packaging, no such response was made. The consumer expressed explicitly that she was sure the plastic packaging would be fine, even if the child threw the package about. A similar event occurred with the retailers. One retail was explaining his concerns with both packages through

demonstrations. He pushed the plastic packaging off the table, confident it would survive the fall. When he reached for the paper packaging, he hesitated and finally just explained that he wouldn't push it off the table for fear the package would break. A product can be expected to undergo a great degree of manual handling throughout the supply chain as observed by Hellström and Sarabour (11), thus durability of package is a strong requirement for the retailers.

The consumers and retailers often asked whether the paper packaging had any other material layer on the inside, conveying disbelief that only paper would be strong enough.

The humid climate was seen as a possible factor that could affect the flour, possibly promoting mould. Consumers and retailers both recognized Indonesia to have a different climate than in Europe where paper packaging is more common.

"I think it needs a barrier inside for it to be food safe. I mean we live in tropical, humid climate with a lot of germs. The current plastic packaging is even very thick, I think there must be a reason for it. Especially if it usually takes quite a while to use up a bag of flour, there is a risk it will get wet, or leak." Consumer, environmental expert.

The recipe on the back of the bag was not regarded as a key important feature of the packaging. The presence of a see through window was commented as an added value for some users, however most users felt that when the brand was trusted, there was an assurance for the quality of the flour within the expired date. On the other hand, retailers preferred having the window, as their perception was that the consumer was concerned about the color of the flour, specifically preferring a whiter product.

Paper packaging was not seen as a common packaging material for packaged foods. References were made to *tepung hungkwe*, a traditional flour made from mung bean starch. The package was seen as a traditional package, a heritage of older times. The package was seen to be less risky due to the small size of the contents as mung bean starch has very specific uses and is not required in large amounts. The package was seen to be roughly one cooking portion, thus would not require long term storage, and would better withstand manual handling.

Figure 28 Hungkwe flour (96)

Other possible products to be packed with paper were cookies, coffee, and tea. Such packages were recalled to exist on the market, however most existing paper packaging have a barrier layer, often aluminium and sometimes plastic. Carton boxes are an alternative packaging also available on the market, however the product is then encased in a plastic or aluminium pouch inside the box.

Figure 29 Paper packages with aluminium lining. Products are granola (top) and coffee (bottom)

Figure 30 Larger paper sack (5kg) lined with aluminium on inside and has glossy outside finish

Figure 31 Carton boxes, product is in aluminium or plastic pouches inside

4.2.5 The relationship between consumers, retailers and manufacturers

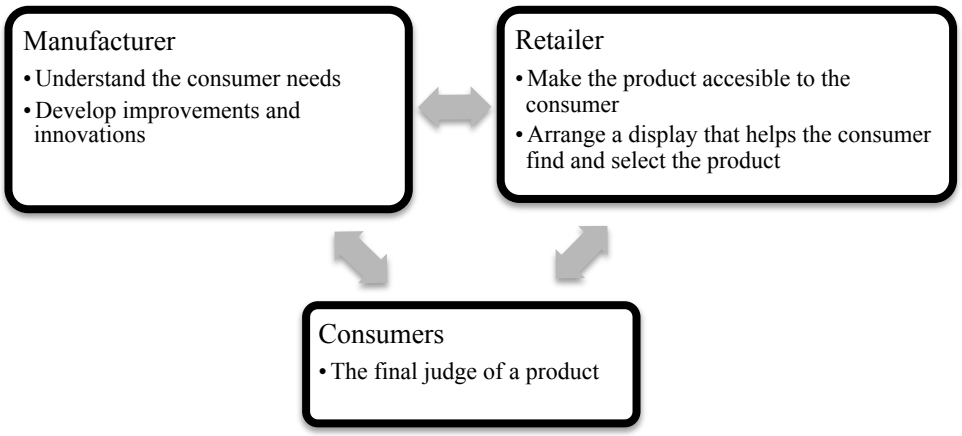

Figure 32 The role of manufacturers, retail and consumer

The retail experts were posed questions on how the assortment on the market is selected, who holds the power and who drives the market. Both manufacturer and retail sectors expressed views that their sector had the power to drive the market, yet also acknowledged the contribution of the counterpart. Furthermore, both sectors stressed the importance of understanding the consumer. For manufacturers it was important to take into account the consumer's needs during product development based on qualitative and quantitative market research. For retailers, it was important to take into account the consumer's needs in selection of what products to make available in the retail's assortment. This can be done by primary market research such as FGD (focus group discussions) with shoppers, or through cooperation with suppliers and their consumers. Both sectors expressed the same view that manufacturers were more likely to have a thorough research regarding the consumers. Consumer research is regarded as an integral part of the manufacturer's activities. Thus contrary to Sir Martin Sorrell's view expressed in 2013 (82), the power in Indonesian market seems to lie with the manufacturer, especially in regards of driving product innovation.

"Retail must put themselves as the representative of the consumer and provide products that cater to their needs." Meshvara Kanjaya, trade expert.

"Innovation comes from suppliers (manufacturers), retailers have no time to ask manufacturer to produce. They handle from 2000 to 50,000 SKUs. Consumer will then respond to the innovation, accepting or rejecting it. That's why manufacturers must monitor the trend in the market to find opportunity for innovation." Yongky Susilo, Trade expert.

"The principle (manufacturer) makes the product, we give the space to make it accessible. Therefore it depends on where the retail wants to push the market." Merchandiser at Indonesian minimarket chain.

"It (the drive) comes from the consumer meaning that usually the supplier will do their research, they will look at their trend, their market, their consumer and the lifestyle. Then they can create the new product and offer it to the retail." Teofilus Lie, Retail coordinator at Universitas Bunda Mulia.

Innovation driven by retailers, or by collaboration between retailers and manufacturers could occur in the development of private label products. Ariesta made similar conclusion in a study in 2014 where the food manufacturer was seen to have the power to initiate a discussion on sustainable products with retailers. (1) Retailers' suggestions would be given as input to suppliers in which the suppliers would be able to add to their evaluation of the product. In this scenario the retail would have an active part in driving innovation, but it was found during the interviews that such an initiative from the retailers must have a strong business motivation. This was supported literature and again in the interviews, as merchandisers explained private label products are developed with the objective to build the brand image of the retail, and as profit contributors (through greater profit margins).(78)

Profitability is consistently stressed to be very important. This is one of the reasons retailers have adopted the case with reduction of plastic shopping bags, the cut in costs of plastic bags contributes to a profitable business case for the retailer. Thus the main motivation for the program lies not in the environmental sustainability aspect, rather due to the fact that it is beneficial to profit. Profit thus can be seen as the main driver, or bottom line of business, in the day to day of the retailers' activities.

One example of product development driven from retail is found at Ranch Market organic products. The retail found that organic products were an upcoming trend, not yet available for consumers, and not yet offered by suppliers. They then asked suppliers to help develop organic products. The private label is seen as a brand-building tool for the retail as well as a product with good profitability.

On the subject of normal products, not private label, the retailers are still in a position to provide feedback and advice to food manufacturers. However, the extent to which this advice would be considered is then up to the manufacturers in accordance to their strategy.

4.3 Research question 2: How do the consumers and retailers in Indonesia view environmental sustainability?

4.3.1 Consumers perception

During the packaging evaluation, most of the users almost immediately expressed the opinion that the paper packaging was more environmentally friendly. The environmental attribute was mainly associated with one key aspect, the packaging material being paper. Gershoff and Frels observed a similar phenomenon in their research on product centrality (60). The paper's properties that made it an environmentally sound option was that it was perceived to be degradable (*bisa terurai)*, easily degradable (*mudah terurai)*, recyclability (*bisa di daur ulang)*, easily recyclable (*mudah di daur ulang*), biodegradable, can be destroyed (*bisa hancur*) and nontoxic or will not result in the production of toxic compounds. The concern of paper coming from trees was expressed by a fraction of the users, however paper was still perceived to be more environmentally friendly than plastic overall.

Environmental sustainability was expressed using the terms "ramah linkungan" (environmentally friendly) and "go green" interchangeably. Consumers who labelled themselves, "go green" cited the example of their behaviour in bringing their own shopping bags and not using the plastic shopping bags at retail stores.

Consumers claimed to make conscious choices to be environmentally responsible in their daily lives, such as by reducing the use of plastic, and minimizing the amount of paper used. For users who wanted to have more sustainable behaviour, the perceived challenge was due to the lack of alternatives as most packaging is in plastic. Through probing questions, it was revealed that the majority of the information accessed by consumers revolved around plastic and its low degradability, and is reflected the terminology used by the consumer. Further consideration of the environmental sustainability of the package was not evident. Thus similar conclusions with previous research (61,62) can be drawn in which an improvement of environmental knowledge will result in an improvement of sustainable behaviour. As currently the known environmental issues tend to revolve around plastics, the negative association towards plastic were consistently expressed.

Consumers claimed to obtain their knowledge of environment from news stories, marketing campaigns of products (advertisements in general and TV ads), and the Internet. These sources are similar to findings in Malaysia (61), further indicating that Malaysia and Indonesia have similar profiles and could be used for cross reference

studies. The environmental issues were perceived to be a typical way for companies to carry out CSR (corporate social responsibility) programs.

Consumers did not express any further thought of the package after disposal.

To obtain insight on consumer perceptions on existing 'green products', responses to two green campaigns were recorded: Ades bottled water crushable bottle, and Teh Kotak campaign "Back to Nature". The campaigns promoted environmental sustainable packages and were supported by nationwide marketing campaigns. Consumers were consistently unable to recall any environmental campaigns or products at top of mind. With prompt of Ades and Teh Kotak, users who had heard of the campaign had difficulty explaining the significance of the campaign in correlation with environmental sustainability. Similar to the findings of Septindo (64) in a 2013 post launch study of Ades, these campaigns were perceived to be not persuasive or informative enough.

"It's not environmentally friendly because it's still plastic," User, housewife.

"That's Tetrapak right. I think it is more environmentally friendly. Because there is some plastic, but it is less compared to water bottles who are 100% plastic. And I think they can be recycled. There is a recycling symbol on the bottom of the package," User, small bakery business.

One interesting insight came from a user whose work was deeply related with environmental sustainability issues.

"I don't think it's significant to be talking about environmentally friendly between the packaging of paper and plastic when the carbon footprint of the contents, bringing into the country is already so big. We must take into account the agriculture, the water usage, and energy in transport among others. Paper, in this case, is the supposedly more environmentally friendly option, but it is not significant difference." User, Environmental expert.

This view was not reflected amongst any other user and most probably not representative of the general population. The majority of users will deem a product environmentally sustainable when the message is made strongly about a key product attribute. This centrality mind-set was also found by the 2015 research of Gershoff and Frels, in which a core product attribute would create a halo effect and raise the overall 'green' perception of the product.(60) The more popularized environmental sustainability issue is in the disadvantages of plastics, rather than carbon footprint, thus thoughts on how the product would impact the environment would not come to mind.

4.3.2 Retailer Perception

The retail experts consistently cited the higher environmental sustainability of a paper package. The experts related to the view that western countries, or more developed countries had high environmental awareness, thus a paper package would be attractive in those countries. However the durability and strength of the package were consistently a point of deeper discussion.

The retail experts unanimously expressed the opinion that consumers did not consider the environment in their purchases. This type of behaviour was attributed to a very specific segment of A+ shoppers, and expats. Examples of this behaviour were given in reference to the practice of shoppers who bring their own shopping bags, and to a much lesser degree the purchase of organic products.

None of the retail experts had targets related to environmental sustainability in their daily jobs, however cited corporate programs in which the environment was seen as a key concern. Two premium supermarkets, Ranch Market and Hero, have displayed their concern for the environment on their corporate websites. The concern for environment was conveyed by the premium supermarkets, giving support that premium supermarkets are the place of entrance for the market for environmental sustainable products.

"Start with the big premium retail. Why? Because this market is the trendsetter. Indonesian consumers like to follow trends. If there is a positive momentum from this top segment of the market, the rest of the market will follow." Teofilus Lie, academia.

Ranch Market, whom explicitly writes about sustainability in their *Mission* and *Core Values* on their corporate website.(88) Further information on how sustainability is advocated is not detailed, however the website offers a list of CSR programs, including programs supporting environmental sustainability. *Hero Cares for the Environment* is part of Hero's CSR program, *Hero Cares*.(87) The programs for environmental sustainability vary greatly from each other, and often examples were given that were not strictly environmental, but rather revolved around health. The concern for one's health may serve as a positive affect to reach concern for the environment, as found in Wen and Li's study on relation of health, ecological effect and purchase intention. (67) A product that is healthy, can be easily associated with a product that is good for the environment. Pushing health benefits and having additional environmental benefits could be the strategy to use to increase awareness on sustainable products.

"Consumers today take very little account of the packaging impact on environment. They don't consider it because they know it will be sorted out by the garbage man. Before

even thinking of packaging, the contents of products often still have problems. Dangerous (to health) components are still used in food content." Yongky Susilo, trade expert.

In reference to the LOHAS (lifestyle of health and sustainability) consumer segmentation proposed by French and Showers in 2008, the interviews tended to show similar attributes to the Naturalites segment, as their key concern in purchase of products was the impact to health (59). The user interviews also showed interest in the environment as consumers labelled themselves 'go green' often citing using less use of plastic as a the realization of their 'go green' beliefs. However, lack of alternative proved to be a limiting factor on becoming a LOHAS consumer. There are few 'green' product alternatives on the market, and the ones that do exist come with a costly price tag. Environmentally sustainable products are thus closely correlated with premium prices. Retailers also factor the state of the market in relation to the timing of a product launch. Currently, the market in Indonesia is not perceived to be ready for environmentally sustainable products, but will move in that direction in the future.

"Imagine the middle low (consumer segment) and less educated people, do they really care? They can't care, they cannot afford to care. They are busy thinking of how to fulfil their basic necessities." Meshvara Kanjaya, trade expert.

Environmental product attributes do not fulfil a primary need of the consumer, and can only be acknowledged by the more affluent consumer.

"Environmental ideas are pricey, it's not the time yet." Yongky Susilo, trade expert.

The government was seen as a key influence in promoting environmental sustainability. Retail efforts alone were not considered as a strong influence in promoting change, especially if not all retailers were involved. Environmental sustainability programs were seen as costly and not profitable, thus it is difficult to create a sound business case. If the government were to make a policy, this would enforce all retail players to move in the same direction despite the cost.

"Take for example the (banning of) plastic bag, it has to be regulated by the government in order to have all retailers execute all at once, without exemption. Big retailer would like to do it but if the other retailer don't do it it's not fair." Yongky Susilo, trade expert.

As suggested by Yahya and Hashim in 2011, government policies must target the most impactful consumer segment to reap long term sustainable consumption behaviour (53). This impact can be measured by volume, which could be the middle-high consumer segment of Indonesia that is expected to grow to 140 million in 2020, a double of the number in 2013 (47). Moreover, this segment is equipped with a higher education, and also posses the buying power to purchase slightly more

expensive environmentally sustainable products. The retail experts agreed that environmental awareness is still a long-term issue, 5 to 20 years was the cited time required for mainstream environmental awareness.

There are many aspects to environmental sustainability in packaging, for example specific indicators such as CO_2 emissions or overall impacts such provided by the SPA "Sustainable Packaging Alliance" (35,36). This results gathered in this researched showed that consumers and retails had a very narrow definition of environmental sustainability, and evaluated a product's environmental performance based on that definition, again supporting Gershoff and Frels finding on product centrality (60). Environmental sustainability was associated mainly with recyclability and degradability, biodegradable and degradable plastic shopping bags being the 'go to' example cited by experts. Other issues such as energy conservation, carbon footprint was not in the top of mind of the retail experts. A framework that integrates environmental sustainability as a strategic part of business could help retailers who want to move in that direction.

4.4 Research Question 3: How does the Retailer's Logistics Influence Product Evaluation?

4.4.1 The relationship between consumers, retailers and manufacturers

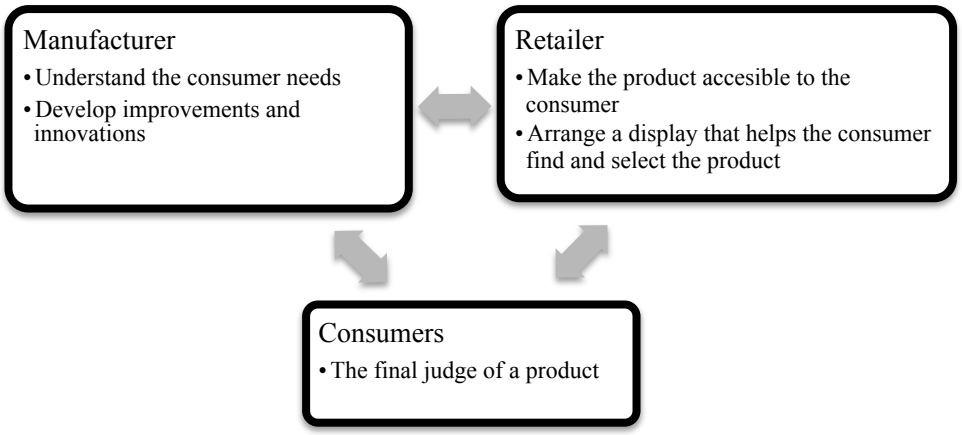

Figure 33 The role of manufacturers, retail and consumer

The retail experts were posed questions on how the assortment on the market is selected, who holds the power and who drives the market. Both manufacturer and retail sectors expressed views that their sector had the power to drive the market, yet also acknowledged the contribution of the counterpart. Furthermore, both sectors stressed the importance of understanding the consumer. For manufacturers it was important to take into account the consumer's needs during product development based on qualitative and quantitative market research. For retailers, it was important to take into account the consumer's needs in selection of what products to make available in the retail's assortment. This can be done by primary market research such as FGD (focus group discussions) with shoppers, or through cooperation with suppliers and their consumers. Both sectors expressed the same view that manufacturers were more likely to have a thorough research regarding the consumers. Consumer research is regarded as an integral part of the manufacturer's activities.

"Retail must put themselves as the representative of the consumer and provide products that cater to their needs." Meshvara Kanjaya, trade expert.

"Innovation comes from suppliers (manufacturers), retailers have no time to ask manufacturer to produce. They handle from 2000 to 50,000 SKUs. Consumer will then respond to the innovation, accepting or rejecting it. That's why manufacturers must monitor the trend in the market to find opportunity for innovation." Yongky Susilo, Trade expert.

"The principle (manufacturer) makes the product, we give the space to make it accessible. Therefore it depends on where the retail wants to push the market." Merchandiser at Indonesian minimarket chain.

"It (the drive) comes from the consumer meaning that usually the supplier will do their research, they will look at their trend, their market, their consumer and the lifestyle. Then they can create the new product and offer it to the retail." Teofilus Lie, Retail coordinator at Universitas Bunda Mulia.

The retailers and manufacturers both acknowledged the need for the other, citing the process to be a collaborative effort such as observed to be important in category management by Dapiran & Hogarth-Scott (80). Retailer and manufacture could work together to drive the market through consumer based innovation, and selective

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On the subject of normal products, not private label, the retailers are still in a position to provide feedback and advice to food manufacturers. However, the extent to which this advice would be considered is then up to the manufacturers in accordance to their strategy.

4.4.2 Evaluation of the retailer's logistics

Within the retail organization itself, logistics transfer goods from the main receiving warehouse to the individual stores. In this way the retail can control the types and volume of goods that reach each store, preventing overstock of certain goods at the retail outlet. The daily activities of the warehouse entail that a multitude of products in volume and type are processed. The majority of these processes are handled manually and must be accomplished quickly to ensure steady maintenance of stocks in the retail stores. This high degree of manual handling was also observed by Hellström and Sohrabpour (2012) in their study of the supply chain in developing countries (11).

The condition at the warehouse creates a high-risk environment for products with low strength and low durability possibly resulting in loss of goods. This aspect was one of the main concerns to a paper package. The flow of goods within a retail can be generalized as in the diagram below.

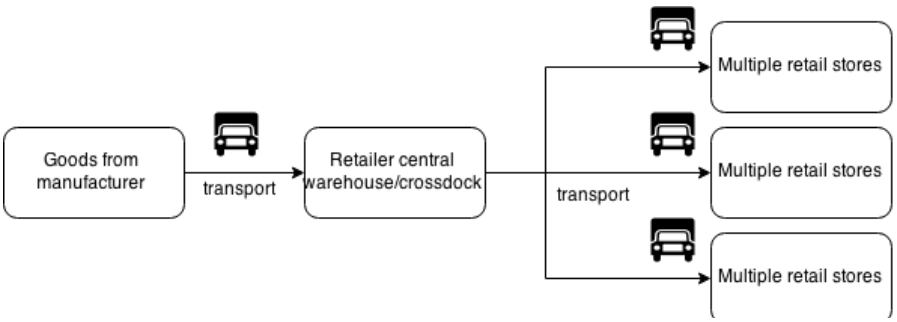

Figure 34 Flow of goods within retail in Indonesia

Goods are transported from manufacturer to retailer warehouse. At the warehouse removal from trucks are full pallets, the products are then stored in different areas of the warehouse. Possibly the pallets and even secondary packaging are opened during manual picking for delivery to stores. In minimarket chains each individual store could receive <10 packages, thus each product would be removed from the secondary packaging, and put into a separate shipping box with an assortment of other products. This occurs manually.

After manual picking, goods are transported to individual stores. Receiving at the stores is often handled with a great deal of manual labour. The goods are also stored in the store and displayed on shelves with manual handling.

At the store floor storage space is flexible, and boxes are stored according to space that is currently available

Possible risks:

- Delivery from manufacturer is still on pallet thus has relatively low risk.
- Manual handling:
    - unloading, manual picking and delivery loading at warehouse
    - unloading, storage and display at retail stores
- Storage conditions at warehouse and in store have risk of inappropriate conditions such as ventilation problems, pest problems such as rats, humidity etc.
- Consumer handling in the store, as consumers like to touch and hold products before making purchase decision.

The retail experts voiced the view that retail logistics department rarely had any comment on the products as inter-division communication was not a common occurrence. In this case the generalization that packaging has little impact on the logistics as stated by Hellström et. al (2007) appropriately describes the system as packaging is just a subsystem that the logistics must deal with (20). Product evaluations are done entirely by merchandisers and the logistics must deliver what is given to them. As previously established, even the merchandisers of the retail do not have much say in the packaging design and lesser still is the opinion of the logistics division. The concerns would be heard if they had some impact on the costs through the investment of storage or transport.

"Not really much problem with supply chain, just dimensions of the product which would impact investment of storage/transport." Andre, Private Label Merchandiser PT Lotte Shopping Indonesia.

5 Conclusion and Suggestions for Future Research

In this chapter, the findings are summarized through answering of sub research questions. Overall conclusions for the research questions then follows. A business strategy for BillerudKorsnäs to work with flour manufacturers and a strategy to move toward environmental sustainability for Indonesian retailers is then presented. Lastly, the chapter ends with a description of the future research that could be done as a continuation of this study

4.5 Summary of Findings

The sub research questions are presented again and followed by the relevant findings of the study.

4.5.1 Research Question 1: How do consumers and retailers perceive current plastic packaging vs. alternative paper packaging for flour?

- What do the current applications of paper bags that are available in the market look like?

There are limited applications to paper bags. The ones that are available have barrier layer, most often aluminium.

- What is the perception towards the current packaging? What are the pains and gains of the current packaging?

The current packaging was seen in positive light, has good visual design and quality. The modern market plastic packaging is perceived to be visually attractive, with bright colours and appealing pictures of baked/cooked products on the packaging.

The pain of the packaging for the consumer is in messy storage. For the most part retailers are quite content with the packaging however there is some acknowledgement that packages will still leak.

- How are the packages handled, in the store and after purchase?

The handling of the packages is described in greater detail in RQ3. For the consumer, plastic packages available in the market are seen as robust and strong. After being taken home, the packages do not require a complicated storage. Simple storage is

done using rubber band, while consumers who use flour more often will place the product in a special storage box for neatness of storage and make it easier to handle the product during use. The packages are thrown away immediately after product is used.

- What alternatives to paper packaging are available? What is the perception towards the potential replacing the current packaging with paper packaging?

Plastic is the main alternative to paper packaging. The paper packaging was perceived to be environmentally friendly by consumers and retailers alike. Both had concerns on the package strength and durability especially in correlation with Indonesia's humid climate. Consumers yet had an overall more positive response to the paper package compared to retailers, as they gave the impression in trust of the package quality if a manufacturer, especially the leading and dominant brand Bogasari, was to put the product out in the market. The retailers on the other hand, had strong objections in relation to logistics and handling of the product with high concern of product wastage and shrinkage in store. This is ultimately related to costs and profits, and the strength of a business case of paper packaging.

- What are the foreseen obstacles and considerations to change to paper packaging?

Consumers showed intent to buy flour packaged in paper in a trial purchase. The packaging must not fail to perform in the second moment of truth, namely during the use of the package. For example, ripping packages and incapability of preserving flour quality would result in disappointment and loss of trust from consumer in a paper package.

- What are the key considerations and drivers of the consumer when making a purchase? Do different consumer groups have different opinions?

The main determining factor taken into consideration in the purchase of flour is the protein content. This is directly associated with the results of the final product cooked. The main information required to be made clear are the types of products the flour is purposed for which is related to the protein level. The impact of different protein levels is also a concept understood by the consumer, who strives to achieve the best resulting food possible by using the appropriate type of flour.

Secondly the price is also taken into account, but the purchase is more a result of what is available during the time the consumer chooses to purchase.

The quality of the current plastic packaging is perceived to be of good quality. Convenience is seen to be the aspect of packaging that is important to be developed next according to retailers. Consumers have corroborated to this view through expressing desires to have a re-sealable package. Consumers especially express the necessity of convenience when comparing to the messy-ness and hassle in storage of the current plastic packaging. The current packaging was perceived to be less environmentally friendly in comparison with the alternative paper packaging. However, this fact did not deter purchase as consumers perceived they had no alternative.

- What are the consumer requirements for flour packaging (i.e. visually, design-wise, and functionally)?

Similar perceptions were found among consumers and retailers. Flour is a commodity product with a low number of product variety and brands in the market. Differentiation of product is thus not such a strong requirement in order to make sales; rather availability in outlets is the strong point.

4.5.2 Research question 2: How do the consumers and retailers in Indonesia view environmental sustainability?

- What is the current perception on environmental sustainability?

Environmental sustainability was seen as an important issue to consider. Increased occurrences of natural disasters were often cited as a result of neglected the environment. A general negative view on plastic was held, as it was perceived to cause health problems and negatively impact soil as it cannot degrade. Some consumers labelled themselves ‘go green’, citing reducing use of plastic bag as one of the examples of ‘go green’ behaviour

Retailers do not yet incorporate environmental sustainability targets in their day-to-day job. Rather, targets on providing healthy, high quality products receive more attention as it is seem more relevant in current consumer trend and lifestyle. A framework that could help determine what kind of strategies to make are suggested in the next section.

- How can environmental sustainability drive and influence purchase decisions?

Both consumers and retailers can relate to the importance of environmental sustainability, however environmental sustainability is not a key consideration during purchase or evaluation of products. Environmental product attributes are thus an *attractive* product attribute such as defined by Kano in the theory of attractive quality in which the attribute provides satisfaction when achieved but does not cause dissatisfaction when not fulfilled.(97)

- What is the influence of governments, regulations, other country, and trends as a driving force for sustainability?

Government and regulations were seen as factors that were necessary to drive sustainability actions in Indonesia by both consumers and retailers alike. As it is now, environmental campaigns are seen as marketing gimmicks without much real impact. Environmental campaigns are also seen as costly and unprofitable, requiring a sacrifice from the actor if they decide to pursue a sustainable campaign.

Environmental sustainability is seen as a trend from other countries. It is not yet perceived to be a feasible trend in Indonesia due to high costs and lack of options.

- How does the end of the life of the current plastic packaging vs. future paper packaging look like?

The packaging of flour does not serve any second function. Recycling is done by independent third parties in a scavenging fashion. Due to this, a plastic packaging (which stays intact in the waste stream), will have a higher probability of being recollected, compared to a paper packaging which will deteriorate as it meets moister in the waste stream.

4.5.3 Research Question 3: How does the retailer's logistics influence product evaluation

- What role do the different actors of the supply chain have?

The manufacturer is the producer of the product catering to needs of the consumer. In order to do this the manufacturer must strive to continually understand the consumer. The retail decides what products are made available to the consumer. To survive, the retail must employ consideration on the needs of the consumer. The consumer is the final judge on whether a product is successful on the market. As retailers are generally in a more passive position regarding product development, innovation in products are driven from the manufacturer.

- How does the buying process of packaged dry foods occur?

Manufacturers will present a product to the merchandiser of the retail. This product is supported with a price list, mock up, certifications, and possible a promotion support plan. Merchandisers will then evaluate to determine whether the product is suitable to be sold in the retail. The merchandiser has the main consideration of profit, which can be obtained through high profit margins, or high turnovers.

- How are the packages handled throughout the supply chain?

There is limited collaboration between merchandising division and logistics division. Logistics departments' main concerns are about the size and dimension of packaging in relation to space efficiency. Primary packaging encounter a high degree of manual handling. There are a number of risks that must be taken into account which include the high exposure to manual handling during picking and delivery, sub-optimal storage conditions, and consumer handling in the store.

4.6 Conclusion

The implementation of a change of packaging material must take into the account the requirements imposed by the whole system. This study has made the observations for perceptions from two actors of the supply chain, retail and consumer, to serve the case of discovering the potential of paper packaging as an alternative to plastic in the Indonesian market of flour. The purposes stated at the beginning of this study have been met and are explained in the following paragraphs.

In summary, paper packaging is associated with positive attributes by both retail and consumer namely: more environmental friendly (compared to plastic), premiumness, exclusivity, better quality, and neater and simpler storage. Paper packaging is novel which spikes interest yet also comes with doubts on food preservation capabilities and strength. Consumers assume that a manufacturer with a good brand will not produce a package that is not suitable, thus trust in the brand is an important factor. Retailers on the other hand, refer to the highly manual processes that occur in the logistics process, which lead to major concerns on the feasibility of using paper bags.

There is not yet any documented studies on how the current paper bag will survive the physical supply chain in Indonesia with possible stress from climate, or transport infrastructure. Thus it is not yet possible to conclude the exact technical requirements that are needed in a paper bag in Indonesia. This studies' findings do suggest that technical requirements may include barrier layer due to high humid climate and high exposure to moisture, durability and strength of the package that can withstand the high levels of manual handling. These are crucial points in regards of preserving food quality. However it must also be further investigated how the paper material itself will survive in the humid climate in Indonesia.

From a business perspective, paper bags provide an added value of novelty, premiumness and environmental sustainability that can be framed and used to sell the product. Environmental sustainability itself is a not a familiar topic thus studies on the right methods of communicating these properties are needed. A plan to support a packaging producer to work together with product manufacturer is presented in the following section. Indeed, environmental product attributes are not yet enough to motivate a purchase. Other supporting factors such as price, image and food quality are more determining in purchase. Retailers identify there is a trend moving towards environmental sustainability, however it is currently more based on health trends and impact on ones own health compared to environmental health. There are not yet environmental targets in the day-to-day job of retailers, and environmental projects are still deemed costly and unprofitable to be feasible considered for business.

4.7 Proposed and Possible Business Strategy

4.7.1 Strategy & Further Research for BillerudKorsnäs

Ultimately, to implement the application of paper bags for flour in Indonesia, BillerudKorsnäs must work with another key actor in the supply chain, the manufacturer. To accomplish this, BillerudKorsnäs must make a strong business case. A strategy is presented here that uses the results of this study and gives a road map on how to approach flour manufacturers.

The following strategy was created using the basic thinking of empathy maps, and consumer value proposition (92). It is based on the analysis of the role of packaging previously formulated in the results and discussion section. The role of packaging is seen from the viewpoint of retail and consumer, and these are translated into pains and gains of the flour manufacturer in a scenario of change from the current plastic packaging to a paper packaging. The required actions and preparations required from BillerudKorsnäs are then presented, and finally these actions could be used to build a case to the manufacturer, with specific strong points of communication.

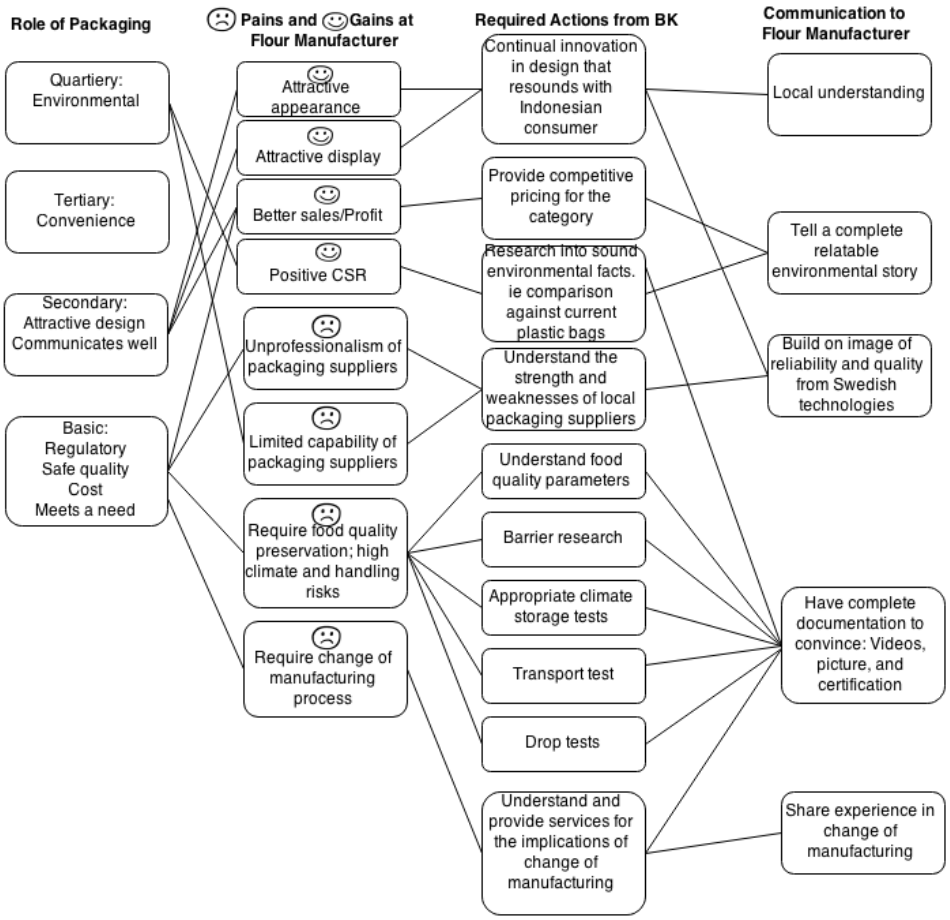

Figure 35 Strategy Analysis for BillerudKorsnäs

In the first pillar, the roles of packaging that was concluded from the results of this research are restated. To fulfil these roles, the flour manufacturer would have to make the appropriate considerations in the design of the packaging. These requirements are presented in the second pillar with an evaluation of the implications these requirements impose on the manufacturers activity. For example, in fulfilling the environmental role of the packaging, the flour manufacturer would benefit from positive CSR. However a challenge that the flour manufacturer must face would be in the limited capability of packaging suppliers currently available in Indonesia.

The third pillar then shows the actions BillerudKorsnäs must take to support the gains and face the pains of the manufacturers. When these actions have been taken, BillerudKorsnäs will then be equipped with a business case and result in communication stories that will resonate with the manufacturer, which are presented in the fourth pillar.

4.7.2 Strategy for Implementing Environmental Sustainability for Indonesian Retailers

During the study, the author observed that environmental sustainability was not yet an integral part of retailers business. As concerns for the environment continue to increase, sooner or later environment will be required to be part of a retailer's strategy. Below a strategy is proposed to help retailers in Indonesia employ environmental sustainability in their businesses.

This following strategy was formulated using inspiration from design thinking process of innovation as a building framework.

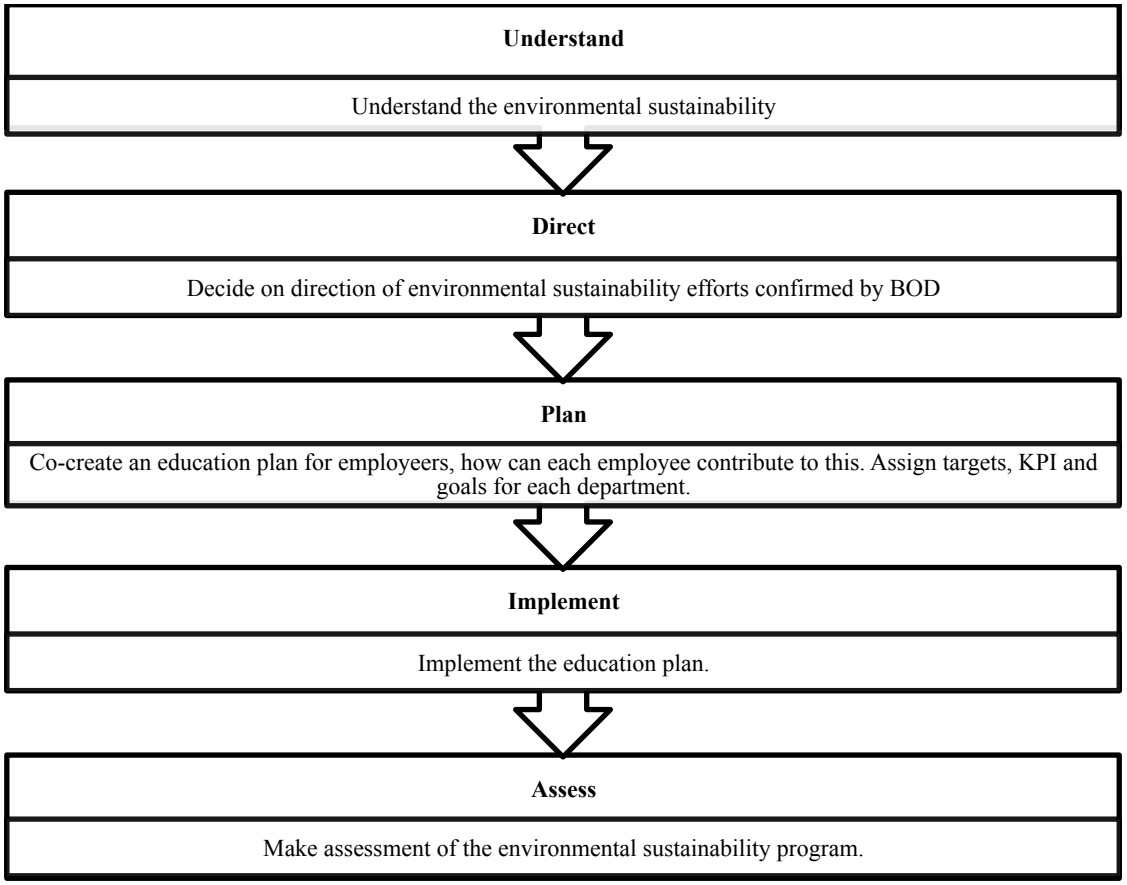

Figure 36 5 Step Strategy for Environmental Sustainability in retail

The result of design thinking approach used in this study has elucidated the needs and requirement from the retailer as a major supply chain actor. Environmental efforts must profitable, and not come to a loss for the company. Moving on to address environmental sustainability specifically, it is important to understand how to define environmental sustainability in order to be able to analyse the gap of knowledge and direction for the future. References can be used from FSSD framework or SPA's

metrics (28,36). The strategy presented here is developed using design thinking process, using retailer's employees as the main user in focus.

The phases 'understand' and 'direct' can be considered as the need finding or inspiration phase of the design thinking process. 'plan' phase corroborates to the ideation phase while 'implement' and 'asses' phase corroborate to the implementation phase.

4.8 Future Research

This research was completed with the objective to gain insights in the Indonesian consumers and retailers to facilitate a change in the application of plastic packaging to the more environmentally sustainable option of paper packaging.

As the underlying assumption that paper packaging is more environmentally sustainable than plastic, future research addressing this issue in specific country conditions may be carried out. Research on paper vs. plastic tends to revolve around the shopping bag, and the actual implications in specific packaging are less known. Additional research on the most pressing environmental issues, or the issues with the highest impact in Indonesia could also be done, to help provide information for companies to identify the direction of environmental sustainability programs.

To apply paper packaging to a flour product, research that elucidates the technical strengths of the paper packaging for the particular type of food product in the particular climate in Indonesia could be undertaken. It must be noted that some conditions will have limited replications in the lab, for example the contents of living organisms in the air in Indonesia such as mold and spores. Besides on the effect of the climate on the food product itself, investigations on how the packaging material itself will perform in Indonesia are mandatory to ensure that the packaging will perform according to top standards. These investigations may include transport test, to observe how the package can withstand transportation in Indonesian terrain, to mold tests of the paper material itself.

During this study, one of the main concerns from consumers and retailers was the lack of barrier in the proposed paper packaging. A research in the preservation of food quality will help elucidate whether a barrier is a necessity or an additional attribute. Furthermore, any addition of a barrier must be researched in relation to environmental sustainability to ensure the final product will still have environmental benefits. If a barrier is indeed required, one possibility could be a food grade biodegradable plastic. This will be an alternative to oil based plastics, which would contribute in maintaining the environmental sustainability of the package. However, a further investigation on the implications on costs will be important to both packaging and product manufacturers to give strong foundation in making a decision to enter a market.

A primary observation made in this study was the limited environmental and sustainability efforts in Indonesian retailers. The author has suggested a strategy to introduce environmental sustainability, however this can be further developed by deeper research and collaboration with Indonesian retailers.

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7 Appendix

6.1 Questionnaires

6.1.1 Online Survey Questionnaire

Title: Have you ever used wheat flour?

1. Name:
2. Year of birth:
3. City:
4. What type of transportation do you use? (car, car and motorbike, motorbike)
5. Gender:
6. What is your occupation? (Highschool, University student, Part time employed, Full time employed, Unemployed/Housewife, Other)
7. What are the types of problems you have encountered with flour? (tick all that apply: insects/ rancid smell/ moldy/ change of color/ messy/ leaking package/ no problem/ other)
8. Are you currently storing flour in your house? (Yes, proceed to Q9 /No, end of survey/Don't Know, end of survey)

9. At your home who usually uses the flour? (myself/mom/dad/maid/husband/wife/other)
10. At your home, what is flour primarly used for? (Tick all that apply: savory snacks, side dishes, cakes & cookies, other)
11. At your home, how is flour stored? (Tick all that apply: in the fridge, in the cupboard, inside a plastic bag, inside a tupper or storage box, poured out into a tupper or storage box, tied with rubber band, don't know, other)
12. Who was the person who made the most recent purchase of flour in your home? (Me, maid, mom, dad, husband, wife, other)

Self purchase was then directed to the following questions:

13. When did you last purchase flour (within the past week, within the past 2 weeks, within the past month, more than a month ago)
14. What was the brand of the flour you bought? (Specify)
15. How much flour did you purchase? (<5kg, 0.6-1kg, 1.1-3kg, >3kg)
16. Where did you purchase the flour? (Market, Pop-up store, minimarket, supermarket, hypermarket, premium supermarket)

Non-Self purchase was then directed to the following questions:

17. When was the last purchase flour in your home? (within the past week, within the past 2 weeks, within the past month, more than a month ago)

18. What was the brand of the flour bought? (Specify)
19. How much flour did purchased? (<5kg, 0.6-1kg, 1.1-3kg, >3kg)
20. Where was the flour purchased? (Market, Pop-up store, minimarket, supermarket, hypermarket, premium supermarket)

6.1.2 Consumer Questionnaire

Flour Usage
When was the last time you bought flour? Did you already plan to buy flour from home?
What did you use it for? Who used it?
How big a package did you buy? How fast did you use it? Do you ever have problem that the flour gets old before you have used it?
What brand do you buy? Do you always buy the same brand?
What is the packaging like of the flour you buy?
Do you always have flour in your house?
Interaction with package
How do you bring it home?
How do you store it?
How do you use the contents? How do you get it out of the package?
Have you ever had a bad experience in using the flour package? Can you describe it? Have you ever had problems with leakage?
Can you describe what you like/dislike about this package?
How do you throw away the package when it's finished? Do you use it for anything else?
What are the important features of this packaging? How do you reclose? Is resealing important?
How the design is important? What information should be available? How important is the branding?
Is having a window and being able to see the flour important for you?
Openness to alternative & perception on environment
What is the material of the flour packaging? Have you ever seen flour packaged differently? Such as using paper?
If there was flour in a paper package, what would you think about it?
Show packages here.
If the material was paper, but with plastic layer. Would it make the food safe? Would it still be environmentally friendly?
Do you think that paper or plastic is better for the environment? Would you like if the flour came in a paper package?
If paper is better for the environment - would you be wiling to pay a little bit more for the flour packed in paper?
In terms of design, what do you prefer? (*With samples shown of alternatives)*
Do you think a environmentally friendly packaging is important? *No. other things are important such as… / Yes.* Why? *Because it's better for the environment.*
Why would an environmentally friendly packaging be needed?
Could you describe what is an environmentally friendly packaging for you?
Can you tell me a package/product that is environmentally friendly? *Ades, Teh Kotak*

6.1.3 Retailer Questionnaire

Perception
Are you evaluating packaging, or do you accept what they supply you? What are the most important aspects you take in mind when evaluating packaging (retailer)? Why? Is this the same for the consumer?
Are these aspects the same aspects that are most important for a product to sell well?
So how does the flow go usually for a new product, is it from manufacturer or from retail initiatives?
What about for a new design on an existing product?
Which would you prefer?
Do you think the drive comes from consumer or from the manufacturer (or retail)?
What are the current trends of products in the market now for packaged foods, commodity, and retail store displays?
Is shelf appearance important for you?
How do you think the packaging could make you sell more flour?
Would you give extra shelf-space to flour with higher margin/profit for you?
Openness to Alternative
How is flour usually packed? What material is the packaging from? How is secondary packaging?
Have you ever seen flour packaged differently? Such as using paper? What do you think about it?
If there was flour in a paper package, what would you think about it?
Can you explain your concerns for a package in paper?
Can you explain any benefits of a package in paper?
Can you share your thoughts on paper packaging vs. plastic? Which is more environmentally friendly/sustainable?
Show package here.
What other products could be packed using paper?
Environmental sustainability
Do you think an environmentally friendly package will be attractive to consumer?
How should it be communicated? How would you enter with a new product that is environmentally friendly?
Do you know of any product that is working with a go green/environmentally friendly campaign? What is an environmentally friendly packaging like?
Have you ever heard of the Ades campaign? Do you think it is truly environmentally friendly? How about the Teh Kotak campaign?
Do you think consumers care about the environment?
Do you have to deal with issues concerning the environment? Can you give an example or describe the last time this happened?
Do you have environmental targets in your job? Does your company have any?
Do you think retail has the power to create environmental awareness?
How does the government role in this look like? Do you know of any regulations?

6.2 Interviewee Details

6.2.1 Consumer Interviewee Details

Table 11 Consumer interviewee details

Code	Name	Age	Type of User
Environmental Expert			
CE1	Murni	34	Environment Expert. Bachelor in Biology and Master in Environmental Science. Work in mining as environmental officer
CE2	Dinar	34	Environment Expert. Work in NGO that creates a knowledge sharing network.
Regular User			
CR1	Diah	49	Housewife. Cooking hobby.
CR2	Dini	28	Housewife. Cook on weekends, cooking hobby.
CR3	Dewi	41	Housewife. Cook for side dishes of meals.
CR4	Adiscia	35	Housewife. Cook for side dishes, occasional baking
CR5	Yessy	26	Single, working. Occasional cooking.
Small Scale Business			
CB1	Chrystara	27	Small scale baker, Farfalla Dessertland.
CB2	Dhea	24	Small scale baker, can order cakes and cupcakes. Started since high school. Titammacakeries.tumblr.com

6.2.2 Retail Interviewee Details

Code	Name	Current Position	Experience
Academia			
RA1	Teofilus Lie	Retail Major Coordinator at Universitas Bunda Mulia	5 years experience. Merchandising garment at Matahari, Buyer at garment manufacturing. Lecturer and Coordinator of Retail Major at Universitas Bunda Mulia.
Manufacturer Salesperson			
RS1	Dimas Sampetallu	Key Account Manager Beverage	5 years in retail, merchandising in bakery, butchery, fresh and Sales Development Department. 5 years as key account sales for food manufacturing in biscuit & confectionary, beverage.
Private Label Merchandiser			
RP1	Andre	Merchandiser Private Label at PT Lotte Shopping Indonesia	10 years in retail, 4 years in merchandising cleaning category, 6 years in private label.
RP2	Yadi Yanuardi	Merchandiser Private Label PT Dairy Farm Indonesia	13 years in retail, 9 tahun at carrefour, metro, Ramayana, blitz megaplex and 4 years in private label. Experience in operation, business process, and merchandising.
Quality and Packaging			
RQ1	Amelia Avelina	QA for Private Label PT Dairy Farm Indonesia	Experience at chocolate manufacturer, coffee manufacturer.
Merchandiser			
RM1	Anonymous	Minimarket merchandiser snacks and confectionary category.	15 years in minimarket retail. Merchandising, marketing, operational. Category paper, baby, dairy, medicine, snacks and confectionary.
RM2	Ikhwan Hakim	Premium supermarket merchandiser dry foods category	5 years in retail. Experience in department store in household and handicraft, convenience retail holding general merchandise, private label food service and premium retail for dry food category merchandising.
Store Manager			
RR1	Izak Yohanes Batsira	Hero	7.5 years operational on store floor, including 1.5 years as store manager.
Trade Expert			
RT1	Meshvara Kanjaya	Deputy CEO PT Supra Boga Lestari (Ranch Market)	Author of *Retail Rules.* 18 years in retail. Experience in business development, marketing, operations and merchandising.
RT2	Yongky Susilo	Executive Director The Nielsen Indonesia	Author of Retail Rules. 21 Years of retail market research and business development.

6.3 Evaluations

6.3.1 Consumer Evaluations during Purchase

Consumers were asked on how they evaluate a product and decide to make a purchase, which were the most important aspects that they consider. Aspect 1 is considered the most important, aspect 2 second most, and aspect 3 third most.

Table 12 Important aspects during consumer purchase of flour

Code	Aspect 1	Aspect 2	Aspect 3
CE1	Brand. I buy Segitiga Biru, it's the one that is in my head.	I look for the 1 kg size.	-
CE2	I usually buy the green one. (Color of packaging that is associated with the brand)	-	-
CR1	What you want to make, thus what type of flour (high, med, low protein)	Price	Design
CR2	There are different types of flour with different protein contents for different kinds of things to make.	brand	Sometimes I try the other brands, which are gluten free or organic, because I have a small child who still at risk with allergies.
CR3	Based on what I want to make. I chose the flour that will result in the best food products.	-	-
CR4	Different flours have the different function, it's written on the package. So I buy according to what I want to make. My mom used to tell me, if you don't want the cooking to fail, you must use the right type of flour.	-	-
CR5	Brand. I usually buy *Segita Biru*. In the supermarket that is the one for cooking and that is the most common.	Expired date. Because I use it in a long time.	-
CB1	Brand. It's the one that is usually in the supermarket, there are a lot of them.	Price	The result of the cooking.
CB2	What type of flour needed (low protein).	If they don't have the brand I ask for, then I ask if they have another flour with the same protein level.	What things we can cook with it (price?)

6.3.2 Retail Evaluations during Listing

Table 13 Important aspects of a product during listing at retail

Code	Important aspect 1	Important aspect 2	Important aspect 3
RA1	Market share	Competitor	Timing. We must also take note of the properties of the product itself, but oftentimes it depends on if the market is ready for such a product as well. As retailers, we know the manufacturer is the one responsible in making sure the product meets all the necessary requirements, such as regulation.
RS1	First we see what type of product it is, what category it falls into.	Hopefully it has a good profit margin. The price is still acceptable in the category.	How the packaging conveys the value of the product.
RP1	Price, it has to fit our costings.	Benchmarking, what competitors exist. Because we need to meet a need of the consumers.	Quality of product. We have three different levels of product Save, Choice, and Prime to reflect the quality.
RP2	First, need to see the category of the product and the target customer. We then analyse the leading national brand and we set a target to take their market share. We then develop the product by sourcing to suppliers using the benchmark brand with a certain cost requirement.	Regulations, in accordance to the government regulation and our own quality standards such as food grade, permits, type of packaging. Because we are dealing with food products, which are ingested. If we cheat with the ingredients, we may not see the bad effects today but in the future it will affect us.	-
RQ1	We need to make sure the regulations are met for the packaging, such as the name, the brand, the address, the producer, the repacker, the BPOM number, ingredients, barcode, composition.	-	-
RM1	The product is good, meaning that it follows the regulations that exist for the packaging and contents, and have good quality of contents.	Reasonable price for retailer and consumer price.	Has good promotional support both below and above the line.

Code	Important aspect 1	Important aspect 2	Important aspect 3
RM2	The product must follow the regulations. If it's food it must have BPOM number and have the correct documentation of permits, ingredients and labels. Do we have the correct lab test for example for gluten free products.	The size. This means where this product would be sold. For example a 5liter tomato sauce we would not sell in the supermarket, but sell in HOREKA (hotel, restaurant & catering or in other words, industrial).	Does the category have competitors? We don't want to make the consumer confused. It's better to sell products that we know will sell instead of new products.
RT1	Is there a need for the product	How the product communicate how it meets the needs	Price and cost. If it meets the needs but there are no sales, then there is no profit.
RT2	All packaging and production by suppliers (manufacturers) must go through government qualification. Supplier is the one who determines the product, retailers only sell it, We don't take part in production and packaging. Retailer only select the product and brands among the possible candidates to make a good MIX in the store	-	-

6.3.3 Consumer Packaging Evaluation

The respondents were asked to evaluate the two packaging.

User	Strength of Plastic	Weakness of Plastic	Strength of Paper	Weakness of Paper
CE1	I can see the whiteness of the flour	Takes up a lot of space and packaging material.	Paper is more recyclable, because it degrades easier. It can stand up in storage and take less space	
CE2	I don't care much for it, but the plastic is quite thick.	I would be happier if it was easier to open and close but I'm not sure that is possible with flour, it might get stuck in the zipper.	Cute, unique. Easy to open.	I think it needs a barrier inside for it to be food safe. I mean we live in tropical, humid climate with a lot of germs. The plastic one is even so thick, I think there must be a reason for it. Especially it usually takes quite a while to use up a bag of flour. There is a risk it will get wet, or leaked.
CR1	I like the design, it's pretty. Have different colours for different proteins and picture of the results. Better seal, safer, safe from contaminations, not easily leak.	After I think maybe not environmentally friendly, but I never thought of it before.		Easily ripped, if wet it will be easily ripped. Or it could be eaten by ants. Our climate is humid.
CR2	Thick plastic, it's good. So it doesn't become easily torn, when you cook it could be poked by a knife. There is a recipe on the back.	Cannot reseal it, must put in container or if you use rubber band it will spill and be messy when you use it.	It's simpler to store.	Flour is heavy, if we use paper I think it will leak and spill. Well, this paper seems strong but I don't think it's safe against rats.

User	Strength of Plastic	Weakness of Plastic	Strength of Paper	Weakness of Paper
CR3	I like the color, it's eye-catching.	Sometimes it leaks even when it's still new on the shelf	I like it better, its nicer and can be recycled. It can be displayed neatly. It has good color especially the red as I learned in school red is a good color for food. The design is interesting	Can't think of any
CR4	It won't easily rip.	I often spill when I pour it because of the fold in the top of the plastic bag. I'm go green, so if I see a lot of plastic I feel pity and guilty.	It's cooler, stylish. It's cute. It's more prestigious. I think the target would be more affluent people.	It may rip easier but I'm not sure if it will be more prone to insects.
CR5	It has clearly the description of what the flour should be used to make.	In the store the display is stacked on it's back. We cannot see the brand so if you are used to cooking maybe you will know but if you don't cook so often you will have difficulty in finding the brand.	The packaging is more attractive. The storage of this package is easier, practical and doesn't take up much space. I could even put it in the door of my fridge.	It's different from the usual packaging, so it needs some kind of information to inform that it is flour. It might be easily ripped, or poked in the kitchen.
CB1	*No comment given.*	*No comment given.*	It's okay. I bought something like this packaging before. It's more environmentally friendly right. It's easier to store it's neater.	Easily ripped maybe because it's made of paper.

User	Strength of Plastic	Weakness of Plastic	Strength of Paper	Weakness of Paper
CB2	The plastic looks sturdy. The pictures on the packaging are attractive, they look delicious. The color of the package is nice too.	I like if it had a clip, so I wouldn't need to use a rubber band to close it again.	I think that paper is safer for food, right? Because when plastic gets hot it will affect the food. We don't know in the store or before how hot the storage is or how humid it is. It is more attractive, but my feeling is that it would be more expensive.	Will this be easily be punctured? I mean I store flour with other cooking utensils. But I guess it would have some kind of different thickness.

6.3.4 Retail Packaging Evaluation

Table 14 Retail evaluation of packaging

Interv.	Strength of Plastic	Weakness of Plastic	Strength of Paper	Weakness of Paper
RA1			It is a nice packaging. It will trigger consumers to start thinking about the environment.	I am concerned with shrinkage. We have to think about the behaviour of the consumer in the store, behaviour of the store employees and how the product will be displayed. Because that kind of product will really be prone to have a high shrinkage. For consumers, they like to hold the product, and press the product in the store. What happens if the package breaks? it's a high risk product.
RS1	Its practical. Has good design with picture of product. It is resistant packaging in terms of handling. If you throw it, it probably won't rip. It could look bigger, which may be more attractive for consumers who don't pay attention to the net weight.	It's trash, and I'm not sure the plastics used are biodegradable. The biodegradable plastics I've seen are shopping bags. It is not resealable, if it had something like the spout in sugar packs, it would be better for the food safety. It cannot stand up alone on the shelf.	It looks more premium and expensive. The look is unique and well packed (looks more exclusive). Looks cool. If consumer is convinced the quality (of the content) is better they will choose it. It has better shelf presence. Somehow has the impression that it is safer to eat, because it is not plastic. People tend to have negative association with plastic.	Is more fragile than plastic, it doesn't withstand water and will be easily ripped. Furthermore this type of product needs to be kept dry. The challenge will be if it looks too expensive and people don't buy it. If it is more expensive, then you need to underline the quality of the product. Needs more care in handling.
RP1	Doesn't leak.	No Problem	It's unique and attractive, different from what is the benchmark.	I'm afraid it will rip. It's more fragile it could get caught on the trolley and rip. Does it fit into our costing? Is it available in Indonesia?

Interv.	Strength of Plastic	Weakness of Plastic	Strength of Paper	Weakness of Paper
RP2	We have high shelves, the risk is always there that a package falls. If the plastic one falls we don't have to worry (demonstrates dropping the plastic bag). But for the paper one, I don't even dare to try.	This looks like a common product.	This looks premium, we would not find this at the traditional market. This display is more attractive, more unique and has better class. It looks like an imported product.	It's risky, for flour, if we use paper. During the delivery to the DC, they will be manually handled, they will be thrown around, or stored near the cold storage, and there is problem with temperature in storage or even in the store. The paper will not be strong enough to hold. The biggest concern is the wastage(shrinkage). Potential problem in delivery to store, or to DC. We have to think about the store people, they will be the ones to handle the product and they require a lot of education and supervision.
RQ1	It's a practical package. If it uses a carton then it's an additional step in the manufacturing. I think it's safer for food, because paper has the risk when ripping/opening it will enter and contaminate the contents. With plastic, we can clearly see if a piece of plastic falls in and it won't have such a high risk of ripping.	There is some difficulty during the manufacturing process in terms of the sealing the plastic. We have to check each pack with a vacuum machine to see if there is any leak.	The storage will be much easier, it is much easier to display as it stands. From afar we can easily see the brand and the weight.	The thickness of the paper is already calculated to meet the standards needed for the contents, but if this product gets tossed around it will be easily ripped.
RT1		This format cannot stand up, is difficult to display	The display is easier, and neater. The consumer can see the brand directly. For the display in the store this is much better.	We are a humid country, so this is not workable. Even if it has a plastic layer inside, it won't be as good to keep the product dry. Our country is also generally dirtier, and paper will get dirty easier (on the outer surface). As an exclusively RM product it would be okay as we have less handling and can take care of the products better as we are relatively more slower moving compared to hypermarket. But could you afford the costs of our

Interv.	Strength of Plastic	Weakness of Plastic	Strength of Paper	Weakness of Paper
				minimum quantity order?
RR1	Strong material, can withstand manual handling. (strength is important)	-	Can be recycled. Has better facing/shelf space.	(not possible) High risk of ripping.
RM1	Practical to display, doesn't take up space on the shelf. Shape is flexible, so it can be adapted to the shelf space. If the shelf is a little bit too low, we can fold the top of the packaging over. It's easy to carry, Indonesian's are use to this kind of package.	Has leakage on the shelf, which makes the display not nice, and also the flour could get on the hands of the consumer and make them dirty.	When I see this, I think the manufacturer cares more about the environment. Because paper can degrade faster than plastic. It's a new packaging, Indonesian's like new packaging.	Has high risk of breaking, shrinkage. Even the current packaging using plastic still leaks sometimes, with paper it would be much worse.
RM2	Has interesting and attractive design with picture of results and window to see the flour.	Difficult to see the expiry date	Looks more exclusive. Better to preserve taste of flour. It's with the trend go green. Easier to degrade and easier to recycle compared to plastic.	Can have problem with humidity, which ruins the product, and possibly have insects.
RT2	Plastic looks cheap, practical, tough. Plastic for Indonesian, is cheap and guaranteed no leak, at least it is perceived that way. With plastic they can reuse it while with paper they have to throw away after use it.	-	Paper looks exclusive, premium, friendly, warm	-