



UNIVERSITAS INDONESIA

**PRELIMINARY STUDY ON DEPOSIT REFUND SYSTEM (DRS)
ON TEH BOTOL SOSRO**

THESIS

LOUIS YOSEN PRIMSA T

09 06 58 59 50

**FACULTY OF ECONOMICS
MAGISTER MANAGEMENT PROGRAM
JAKARTA
JULY 2011**



UNIVERSITAS INDONESIA

**PRELIMINARY STUDY ON DEPOSIT REFUND SYSTEM (DRS)
ON TEH BOTOL SOSRO**

THESIS

Submitted to fulfill one of the requirements to obtain degree of
Magister Management


LOUIS YOSSEN PRIMSA T


09 06 58 59 50

**FACULTY OF ECONOMICS
MAGISTER MANAGEMENT PROGRAM
MM-MBA
JAKARTA
JULY 2011**

STATEMENT OF ORIGINALITY

This final paper represents my own effort, any idea or excerpt from other writers in this final paper, either in form of publication or in other form of publication, if any, have been acknowledged in this paper in accordance to the academic standard or reference procedures



Name	: Louis Yosen Primsa T
Student Number	: 09 06 58 59 50
Signature	: 
Date	: July 2011

LETTER OF APPROVAL

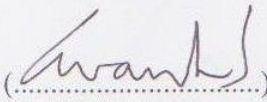
Proposed by :
Name : Louis Yosen Primsa T
NPM : 09 06 58 59 50
Program : MM – MBA
Title :

PRELIMINARY STUDY ON DEPOSIT REFUND SYSTEM (DRS)
ON TEH BOTOL SOSRO

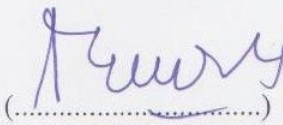
Has successfully presented the thesis in front of Board of Examiner and is already approved to obtain the title Magister Manajemen (MM) and Master of Business Administration (MBA) in MM Program Faculty of Economy, University of Indonesia

BOARD OF EXAMINER

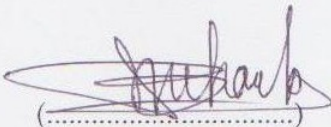
Counselor : Dr. Avanti Fontana

()

Examiner : Dr. Tengku Ezni Balqiah

()

Examiner : Dr. Bambang Wiharto

()

Place : Jakarta

Date : July 2011

PREFACE

And now the time is up for completing this study. I have a lot of thanks to all of you that has devoted much your sincere assistance during the study.

I am here so happy to thanks to:

1. Prof. Rhenald Kasali, Ph.D as Director of MM Program of Faculty of Economics, all lectures and all staffs of MM-FEUI for their assistance and support during the period of my study in MM-MBA.
2. Dr. Avanti Fontana, my thesis counselor who has contributed her ideas to give added-value input so that I believe that this thesis is not only a requirement phase to get the title, but also as a tool to train sense of thought of economic matters.
3. Paulus H W, my friend who is changing his path to an entrepreneur life through CV Anugrah Jaya Mandiri. Success will always be with you, my friend.
4. My family, particularly my dear father and mother, my sister Christy Tarigan who is endlessly giving spirit from the start of this study while she is also being rush in her study. Hope you also complete your study as you expected.
5. My dear friends of MM-MBA Program Batch 2009. This is an energetic class with many ideas of making study a happy moment.
6. All friends, whom I can not mention one by one, that have supported me during these two years so that I can finish my study.

I believe this thesis will add knowledge and understanding for all readers, but it will never satisfy our hunger of continuous learning process. So that I also open any criticism, suggestion and recommendation from all colleagues to make the great ideas behind the writing of this thesis will go nowhere in our real life.

Jakarta, July 2011

Louis Yosen Primsa T

**LETTER OF AGREEMENT TO PUBLISH THE THESIS
FOR ACADEMIC PURPOSE ONLY**

As a member of society of academicians of University of Indonesia, I have agreed as stated below:

Name : Louis Yosen Primsa T
NPM : 09 06 58 59 50
Study Program : MM-MBA
Faculty : Economic
Assignment type : Thesis

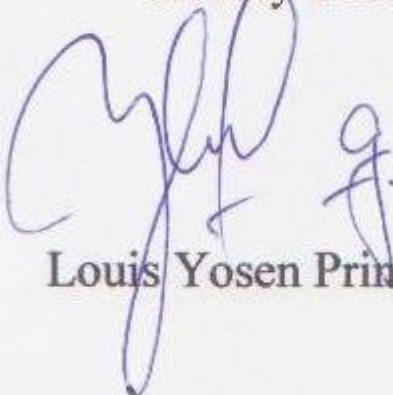
On behalf of science development, I have fully agreed to give the **Non-exclusive Royalty-Free** of the thesis to the University of Indonesia which titled:

**PRELIMINARY STUDY ON DEPOSIT REFUND SYSTEM (DRS)
ON TEH BOTOL SOSRO**

Along with any related materials if needed. With this Non-exclusive Royalty Free Right, University of Indonesia has the right to keep, transform and manage in forms of database, distribute and publish it in the internet and other media as well for academic purpose only, even without permission as long as my name is mentioned and included as the sole writer/author and as the copyright holder. Any form of lawsuit which possibly occur in the future event considered as copyright violation of this thesis will be my personal responsibility.

Sincerely I declare the statement above is true indeed.

Declared at Jakarta,
On July 2011



Louis Yosen Primsa T

ABSTRACT

Name : Louis Yosen Primsa T
Student number : 09 06 58 59 50
Program Study : MM – MBA
Title : PRELIMINARY STUDY ON DEPOSIT REFUND SYSTEM
(DRS) ON TEH BOTOL SOSRO

This research is designed as advanced study of Deposit Refund System (DRS) as an alternative tool to increase the recycling rate of used glass bottle of Teh Botol Sosro. Keypoint studied is the integration of Customer Perceived Value (CPV) and supply chain management to make implementation of DRS focus on business perspective. The modification of supply chain from traditional to reversed approach is intended to optimise the utilisation of packaging of beverage product. Packaging of beverage product is selected as object research since beverage product is massively consumed by market in a standardised shape and size, while at the same time no collection of the packaging from consumption site systematically coordinated by all elements involved in supply chain channel. While consideration of consumer perceived value must be highly anticipated, this research is trying to explore the possible integration between customer perceived value and reversed supply chain.

Key Words:

Deposit Refund System (DRS), Customer Perceived Value (CPV), Reversed Supply Chain, Beverage Product, Modification of Supply Chain, Glass Material, Packaging.

ABSTRAKSI

Name : Louis Yosen Primsa T
Student number : 09 06 58 59 50
Program Study : MM – MBA
Title : STUDI PENDAHULUAN ATAS *DEPOSIT REFUND SYSTEM* (DRS) PADA TEH BOTOL SOSRO

Studi ini dirancang sebagai studi awal atas *Deposit Refund System* (DRS) sebagai suatu alternatif untuk meningkatkan *recycling rate* atas botol gelas bekas Teh Botol Sosro. Poin utama yang dipelajari adalah integrasi nilai persepsi pelanggan dan manajemen rantai pasok untuk menciptakan implemmentasi DRS yang fokus pada perspektif bisnis. Modifikasi rantai pasok dari pendekatan tradisional ke terbalik dimaksudkan untuk mengoptimalkan utilisasi kemasan produk minuman. Kemasan produk minuman dipilih sebagai objek penelitian karena produk minuman dikonsumsi pasar secara massal dalam bentuk dan ukuran yang terstandarisasi, sementara pada saat yang sama tidak ada pengumpulan kembali kemasan dari titik konsumsi yang secara sistematis dikoordinasikan atas seluruh elemen dalam saluran rantai pasok. Sementara pertimbangan nilai persepsi pelanggan harus sangat diantisipasi, penelitian ini mencoba untuk mengeksplorasi kemungkinan integrasi antara nilai persepsi pelanggan dan rantai pasok terbalik tersebut.

Kata Kunci:

Deposit Refund System (DRS), Nilai Persepsi Pelanggan, Rantai Pasok Terbalik, Produk Minuman, Modifikasi Rantai Pasok, Material Gelas, Kemasan.

TABLE OF CONTENT

TITLE	i
STATEMENT OF ORIGINALITY	ii
LETTER OF APPROVAL	iii
PREFACE	iv
LETTER OF AGREEMENT	v
ABSTRACT	vi
TABLE OF CONTENT	viii
LIST OF FIGURES	xi
LIST OF TABLES	xii
LIST OF APPENDICES	xiii
CHAPTER 1 : INTRODUCTION	
1.1. Background	1
1.2. Problem Identification	2
1.3. Research Question	5
1.4. Research Purpose	6
1.5. Research Objective	6
1.6. Research Scope	7
1.7. Research Limitation	8
1.8. Research Disposition	8
CHAPTER 2 : LITERATURE REVIEW	
2.1. Marketing	10
2.1.1. Trend to Societal Marketing Concept	10
2.1.2. Customer Perceived Value (CPV)	11
2.1.2.1. Customer Perceived Benefits	12
2.1.2.2. Customer Perceived Costs	16
2.2. Supply Chain Management	17
2.3. Cross-Functional Issue in Recycling Rate	19
2.3.1. Packaging Function	19
2.3.2. Packaging in Beverage Industry	20
2.3.3. The Importance of Recycling Policy	21
2.3.4. DRS Implemented in Other Countries	23
2.3.5. International Standard Related with Recycling Rate	24
2.3.6. Competition and Innovation Opportunity	25
CHAPTER 3 : BEVERAGE INDUSTRY AND COMPANY PROFILE	
3.1. Market Structure of Beverage Industry	27
3.2. History of Marketed RTD Brewed Tea	29
3.3. Supply Chain of Teh Botol Sosro	30
3.3.1. The Flow of Raw Materials	31

3.3.2.	Direction of The Flow	31
1.4.	Company Profile	33
CHAPTER 4 : RESEARCH METHOD		
4.1.	Research Idea	34
4.2.	Type of Research	35
4.2.1.	Exploratory Research	35
4.2.2.	Conclusive Research	36
4.2.2.1.	Descriptive Research	36
4.2.2.2.	Causal Research	37
4.3.	Research Method	38
4.3.1.	Exploratory Research	38
4.3.1.1.	Influence of Financial Charge	38
4.3.1.2.	Influence of Natural Business Control	39
4.3.1.3.	Type of Outlet	41
4.3.2.	Descriptive Research	42
4.3.2.1.	Structure of Questionnaire	43
4.3.2.2.	Questionnaire Format	44
4.3.3.	Measurement and Scaling	45
4.3.3.1.	Measurement	45
4.3.3.2.	Scaling	45
4.3.4.	Sampling	47
4.3.4.1.	Population	47
4.3.4.2.	Sampling Technique	47
4.3.4.3.	Sample Size	48
4.3.5.	Data Analyzing Method	48
4.3.5.1.	Descriptive Analysis	48
4.3.5.2.	Inferential Analysis	49
CHAPTER 5 : ANALYSIS		
5.1.	Result of Exploratory Research	51
5.1.1.	Influence of Financial Charge	51
5.1.2.	Influence of Natural Business Control	53
5.2.	Impact and Alternative Solutions	55
5.2.1.	Impact of Unreturned Used Glass Bottles	55
5.2.2.	Benefits of DRS	58
5.2.3.	Benefits of DRS through Teh Botol Sosro' Supply Chain	58
5.3.	Result of Descriptive Research	62
5.3.1.	Demographic Characteristic of Respondents	62
5.3.1.1.	Sex	62
5.3.1.2.	Age	62
5.3.1.3.	Education	63
5.3.1.4.	Occupation	63
5.3.1.5.	Disbursement	64

5.3.2.	Customer Perception on Teh Botol Sosro	65
5.3.2.1.	Brand Awareness of RTD (Ready To Drink) Brewed Tea	65
5.3.2.2.	Value Proposition of Teh Botol Sosro	66
5.3.2.3.	Customer Perceived Benefits of Teh Botol Sosro	67
5.3.2.4.	Customer Perceived Costs of Teh Botol Sosro	68
5.3.2.5.	Consumption Method of Teh Botol Sosro	69
5.3.2.6.	Perception on Parties Responsible for Collecting Teh Botol Sosro' Used Glass Bottle	70
5.3.2.7.	Perception on Wasted Teh Botol Sosro' Used Glass Bottle	70
5.3.2.8.	Perception on Current Strategy to Increase Recycling Rate	72
5.3.2.9.	Perception on Alternative Strategy to Increase Recycling Rate	72
5.3.3.	Customer Perception on DRS (Deposit Refund System) Strategy on Teh Botol Sosro	74
5.3.3.1.	Perception on Applicability of DRS Strategy on Packaging of Beverage Product	74
5.3.3.2.	Perception on Mechanism of DRS Strategy on Teh Botol Sosro	75
5.3.3.3.	Perception on Financial Charge Applied for DRS Strategy on Teh Botol Sosro	77
CHAPTER 6 :	CONCLUSION, RECOMMENDATION AND CONSTRAINT OF THE RESEARCH	
6.1.	Conclusion	79
6.2.	Recommendation	81
6.3.	Constraint	83
REFERENCE APPENDICES		85

LIST OF FIGURES

FIGURE 2.1.	New Business Context	11
FIGURE 2.2.	The Value Proposition	14
FIGURE 4.1.	Activities in A Reversed Supply Chain	34
FIGURE 4.2.	Business Process View of A Reversed Supply Chain	35
FIGURE 4.3.	Performance of US States With and Without Deposits in 1999	39
FIGURE 5.1.	Outlets Based on Retail Price	51
FIGURE 5.2.	Unreturned Rate Based on Retail Price	52
FIGURE 5.3.	Outlets Based on Type of Business	53
FIGURE 5.4.	Outlets Categorization Based on Natural Business Control	54
FIGURE 5.5.	Unreturned Rate Based on Natural Business Control	54
FIGURE 5.6.	Respondent Composition Based on Sex	62
FIGURE 5.7.	Respondent Composition Based on Age	63
FIGURE 5.8.	Respondent Composition Based on Education	63
FIGURE 5.9.	Respondent Composition Based on Occupation	64
FIGURE 5.10.	Respondent Composition Based on Disbursement	64
FIGURE 5.11.	Top of Mind Brand of RTD Brewed Tea	65
FIGURE 5.12.	Top of Mind of Teh Botol Sosro	66
FIGURE 5.13.	Customer Perception over DRS Strategy	74
FIGURE 5.14.	Customer Perception on Mechanism of DRS Strategy	76
FIGURE 5.15.	Customer Perception on Financial Incentive of DRS Strategy	78

LIST OF TABLES

TABLE 2.1.	Value Proposition Matrix	15
TABLE 2.2.	Different Perspectives in Value Proposition Matrix	16
TABLE 2.3.	Comparative Energy Requirements for New Containers	20
TABLE 2.4.	Various Degrees of DRS Implementation	24
TABLE 2.5.	System Works of Industrial Era (Bubble) and Natural Era (Post-Bubble)	26
TABLE 3.1.	Development of Beverage Industry 2005 - 2009	27
TABLE 3.2.	Market Structure for RTD Brewed Tea 2006 – 2007	28
TABLE 4.1.	Degree of Natural Business Control per Outlet	42
TABLE 4.2.	Sample Sizes Used in Marketing Research Studies	48
TABLE 5.1.	Mean of Value Proposition of Teh Botol Sosro	67
TABLE 5.2.	Mean of Customer Perceived Benefits of Teh Botol Sosro	67
TABLE 5.3.	Mean of Customer Perceived Costs of Teh Botol Sosro	68
TABLE 5.4.	Mean of Customer Perception if Consumption Not Near the Seller Selling Point	69
TABLE 5.5.	Mean of Customer Perception of Parties Responsible for Collecting Teh Botol Sosro' Used Glass Bottle	70
TABLE 5.6.	Mean of Customer Perception on Wasted Teh Botol Sosro' Used Glass Bottle	71
TABLE 5.7.	Mean of Customer Perception on Effectiveness of Current Strategy by Sosro	72
TABLE 5.8.	Mean of Customer Perception on Alternative Strategy to Increase Recycling Rate	73

LIST OF APPENDICES

APPENDIX 1	Questionnaire	A-1
APPENDIX 2	Frequency Table Characteristic of Respondents	A-8
APPENDIX 3a	Frequency Table Brand Awareness of RTD (Ready To Drink) Brewed Tea	A-10
APPENDIX 3b	Frequency Table Frequency of Consumption of Teh Botol Sosro	A-11
APPENDIX 4a	Inferential Analysis Value Proposition of Teh Botol Sosro	A-12
APPENDIX 4b	Frequency Table Value Proposition of Teh Botol Sosro	A-14
APPENDIX 5a	Inferential Analysis Customer Perceived Benefits of Teh Botol Sosro	A-15
APPENDIX 5b	Frequency Table Customer Perceived Benefits of Teh Botol Sosro	A-17
APPENDIX 6a	Inferential Analysis Customer Perceived Costs of Teh Botol Sosro	A-18
APPENDIX 6b	Frequency Table Customer Perceived Costs of Teh Botol Sosro	A-20
APPENDIX 7	Inferential Analysis Substance of Purchasing a Bottle of Teh Botol Sosro	A-21
APPENDIX 8a	Inferential Analysis Consumption Method of Teh Botol Sosro	A-23
APPENDIX 8b	Frequency Table Consumption Method of Teh Botol Sosro	A-25
APPENDIX 9a	Inferential Analysis Parties Responsible For Collecting Teh Botol Sosro' Used Glass Bottle	A-26
APPENDIX 9b	Frequency Table Parties Responsible For Collecting Teh Botol Sosro' Used Glass Bottle	A-28
APPENDIX 10a	Inferential Analysis Perception on Wasted Teh Botol Sosro' Used Glass Bottle	A-29

APPENDIX 10b	Frequency Table Perception on Wasted Teh Botol Sosro' Used Glass Bottle	A-31
APPENDIX 11a	Inferential Analysis Perception on Current Strategy to Increase Recycling Rate	A-32
APPENDIX 11b	Frequency Table Perception on Current Strategy to Increase Recycling Rate	A-34
APPENDIX 12a	Inferential Analysis Perception on Alternative Strategy to Increase Recycling Rate	A-35
APPENDIX 12b	Frequency Table Perception on Alternative Strategy to Increase Recycling Rate	A-37
APPENDIX 13	Frequency Table Perception on Applicability of DRS Strategy on Packaging of Beverage Product	A-38
APPENDIX 14	Frequency Table Perception on Mechanism of DRS Strategy on Teh Botol Sosro	A-39
APPENDIX 15	Frequency Table Perception on Financial Charge Applied for DRS Strategy on Teh Botol Sosro	A-41
APPENDIX 16	Scenario of DRS	A-44
APPENDIX 17	Practice of DRS in Other Countries	A-45

CHAPTER 1 INTRODUCTION

1.1. Background

Current economic development has shown great progress. It is one among another recognized through the increasing number of output produced, dissemination across the globe with less border and new roles of business player along the products flow. Particularly in industry sector, the economic progress is supported with innovation made through supply chain process by manufacturers, to flow materials, funds and information in a better pipeline from raw material' supplier up to end customer.

The term supply chain conjures up images of product or supply moving from supplier to manufacturers, to distributors, to retailers and finally to customers along a chain. This is certainly part of the supply chain, but it is also important to visualize information, fund and product along both directions of this chain. The term supply chain may also imply that only one player is involved at each stage. In reality, a manufacturer may receive material from several suppliers and then supply several distributors (Chopra & Meindl, 2007).

The importance of supply chain has found its tune in global economic development nowadays by its ability to remove inefficiencies, excess costs and excess inventories from the supply pipeline. Business competition is no longer between one company fight its market solely against a typical competitor, but it involves own company' supply chain to fight its market share against a typical networks built by competitor. Thus, most supply chains are actually networks. It may be more accurate to use the term supply network or supply web to describe the structure of most supply chains. This is the main reason why bigger portion from supply chain perspective influence each supply chain network in building strategic business planning throughout the network (Chopra & Meindl, 2007).

Other than supply chain with traditional or conventional direction, recently there is an increasing concern in supply chain with reversing direction against the

traditional one. Whatever the direction is, the primary purpose of every supply chain is to deliver value to customer thus their needs are satisfied. Since customers are making choices according to the best value offered by available products, it is important for company to create its product based on Customer Perceived Value (CPV) concept. Therefore, to make a product with reversed supply chain attributed with it keep profitable, CPV is a key point of business perspective to be maintained.

Regarding the reversed supply chain, one policy already practiced in some countries is Deposit Refund System (DRS) scheme. DRS is designed with the involvement of all supply chain stages from downstream side by a financial incentive. The financial incentive is inserted into the scheme as a mechanism of exchanging a used product from downstream side with the incentive from upstream side.

Regarding CPV, it is the difference between the prospective customer's evaluation of all the benefits and all the costs of an offering and the perceived alternatives. Customer perceived benefit is the perceived monetary value of the bundle of economic, functional, and psychological benefits customers expect from a given market offering because of the products, services, personnel and image involved. Customer perceived cost is the perceived bundle of costs customer expect to incur in evaluating, obtaining, using and disposing of the given , market offering, including monetary, time, energy and psychological costs (Kotler and Keller, 2009).

When integrating the reversed supply chain and CPV perspectives, companies are defining their value offers and joining collaborative efforts with all supply chain stages to create distinctive competitive advantage. Hence, managing value in reversed supply chains has become critical for survival and growth of organizations.

1.2. Problem Identification

A typical supply chain may involve a variety of stages, include component/raw material suppliers, manufacturers, wholesalers/distributors, retailers, customers. Each stage in a supply chain is having connected through the flow of products, information, and funds. These flows often occur in both directions and may be managed by one of the stages or an intermediary. Each stage need not be present in a supply chain. The

appropriate design of the supply chain depends on both the customer's needs and the roles played by the stages involved (Chopra & Meindl, 2007).

The above order of supply chain is also known as traditional supply chain, since it is the practice already done along the history of economic. The last stage here is the customers as the end-user of the products, referring to the fact that when a product is consumed by customer, its net book value depreciates to zero, and then it is thrown as a trash to the bin.

As happened in Indonesia, trash management does only cover main activities of collection from end customer bins and transportation to Waste Collection Point (i.e. Tempat Pembuangan Sampah – TPS). At WCP, trashes are discarded without particular reprocessing action, called as open-dumping practice. According to report issued by Ministry of Environment in 2008 titling Contribution of Trash to the Global Warming, due to the open dumping practice found in WCPs in Indonesia, trash has become the main contributor of green house effect in the form of methane (CH₄) and carbon dioxide (CO₂). Further in the report, if not well-managed, it is predicted that in 2020, Indonesia will produce trash 500kg per day or 190,000kg per year. This is particularly not good for our environment (Rafianti, 2010).

The improvement made upon disposal to environment is getting more urgent due to the endorsement of ISO 26000:2010 “Corporate Social Responsibility”. It emphasizes environment as one of seven stakeholders must be highly regarded by companies. According to ISO 26000:2010, companies could promote friendly environmental products through integration of sustainable resource use into supply chain network to the best fit of energy and raw materials usage (www.iso.org).

For manufacturers, to promote friendly environmental products, there an opportunity lies on supply chain. The flows in traditional supply chain must be reversed back, making value-added activities to the used products and thus remarket it by its fair value. A reversed supply chain, also called as a closed loop supply chain, at least consists of three sub-processes: product returns management (front end), remanufacturing used products (engine), and remanufactured products market development (back end) (Guide and Van Wassenhove, 2009).

Some specific industries are getting more attention regarding this reversed supply chain: beverage containers, automotives, and electronic equipments. Here we are focusing on beverage container to learn the possibility of improvement made upon supply chain management of beverage container to adopt more friendly-environmental-products meanwhile fulfilling its CPV. The case study for this thesis is Teh Botol Sosro, an Indonesian formulated tea marketed in the package of glass bottle.

As a consumer product, end customer enjoys Teh Botol Sosro by purchasing it from retailer outlet. Quoting its well-known tag “Apapun Makanannya, Minumnya Teh Botol Sosro”, we name value proposition matrix of Teh Botol Sosro is simplifier, referring to customer gets availability and convenience to reach the products at various types of outlets. Here, Teh Botol Sosro is having strategic objective of building streamlined process to make consumption simple and uncomplicated in a creative, novel and profitable way (Journal of Value Chain Management, 2006).

The availability of Teh Botol Sosro on the retailer outlet is resulted from supply chain network while its channel can be traced back to the distributor, to Sosro’ plant and the tea garden. Viewing this flow, we can say that the value of Teh Botol Sosro tagged on retailer outlet is the sum value of each supply chain stage plus its respective margin. Here, traditional supply chain is the main practice with less reused option applied on the used glass bottle. To the fact, it is not difficult to find used glass bottle dumped off at points between customer consumptions site (e.g. drain line and road side) and WCP. According to the price paid by final buyer, customer is not required to return the used glass bottle to retailer. From retailer side as the final seller, other than the monetary sanction if fail to return the used glass bottle, there is no other requirement to collect the bottle from customer consumption site. We can see now there is no single party in this supply chain to responsible to manage the used glass bottle. It is due to all information, fund and product have transferred as its order within the chain, while trash from used materials are considered outside the chain.

We turn now to the practice of reversed supply chain. Companies often passively accept returns from the market or channel. It makes returns are uncertain in

quality, quantity and timing. Companies do not align the corresponding remanufacturing costs and selling opportunities. At best, companies are neutral, more often they fear remanufactured sales will cannibalize new sales and damage brand image (Guide & Wassenhove, 2003). The positioning as neutral regarding reversed supply chain upon used glass bottle also occurs for Teh Botol Sosro. The existence of used glass bottle either in customer consumption site or WCP means there is no strict policy made to collect and reuse it in next manufacturing process.

Reversed supply chain in Teh Botol Sosro is targeted on its packaging material, which is made from glass. In Indonesia, there is no official regulation to force beverage producer, including Sosro, to recollect the packaging material. It is different with practice in some other countries, which consider once used, packaging material of a product turns into a pollutant. To collect the pollutant, there is coordinated effort among industry, government and customer. The involvement of customer is done by attaching a financial incentive for every bottles return after consumption, which concept is regulated under DRS.

According to practice in other countries, how if DRS is applied in Teh Botol Sosro' supply chain? How business perspective from market side can be combined into DRS? To make DRS works out in real practice, there are challenges to know how the pattern of unreturned bottles in current Teh Botol Sosro' supply chain is, what value proposition, perspective benefit and cost are expected by customer and to what extent the example from other countries can be applied here. Understanding the business perspective will add acceptance from market side to the implementation of DRS.

1.3. Research Question

Guide and Wassenhove (2009) said that each of three sub-processes proposed in a reversed supply chain can be a bottleneck. So often, it is not technical matters that matter, but rather loosing market opportunities due to lack of a market for remanufactured products or the lack of used products of sufficient quality at the right price and the right time. As DRS is a new concept involving all supply chain stages

through financial incentive mechanism, it is expected to be designed according to expectation of all stage in reversed supply chain, particularly customer as the new party in the chain. To make the importance of customer becomes critical, de Brito and Dekker (2003) has put three driven forces in reversed supply chain: 1) economics (or because company can profit from it), 2) legislation (or because company has to), 3) corporate citizenship (or because company “feel” socially motivated to do it). While legislation of reversed supply chain does not exist in Indonesia, the other two forces are connecting companies and customer in reversed supply chain. Thus, this thesis is intended to study how DRS in Teh Botol Sosro’ reversed supply chain fits with customer perspective.

1.4. Research Purpose

This thesis is purposed as a preliminary study of DRS from practice already applied in other countries. The study starts with the pattern of unreturned rate of used glass bottle of Teh Botol Sosro. Two variables, which are financial charge included in retail price, and natural business control, are studied to explore its pattern. Then, this thesis continuous with customer perspective about the proposed DRS. The perspective is focused to know how DRS as a form of reversed supply chain should be applied to fit with perspective of Teh Botol Sosro’ customer.

1.5. Research Objective

This study involves pre-research on the literature of reversed supply chain and its related environmental issues, and CPV over the remanufactured products. Articles obtained are from international and national to match the current practice both in areas of supply chain and marketing.

Objective of the research are:

a. Academic

This research is intended to enhance business knowledge gathered in class to the real implementation on the field. By reviewing business perspective in reversed supply

chain and CPV of remanufactured products, it gives real example of how pros and cons rise for business idea as discussed in class.

b. Practice

This research is intended to provide an alternative for business leaders to redesign its business process adopting cross functional issues in the company, particularly when a business idea such as reversed supply chain is targeted as a profitable action.

c. Individual

Personally, writer expects this research can bring his business understanding forward to business expertise. Writer regards this thesis as valuable opportunity to pour his interdisciplinary thought covering marketing, supply chain and pricing strategy in one scientific paper. And by combining it with experiences from other functions in business, writer believe this will be a good chance to enter business wise stage.

1.6. Research Scope

To prove the importance of the reversed supply chain, writer will perform test over failed returnable glass bottle. We perform observation over the trend of return rate per retail outlet of particular distribution area. Writer observes the discrepancy between filled bottles dropped by distributor to retailer and empty bottles returned by retailer to distributor for period January 2011 to March 2011.

Descriptive research in this thesis focuses on questionnaire to find out level of acceptance by consumer over the “greener” products consumed and the application of remanufactured used products accompanying current practice of producing purely new products. From the questionnaire, analysis is made on market opportunities in reversed supply chain of Teh Botol Sosro through typical values expected by customer and the acceptable action should there is modification in the supply chain.

1.7. Research Limitation

This study focuses only on proposed modification of traditional supply chain to the reversed design by absorbing certain level of acceptance of proposed DRS on Teh Botol Sosro. Other phenomenon might occur on real business world, such as reaction from competitor and readiness of reversed supply chain proponent. However, it requires greater effort and expertise for an adequate observation and suggested as direction for further research.

1.8. Research Disposition

This thesis is structured as below:

Chapter 1: Introduction

Describe the introduction of research background, problem identification, research question, research purpose, research objective, delimitation and limitation of the research, and research disposition.

Chapter 2: Literature Review

Describe literatures utilized in analyzing the fact occurs in business world from the perspective of two sides: supply chain through the reversed concept and marketing through the CPV. Last section of this chapter discusses about the cross-functional issues in recycling rate.

Chapter 3: Beverage Industry and Company Profile

Describe the market structure of beverage industry in Indonesia, history of marketed RTD (Ready to Drink) brewed tea market in Indonesia, supply chain of Teh Botol Sosro and company profile of distributor of assorted product of Sosro.

Chapter 4: Research Method

Describe the research design, data collection, population, sample, participants and measurement used in the research. For supply chain, we plan to do research upon trend of return rate of Teh Botol Sosro per retail outlet in distribution area Balikpapan.

Observation covers period January 2011 to March 2011. For CPV, we plan to do research by sending questionnaire to consumer of Teh Botol Sosro to understand their typical values.

Chapter 5: Analysis

Findings found through the research and analysis on it. Here the response from customer got through the questionnaire is matched to the best practice of reversed supply chain in beverage products.

Chapter 6: Conclusion and Implication

Consist of conclusion of the analysis comes as the response to problem identification. It also describe implication for top executive regarding the best business action should be taken in areas reversed supply chain and its related CPV, while capturing insight for manufacturing industry and direction for further research.

CHAPTER 2 LITERATURE REVIEW

Since this thesis is focusing in integrating marketing and supply chain management in order to conceptually build financial strategy of beverage packaging, this chapter will elaborate about marketing, supply chain management, and cross-functional issue between the two subjects.

2.1. Marketing

2.1.1. Trend to Societal Marketing Concept

According to its approved definition in October 2007, The American Marketing Association defines marketing as the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large (www.marketingpower.com).

As a managerial definition, Kotler defines marketing as the art and science of selling products of choosing target markets and getting, keeping and growing customers through creating, delivering, and communicating superior customer value. Instead the managerial definition, Kotler adds a social definition for marketing, which is a societal process by which individuals and groups obtain what they need and want through creating, offering and freely exchanging products and services of value with others (Kotler and Keller, 2009).

Peter Drucker, a leading management theorist, says that the aim of marketing is to make selling superfluous. The aim of marketing is to know and understand the customer so well and that the product or service fits him and sells itself. Ideally, marketing should result in a customer who is ready to buy. All that should be needed then is to make the product or service available (Kotler and Keller, 2009).

The definition of marketing towards social aspect with focus on customer comes through the development stages of marketing. Kotler and Keller (2009) describe stages of company orientation toward the marketplace into five phases. They determine holistic marketing concept as the ultimate stage introduced in 21st century.

This concept attempts to recognize and reconcile the scope and complexities of marketing activities, based on four broad components: relationship marketing, integrated marketing, internal marketing and performance marketing.

Based on the last component (performance marketing), business is going beyond sales revenue to examine the marketing scorecard and interpret what is happening to market share, customer loss rate, customer satisfaction, product quality, and other measures. This realization calls for a new term that enlarges the marketing concept. Kotler and Keller (2009) propose calling it the “societal marketing concept”. The societal marketing concept holds that the organization’s task is to determine the needs, wants, and interests of target markets and to deliver the desired satisfactions more effectively and efficiently than competitors in a way that preserves or enhance the consumer’s and society’s long-term well being. The societal marketing concept calls upon companies to build social and ethical considerations into their marketing practices. They must balance and juggle the often conflicting criteria of company profits, consumer wants satisfaction, and public interest.

Related with the societal marketing concept, Fontana (2009) gave a description on how economy, social and environment must be integrated as a new business context, as shown in Figure 2.1. below:

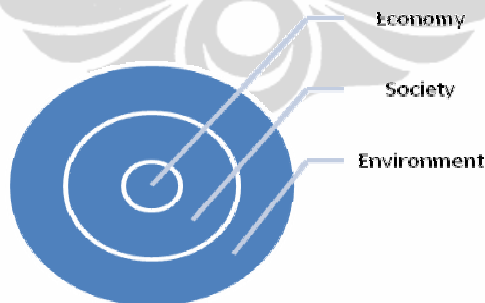


Figure 2.1. New Business Context

Source: Fontana, 2009

2.1.2. Customer Perceived Value (CPV)

Satisfaction to customer, as one criterion in societal marketing concept, is at the top of importance in modern customer-oriented organization pyramid. To ultimately

make choices, customers tend to be a value maximizer by choosing a product offering the most Customer Perceived Value (Kotler and Keller, 2009).

Customer-Perceived Value (CPV) is the difference between the prospective customer's evaluation of all the benefits and all the costs of an offering and the perceived alternatives. Customer perceived benefit is the perceived monetary value of the bundle of economic, functional, and psychological benefits customers expect from a given market offering because of the products, services, personnel and image involved. Customer perceived cost is the perceived bundle of costs customer expect to incur in evaluating, obtaining, using and disposing of the given , market offering, including monetary, time, energy and psychological costs (Kotler and Keller, 2009).

In terms of marketing, the product will be successful if it delivers value and satisfaction to the target buyer. The buyer chooses between different offerings on the basis of which is perceived to deliver the most value. We define value as a ratio between what the customer gets and what he gives. The customer gets benefits and assumes costs, as shown in the equation below (Kotler and Keller, 2009):

$$\text{Values} = \frac{\text{Benefits}}{\text{Costs}} = \frac{\text{Economic benefits} + \text{Functional benefits} + \text{Emotional benefits}}{\text{Monetary cost} + \text{Time Cost} + \text{Energy Cost} + \text{Psychological cost}}$$

CPV is thus based on the difference between what the customer gets and what he or she gives for different possible choices. The customer gets benefit and assumes costs. The marketer can increase the value of the customer offering by some combination of raising economic, functional, or emotional benefits and/or reducing one or more of the various types of costs (Kotler and Keller, 2009).

2.1.2.1. Customer Perceived Benefits

Kotler and Keller (2009) distinguish three core concepts in purchasing decision by customer:

- a. Need as the basic human requirements
- b. Want as a specific object that might satisfy the need
- c. Demand as want for specific products backed by an ability to pay

Customers satisfy their needs and wants with products. A product can take its form as one of goods, services, events, experiences, persons, places, properties, organizations, information and ideas (Kotler and Keller, 2009). Satisfaction to customer depends on benefits delivered to them through product quality. American Society for Quality Control (ASQC) defines quality as the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs (Kotler and Keller, 2009). Aaker (1996) relates the benefits provided for customers with brand identity, which is a unique set of brand associations that the brand strategist aspires to create or maintain.

Aaker (1996) said a brand identity needs to provide a value proposition to the customer. He defines a brand's value proposition as a statement of the functional, emotional, and self-expressive benefits delivered by the brand that provide value to the customer. An effective value proposition should lead to a brand-customer relationship and drive purchase decisions. The benefits delivered are explained below:

a. Functional benefits

It is a benefit based on a product attribute that provides functional utility to the customer. Such a benefit will usually relate directly to the functions performed by the product or service for the customer. Functional benefits, especially those based upon attributes, have direct links to customer decisions and use experiences. For producer, the challenge is to select functional benefits that will “ring the bell” with customers and that will support a strong position relative to competitors. Sometimes product attributes and functional benefits fall into product-attribute fixation trap, such as fail to differentiate and can be easy to copy. One approach to overcome this limitation is expanding the value proposition to include emotional and self-expressive benefits as well as functional benefits (Aaker, 1996).

b. Emotional benefits

When the purchase or use of a particular brand gives the customer a positive feeling, that brand is providing an emotional benefit. Emotional benefits add richness and

depth to the experience of owning and using the brand, and without it, the particular brand and product will border on commodity status (Aaker, 1996).

c. Self-expressive benefits

Brand and product can become symbols of a person's self-concept. A brand can thus provide a self-expressive benefit by providing a way for a person to communicate his or her self-image. When a brand provides a self-expressive benefit, the connection between brand and customer is likely to be heightened (Aaker, 1996).

Sometimes there is a close relationship between emotional and self-expressive benefits. Aaker (1996) compares the two benefits and finds self-expressive benefits focus on the following:

- a. self rather than feelings
- b. public settings and products rather than private ones
- c. aspiration and the future rather than memories of the past
- d. the permanent rather than the transitory
- e. the act of using the product rather than a consequence of using the product.

Besides the three benefits, Aaker (1996) considers price important. Price that is too high relative to the benefits will undercut the product or service's value proposition. An overpriced brand by customers will not be rewarded even if there are clear and meaningful benefits. The benefits and its relative price are graphed as Figure 2.2. below:

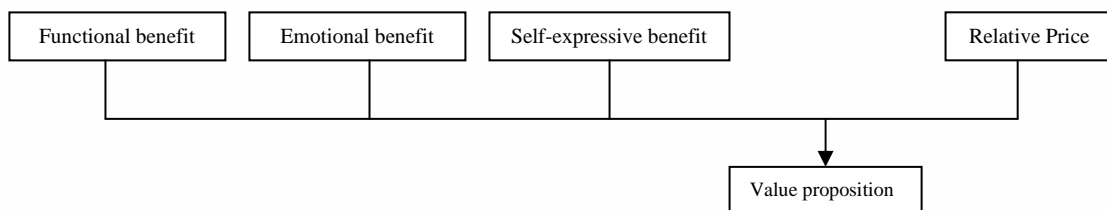


Figure 2.2. The Value Proposition

Source: Aaker, 1996

Other writers, Treacy and Wiersema (1995), argued that value added or destroyed to customers depends on how much the value exceeds or falls short of customer expectation. Value among customers has come to mean three different expectations: best products, best solution, and best total cost. Market leaders choose to excel in delivering extraordinary levels of one particular value.

Product falls into one of three value disciplines according to what kind of value proposition the companies pursued. There are three value disciplines, which are operational excellence, product leadership and customer intimacy. By operational excellence, company means providing customers with reliable products at competitive prices, delivered with minimal difficulty or inconvenience. By product leadership, company means providing products that continually redefine the state of art. And by customer intimacy, company mean selling the customer a total solution, not just a product or service (Treacy and Wiersema, 1995).

Later in 2000, Martinez and Bititci (2006) added hard and soft value dimensions to each value proposition which resulting a two by three matrix with six value propositions as depicted in Table 2.1. below:

Table 2.1. Value Proposition Matrix

Value Proposition Matrix		Value Dimensions	
		Hard	Soft
Generic Value Proposition	Product Leadership	Innovator	Brand Manager
	Operational Excellence	Price Minimiser	Simplifier
	Customer Intimacy	Technological Integrator	Socialisor

Source: Journal of Value Chain Management, 2006

The value proposition matrix above is explained from two different perspectives: customer perspective as “What customers get” and business perspective as “What the Company needs to do”. It is summarized in Table 2.2.

Table 2.2. Different Perspectives in Value Proposition Matrix

Value Proposition Matrix	What customer get?	What company needs to do?
Innovator	New product with uniqueness and special characteristics	Focus on strong design skills, make obsolete their own products and continuously introduce new products
Brand Manager	Status (superiority, ego, and social acceptance)	Reinforce the solid brand image of the product and/or company
Price Minimiser	Good quality, reliable and conscious price products	Efficiency in production process
Simplifier	Availability and convenience to reach the product	Building streamlined process to make life simple and uncomplicated for customers
Technological Integrator	Total solutions and personalized attention	Customize specific and continuous solutions for carefully selected customers
Socialisor	Flexible and reliable services	Building confidence and trust through the service provided

Source: Journal of Value Chain Management, 2006

2.1.2.2. Customer Perceived Costs

Perceived costs to customer means some resources sacrificed in order to get benefits from the quality of product. Among the components of perceived costs, monetary costs are the component labeled on the physic of product by definite amount. Monetary costs are the price set by producer to be paid by customer. The other costs (time cost, energy cost and psychological cost) are the resources sacrificed by customer but not in form of payment to producer. According to Treacy and Wiersema (1995), costs include both the money spent on the purchase and maintenance, and the time spent on delays, errors, and effort. Both tangible and intangible costs reduce value.

When setting the price, there are some pricing methods to be considered (Kotler and Keller, 2009):

a. Markup pricing

It is to add a standard markup to the product's cost.

b. Target-return pricing

It is to determine price that would yield its target rate of return on investment (ROI).

c. Perceived-value pricing

It is to use customer perceived value to set prices. The key to perceived-value pricing is to deliver more value than the competitor and to demonstrate this to prospective buyers. Basically, a company needs to understand the customer's decision-making process. The company can try to determine the value of its offering in several ways: managerial judgment within the company, value of similar products, focus groups, surveys, experimentation, analysis of historical data, and conjoint analysis.

d. Value pricing

It is to reengineer the company's operations to become a low-cost producer without sacrificing quality, to attract a large number of value-conscious customers.

e. Going-rate pricing

It is to base price largely on competitor's prices, charging the same, more, or less than major competitor.

f. Auction-type pricing

It is to recognize the possible effects from online auctions for industrial buying.

2.2. Supply Chain Management

Supply chain management is the systematic, strategic coordination of the traditional business functions and the tactics used across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole (Sarkis, 2006).

A supply chain consists of all parties involved, directly or indirectly, in fulfilling a customer request. The supply chain includes not only the manufactures

and suppliers, but also transporters, warehouses, retailers, and even customers themselves. Within each organization, such as manufacturer, the supply chain includes all functions involved in receiving and filling a customer request. These functions include, but are not limited to, new product development, marketing, operations, distribution, finance, and customer service (Chopra and Meindl, 2007).

The objective of every supply chain should be to maximize the overall value generated, primarily to satisfy customer needs and, in the process, generate profit for itself. The value a supply chain generates is the difference between what the final product is worth to the customer and the costs the supply chain incurs in filling the customer's request. For most commercial supply chains, value will be strongly correlated with supply chain profitability (also known as supply chain surplus), the difference between the revenue generated from the customer and the overall cost across the supply chain. Supply chain profitability or surplus is the total profit to be shared across all supply chain stages and intermediaries. The higher the supply chain profitability, the more successful is the supply chain. Supply chain success should be measured in terms of supply chain profitability and not in terms of the profits at an individual stage. A focus on profitability at individual stages may lead to a reduction in overall supply chain profits (Chopra and Meindl, 2007).

A typical supply chain may involve a variety of stages, include component/raw material suppliers, manufacturers, wholesalers/distributors, retailers, customers. Each stage in a supply chain is connected through the flow of products, information, and funds. These flows often occur in both directions and may be managed by one of the stages or an intermediary. The appropriate design of the supply chain depends on both customer's needs and the roles played by the stages involved (Chopra and Meindl, 2007).

Manufacturers spend much of their time and energy coordinating their complex supply chains from raw materials to producers, wholesalers, distributors, retailers and customer. With all the attention to the forward action of the traditional supply chain, few manufacturers have considered how this supply chain can or should work in reverse to reclaim products at the end of their life-cycle and return them through the

supply chain for decomposition, disposal or reuse of key components. Believing that one product is delivered the firm's responsibilities end is one the deadly sins of logistics (Sarkis, 2006).

2.3. Cross-Functional Issue In Recycling Rate

2.3.1. Packaging Function

A product is created to deliver customer satisfaction. However, in its entire process, from production, distribution, and consumption, there can be negative side incurred. Some industrial activity will inevitably damage the natural environment. Consider the dangerous mercury levels in the ocean, the quantity of DDT (Dichloro Diphenyl Trichloroethane) and other chemical pollutants in the soil and food supply, and the littering of the environment with bottles, plastics and other packaging materials (Kotler, 2000).

Packaging is the activities of designing and producing containers or wrappers for a product. Packages have a long history. Early humans used leaves and animal skin to cover and carry food and water. Glass containers first appeared in Egypt as early as 2000 BC. Later, the French emperor Napoleon awarded 12,000 francs to the winner of a contest to find a better way to preserve food, leading to the first crude method of vacuum-packing (Keller, 2008).

From the perspective of both the firm and consumers, packaging must achieve a number of objectives (Keller, 2008):

- a. To identify the brand
- b. To convey descriptive and persuasive information
- c. To facilitate product transportation and protection
- d. To assist at-home storage
- e. To aid product consumption

Packaging has shown great impact in nowadays business competition. Harvard's Ted Levitt argues that new competition is not between what companies produce in their factories, but between what they add to their factory output in the form of packaging, services, advertising, customer advice, financing, delivery

arrangement, warehousing, and other things that people value. Some marketing observers consider packaging important enough to be the “fifth P” of the marketing mix (Keller, 2008).

2.3.2. Packaging in Beverage Industry

In beverage industry, some materials are available as alternative for packaging. Aluminum cans, PET (Polyethylene Terephthalate) bottles, and glass bottles are commonly found to pack the beverage substance. Gitlitz in (2003), proposes observation result upon the packaging materials based on per unit energy consumption and recyclability, as in Table 2.3. below:

Table 2.3. Comparative Energy Requirements for New Containers

Container Type	Container Weight		Energy Used	
	Units/lb	Units/ton	MBTu/ton	Btu/unit
Aluminium Can	33.8	67.580	185.5	2.745
PET Bottle	14.0	28.000	22.3	796
Glass Bottle	1.9	3.800	2.7	711
Source for energy values: Ferland et al, U.S.EPA, 2001				
Note : - Units/lb = Units per pound				
- MBTu = Million British Thermal Units; 1 MBTu = 0.00105505585262 gigajoule				

Source: Jennifer Gitlitz, 2003

According to the table, glass and PET bottles require far less energy per beverage unit than aluminum cans do. However, glass is heavy and energy-intensive to transport, both at the pre-consumer and post-consumer stage. With the exception of beer, and some juices and teas, glass is also not preferred by consumers, because it is heavy and breakable, it has already lost much market share to cans and plastic. Finally, markets for post-consumer glass are “in-the dumps,” due in part to the move toward commingled recycling. Because of high levels of contamination, most of the

glass collected through curbside recycling programs is used as roadbed aggregate rather than in making new glass bottles (Gitlitz, 2003).

Although PET bottles have an advantage over glass in transportation, they are slightly more energy-intensive to produce, per unit, than glass bottles. More important, PET recycling markets are still immature. Most PET collected today is not recycled back into plastic beverage bottles in a closed-loop process; rather, it is made into plastic strapping or into fibers for sleeping bags, apparel, or carpeting. Virgin plastic resin used for new containers is not being displaced. Finally, because of its low value and high volume-to-weight ratio, PET bottles are not economical to collect at curbside (Gitlitz, 2003).

Refillable glass bottles are less expensive per unit than cans, and environmentally preferable in major air pollutant categories, although they are more energy-intensive and water polluting. Refillable PET bottles, however, outperform refillable glass bottles in avoided water and air pollution (all classes), solid waste, and energy use (Gitlitz, 2003).

2.3.3. The Importance of Recycling Policy

Strategic factors to consider in reverse logistics include costs, overall quality, customer service, environmental concerns and legislative concerns. On the operational side, factors to be considered are cost-benefit analysis, transportation, warehousing, supply management, remanufacturing and recycling, and packaging. Other issues to consider are the desires of the customers. Often, incentive systems or no-cost return systems must be in place to make reverse logistics work without external governmental regulation. Because the quality of inputs for re-use is important in many situations, clean, safe return methods must be in place as well. All supply chain members must be committed to the process, and it needs to be financially attractive to participate in the process. Economies of scale must be efficient to make environmental reverse logistics viable (Sarkis, 2006).

The recycling of old materials requires collection, sorting and processing, and the profitability is influenced by the efficiency achieved through coordination and

integration. The profits made at each stage are determined by state of competition and nature of markets. The implementation of internal reverse logistics program often involves significant allocations of capital and/or resources for construction of reclamation and/or redistribution facilities and the purchasing of recycling equipment. The usability and reprocessing characteristics of products requires initial planning and product design to allow future re-usability (Sarkis, 2006). The starting point for the development to the supply chain is an understanding of value and waste within environment (Hines, Lamming, Jones, Cousins and Rich (2000).

Sarkis (2006) argues that reversed logistics for recycling is growing for two reasons:

- a. To reclaim value through returned products that are further reused for recycling
- b. The environmental concerns arising from a lack of future landfill availability for disposal options

Hines, Lamming, Jones, Cousins and Rich (2000) relate this focus on reverse logistic with value stream, which is a set of tasks and activities required to design and make a family of products or services that are undertaken with a group of linked functions or companies from the point of customer specification right back to the raw material source. In order to maximize the value of products and services as they are delivered throughout the value stream, it is necessary to concentrate attention on a rapid and uninterrupted flow that is 'pulled' by the final demand profile.

The difference between the traditional supply chain and the value stream is that the former includes the complete activities of all the companies involved, whereas the later refers only to the specific parts of the firms that actually add value to the product or service under consideration Hines, , et.al (2000).

Biddle (2000), claims the success of recycling – indeed, its true value in the long term – will not depend on how much landfill space is saved but on whether or not recycling makes economic sense. To build demand for recycled materials, government, and business must not only reinvent themselves, they must also reinvent their relationship, especially when it comes to economic problems that neither can solve alone.

2.3.4. DRS Implemented in Other Countries

OECD (Organization for Economic Cooperation and Development) defines Deposit Refund System (DRS) as a system that stipulating a surcharge on the price of potentially polluting products. When pollutions is avoided by returning the products or their residuals, a refund of the surcharge is granted. A DRS encourages the return of the materials into an organized reuse, recycling or treatment/disposal process. The producers typically finance the process through the payment of an administration fee on each container. Drinks container are the most common target of DRS, though economic theory suggest the schemes could be applicable to hazardous materials and other waste dreams, subject to transaction cost being minimized. The systems can encourage recycling and/or reused where otherwise it is easy to dispose of containers with the residual waste or for them to be discarded as litter. The same policy mechanism can also be used to target difficult to dispose of, or hazardous, items to ensure that these do not reach the residual waste stream (Hogg, Fletcher, Elliott, von Eye, 2010).

Hogg, et.al. (2010) described the operation of DRS in the following points:

- a. As beverages are produced and sold to wholesalers, or directly to retailers, producers send sales data to a central system along with a payment matching the total value of the deposits on all items sold. The cost of the deposits is then paid back to the producers, by wholesalers or retailers, upon sale. The same happens as wholesalers sell items to retailers. Producers also pay an administration fee to cover the remaining costs of the system.
- b. When the consumer purchases a beverage, they pay the deposit to the retailer, so the retailers are also reimbursed the total value of deposits.
- c. As consumers return empty containers to stores (or any other take-back centre), the deposit is paid to them by the retailer. This puts the retailer out of pocket, so they send return data to the central system, which reimburses retailer once more. Thus the circle of deposit payments is closed. As the return rate for containers is not 100%, the central system will not need to reimburse the retailers at full amount of deposits, so money remain with the organization to fund its operation.

As shown in Appendix 17, there are many countries have applied DRS upon packaging material of beverage products with various degree of implementation. However, some countries have also applied this concept upon other products, such as upon batteries in Sweden, car batteries in Germany and tires in USA.

Regarding the various implementation in some countries, some examples are summarized in Table 2.4. below:

Table 2.4. Various Degrees of DRS Implementation

Area	Variation	Implementing Country
Role of central system	Deposit payment and data collection is controlled by central system	Scandinavian countries
	Central system only controls data collection, payments directly between producer and retailer	Germany
Point of material collection	Redemption centres	Sweden and Canada
	Retail outlets, either automated (via vending machine) or manual collection	Norway and Denmark
Deposit amount	Fixed regardless beverage volume	Austria
	Increasing aligned with the beverage volume	Finland
		Netherlands
Packaging/ container covered	All beverage products	Sweden
	Beer and soft drinks	Denmark and Finland
	Alcoholic drink containers	Canada – Ontario

Source: Hogg, et.al., 2010

2.3.5. International Standard Related with Recycling Rate

Though not coercive, there are some standards internationally developed by International Organization for Standardization (ISO) to ensure desirable characteristics of products and services such as quality, environmental friendliness, safety, reliability, efficiency and interchangeability – and at an economical cost. The

latest standard regarding corporate social responsibility is ISO 26000:2010 which is intended to assist organizations in contributing to sustainable development. It is intended to encourage business, government and society to go beyond legal compliance, recognizing that compliance with law is a fundamental duty of any organization and an essential part of their social responsibility (www.iso.org).

Further, to promote a standardized approach to reporting to stimulate demand for sustainability information – benefiting both reporting organizations and report users – Global Reporting Initiative (GRI) sets out Sustainability Reporting Guidelines to set out the principles and Performance Indicators that organizations can use to measure and report their economic, environmental, and social performance. The guideline relates social responsibility guidance in ISO 26000:2010 by reporting guidance provided by GRI (www.globalreporting.org).

In its third version of the guidelines – known as the G3 Guidelines – GRI issued relevant disclosure related with recycling rate. Section Environmental Performance Indicators article EN27 of G3 Guidelines discloses percentage of products sold and their packaging materials that are reclaimed by each category of products (i.e., a group of related products sharing a common, managed set of features that satisfy the specific needs of a selected market). This is inline with ISO 26000:2010 article 6.5.4. (Sustainable Resource Use) and 6.7.5. (Sustainable Consumption).

2.3.6. Competition and Innovation Opportunity

Nowadays, to deal with the hypercompetition, firm must create an integrated cross-functional issues based on the innovation concept. Innovation is a success by social (society and environment) and economy perspective through invention, creation, and introduction of new techniques or new combinations of old techniques by transforming input into output in a particular way to create a significant positive impact in the ratio between perceived value and price (Fontana, 2009).

The premise of innovation in post-bubbling era is not only to create economic value for limited people in economy, but also social value including value added for

society and environment. It can be done by not making further damage to the climate change, not aggrandize gap between the poor and rich, not degrade environment, and not deforest by not concerning the ecology. Regarding the waste, company must integrate its system work to create a product with no waste to the environment, as described by Table 2.5. below (Fontana, 2009):

Table 2.5. System Works of Industrial Era (Bubble) and Natural Era (Post-Bubble)

Industrial Era (Bubble)	Source	Nature Era (Post-Bubble)
Fossil fuels	Energy →	Sun
Production globally	Food →	Local
Waste in massive number	Material →	No waste
Standardization	Variety →	Diversity
Maximizing revenue	Social welfare →	Build relationship

Source: Fontana, 2009

CHAPTER 3 BEVERAGE INDUSTRY AND COMPANY PROFILE

3.1. Market Structure of Beverage Industry

Beverage industry in Indonesia has grown along with the Indonesian economic development, which has shifted the role of economic sector from agriculture to industry and service. According to Industry Facts and Figures 2010 published by Ministry of Industry Republic of Indonesia, sector food, water and tobacco, which beverage is categorized within, contributed 7.49% to GDP (Gross Domestic Product) in 2009, increase from 6.41% in 2005.

Beverage industry consists of some commodities like milk, mineral water, processed tea (later in this thesis we call as RTD – Ready to Drink brewed tea), soft-drink, beer and alcoholic drink. Among other commodities in the beverage industry itself, RTD brewed tea has shown significant increase. In terms of number of manufacturer and real production, it increased from 2005 to 2009 by 42% and 18%. Some commodities such as beer and alcoholic drink even did not have additional manufacturer during the same period. From the demand side, this type of beverage is not yet mature, indicated by sharp increase in local consumption level and per capita consumption rate from 2005 to 2009 (see Table 3.1. below). While other beverage commodities have been in steady market position, RTD brewed tea market is still available to be explored by beverage manufacturer.

Table 3.1. Development of Beverage Industry 2005 - 2009

Description	2005	2009
Number of manufacturers (companies)	12	17
Allowed capacity (ton)	131.820	169.198
Real production (ton)	97.955	115.695
Local consumption (ton)	1.195	30.771
Per capita consumption (kg/year)	0.006	0.140

Source: www.kemenperin.go.id

Market of RTD brewed tea in Indonesia was initiated by Teh Botol Sosro. It started its massive production through the construction of bottled tea plant of PT Sinar Sosro in Ujung Menteng, Jakarta. It is claimed as the first bottled ready-to-drink tea plant in Indonesia and the world (www.sosro.com).

The success story of RTD brewed tea initiated by Sosro is followed by other players. Coca-cola, with long history from 1886 as coke-formulated beverage, introduced Frestea in 2002. Today, there are three types of Frestea: Frestea Jasmine (launched in June 2002), Frestea Frutcy (apple-lime-passion fruit – launched in August 2005), and Frestea Green (launched in September 2005).

While Teh Botol Sosro has consistently remarked its position as the market leader of RTD brewed tea, Frestea has grabbed significant share since its first market penetration. According to market survey done by MARS Indonesia upon seven large cities in Indonesia in 2006 and 2007, Teh Botol Sosro control significant share of 81.5% and 79.2%, respectively. Frestea follows them with 5.3% and 6.2% for the same period (see Table 3.2. below). An independent market research by TNS Indonesia per 2009 shows Teh Botol Sosro is the market leader RTD brewed tea with market share 55%, followed by Frestea (18%) and Nu Green Tea (12%) (SWA, 2009).

Table 3.2. Market Structure for RTD Brewed Tea 2006 – 2007

2006		2007	
Brand	Market Share (%)	Brand	Market Share (%)
Teh Botol Sosro	81,52	Teh Botol Sosro	79,22
Frestea	5,32	Frestea	6,19
FruitTea	5,30	FruitTea	3,97
Tekita	3,29	Teh Kotak	3,43
Arinda	2,30	Tekita	1,91
Teh Kotak	1,51	S-Tee	1,22
Others	0.76	Others	4,06
Total	100	Total	100

Source: survey by MARS Indonesia

If we compare to other commodities, there is room for bigger market for RTD brewed tea. For example, against the CSD (Carbonated Soft Drinks) and alcoholic drink, RTD brewed tea has big prospect to grow due to some factors as below:

- a. RTD brewed tea offer both simplicity and at the same time a healthier composition when consumed. The increasing awareness over health by customer leads them to select beverages with less sugar and less coke. Moreover, polyphenol concentration as natural substance within tea leaves has many utilities like reducing blood cholesterol, sugar level in blood, and act as anti-oxidants, anti-cancer and anti-microbial. Beverages with this typical composition are regarded safer to consume for long-term purpose.
- b. Tax regulation, where RTD brewed tea is imposed luxury sales tax at 0% while alcoholic drink is subject to 40% luxury sales tax. This causes less additional payment at the expense of customer due to this luxury sales tax. As a result, the discrimination in taxation has become a barrier for alcoholic drink producers to further boost their market share. Assuming the relative costs of manufacturing and transport are not significant (or, equivalently, that consumers buy in bulk to minimize these) it is clear that one of key drivers on the price of beer is duty Hogg, et.al (2010).

Although each type of beverage is targeted for particular customer, it is a fact that RTD brewed tea market in Indonesia is growing up and getting larger focus by producers for market exploration.

3.2. History of Marketed RTD Brewed Tea

At the beginning of its appearance, tea was considered strange if marketed massively in bottle. It was due to its production is simple and commonly homemade. Compared to western countries, tea in Indonesia is more popular and in many parts of this country, it has been become a common complement, particularly in occasions like welcoming guest or suave ceremony. Sometimes, it is served at meals instead of water (www.sosro.com).

Idea to provide RTD brewed tea in bottle has its background from the market experience of Teh Botol Sosro. From its website, we can trace back the history of Teh Botol Sosro entering the market. Firstly, the promotion of tea was conducted by entering the markets and brewing the “Teh Cap Botol” tea product on the spot. When the tea was ready, it was distributed to people around the site. This promotion was not too successful as the distributed tea was too hot to drink whilst the brewing process took too long, making those who would like to taste it impatient to wait.

The second method was not by brewing on the spot, but carried already brewed tea in big pans to the markets using open trucks. Again, this was not successful because some of the tea spilled on the way to the market, mostly due to the bad, pockmarked road condition in Jakarta at the time.

Then, an idea sprang up to carry the brewed tea in cleaned glass bottles. It turned out that this method was quite interesting for the customers because it was practical and ready to consume without the need to wait for the tea to be brewed. And this concept is applied up to now.

The RTD brewed tea marketed by Sosro nowadays is the third version of its glass bottle. First version was launched in 1970 with the brand of Teh Cap Botol Soft Drink Sosrodjojo. Second version was released in 1972 with the brand of Teh Cap Botol Sosro, with smaller size for word “Cap” so that people would see more of Teh Botol. The third version was firstly introduced in 1974 with the brand of Teh Botol Sosro.

From the first to the third version, the shape of the bottle is getting leaner but longer from its bottom to the cap. The change in the version is only for the shape, while the materials used for the bottle are still the same: glass. Compared to other container of RTD brewed tea, it is only Teh Botol Sosro marketed in glass bottle. The other products use either PET bottle or carton.

3.3. Supply Chain of Teh Botol Sosro

The term supply chain conjures up images of information, fund and product or materials moving from supplier to manufacturers, to distributors, to retailers and

finally to customers along a chain. Here we are focusing on the movement of product or materials along the supply chain.

3.3.1. The Flow of Raw Materials

Seeing the end product consumed by customer, we can observe there are at least two very different materials delivered to consumer, they are the already brewed tea and the glass bottle. Certainly, these different materials are flowing through different supply chain also.

The already brewed tea (later shortly called brewed tea) is the content filled into the glass bottle. The availability of tea leaves to be processed is supplied by the tea gardens located in Cianjur, Garut, Pengalengan and Tasikmalaya. Tea leaves from gardens are processed with water and industrial sugar at plants. Processed are monitored at certain condition, and finally the brewed tea is filled into glass shaped and supplied by bottle manufacturer (www.sosro.com).

PT Sinar Sosro (or shortly called Sosro) operates ten plants, where seven of them located in Java, two in Sumatra, and one in Bali. Each facility operates a typical processing activity. Plants in Serdang (North Sumatra), Cakung (Jakarta), Pandeglang (West Java), Ungaran (Central Java) and Mojokerto (East Java) are set to process RTD brewed tea in glass bottles.

Packaging of Teh Botol Sosro is a lean and long glass bottle manufactured by glass manufacturer. Glass manufacturer provides the standard bottles at their own plants and send it to Sosro' plants. The brewed tea processed by Sosro is filled to these glass bottles. The cap is attached on the top of the bottle and expiry date is stamped on the body of the bottle. Now, the brewed tea filled into the glass bottle is ready for distribution stage.

3.3.2. Direction of The Flow

From its plant, filled glass bottles are distributed by containers to a listed sole distributor in certain marketing area. Based on discussion with distributor, one container only carries either OWP (One Way Product) or RGB (Returnable Glass

Bottle), with different quantities due to its box or crate case. The classification of OWP or RGB is based on its flow of the packaging material, whether it is traditional or reversed supply chain.

OWP is labeled to the product which packages are not returnable and collected by Sosro. The package has some variations as below:

- a. Cartoon: FruitTea, Happy Juice
- b. PET: Teh Botol, Prima, JoyTea, FruitTea, Happy Juice, Country Choice
- c. Pouch: FruitTea
- d. Can: Tebs, FruitTea

The package of this product is designed to be easily carried by consumers. Then consumer can consume the products at different place away from seller counter. Quantity per container is not at fixed number since different brand has different packaging shape, so that the focus in loading process to container is on the optimum utilization of available space in the container.

RGB is labeled to the products with package are to be returned at the end of consumer consumption and collected by Sosro. The package is only in glass bottle, so later when we mention RGB, it refers to the glass bottle used by Sosro. Sosro produces four brands using RGB supply chain: Teh Botol Sosro, TEBS, JoyTea and FruitTea.

Distributor receives the goods from container and stores it in the warehouse. Particularly for RGB, filled bottles are exchange with empty bottles by the same quantity. This is done in order to do cost efficiency, so that the same armada can be utilized to bring empty bottles through the same route. The returned bottle must be by the same quantity to cover all space within crates. By this approach, one crate leans on one full crate on its bottom so that it could avoid crash during the travel from distributor' warehouse. To be optimally and efficiently utilized, one container is arranged to load 1,044 crates per delivery.

Periodically, sales people visit retail outlets to check their stock level. According to discussion with outlet owner or operator, sales people agrees the quantity of certain assorted of Sosro products to be dropped at the outlet. If the type

of dropped products is RGB, outlet owner or operator return the empty bottle of the same product by same quantity. In case where there is discrepancy between number of filled bottles and empty bottles, retail outlet must pay financial charge, which in the distribution area observed is Rp 500 per bottle unreturned. This is the fine stipulated by factory either to distributor or retailer who can not return the bottle.

3.4. Company Profile

Balikpapan is a developing city. With Samarinda, they are the two biggest city in East Kalimantan. Its development is largely pushed by the existence of natural mining industry exploiting oil and coal. This drives economic growth in Balikpapan through investment on main infrastructure of the industry such as factory and warehouse and its derivative facilities, such as housing and shopping centre.

CV Anugrah Jaya Mandiri (later called as CV AJM) is sole distributor of Sosro product in Balikpapan, East Kalimantan. CV AJM responsible for distribution of all assorted of Sosro products in Balikpapan. In its operation, CV AJM operates a warehouse and six box-cars to serve all retail outlets in Balikpapan.

By monthly basis, CV AJM ordered containers separately for RGB and OWP. From the four RGB products produced by Sosro, only JoyTea is not marketed in Balikpapan. Particularly for FruitTea, it is very small by quantity, due to the number ordered per month for Balikpapan is for fast-food outlet only. Since market of Teh Botol Sosro is significantly higher than TEBS in Balikpapan, every container dispatched to Balikpapan consists of Teh Botol Sosro and TEBS in comparison 6:1.

From factory in Java, a container with filled bottles arrives at Balikpapan and goes directly to CV AJM' warehouse. Here the filled bottles are unloaded to previously prepared empty space in CV AJM' warehouse. Then the empty bottles are loaded by same quantity to the already empty space in the container. Then by regular visit via box-cars to all outlets in Balikpapan, sales people will drop certain number of filled bottles for customer stock.

CHAPTER 4 RESEARCH METHOD

4.1. Research Idea

The idea of this research is replicating the research model in a journal of Operations Research 57(1), pp.10-18 published in 2009 with title “The Evolution of Closed-Loop Supply Chain Research.” The paper is written by V. Daniel R. Guide, Jr. and Luk N. Van Wassenhove. Purpose of the paper is to introduce the reader to the field of closed-loop or reversed supply chains with a strong business perspective, i.e., focus on profitable value recovery from returned products.

Guide and Van Wassenhove (2009) distinguish three important sub-processes to implement reversed supply chain: product returns management (front end), remanufacturing used products (engine), and remanufactured products market development (back end). Each of this has a potential different bottleneck as follow:

- Regarding back end sub-process, which is remanufactured products market development, does market wants to buy remanufactured products?
- Regarding engine sub-process, which is remanufacturing used products, how value can be recovered from returns at a reasonable cost?
- Regarding front end sub-process, which is product returns management, is there a sufficient access to used products?

The three sub-processes are graphed in Figure 4.1. below:

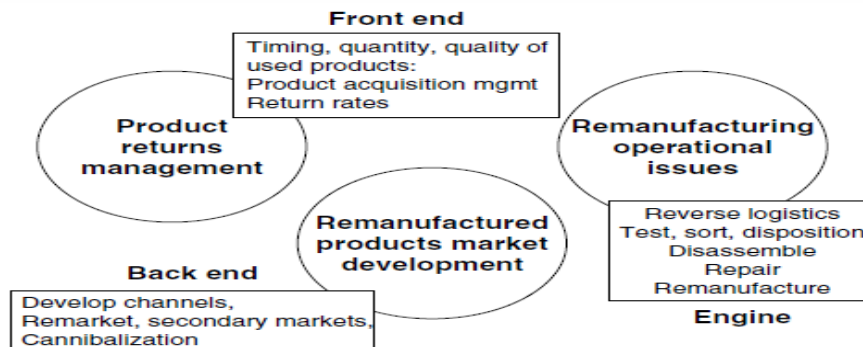


Figure 4.1. Activities in A Reversed Supply Chain

Source: Guide and van Wassenhove, 2009

In their experiences, Guide and Van Wassenhove find very often it is not technical constraints that matter, but rather the lack of a market for remanufactured products or the lack of used products of sufficient quality at the right place and the right time. To take a business perspective, we need to recognize that only when the three sub-processes are managed in a coordinated fashion can the value in these systems be fully realized. A lack of access to used products, or technical remanufacturing issues, or marketing and sales' fear of market cannibalization can inhibit or prevent profitable reversed supply chains. To make reversed supply chain more attractive from a business or value-creation perspective, all bottle-necks should be removed and the sub-processes smoothly integrated. Only then can the hidden value be released from the system, as shown in Figure 4.2. below:

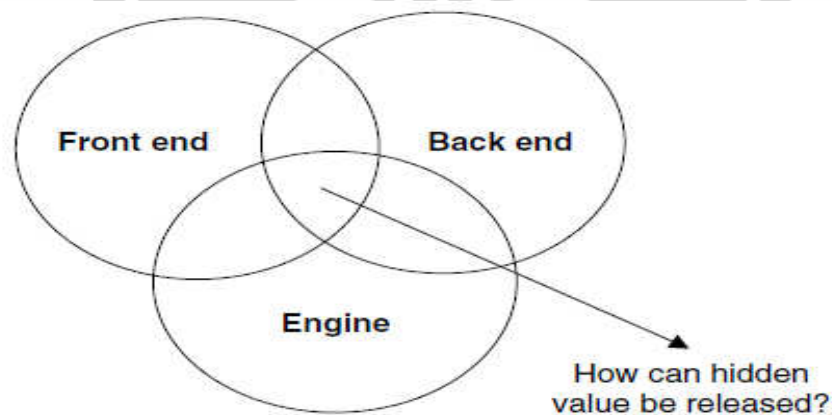


Figure 4.2. Business Process View of A Reversed Supply Chain

Source: Guide and van Wassenhove, 2009

4.2. Type of Research

There are two types of research used in this research: exploratory research and descriptive research. Approach of each type will be explained first below.

4.2.1. Exploratory Research

Malhotra (2010) mentions the primary objective of exploratory research is to provide insights into, and an understanding of, the problem confronting the researcher. Exploratory research is used in cases when we must define the problem more

precisely, identify relevant courses of action, or gain additional insights before an approach can be developed.

Exploratory research can greatly benefit from use of the following methods:

- a. Survey of experts
- b. Pilot surveys
- c. Case studies
- d. Secondary data analyzed in a qualitative way
- e. Qualitative research

The other type of research is conclusive research, which is typically more formal and structured than exploratory research. Conclusive research may be either descriptive or causal, and descriptive research may be either cross-sectional or longitudinal (Malhotra, 2010).

4.2.2. Conclusive Research

4.2.2.1. Descriptive Research

Malhotra (2010) defines descriptive research is to describe something – usually market characteristics or functions. It is conducted for the following reasons:

- a. To describe the characteristics of relevant groups, such as consumers, salespeople, organizations, or market areas
- b. To estimate the percentage of units in a specified population exhibiting a certain behavior
- c. To determine the perceptions of product characteristics
- d. To determine the degree to which marketing variables are associated
- e. To make specific predictions.

In summary, descriptive research, in contrast to exploratory research, is marked by a clear statement of the problem, specific hypotheses, and detailed information needs.

Descriptive research is distinguished into two types of design:

- a. Cross-sectional design

It is most frequently used in descriptive design in marketing research. It involves the collection of information from any given sample of population elements only once. It may be either single cross-sectional or multiple cross-sectional. In single cross-sectional design, only one sample of respondents is drawn from the target population, and information is obtained from this sample only once. This design is also called sample survey research design. In multiple cross-sectional designs, there are two or more samples of respondents, and information from each sample is obtained only once. Often, information from different samples is obtained at different times over long intervals.

b. Longitudinal design

It involves a fixed sample of population elements that is measured repeatedly. The sample remains the same over time, thus providing a series of pictures that, when viewed together, portray a vivid illustration of the situation and the changes that are taking place over time. Sometimes, the term panel or true panel is used interchangeably with the term longitudinal design. A panel consists of a sample of respondents, generally households that have agreed to provide information at specified intervals over an extended period.

4.2.2.2. Causal Research

Malhotra (2010) argues that causal research is used to obtain evidence of cause-and-effect (causal) relationships. It is appropriate for the following purposes:

- a. To understand which variables are the cause (independent variables) and which variables are the effect (dependent variables) of a phenomenon
- b. To determine the nature of the relationship between the causal variables and the effect to be predicted.

Although descriptive research can determine the degree of association between variables, it is not appropriate for examining causal relationships. Such an examination requires a causal design, in which the causal or independent variables are manipulated in a relatively controlled environment. The effect of this manipulation on

one or more dependent variables is then measured to infer causality. The main method of causal research is experimentation.

Actually there is another type of research, experimental research which is intended to collect selected data in a particular techniques to allow a more obvious conclusion particularly about the correctness over causal effect in a hypothesis. This research is usually developed after exploratory and descriptive researches. However, due to this type of research requires artificial situation which is beyond control of writer, it is not performed in this thesis.

In this thesis, writer perform descriptive research to determine perceptions of product characteristic of Teh Botol Sosro. Descriptive research is done through single cross-sectional design since collection of information by questionnaire is made only once to a targeted respondent.

4.3. Research Method

The research method is basically distinguished according to the type of research in previous section. It can be elaborated as below.

4.3.1. Exploratory Research

This is the first research performed by writer. The idea of this survey is replicating some researches by experts, whose ideas is considered applicable in Indonesia.

4.3.1.1. Influence of Financial Charge

Deposit refund system (DRS) is one approach applied by countries to increase recycling rate. OECD (Organization for Economic Cooperation and Development) defines it as the surcharge on the price of potentially polluting products. When pollution is avoided by returning the products or their residuals, a refund of the surcharge is granted (Hogg, et al, 2010).

Some data allows for comparison of performance in areas with and without deposit as the financial incentive. In the US, as observed in 1999, the recycling rates,

and the number of containers recovered per capita, were far higher in the deposit states, as previewed by Figure 4.3. below:

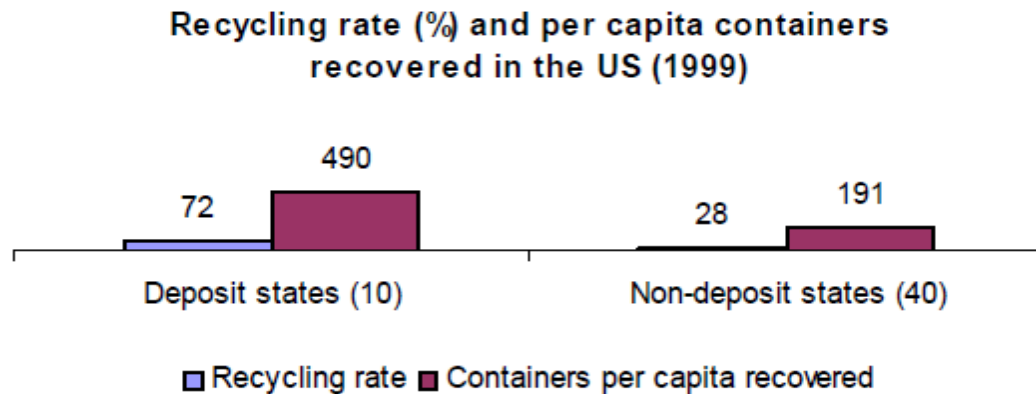


Figure 4.3. Performance of US States With and Without Deposits in 1999

Source: Eunomia

To study the importance of DRS as a key factor in unreturned rate, writer develops expectation by modifying the above observation result and the fact that Indonesia has not yet adopted the DRS scheme. Writer considers that the price paid by customer of Teh Botol Sosro is structured only for net payment to retailer without possible claim from customer due to used glass bottle. Higher or lower price set by different outlets are according to cash inflow targeted by retailer per bottle purchased by customer. Since this cash flow is not distorted by a possible claim, retailer is expected to have more flexibility to collect the used glass bottle. The higher cash inflow is, the larger the flexibility is, either by returning the collected used glass bottle to distributor or releasing the claim of deposit previously paid to distributor. According to this logic, writer develops expectation that return rate of used glass bottle is higher when the price set by retailer is lower.

4.3.1.2. Influence of Natural Business Control

To initiate the reversed supply chain, the first sub-process is front-end stage, which is about the product returns management. Combining time sensitivity and

minimizing costs of return is necessary to maximize value over the entire life cycle of used product (Guide and Van Wassenhove, 2009).

Replicating this idea, writer considers business control has natural impact in acquiring the used glass bottle. Controls are designed to make sure that a business runs efficiently in working toward its business objectives. It can be in the form of external control such waste collection regulation for used glass bottles, and of internal control involving the creation of management system to control business activity (www.thetimes100.co.uk).

In the area observed, Sosro set a financial charge at Rp 500 per unreturned bottle. To the supply chain perspective, it is considered as internal control up to retailer stage. However, since the same treatment is not applied to the customer after consumption of brewed tea, it is not considered as internal control for Teh Botol Sosro at front-end stage. Instead, internal control here is put on the condition of outlet designed by retailer in exchange with flexibility for customer to consume Teh Botol Sosro.

Writer emphasis the control of outlet by following factors:

a. Status of outlet at its surrounding location

When the outlet is located as part of the main building, such as mall, hospital, or hotel, it is considered that Teh Botol Sosro is consumed at a fixed area supervised by retailer. It should result in better collection of used glass bottle by retailer since the area of consumption is definite. For this type of outlet, we call it as high-control outlet.

To the extreme, retailers at open areas such as bus station or motor workshop sell its product with larger option for customer to consume it. There are less definite areas set by retailer to determine where customer must consume Teh Botol Sosro. We call this type of outlet as low-control outlet.

b. Layout of outlet

Consumption of Teh Botol Sosro can be done in either closed or opened outlet. A closed outlet is defined as an outlet with definite physical border to separate it with

its external situation. In a closed-outlet, the consumption is pushed around the area limited by concrete or glass wall. This is called as high-control outlet.

An opened-outlet is defined as an outlet with indefinite physical border to separate it with its external situation. In an opened-outlet, customers have more flexibility to consume Teh Botol Sosro in terms of consumption area. This is called as low-control outlet.

4.3.1.3. Type of Outlet

Combining both factors above, writer identifies high-control outlet as outlet characterized by below criteria:

- a. Located as part of closed complex such as mall, hotel or hospital
- b. If it is located in street side, it is physically bordered by concrete or glass wall
- c. As an outlet in street side, it is equipped with dining table
- d. As an outlet in street side, the consumption in outlet area is possibly monitored by retailer.

When an outlet does not meet first criteria or one of the criteria number b-d above, it is classified as low-control outlet. So, if an outlet is located as part of mall, hotel or hospital, it is directly considered as high-control outlet. While for outlet located in street side, it must meet all criteria number b-d. The categorization of outlets according to its natural business control is shown in Table 4.1.

For influence from natural business control side, writer develops expectation that return rate of used glass bottle from customer is higher when the level of business control set by retailer is higher. As explained before, business control is referring to the internal control caused by two factors: status of outlet at its surrounding location and layout of outlet.

Table 4.1. Degree of Natural Business Control per Outlet

Number	Title of Business	Degree of Control
1	Internet shop, game rental, theatre, other entertaining and game centre	Low
2	Beauty saloon, spa, pharmacy, and other health and beauty clinic	Low
3	Indoor football, gym, swimming pool, other sport and fitness centre	Low
4	Workshop	Low
5	Canteen at school/ campus/ course/ play group	Low
6	Canteen at private and state office	Low
7	Cadger	Low
8	Grocery store	Low
9	Special organized event	Low
10	Restaurant and shop in opened outlet at street side	Low
11	Restaurant and shop in closed outlet at street side	High
12	Restaurant and shop located as part of closed complex such as mall, hotel or hospital	High

Source: discussed with distributor

4.3.2. Descriptive Research

Malhotra (2010) defines descriptive research is done through survey method. The survey method of obtaining information is based on the questioning of respondents. Respondents are asked a variety of questions regarding their behaviour, intention, attitude, awareness, and demographic and lifestyle characteristic.

The survey method has several advantages. First, the questionnaire is simple to administer. Second, the data obtained are reliable because the responses are limited to the alternatives used. Finally, coding, analysis, and interpretation of data are relatively simple. Despite some disadvantages exist, the survey approach is by far the most common method of primary data collection in marketing research.

Questioning in the survey is structured. Structured refers to the degree of standardization imposed on the data collection process. In structured data collection, a formal questionnaire is prepared and the questions are asked in a prearranged order. So, the process in survey method is also direct, which is non-disguised in that the purpose of the project is disclosed to the respondents or is otherwise obvious to them from the questions asked.

To perform the structured-direct survey, writer administers a questionnaire as a fixed-alternative questions that require the respondents to select from a predetermined set of responses. Then the survey is printed and distributed to respondents.

4.3.2.1. Structure of Questionnaire

Questionnaire is divided into four parts, which are introduction statement, screening question, principal question and demographic question.

a. Introduction statement

Introduction statement is to introduce researcher, institution and objective of the research. This part is used to explain to respondent on how they can participate to the green business practice by answering questions in next parts.

b. Screening question

Screening question is intended to filter and select respondent who meet the profile as targeted by the research. Screening question is used to ensure only respondents owning experience with Teh Botol Sosro are answering the questionnaire.

c. Principal question

This is the body of questionnaire where respondents are asked about his knowledge and experience when consuming Teh Botol Sosro. It starts on how he feels the benefit compared to the price he pays for the product, continues with environmental issues regarding the used glass bottles, and opinion about the possible application of DRS scheme.

d. Demographic question

Demographic question is to gather information about the demographic background of the targeted respondents. It covers sex, age, profession, degree of consumption of Teh Botol Sosro per month.

4.3.2.2. Questionnaire Format

Questionnaire format are formulated in order to ensure all question and answer function well according to the objective of the research. The format used is expected to assist respondents in understanding the purpose of the questions.

There are three formats of question used in this research:

a. Open-response question

It is the format that gives flexibility to respondents to give answer according to his own knowledge and experience with RTD brewed tea.

b. Close-ended question

It is the format that gives alternatives for respondents to answer. There are two types of close-ended question applied (Malhotra, 2010):

- Multiple choice question, where researcher provides a choice of answer and respondents are asked to select one or more of the alternatives given.
- Dichotomous question, where there are only two response alternatives: yes or no, agree or disagree.

c. Scale-response question

This format applies scale to measure the degree of importance of benefits of Teh Botol Sosro valued by customer and how customer values the green business practice regarding the glass bottle used by Teh Botol Sosro.

Some wording in questionnaire for this thesis have been revised merely to meet formal terms, while during its collection, it used daily conversation expected to immediately aid awareness of respondents in answering it. The example is question point 7(i) “Tidak ribet untuk memperoleh dan mengkonsumsinya”, revised to “Tidak rumit untuk membeli dan mengkonsumsinya”.

4.3.3. Measurement and Scaling

4.3.3.1. Measurement

There are four primary scales of measurement: nominal, ordinal, interval, and ratio. Writer applies the first two scales in this research.

a. Nominal scale

A nominal scale is a figurative labeling scheme in which the numbers serve only as labels or tags identifying and classifying objects. When a nominal scale is used for the purpose of identification, there is a strict one-to-one correspondence between the numbers and the objects. Each number is assigned to only one object and each object has only one number assigned to it (Malhotra, 2010).

b. Ordinal scale

An ordinal scale is a ranking scale in which numbers are assigned to objects to indicate the relative extent to which the objects possess some characteristic. An ordinal scale allows us to determine whether an object has more or less of a characteristic than some other object, but not how much more or less. Thus, an ordinal scale indicates relative position, not the magnitude of the difference between the objects. Common examples of ordinal scale include quality ranking, rankings of teams in a tournament, socioeconomic class, and occupational status. In marketing research, ordinal scales are used to measure relative attitudes, opinions, perceptions and preferences (Malhotra, 2010). In this research, ordinal scale is applied to measure benefit and cost perceived by customer and its influence to the green business practice regarding the glass bottle used by Teh Botol Sosro.

4.3.3.2. Scaling

There are three itemized rating scales: likert scale, semantic differential scale and staple scale. Writer applies the first two scales in this research.

a. Likert scale

This rating scale requires the respondents to indicate a degree of agreement or disagreement with each of a series of statements about the stimulus objects. Typically,

each scale item has five response categories, ranging from “strongly disagree – sangat tidak setuju” to “strongly agree – sangat setuju” (Malhotra, 2010). In this research, Likert scale is applied through five spots, which are in series of “Strongly disagree – Sangat Tidak Setuju, Disagree – Tidak Setuju, Neutral – Netral, Agree – Setuju, Strongly Agree – Sangat Setuju”.

The format of the five spots series of Likert scale can be previewed as below:

STS	TS	N	S	SS
-----	----	---	---	----

Description:

STS = Sangat Tidak Setuju or Strongly Disagree

TS = Tidak Setuju or Disagree

N = Netral or Neutral

S = Setuju or Agree

SS = Sangat Setuju or Strongly Agree

b. Semantic differential scale

Semantic differential scale is a 7-point rating scale with endpoints associated with bipolar labels that have semantic meaning. In a typical application, respondents rate objects on a number of itemized, 7-point rating scales bounded at each end by one of two bipolar adjectives. The respondents mark the blank that best indicates how they would describe the object being rated (Malhotra, 2010). In this research, semantic differential scale is applied through seven spots to reflect the rank according to each respondent upon research object.

The format of the seven spots series of semantic differential scale can be previewed as below:

Angka 1	1	2	3	4	5	6	7	Angka
Frase objek penelitian								Frase antonim objek penelitian

4.3.4. Sampling

The objective of most marketing research projects is to obtain information about the characteristics or parameters of a population. A population is the aggregate of all the elements that share some common set of characteristics and that comprise the universe for the purposes of the marketing research problem. The population parameters are typically numbers. Information about population parameters may be obtained by taking a census or a sample. (Malhotra, 2010).

In this research, writer search for information through sample, which is a subgroup of the population selected for participation in the study. As Maholtra (2010) says, sample is realistic if the population is large, as it is for most consumer products. Sample characteristics, called stated statistics, are then used to make inferences about the population parameters. The inferences that link sample characteristics and population parameters are estimation procedures and tests of hypotheses.

4.3.4.1. Population

Target population is the collection of elements or objects that possess the information sought by the researcher and about which inferences are to be made (Malhotra, 2010).

Characteristics that must be owned by population in this research are:

- a. Indonesian domiciled in Indonesia territory
- b. Age between 21 to 55 years
- c. Have completed or currently taking high education
- d. Ever to buy Teh Botol Sosro and other RTD brewed tea in last 6 months
- e. Ever to see armada of Sosro in last 6 months

4.3.4.2. Sampling Technique

Malhotra (2010) says the most important decision about the choice of sampling technique is whether to use probability or nonprobability sampling. In this research, writer uses nonprobability sampling, which relies on the personal judgment of the

researcher rather than chance to select sample elements. The nonprobability sampling techniques used here is the convenience sampling.

Convenience sampling attempts to obtain a sample of convenient elements. The selection of sampling units is left primarily to the interviewer. Often, respondents are selected because they happen to be in the right place at the right time (Malhotra, 2010).

4.3.4.3. Sample Size

Malhotra (2010) says sample size is influenced by the average size of samples in similar studies. As summarized in Table 4.2. below, he gives an idea of sample sizes used in different marketing research studies. These sample size have been determined based on experience and can serve as rough guidelines, particularly when nonprobability sampling techniques are used.

Table 4.2. Sample Sizes Used in Marketing Research Studies

Type of study	Minimum size
Problem identification research (e.g., market potential)	500
Problem-solving research (e.g., pricing)	200
Product tests	200
Test-marketing studies	200
TV/radio/print advertising (per commercial or ad tested)	150
Test-market audits	10 stores
Focus groups	2 groups

Source: Malhotra, 2010

4.3.5. Data Analyzing Method

4.3.5.1. Descriptive Analysis

Descriptive analysis in this thesis is used to explained the details of respondents profile and their response for each construct in the questionnaire. The method used is frequency distribution and descriptive analysis.

4.3.5.2. Inferential Analysis

a. Reliability test

Reliability test is performed to measure consistency of respondent in answering questions conceptually constructed in the questionnaire. A questionnaire is called reliable if an answer of a respondent in one part in a questionnaire is consistent to an answer in other part of the same questionnaire. Reliability test in this thesis is done by one shot measurement using statistical test Cronbach Alpha (α). According to Nunnaly, a construct or variable is called reliable if the $\alpha > 0.60$ (Ghozali, 2006).

b. Validity test

This test is performed to measure whether the question asked in the questionnaire is valid. If it is valid, it means that the question is applicable to measure what supposed to be measured (Ghozali, 2006).

Validity test in this thesis is applied through:

- Kaiser Mayer Olkin (KMO) Measures of Sampling Adequacy (MSA) value must greater or equal with 0.5, with significance value of Barlett Test is smaller or equal with 0.05. KMO value is an index to test whether data can be processed using factor analysis.
- Anti-Image Matrices test must greater or equal with 0.5. It is the details of KMO. The higher anti-image matrices will have the higher KMO.
- Communalities value must greater or equal with 0.5. Communalities value test how great contributed by a variable to other variables being tested.
- Total variance explained must greater or equal with 60%. Percentage of variance explain shows the percentage of total variance having relation with each factor.
- Component matrix value must greater than 0.5.

The statistics tests above are associated with factor analysis test. Malhotra (2010) denotes factor analysis as a a class of procedures primarily used for data reduction and summarization. In marketing research, there may be a large number of variables,

most of which are correlated and which must be reduced to a manageable level. Relationships among sets of many interrelated variables are examined and represented in terms of a few underlying factors. Factor analysis is useful to identify underlying dimensions that explains the correlations among a set of variables. Here, factor analysis is employed to determine the attributes that influence customer choice on Teh Botol Sosro and the perception of applied DRS on Teh Botol Sosro.

c. Correlation test

Correlation test is statistical test to find the relation between two or more quantitative variables. Correlation coefficient is a number between +1 and -1, showing the magnitude and direction of the association between two variables. The magnitude is the strength of the correlation. The closer the correlation is to either +1 or -1, the stronger the correlation. If the correlation is 0 or very close to 0, there is no association between the two variables. The direction of the correlation shows the two variables are related. If the correlation is positive, the two variables have a positive relationship (as one increases, the other also increases).

Sulaiman (2002) grouped magnitude of the association between two variables into:

- 0.7 – 1 : strong correlation
- 0.4 - < 0.7 : substantial relationship
- 0.2 - < 0.4 : weak correlation
- < 0.2 : negligible relationship

In this thesis, correlation test is done by Spearman Rho test, which is a test to measure the association of non-metric variables where data is not assumed at normal distribution (Malhotra, 2010).

CHAPTER 5 ANALYSIS

5.1. Result of Exploratory Research

Exploratory research was executed by analyzing trend of return rate of used glass bottle in Balikpapan in January to March 2011. Data for analysis was obtained from CV Anugrah Jaya Mandiri (CV AJM) as the sole distributor of Sosro product in Balikpapan, East Kalimantan. The data consisted of number of filled bottles sent by CV AJM to each outlet, number of used glass bottles returned by each outlet to CV AJM, and retail price per outlet by monthly basis from January to March 2011. Analysis on the data showed that two factors, retail price and natural business control, as expected in 4.3.1.1. and 4.3.1.2. had influence on the trend of return rate of used glass bottle.

5.1.1. Influence of Financial Charge

Retail price of Teh Botol Sosro by outlets in Balikpapan is ranging from Rp 2,500 to Rp 15,000. As shown in Figure 5.1., most outlets sell Teh Botol Sosro at price Rp 3,000 per bottle.

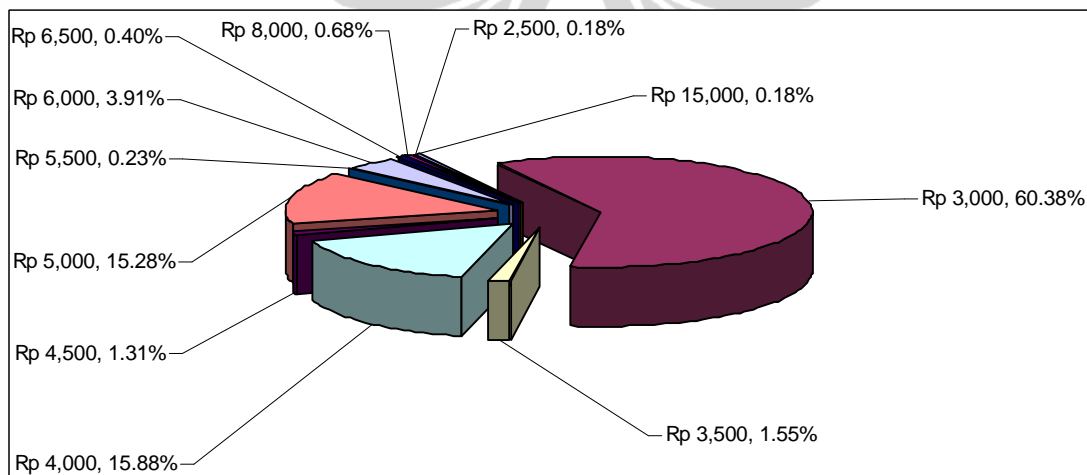


Figure 5.1. Outlets Based on Retail Price

Source: processed by writer

From trend analysis, it is found that return rate of used glass bottle from outlets to distributor is higher when the price set by retailer is lower, with condition of certain difference in price, as shown in Figure 5.2. below.

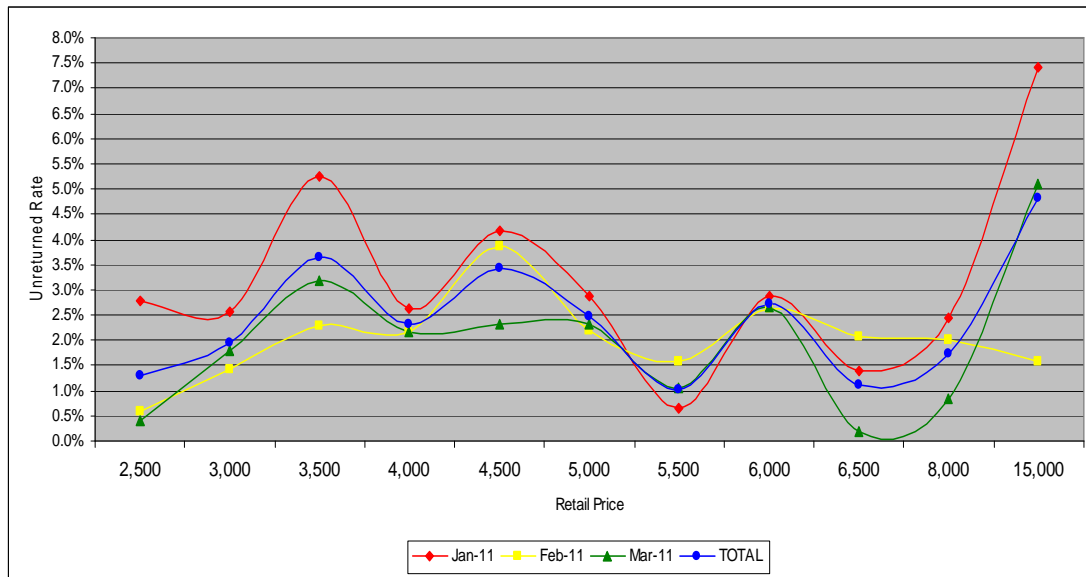


Figure 5.2. Unreturned Rate Based on Retail Price

Source: processed by writer

From the Figure 5.2. above, it is found that unreturned rate of used glass bottle from retailer with selling price Rp 3,000 is lower compared to unreturned rate from retailer with selling price Rp 4,000, which unreturned rate is lower compared to the rate from selling price Rp 5,000, and which unreturned rate is lower compared to the rate from selling price Rp 6,000. However, this trend does not apply for selling price Rp 2,500, Rp 3,500, Rp 4,500, Rp 5,500, Rp 6,500, Rp 8,000 and Rp 15,000, where there is no definite trend of increasing unreturned rate for every increase of retail price.

Percentages of bottles sold with retail price Rp 3,000, Rp 4,000, Rp 5,000, Rp 6,000 are 60,38%, 15,88%, 15,28% and 3,91%, respectively. It means that the trend of increasing unreturned rate of used glass bottles incur for 95.45% of population January to March 2011.

5.1.2. Influence of Natural Business Control

According to its type of business, Teh Botol Sosro was mostly distributed to outlets on street side, either at closed or opened outlets. Closed outlets received 23.22% of total distribution in January to March 2011, while opened outlets received 21.47%. The next type of business with significant deliveries of Teh Botol Sosro is internet shop, game rental, theatre, and other entertaining and game centre with 10.92% and cadger with 10.09%. The full chart of outlets based on its type of business can be shown at Figure 5.3. below.

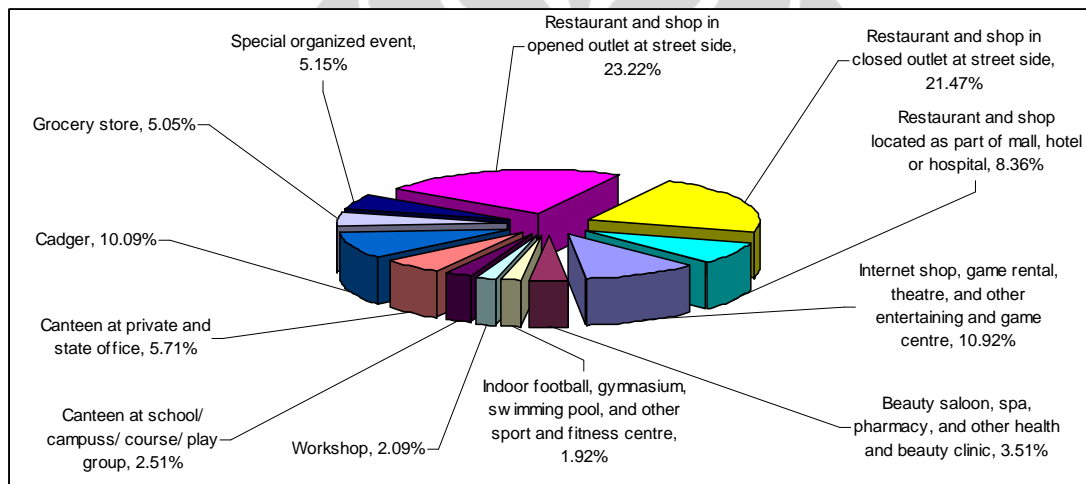


Figure 5.3. Outlets Based on Type of Business

Source: processed by writer

The usefulness of recognizing outlets based on type of business as above is applied to distinguish the outlets based on its natural business control. As discussed in 4.3.1.3., writer distinguished type of business of the outlets in Balikpapan selling Teh Botol Sosro into two groups of natural business control, which were low-control outlets and high control outlets. From the outlets grouping, it is found that most of outlets were through low-control outlets, which were about 70.17%, significantly above high control outlets with 29.83%. The chart of outlets according to its level of control can be seen at Figure 5.4.

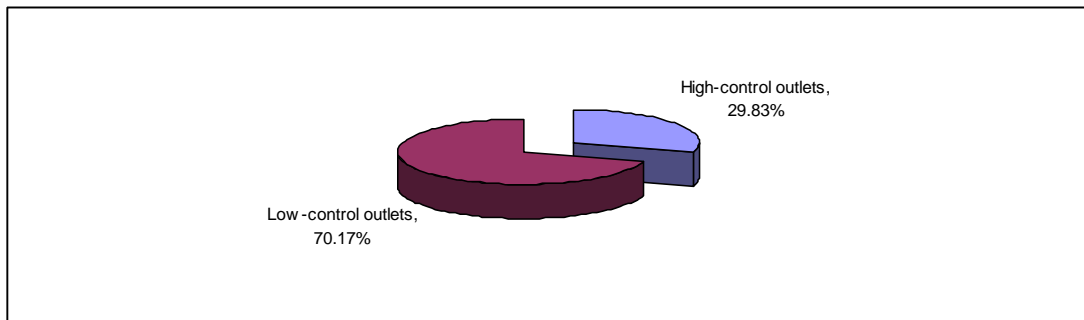


Figure 5.4. Outlets Categorization Based on Natural Business Control

Source: processed by writer

By using the outlets categorization as shown in Figure 5.4. above, writer analyzed the trend of unreturned rate of used glass bottles in January to March 2011. It is found that outlets with high control returned more bottles compared to low-control, thus the unreturned rate of high control outlets is lower than low-control outlets. The trend of unreturned rate is graphed in Figure 5.5. below:

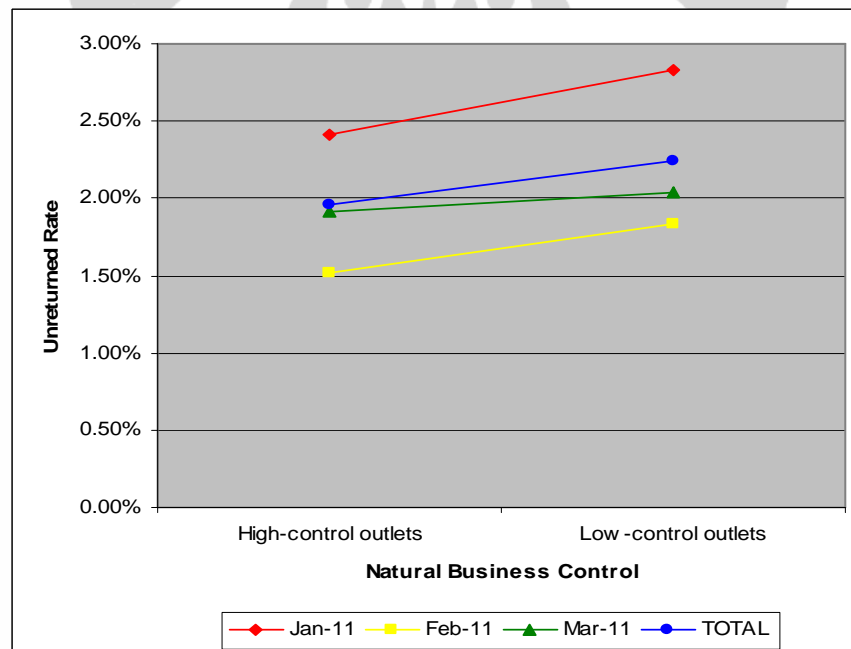


Figure 5.5. Unreturned Rate Based on Natural Business Control

Source: processed by writer

5.2. Impact and Alternative Solutions

5.2.1. Impact of Unreturned Used Glass Bottles

From the trend analysis of unreturned rate of used glass bottle as discussed earlier in 5.1.1. and 5.1.2., it is found that there is an influence of retail price and natural business control at a particular outlet. This is agreed with expectation developed in 4.3.1.1. and 4.3.1.2. by different degree. Retail price has influence on unreturned rate for certain price level, while level of natural business control per outlet has consistent influence on the unreturned rate. There could be some other causing factors in the trend, however due to it is exploratory research, it is designed with the focus to give insight about reality of unreturned glass bottle on the field.

The fact of unreturned used glass bottle means that utilization of the glass bottle is not applied to the optimum. Glass bottle, as designed to be used recurring, has some probable events after the consumption of its content, whether it can be unreturned due to some factors, such as discarded as solid waste or used by consumer to make handicraft, or returned to factory for next utilization. The first event, in the perspective of economic, did not reflect the best solution for used material. It was due to the shape and composition of glass material were produced according to the specific needs of producer. The unequal level of knowledge and technological equipment between consumer and producer suggested that the glass produced by producer must be returned to the producer as they hold more knowledge and technological equipment. When a used glass bottle is handled by producer, it fulfills the utility of ownership purpose, making the bottles are controlled by the best party.

When the used glass bottles are not returned, it results problems other than economic matters. As ISO 26000:2010 emphasizes that environment has become one of seven stakeholders of corporate social responsibility, the unreturned used glass bottles must be managed well as it has potential to damage the environment. In our current waste management practice, used glass bottles with other waste are collected from the end-customer bins transported to Waste Collection Point (i.e. Tempat Pembuangan Sampah) by municipal fleet. Other than organized collection by municipal, collection might also be made by scavengers through door-to-door visits

to waste point around customer residence. But this waste management approach are not giving optimum solution. The collecting ability, either by organized fleet from the municipal or by individual scavenger, is still far below the rapidness of increasing waste. The real fact of this becomes apparent when it rains heavily and is followed by flood. During the flood, we can see many waste of packaging material sprang up to the water surface and slow down the drainage period. And for the focus of improvement among the various packaging material, glass bottles are one type that is easier to be reduced as waste. It is due to its shape is produced massively in the same size and the transporting fleet of it requires no modification to collect it from the outlet site. This is different with other customized products, such glass for fixture and furniture purpose, which can be produced as part of mirror or wall with many sizes and shapes.

To the perspective of supply chain, the unreturned bottles for RGB (Returnable Glass Bottle) is decreasing the expected benefit of two-ways supply chain fleet. The design of ordinary supply chain by arranging it to simultaneously drop filled bottles from factory to distributor to retailer and to pick empty bottles from retailer to distributor to factory by the same fleet was not optimally exploited. Since fewer number of empty bottles are available for loading due to the unreturned bottles, it makes the transporting activity was done not at the maximum capacity of the container. To anticipate this, CV AJM arranges its returned empty bottles as the total number of brands Teh Botol Sosro and TEBS which are marketed in Balikpapan. However, in the long-run, should this unreturned trend exists in higher rate, there can be one time dropping filled bottles can not be followed by simultaneous picking empty bottles.

Other research about the manufacturing process of bottles shows the other negative impact of unreturned glass bottles. According to glass association of United Kingdom, recycling one glass bottle will save energy to power a 100 watt light bulb for almost an hour, or a computer for 25 minutes, or a colour TV for 20 minutes or washing machines for 10 minutes. While there are facts that glass bottle is 100% recyclable and can be endlessly recycled with no loss in quality, the unreturned glass

bottles end up in any points before WCP (Waste Collection Point) or broken during its reuse will cause economy to lose the potential value from the reutilization.

So, now in Indonesia, there is less integrated effort managed to optimize the utilization of glass bottles. The regulation does not clearly demand producer to be officially responsible to collect the packaging material after the consumption happens. The legal reference of Pasal 74 UU No. 40 Perseroan Terbatas defines the type of company who must put environmental and social responsibility is companies doing business in the field of and/or in relation to natural resources. This law contains a problem, as there is no obvious legal requirement for companies not doing business in the field of and/or in relation to natural resources. The other problem is this law does not define a boundary condition of natural resources, as many products are produced with different dependency of natural resources contained within (Hasan, 2009).

Mirroring to current practice, we can see a very limited number of beverage producer arrange its supply chain fleet to collect used packaging material from the outlets. Company like Sosro is an example of beverage producer who initiatively collect the used glass bottle, while most others implement traditional supply chain from factory to customer only. Sosro arrange a concept of financial charge per unreturned bottle charged to distributor, while distributor can next charge to outlet if the outlet can not return the used glass bottle.

The concept by Sosro is introduced to stimulate the return rate of bottle. In this thesis, the financial charge set within the distribution area observed is at Rp 500 per bottle. This is the figure set as a charge between factory to distributor as well as distributor to outlet. With the fact that there is still unreturned rate happened in the area observed, we can conclude that the suggestion for other companies to follow the concept by Sosro in terms of strengthening supply chain fleet and financial charge per unreturned bottle is not sufficient. There must be a more comprehensive concept involving all stages of supply chain, particularly consumer as the point of product consumption, and integrating flow of material, money and information traditionally and in reversal direction throughout the supply chain stages. One suggestion from the practice of other countries is by Deposit Refund System (DRS).

5.2.2. Benefits of DRS

DRS is intended to simultaneously achieve benefits as below:

- a. From consumer interest perspective
 - To push payment transfer over product that really useful under consumer control
 - To create a balanced knowledge between producer and consumer regarding the transaction cost
- b. From supply chain perspective
 - To avoid repetitive consumption of time, cost and energy for the same product
 - To increase utility of ownership where product manufactured by factory will be more proper to be handled by factory instead of consumer who do not possess unequal knowledge and technological equipment with factory
- c. From macro economy perspective:
 - To increase efficiency by optimizing residual product and material with value added still attached on it
 - To anticipate crisis in natural resources due to continuous supply of raw material from nature in huge quantity to create new product
- d. From environment perspective:
 - To reduce waste in consumer along with unorganized reuse and recycling process, which can harm environmental health due to limited knowledge and technological equipment by consumer
 - To prevent midden of dangerous chemical substance in the nature, such as pesticide and copper accumulator.

5.2.3. Benefits of DRS through Teh Botol Sosro' Supply Chain

DRS proposed in Teh Botol Sosro' supply chain is done by inserting financial incentive flows in both traditional and reversed way along the chain. Its implementation is expected to deliver benefits to parties involved in the supply chain.

The first party targeted to get benefits of proposed DRS is customer. Current practice in Teh Botol Sosro' supply chain is more appropriate as a financial charge instead of financial incentive. The proposed DRS will reposition current practice as

financial incentive due to customer is involved to return the used glass bottle in a reversed way. Concurrently with returning the bottle, customer can claim the amount of deposit previously paid when buying the product.

Integrating the proposed DRS to supply chain concept, we can see that current practice in Teh Botol Sosro' supply chain is not connecting all stages in a supply chain through the flow of products, information and funds by the same degree. In Teh Botol Sosro' current case, it is more obvious in relation between retailer and customer. When a bottle purchased, the product flows to customer is exchanged by the funds flows from customer. After consumption, there are no consistent occasions of used glass bottle recollected from consumption site while there is also no fund flows to customer. So, to customer side, the proposed DRS will add new transaction knowledge about deposit included in transaction cost of buying Teh Botol Sosro and mechanism of claiming the deposit.

The next party targeted is retailer. According to discussion with distributor, there are some factors causing the unreturned rate from retailer side: flood, displacement of cadger, and bad warehousing. These factors incurs due to used glass bottles are usually less maintained by retailer compared to the filled one in their stock, particularly if selling Teh Botol Sosro and other returnable beverage products are not the main business of the outlet. One alternative to improve this condition is by reducing holding days of the used glass bottles on retailer hand by setting an accelerated bottles turnover. This acceleration is expected between retailer and distributor, however financial incentive enjoyed by customer through proposed DRS is expected to drive returning process and therefore used glass bottles already available at retailer when distributor dropping filled glass bottles.

To expect the response of retailer regarding the proposed DRS, we can start by analyzing the transaction cost in Balikpapan as example. When purchasing a crate of Teh Botol Sosro from distributor, the transaction cost paid by retailer consists of price of Teh Botol Sosro (Rp 44,000 per crate), deposit for bottles (Rp 12,000 for 24 bottles in a crate) and deposit for crate (Rp 13,000 per crate). By ignoring deposit for crate which is not attributed per bottle purchased by end customer, we can calculate

that total cost of purchase is Rp 56,000 or Rp 2,333 per bottle. Scanning to the outlet per retail price in Figure 5.1., there is 0.18% of outlets selling Teh Botol Sosro at Rp 2,500, which is slightly above the cost of purchase. It means that to keep sustainable, the outlet must manage its bottle and also the crate, so that the small profit margin gained per bottle sold will not be distorted by unreturned bottle. Seeing this condition, we can see that outlet will enjoy more profit margins per bottle after retail price level Rp 2,500. The higher the retail price, the higher profit margin is.

If we relate with sustainability, retailer can have various responses to the proposed DRS. Some retailers can stand on current price while doing better bottle collection and warehousing management, as done by the outlets selling Teh Botol Sosro at Rp 2,500. This option is giving internal effect only in the retail side since customer does not pay additional price. Some retailers can increase its selling price when they expect to maintain current profit margin with no distortion from claimed deposit by customer. This latter option gives external effect as customer pays higher. When this option taken, retailers must analyze whether customer preference will shift to other typical products or other retailers with lower selling price. When shifting happens, retailer must reassess the market price of Teh Botol Sosro and compared it to his selling price. If selling price is adjusted to the lower market price, retailer must identify and improve the weakness in bottle collection and warehousing management to prevent unclaimed deposit to distributor. Shortly, proposed DRS is a turning point for retailer to focus on high sales volume instead of high profit margin per bottle.

Distributor is also the party targeted to get the benefit of DRS. When filled glass bottles from factory arrived at distributor warehouse, these bottles are exchanged with empty glass bottles by the same quantity. As total crates are 1,044 crates per container, distributor must stock 1,044 crates of used glass bottles at his warehouse before the arrival of the container. The purpose of loading the same quantity is to avoid broken bottles during the transportation. If stock at warehouse does not reach 1,044 crates, loading is not completed and container can not depart with perforated shelf in the container. In this condition, container stays in distributor warehouse until targeted crates fulfilled with additional cost for the delivery.

So, to distributor side, the proposed DRS is expected to stimulate bottle collection by retailer, to accelerate bottle turnover between retailer and distributor, and to anticipate the required quantity for every delivery to factory. Though distributor gets the deposit from retailer in exchange of unreturned bottle, the used glass bottle itself is more expected to be at distributor hand considering the adequacy of quantity returned per container.

Sosro as the beverage producer is expected to get the benefit of proposed DRS. The deposit mechanism for returned bottles is expected to stimulate bottle collection and lead to its supply certainty. As discussed before, DRS potentially accelerates bottle turn-over between retailer and distributor due to retailer has returned the claimed deposit to customer while retailer must either claim its deposit to distributor as well (as its operating cash) or exchange the used glass bottles with filled one (as its stock for next sales). This in return potentially increases both bottle turn-over and sales volume of Teh Botol Sosro. The force of returning bottles from down stream also makes returns become more certain in terms of quality, quantity and timing, as one goal targeted for companies proposed by Guide and Wassenhove (2003).

de Brito and Dekker (2003) differentiated three driven forces for reversed logistics: 1) economics (or because company can profit from it), 2) legislation (or because company has to), 3) corporate citizenship (or because company “feel” socially motivated to do it). Though scope of the argumentation is for reversed logistic, writer considers this three driven forces are applicable for proposed DRS in reversed supply chain of Teh Botol Sosro. Economics benefit for Sosro can be reached with supply certainty and potential increase in sales volume such as described above. Legislation is not available in Indonesia, therefore no binding commitment to recollect used glass bottle. Sosro can promote the DRS as a corporate citizenship action, which can make its operational activity distinctive to other beverage producers. Though not yet legally binding, the DRS is a good campaign tool to promote compliance to ISO 26000:2010 “Corporate Social Responsibility”, as this action pay more attention for environment, which is one of the seven stakeholders must be highly regarded by companies.

5.3. Result of Descriptive Research

Regarding the modification of traditional supply chain through the DRS, this thesis continues the exploratory research through descriptive research upon customer perspective on Teh Botol Sosro and DRS. It will test whether the main barrier of reversed supply chain, which according to Guide and Van Wassenhove (2009) is on the lack of market of remanufactured products as stated in 4.1., exist.

5.3.1. Demographic Characteristic of Respondents

5.3.1.1. Sex

Total respondents for the research is 200 respondents, which composition based on sex is 117 man or 58.5% and 83 woman or 41.5%. The result is graphed by Figure 5.6. below:

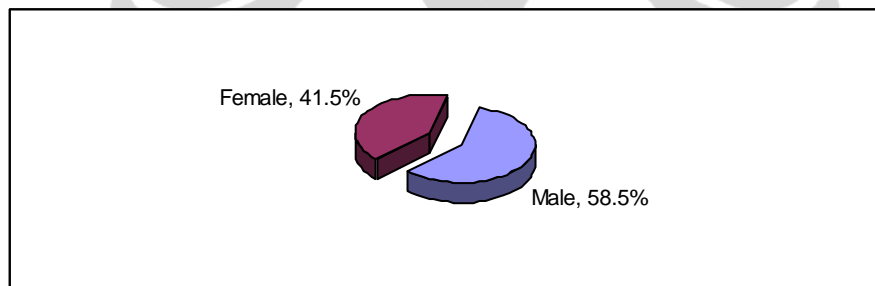


Figure 5.6. Respondent Composition Based on Sex

Source: processed by writer

5.3.1.2. Age

From total 200 respondents, the majority by age is between 26 – 30 years old, with 101 respondents or 50.5%. This group of age is followed by age between 31 – 35 years old (17.5%), 21 – 25 (14%), 36 – 40 years old (7.5%), 41 – 45 years old (6.5%), 46 – 50 (3%) and 51 – 55 (1%). The result is graphed by Figure 5.7.

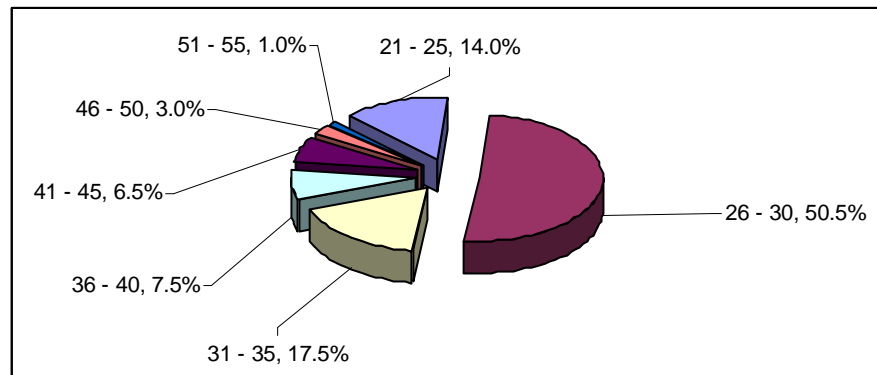


Figure 5.7. Respondent Composition Based on Age

Source: processed by writer

5.3.1.3. Education

Since this questionnaire is proposed to those who has completed or been taking high education, no respondents is at senior high school or below. The majority of respondents is having completed or still taking S1 with 164 respondents or 82 %, followed by S2 (29 respondents or 14.5%), academy (4 respondents or 2%) and S3 (3 respondents or 1.5%). The result is graphed by Figure 5.8. below:

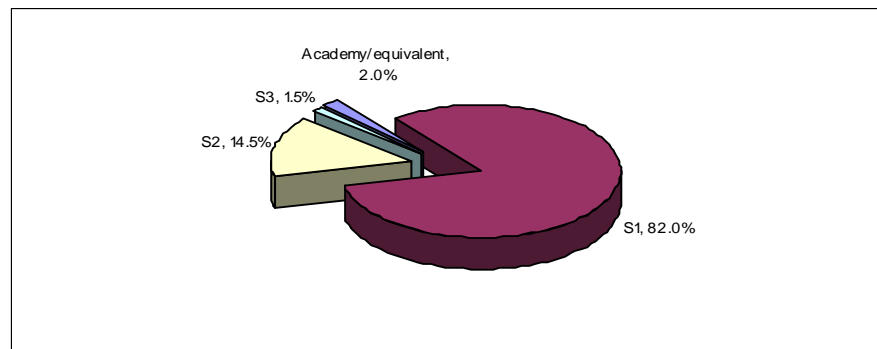


Figure 5.8. Respondent Composition Based on Education

Source: processed by writer

5.3.1.4. Occupation

The majority of respondents is working at private entity with total number 108 respondents or 54%, followed by working in state entity by 43 respondents (21.5%), as professional by 34 respondents (17%), students (10 respondents or 5%),

entrepreneur (3 respondents or 1.5%) and as housewife (2 respondents or 1%). The result is graphed by Figure 5.9. below:

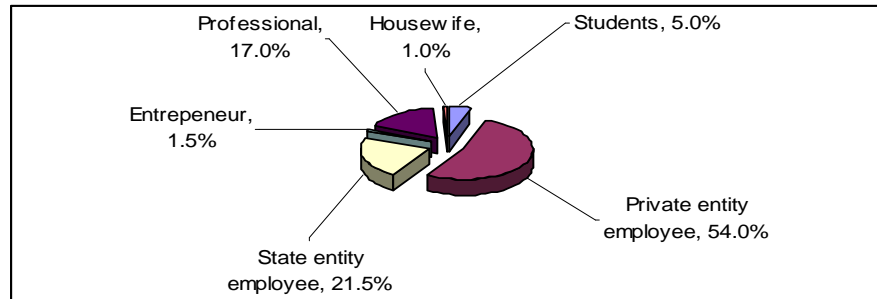


Figure 5.9. Respondent Composition Based on Occupation

Source: processed by writer

5.3.1.5. Disbursement

Disbursement level by respondent covers regular cost for residential, food and beverage, clothes, transportation and communication. When the amount is fluctuating, respondent is asked to expect the average disbursement in the last six months.

Amount disbursed by respondents are scattered among group of disbursements. The highest group of disbursement is above 3 million rupiah per month with 64 respondents (or 32%), followed by 1.5 – 2 million rupiah with 43 respondents (21.5%), 1 – 1.5 million rupiah with 31 respondents (15.5%), 2.5 – 3 million rupiah with 13.5%, 2 – 2.5 million rupiah with 21 respondents (10.5%) and below 1 million rupiah with 7%.

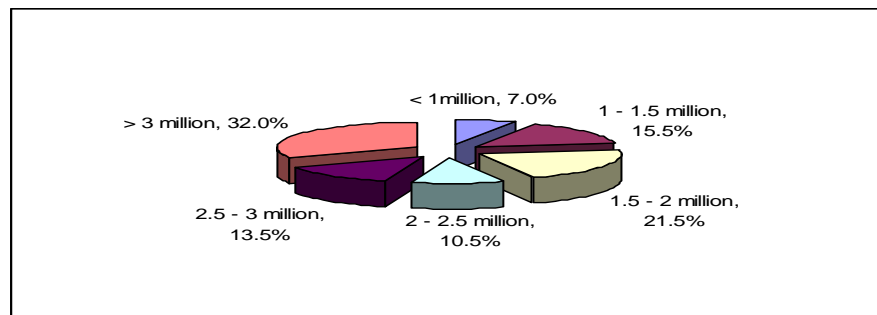


Figure 5.10. Respondent Composition Based on Disbursement

Source: processed by writer

5.3.2. Customer Perception on Teh Botol Sosro

Before asking about the consumer perception on DRS implementation, the descriptive research firstly focuses on the consumer perception on Teh Botol Sosro for some attributes as below.

5.3.2.1. Brand awareness of RTD (Ready To Drink) Brewed Tea

To get information about brand awareness of RTD brewed tea, the research build unaided awareness regarding the top of mind brand of bottle packaged tea and the things attached on the brand mentioned. From the research, it is found that Teh Botol Sosro is the top of mind brand of bottle packaged tea. As shown in Figure 5.11. below, about 169 respondents or 84.5% mentioned Sosro as the most remembered brand, followed by Frestea with 10 respondents or 5%, Stee (6 respondents or 3%), Fruit Tea (5 respondents or 2.5%), Nu Green Tea (4 respondents or 2%), and Others (3 respondents or 3%).

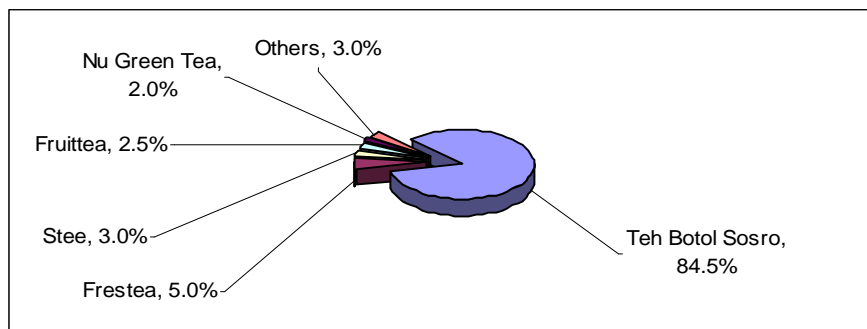


Figure 5.11. Top of Mind Brand of RTD Brewed Tea

Source: processed by writer

The result of this brand awareness test shows an inline result with market survey in Table 3.2., so we can say that Sosro has maintained its position as market leader for RTD brewed tea.

The majority of respondent whose Teh Botol Sosro is in their top of mind mentioned the freshness of Teh Botol Sosro is the top of mind characteristic with 67 respondents or 39.6%, followed by taste, package, alternative drink, price, brand, easy to find, aroma, advertisement, and volume. The result is graphed in Figure 5.12.

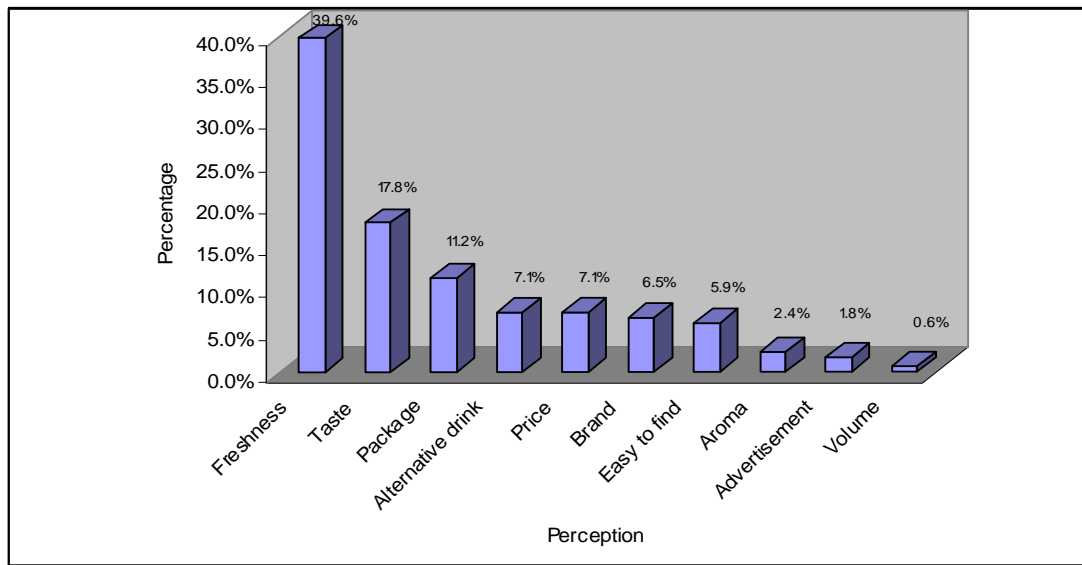


Figure 5.12. Top of Mind of Teh Botol Sosro

Source: processed by writer

5.3.2.2. Value Proposition of Teh Botol Sosro

As stated in 1.2. Problem Identification, Teh Botol Sosro is well known with its tag “Apapun Makanannya, Minumnya Teh Botol Sosro.” Teh Botol Sosro is perceived as having simplifier value proposition, referring to customer gets availability and convenience to reach the products at various types of outlets. The value proposition tagged by Sosro on Teh Botol Sosro is aligned with result of this research, with score 4.53 (see Table 5.1.). If we analyze this result with Figure 5.3., the outlets selling Teh Botol Sosro is not limited to outlets selling food and beverage product only, but also internet shop, cadger, beauty saloon, workshop and indoor football. This information is signaling various scattered types of outlets selling Teh Botol Sosro has been a value already provided by this brand to customer. However, the two valid value propositions (price minimizer and simplifier) have weak positive correlation at 0.271, which means that if it is easier to find seller of Teh Botol Sosro, it does not always means that the price is affordable. The other four value propositions are not valid according to factor analysis (see Appendix 4a).

Table 5.1. Mean of Value Proposition of Teh Botol Sosro

Question in questionnaire (II.2.2. Nilai Proposisi)	Value Proposition Reference	Mean
Kualitasnya Ok, harganya terjangkau	Price minimizer	3.90
Tersedia di banyak tempat, mudah memperolehnya	Simplifier	4.53

Source: processed by writer

5.3.2.3. Customer Perceived Benefits of Teh Botol Sosro

Majority of respondents perceived benefits of Teh Botol Sosro is by economic aspect with mean 4.10 (see Table 5.2.). Economic benefit of Teh Botol Sosro is remarked by affordability of its price, ease to find the seller, and not difficult to acquire and consume it. The economic benefit is aligned with simplifier value proposition of Teh Botol Sosro (as discussed in point 5.3.2.2), where Teh Botol Sosro is perceived to be available at various types of outlets

Aligned with correlation result in 5.3.2.2., affordability of Teh Botol Sosro' price is has weak positive relationship at 0.372 with ease to find the seller. It means that if it is easier to find seller of Teh Botol Sosro, it does not always means that the price is affordable. Affordability of price is having positive substantial relationship at 0.429 with not difficult to acquire and consume it. Correlation of ease to find the seller with not difficult to acquire and consume it is having positive substantial relationship at 0.643. Score 0.429 and 0.643 means that an affordable price and available of Teh Botol Sosro in various outlets have contribution to make acquisition and consumption of Teh Botol Sosro become easier. Functional and emotional benefits are not valid according to factor analysis (see Appendix 5a).

Table 5.2. Mean of Customer Perceived Benefits of Teh Botol Sosro

Question in questionnaire (II.2.3. Persepsi tentang Manfaat Teh Botol Sosro)	Customer Perceived Benefit Reference	Mean
Harganya terjangkau	Economic benefit	4.10
Mudah ketemu penjualnya		
Tidak perlu repot untuk membeli dan mengkonsumsinya		

Source: processed by writer

5.3.2.4. Customer Perceived Costs of Teh Botol Sosro

From the research, we can see that to acquire Teh Botol Sosro, respondents did not perceive time cost and energy cost incurred due to difficulties in finding the seller. As shown in Table 5.3., respondents did not agree that there are time cost (at score 2.01) and energy cost (at 2.03) to when acquiring Teh Botol Sosro. This is aligned with the facts found in 5.3.2.2. and 5.3.2.3., where respondents perceived that Teh Botol Sosro is sold at various types of outlets and therefore easily found. The absence of time cost and energy cost when acquiring Teh Botol Sosro reaffirms perception that cost of Teh Botol Sosro consists cash paid for the product only.

Correlation of no time cost with no energy cost is at 0.883, shows a strong positive correlation between the two variables. This is a clear indication that both barriers do not exist when acquiring Teh Botol Sosro. Psychological cost is not valid according to factor analysis (see Appendix 6a).

Table 5.3. Mean of Customer Perceived Costs of Teh Botol Sosro

Question in questionnaire (II.2.4. Persepsi tentang Harga Teh Botol Sosro)	Customer Perceived Cost Reference	Mean
Selain harga beli, ada biaya waktu, karena tidak selalu bertemu penjualnya, jadi perlu waktu juga untuk mencari penjualnya.	Time cost	2.01
Selain harga beli, ada biaya energi, karena tidak selalu bertemu penjualnya, jadi keluar ongkos/tenaga untuk mencari penjualnya.	Energy cost	2.03

Source: processed by writer

Regarding the substance of payment of Teh Botol Sosro, result of factor analysis shows it does not valid at 0.473 (see Appendix 7). However, from the mean calculation, we got that only tea is the most perceived substance of payment by customer when buying a bottle of Teh Botol Sosro, with mean 3.97.

5.3.2.5. Consumption Method of Teh Botol Sosro

The problem of collecting bottle after consumption increases when consumption of Teh Botol Sosro is done not directly after acquiring the product, lead to consumption done not near the seller selling point. In the case of Teh Botol Sosro, it is happened when the product is purchased from an outlet like internet shop, beauty saloon, workshop and indoor football which main business is not selling food and beverage product, thus no dining table provided for customer to consume the product.

According to the research, there is no strong perception of how the bottle should be treated when consumption was done by customer not near the seller selling point. Consumer has equal perception of just leaving the used glass bottle due to two considerations, either it has no longer function or seller knows his consumption spot. As shown in Table 5.4., the first consideration (used glass bottle has no longer function) is regarded as perception on functionality of the bottle (with mean 2.71), while the second one is regarded as perception on supply chain management of the bottle (with mean 3.35). The mean of the two considerations around neutral position (marked with mean 3.00) means that no strong position of both considerations.

Perception of used glass bottle has no longer function has weak positive correlation at 0.322 with perception of seller knows his consumption spot. It means that when a used glass bottle is considered having no longer function, it is not always due to seller is considered will be the party to collect the bottle. The other three perceptions are not valid according to factor analysis (see Appendix 8a).

Table 5.4. Mean of Customer Perception If Consumption Not Near the Seller Selling Point

Question in questionnaire (II.2.5. Metode Konsumsi)	Reference of Potential Problem	Mean
Pergi saja, yang penting saya sudah minum. Botol yang kosong sudah tidak ada gunanya lagi.	Functionality	2.71
Pergi saja, si penjual sudah mengerti saya minum dimana. Nanti dia ambil sendiri botolnya.	SCM	3.35

Source: processed by writer

5.3.2.6. Perception on Parties Responsible for Collecting Teh Botol Sosro' Used Glass Bottle

As shown in Table 5.5., respondents have perception that both beverage producer and each outlet have responsibility to collect Teh Botol Sosro' used glass bottle, with each outlet has more responsibility at 4.20. Connected this result with fact in 5.3.2.5., we can say that for consumption done not near the seller selling point, respondents has perception of just leaving the bottle but with no strong consideration behind it. While for consumption made regardless its consumption spot, respondents has perception that both beverage producer and each outlet are responsible to collect the used glass bottle.

Correlation of responsibility of beverage producer has substantial positive relationship at 0.553 with responsibility of each outlet. It means that respondents perceived that both parties are not always the same responsible to collect Teh Botol Sosro' used glass bottle at all situations. Two other parties, buyer and municipal, are not valid according to factor analysis (see Appendix 9a).

Table 5.5. Mean of Customer Perception of Parties Responsible for Collecting Teh Botol Sosro' Used Glass Bottle

Question in questionnaire (II.2.6. Persepsi terhadap Kemasan Terbuang Teh Botol Sosro)	Reference of Solution	Mean
Masing-masing produsen minuman	Beverage producer	3.84
Setiap pengecer/outlet yang menjual minuman ke konsumen	Each outlet	4.20

Source: processed by writer

5.3.2.7. Perception on Wasted Teh Botol Sosro' Used Glass Bottle

Respondents perceived that wasted Teh Botol Sosro' glass bottle brings bad impact, with different consideration. As shown in Table 5.6., environment consideration stands at top with mean 4.20, perceiving it as breaking sight seeing and with other waste, it is potentially making the flood. Next consideration is economic aspect with mean 4.02, where respondents perceive the more wasted Teh Botol

Sosro' glass bottle means the more economic value neglected in vain. Respondents also perceive supply chain management of Teh Botol Sosro does not work to optimize the function of bottle. With mean 3.78, respondents perceive that factory put passiveness in managing the flow of used glass bottle.

The three attributes have substantial relationship one another. Passiveness by factory in managing the flow used glass bottle has substantial relationship at 0.507 with breaking sight seeing and potentially making flood, and at 0.543 with more economic value neglected in vain. Breaking sight seeing and potentially making flood has substantial relationship at 0.582 with more economic value neglected in vain. The substantial relationship among the three attributes means that existence of one attribute can lead to the other two attributes, but this is not a definite rule for all situations. Two other attributes, making used glass bottle for home handicraft and misused for crime and in brawl situation, are not valid according to factor analysis (see Appendix 10a).

Table 5.6. Mean of Customer Perception on Wasted Teh Botol Sosro' Used Glass Bottle

Question in questionnaire (II.2.7. Wawasan Lingkungan)	Reference of Potential Problem	Mean
Ketidakpedulian pabrik minuman atas botol kosong. Bukankah botol kosong lebih bermanfaat bagi pabrik dibanding masyarakat umum?	SCM	3.78
Merusak pemandangan mata dan bersama sampah lain berpotensi menimbulkan banjir.	Environment	4.20
Semakin banyak botol kosong terbuang seperti ini, semakin besar nilai ekonomi atas botol-botol tersebut yang terbuang sia-sia.	Economic	4.02

Source: processed by writer

5.3.2.8. Perception on Current Strategy to Increase Recycling Rate

Sosro currently has set a financial charge per unreturned bottle of Teh Botol Sosro to its downstream chain. However, this charge is not communicated well to customer, indicated by mean 4.11 (see Table 5.7.) that this concept is not unknown well by customer. With mean 3.89, respondents also perceived that if the concept is known well by customer, returnable rate will increase.

Correlation of current concept is unknown well to customer has substantial relationship at 0.408 with increase in returnable rate should the concept is known well by customer (see Appendix 11a). This correlation could be examined to the analysis made in 5.2.3. While DRS drives the returning flow through financial incentive mechanism, current practice of financial charge will not stimulate returned bottle from downstream level of Teh Botol Sosro' supply chain. When there is no claim from customer, retailer will have more flexibility in collecting the used glass bottle. Even when retailer has already collected the bottle, they still have flexibility in warehousing management since deposit of the bottle has been paid by customer, so there is less urgency to get the claimed deposit already paid previously to distributor.

Table 5.7. Mean of Customer Perception on Effectiveness of Current Strategy by Sosro

Question in questionnaire (II.2.8. Persepsi terhadap Strategi Peningkatan Pengumpulan Botol Kosong)	Reference of Condition	Mean
Sistem denda yang diterapkan Sosro kepada pengecer/outlet belum umum diketahui konsumen	Current concept unknown well by customer	4.11
Sistem denda yang diterapkan Sosro pasti lebih efektif untuk meningkatkan pengembalian botol bila telah umum diketahui oleh konsumen	If known well, returnable rate will increase	3.89

Source: processed by writer

5.3.2.9. Perception on Alternative Strategy to Increase Recycling Rate

To increase recycling rate of Teh Botol Sosro, respondents are asked about their perception over some alternative strategies, from the strategy that directly give

influence on the consumption method (such as by substitute in packaging material) and indirectly give influence to customer (such as activating small and medium enterprise to collect used glass bottle). As shown in Table 5.8., it is strategy of financial incentive on used glass bottle through DRS (Deposit Refund System) perceived with highest mean 3.88 The least perceived strategy is imposing additional tax (with mean 3.21) for every new bottle manufactured by producer.

Correlation of imposing additional tax is having weak correlation at 0.310 with DRS strategy. It can be interpreted that although both strategy are perceived reasonable to increase recycling rate, both are not strong combination of policy. The other three proposed strategies are not valid according to factor analysis (see Appendix 12a).

Table 5.8. Mean of Customer Perception on Alternative Strategy to Increase Recycling Rate

Question in questionnaire (II.2.8. Persepsi terhadap Strategi Peningkatan Pengumpulan Botol Kosong)	Reference of Solution	Mean
Pajak tambahan untuk pencetakan botol baru	Additional tax for new manufactured bottles	3.21
Penerapan DRS (Deposit Refund System)	Attaching financial incentive on the physic of bottles	3.88

Source: processed by writer

Seeing the fact that respondents are highly perceived the DRS strategy, this option can be seen as a potential innovation on the modification of Teh Botol Sosro' supply chain management. To get a more detailed perception of respondents regarding how DRS strategy should be implemented, the descriptive research is continued by focusing on DRS strategy only.

5.3.3. Customer Perception on DRS (Deposit Refund System) Strategy on Teh Botol Sosro

DRS is a not yet adopted in Indonesia. According to implementation of DRS in other countries, it can be also applied in products other than packaging of beverage products. So, the descriptive research will firstly focuses on the customer perception of DRS strategy itself to some details attributed to DRS, such as the mechanism involving consumer and financial incentive attached on it.

5.3.3.1. Perception on Applicability of DRS Strategy on Packaging of Beverage Product

As graphed in Figure 5.13. and Appendix 13, respondents have positive perception about DRS strategy. 73.5% respondents considers DRS as a new breakthrough in sell and buy system in Indonesia. Should it implemented, about 62.5% believe that it only faces difficulty during socialization and early implementation. About 64.5% respondents perceived incentive with monetary values is more acceptable compared to incentive with no monetary values. If implemented, 78.5% respondents believe that DRS will reduce the quantity of wasted used bottles.

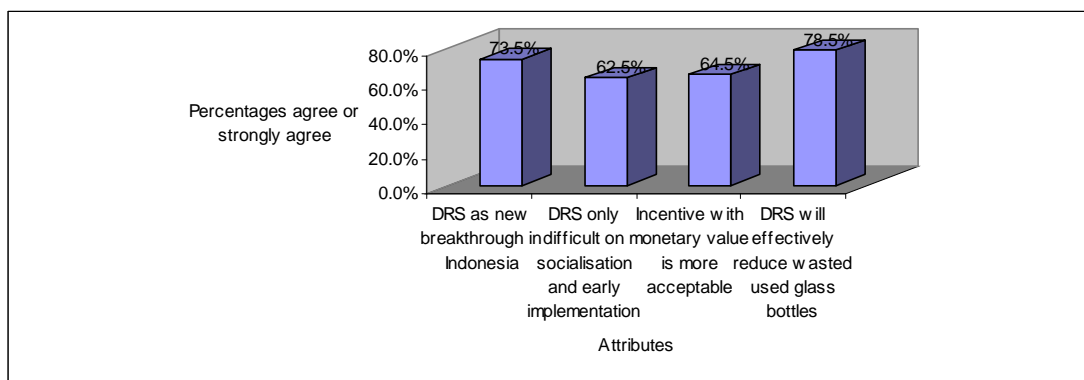


Figure 5.13. Customer Perception over DRS Strategy

Source: processed by writer

5.3.3.2. Perception on Mechanism of DRS Strategy on Teh Botol Sosro

As shown in Figure 5.14. and Appendix 14, 58% of respondents agree or strongly agree for the additional payment made in advance when purchasing Teh Botol Sosro. About 60% of the respondents agree or strongly agree that additional payment should be regarded as temporary deposit that is refundable when the used glass bottle is returned. Both percentages show that making advance payment for DRS is an acceptable implication for customer.

Regarding the consumption method, 47.5% of respondents agree or strongly agree that DRS is unrealistic for consumption made directly after purchasing. For different attributes regarding consumption method, 48.5% of respondents agree or strongly agree that it should be applied differently according to the type of outlets. Both percentages are aligned with the result in 5.1.2., where unreturned rate of used glass bottle is very typical according to the natural business control of the outlet. As the fact that unreturned rate at low-control outlet is higher than high-control outlet, we can see that there higher risk of unreturned rate at low-control outlet. Customer purchases Teh Botol Sosro at low-control outlet such as internet shop as the example, has option of consuming the product inside or outside the internet shop. But, when it is consumed at food shop near the internet shop, it means that consumption is not directly made after purchasing, makes higher risk of unreturned used glass bottle, and suggests DRS as a control to force the bottle return to the internet shop after consumption.

About 60.5% respondents consider that DRS will be on target if set at outlet on street side instead of in closed complex such as mall, hotel or hospital. This is inline with the result in 5.1.2., where outlets at closed complex apply a more stringent business control. The existence of unreturned rate in outlets at closed complex shows the problem of unreturned could be scattered at warehousing management, not externalized during transaction with customer.

Regarding the flexibility of consumption due to DRS, it is slightly equals between neutral perception (at 39.5%) and agree or strongly agree perception (at 39%). This percentages can be seen as perception that DRS is not a supportive tool to

make consumption flexible, but it is more related with inventory control through the supply chain.

About 70% respondents considered that availability of plastic bag will be useful to ease consumer if they consumed it at areas other than seller' selling point. However, consumer has lower level for agree or strongly agree if they have too paid other temporary deposit for the plastic bag, shown by 38% of this perception. The inclusion of plastic bag in the concept of DRS is to accommodate customer who are willing to travel at some distance and consume Teh Botol Sosro at other area instead of the acquisition point. While sometimes bringing waste bottle during the travel are perceived not common, the plastic bag is suggested to make collection of bottle a common action. However, although the concept of including plastic bag in DRS is perceived positively by respondents, the deposit of plastic is not perceived a good solution.

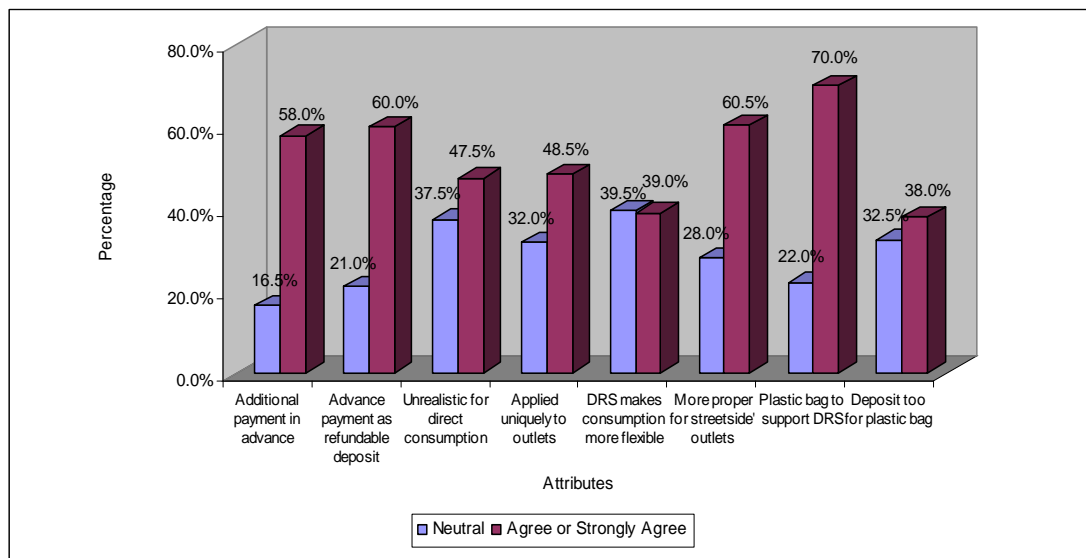


Figure 5.14. Customer Perception on Mechanism of DRS Strategy

Source: processed by writer

5.3.3.3. Perception on Financial Charge Applied for DRS Strategy on Teh Botol Sosro

As described in Table 2.4., there are some technical matters that is applied differently by some countries. When it deals with customer, the DRS strategy has various implementation in terms of point of material collection, deposit amount, and packaging covered. Regarding the proposed DRS on Teh Botol Sosro' supply chain, some technical matters concerned are the amount of DRS, condition of returning bottles and method of claiming the deposit.

As shown in Figure 5.15. and Appendix 15, it is found that respondents perceived DRS amount is better applied by following rule:

- a. In stable price, perception of respondents is 3.04 for a constant amount of DRS while in increasing price, perception of respondents is 3.48 for a constant amount of DRS. The stable price for both price conditions means that DRS needs certainty in its implementation. The certainty will make transaction of Teh Botol Sosro will have no barrier regardless price of the product.
- b. Progressive amount for particular quantity returned, is perceived neutral with perception 4.07. Though neutral, it is suggested to applied constant redeemable rate to avoid speculative motive in returning the bottle.
- c. DRS is perceived to be lower than price, with perception 5.07. Setting DRS amount is by understanding the trade-off between stimulating bottle holder to return the bottle and emphasizing part of the product being transacted. Making too low amount of DRS will give less stimulating from downstream level of supply chain to return the bottle, while setting DRS at extremely high amount will shifting focus of the item being transacted into the bottle only. Therefore DRS is suggested high enough as long as below price of the product.
- d. Differentiation in financial incentive set for different distribution area is perceived neutral with mean 3.74. Though neutral, it is suggested that if two different distribution area have significant difference in price, it is better to have different amount of DRS. But still, physical boundary between the two distribution areas must be clearly distinguishable.

There are condition of returning bottles expected applied through DRS:

- a. For shaping condition, respondents perceived that DRS should be refunded only if perfect condition returned, with perception 4.56. This is also to avoid dispute between retailer and customer who plan to return the bottle. If the bottle is not perfectly as the beginning shape, it is not considered redeemable under DRS concept.
- b. All outlets selling Teh Botol Sosro is required to accept returned glass bottle and do refund although the beverage was not purchased on that outlets, with perception 2.91. This means that customer has more flexibility in consumption should he plans to consume Teh Botol Sosro in an area other than acquisition site.

In terms of refundable process, respondents perceived that direct cashing is better applied, with perception 2.45. This means customer perceives direct cashing is better compared to other alternatives such as exchanging bottle with coupon for next purchase.

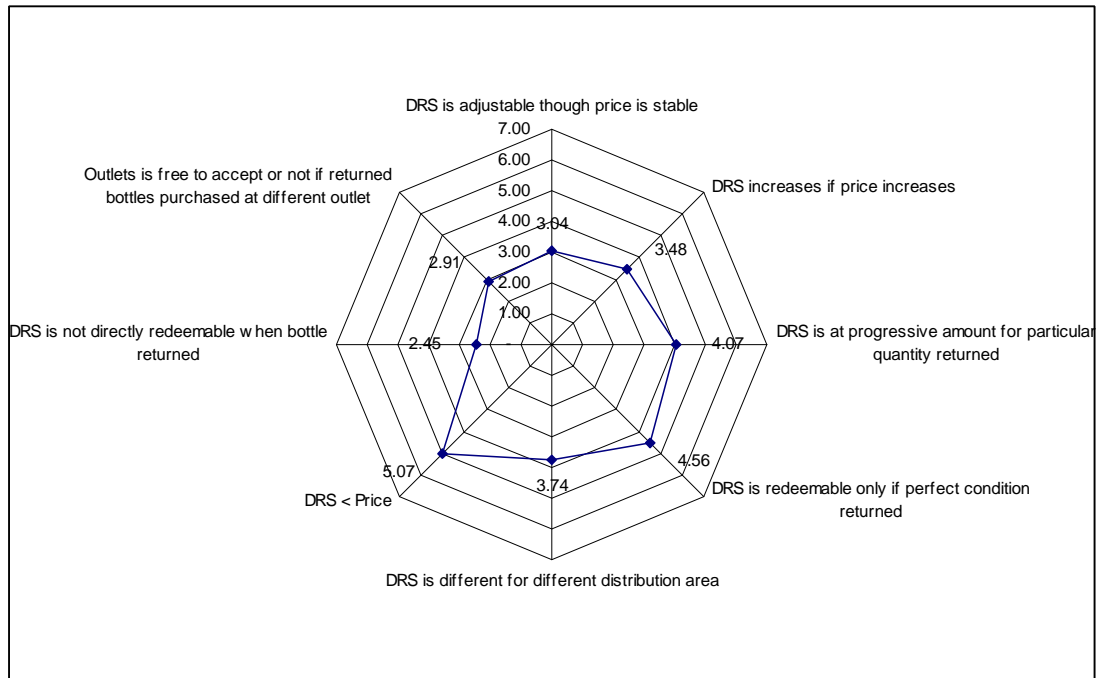


Figure 5.15. Customer Perception on Financial Incentive of DRS Strategy

Source: processed by writer

CHAPTER 6

CONCLUSION, RECOMMENDATION AND CONSTRAINT OF THE RESEARCH

6.1. Conclusion

Beverage industry in Indonesia has a potential growth ahead. As a consumer goods industry, its market is expectedly growing with the increasing population of Indonesia. However, along with the potential growth, beverage industry has a great challenge regarding the packaging aspect of its product, particularly for package in the form of glass bottle.

Current practice shows that glass bottle as a packaging material for some beverage products is not well managed to the optimum benefit. We can consider the fact that beverage producer has no binding obligation to design its supply chain systematically to collect the used glass bottles from either outlet or consumption site. Regarding the systematic collection, some beverage producer has applied it on the field, where Sosro is considered as one of them.

Sosro arranged its marketed glass bottle packaged tea through supply chain fleet down to retailer. This supply chain fleet is designed to drop filled bottles and pick empty bottles simultaneously during visit by salespeople to outlet. To stimulate the collection rate, Sosro applied a financial charge to either distributor or outlet for any unreturned bottle. However, both strategy are not yet working at optimum results due to some factors observed:

1. Outlets has included the risk of unreturned bottle to the retail price. When the price has covered the risk, outlets has more flexibility in collecting the used glass bottles from consumer' consumption site.
2. Natural business control applied by outlets creates a trade-off between options given to consumer to consume and possibility of losing the used glass bottle to the outlets. When consumption is done at high-control outlets, consumer is managed by outlet to consume the product at the space provided, making a higher possibility of unreturned used glass bottle. However, in low-control outlets with

larger option of consumption, returnable used of glass bottle are more manageable, making lower possibility of unreturned used glass bottle.

3. Financial charge applied has not been well known by consumer. While from the research, respondents has perception that this strategy will be more effective should the concept has been well known by consumer.

To improve the current practice, a suggestion from research and implementation from other countries is to implement a Deposit Refund System (DRS). DRS is a system that stipulating a surcharge on the price of potentially polluting products. When pollution is avoided by returning the products or their residuals, a refund of the surcharge is granted.

DRS is a modification of traditional supply chain by reversing the flow of unused part of the product from downstream level of supply chain started by consumer after consumption, which in the case of Teh Botol Sosro is over the glass bottle. In current practice, Indonesia has not yet applied this system. Collection of used glass bottle is not at top concern of beverage producer. There is also no binding regulation by government for each beverage producer to collect it. It makes collection effort by some producer is based on own initiative, without a standardized concept and targeted achievement of the returned rate.

When implemented, DRS is targeted to deliver benefits to parties in Teh Botol Sosro' supply chain. To customer side, DRS will add new transaction knowledge about deposit included in transaction cost of buying Teh Botol Sosro and mechanism of claiming the deposit. As customer claims deposit after returning the bottle, the transaction cost will decline, making ratio of value offered to customer becomes higher due to fixed benefits divided smaller costs (see point 2.1.2. Customer Perceived Value (CPV) for reference). To retailer, DRS is a tool to accelerate bottle turnover on their hand. This can be seen in two ways, first is to mitigate the risk of loosing bottle at retailer due to less maintenance of used glass bottle compared to filled one, and second is to drive exchanging used glass bottle with claimed deposit to distributor (as operating cash) or with filled one (as its stock for next sales). If retailer

responds DRS with innovative ways, DRS is a turning point to focus on sales volume instead of profit margin per bottle.

To distributor, DRS is targeted to stimulate bottle collection by retailer, to accelerate bottle turnover between retailer and distributor, and to anticipate the required quantity for every delivery to factory. To Sosro, DRS is potentially increases both bottle turn-over and sales volume of Teh Botol Sosro. DRS is also a good campaign tool for Sosro to promote compliance to environmental standard, such as ISO 26000:2010 “Corporate Social Responsibility”. Advanced participation to such environmental standard can make its operational activity distinctive to other beverage producer.

As an alternative solution to current practice, DRS should be placed according to business consideration, particularly for customer as new stage involved in this financial incentive scheme. Thus, this research explores the perception of customer over DRS. According to this research, respondents have positive perception of DRS strategy. This strategy is perceived as a new breakthrough in market system of Indonesia. Though it could give some difficulties in socialization and early implementation stage, respondents have perception that this strategy will effectively reduce wasted used glass bottles. One key point for this is the inclusion of financial incentive that is perceived more acceptable to Indonesian.

6.2. Recommendation

DRS is a strategy designed to deliver benefits to many parties in supply chain, started from beverage producer, distributor, outlets, and consumer. It is potentially making barrier for consumer, particularly in the early implementation when consumer is pushed to adjust their traditional consumption method to the new one according to the DRS. However, it is about perception of consumption method that should be directed by both beverage producer and regulator.

Though DRS requires additional payment in advance when purchasing a bottle of Teh Botol Sosro, it has a positive perception that it is regarded as refundable deposit. However, when implemented, this strategy must be applied with business

considerations, so that technical implementation must be applied uniquely according to type of each outlet. Respondents perceived that it is unrealistic to apply DRS when they purchase a drink in an outlet and do direct consumption there. They highly perceived that DRS is more proper applied at street side outlets, which is aligned with the fact that unreturned rate of used glass bottles is higher in low-control outlets which exist at the street side.

Certainty in its implementation is an important point in implementation of DRS. A constant price is expected applied when principal price of the Teh Botol Sosro is stable or increasing. It is perceived that DRS should be lowered than the price, and cashing process should be redeemable when the bottle is returned. Redeemable itself is perceived to be applicable even when consumer returns the used glass bottle to the different outlet other than the purchasing outlet. And to make DRS is certain in practice, respondents perceived that return is set only for perfect condition of bottle.

All the technical matters designed in DRS of Teh Botol Sosro must be directed to keep it a profitable action. For this purpose, the DRS must maintain value proposition of Teh Botol Sosro as a simplifier product, its perceived benefit from economic aspect, and there are no time cost and no energy cost spent by customer to acquire and consume Teh Botol Sosro. If we assume all business consideration are successfully maintained when implementing DRS on Teh Botol Sosro, we expect that customer will receive greater benefit to cost ratio and it will drive sales volume of Teh Botol Sosro itself.

DRS on Teh Botol Sosro also delivers benefits to the macroeconomic perspective, where it can be a good control of raw material and energy supply that is required to the manufacturing process of recurring product. Anticipating the limitation of renewable resource and energy to drive the economic process, DRS is a good tool to control the increasing demand of the raw material and energy supply to make glass bottle. While demand of Teh Botol Sosro packaged in glass bottle is expected increasing due to population growth, DRS can ease the increasing demand of production factor and finally return the benefits to the price of the Teh Botol Sosro.

While customization of products is common nowadays to fulfill customer value proposition, beverage product like Teh Botol Sosro, which is massively produced in a standardized shape and size, is easier to collect from consumption site. We can compare the difference in our effort to do collection of other products from glass material, let say housing furniture, which are designed to the details required by consumer. The end of consumption life by consumer for this product is also more difficult to be predicted to design the reversed channel once it becomes waste. Certainly, all stakeholder of the economic process expect that waste spring up from the production, distribution and consumption should be minimized or even eliminated. Here, collection of beverage product is easier to be implemented rather than the customized type. Thus, DRS in Teh Botol Sosro can be a role model for implementation of DRS for other products.

Considering its benefits to the parties within the supply chain and to the macroeconomic, DRS is expected as a foreseeable strategy to simultaneously create fair and transparent selling and buying system, drive the utility of ownership of product, optimization of residual product, and a greener environment for all stakeholder of the economic. While it is not the only option to be implemented, the design of DRS can be combined with other option, such as additional tax for new manufactured bottles.

So that, by learning from practice already implemented in other countries, DRS is not only limited to beverage product. It can be extended to other products, such as tire and copper accumulator. The important matter is any modification of supply chain as required by DRS should carefully maintain business perspective of the product, such as marked with customer perceived benefits and customer perceived costs.

6.3. Constraint

Writer acknowledged there were limitations found during the research. In the exploratory research, the period observed covered only one object in a distribution area for three months period. In the descriptive research, questionnaire is sent

simultaneously to prospective respondents. While the questionnaire also can be divided into two parts, first is the perception on Teh Botol Sosro and its strategy through financial charge applied, and second is the perception on DRS strategy, the questionnaire will be better if arranged by two collection stages as well. In the research through articles about reversed supply chain and DRS, writer found there is no reference written about its practice in Indonesia, thus the articles quoted refers to practices in countries with very typical market factors determining the details of DRS implemented. And the last, since DRS itself is not yet implemented in Indonesia, it drives writer to build his own expectation about how it can work here.

REFERENCE

- Aaker, David A. (1996). *Building Strong Brand*. Free Press; New York
- Chopra, Sunil; & Peter Meindl. (2007). *Supply Chain Management*. Pearson Education; New Jersey
- de Britto, Marissa P. and Rommert Dekker. A Framework for Reverse Logistics. April 2003
- Fontana, Avanti. (2009). *Innovate We Can*. Gramedia; Jakarta
- Ghozali, Imam. (2006). *Analisis Multivariate Dengan Program Aplikasi SPSS (4th ed)*. Semarang: Badan Penerbit – Undip
- Gitlitz, Jennifer. “The Role of the Consumer in Reducing Primary Aluminium Demand”. 15 October 2003
- Guide, Daniel and van Wassenhove. “The Evolution of Closed-Loop Supply Chain Research.” Vol.57 (1). pp.10-18. January 2009
- Guide, Daniel, Terry Harrison and van Wassenhove. “The Challenge of Closed-Loop Supply Chain.” Vol.33 (6). pp3-6. November 2003
- Hasan, Djuhaendah. (2009). *Tanggung Jawab Sosial Perusahaan*. Badan Pembinaan Hukum Nasional Departemen Hukum dan HAM RI

- Hines, P., Lamming, R., Jones, D., Cousins, P., Rich N. (2010). *Value Stream Management – Strategy and Excellence in the Supply Chain.* Prentice Hall; London
- Hogg, Dominic, Debbie Fletcher, Tim Elliott, Maxine von Eye. (2010). *Have We Got the Bottle? Implementing a Deposit Refund Scheme in the UK.* Eunomia
- Kaseke, Nyasha. (2003). *The Use of Deposit Refunds as Pollution Control Policy in Urban Areas: The Case of Zimbabwe (Harare)*
- Keller, Kevin Lane. (2008). *Strategic Brand Management.* Pearson Education; New Jersey
- Kotler, Philip. (2000). *Marketing Management Millenium Edition.* Pearson Education; New Jersey
- Kotler, Philip and Kevin Lane Keller. (2009). *Marketing Management.* Pearson Education; New Jersey
- Malhotra, Naresh K. (2010). *Marketing Research: An Applied Orientation.* Pearson Education: New Jersey
- Martinez V and Bititci US. “Aligning Value Propositions in Supply Chains.” Vol.1(1), pp.6-18. 13 February 2006.
- Ministry of Industry Republic of Indonesia. (2010). *Industry for A Better Life.*
- Rafianti. “Ketika Pengelolaan Sampah Dibebankan kepada Sang Produsen.” *Riau Pos* 10 July 2010. <http://www.riapos.com/new/berita.php?act=full&id=1928&kat=11>

- Sarkis, Joseph (2006). *Greening the Supply Chain*. Springer: London
- Sulaiman, Wahid (2002). *Jalan Pintas Menguasai SPSS 10*. Yogyakarta: Andi.
- Supranto, J (1997). *Metode Riset: Aplikasinya dalam Pemasaran*. Lembaga Penerbit Fakultas Ekonomi Universitas Indonesia; Jakarta
- Suryadi, Dede and Wini Angraeni. "Parade Merek-Merek Penantang." *SWA* 27 July 2009. <http://swa.co.id/2009/07/parade-merek-merek-penantang/>
- Treacy, Michael and Fred Wiersema (1995). *Discipline of Market Leaders*. Addison Wesley; USA
- Yan Yin Ho (2002). *Recycling as a Sustainable Waste Management Strategy for Singapore: An investigation to find ways to promote Singaporean's Household Waste Recycling Behaviour*. Lund University.

APPENDIX 1 QUESTIONNAIRE



**MAGISTER MANAJEMEN
FAKULTAS EKONOMI
UNIVERSITAS INDONESIA**

Responden Yang Terhormat,
Saya, mahasiswa MM FEUI, sedang melakukan penelitian tentang penerapan strategi insentif keuangan terkait keselarasan nilai persepsi konsumen dan rantai pasok terbalik pada minuman Teh Botol Sosro. Saya memohon partisipasi Anda untuk mengisi kuesioner terkait penelitian tersebut. Semua jawaban yang Anda isikan bersifat rahasia, dan hanya digunakan untuk penelitian saya. Tidak ada jawaban yang dinilai salah. Terima kasih.

Primsa Tarigan.

Nomor urut kuesioner:

--	--	--

Petunjuk Umum: Bila tidak ada petunjuk khusus, beri tanda (X) pada 1 pilihan jawaban yang menurut Anda paling tepat.

Bagian I: Pertanyaan Saringan

- Apakah Anda Warga Negara Indonesia (WNI) berdomisili di wilayah Indonesia?

(a) Ya (b) Tidak
- Apakah Anda berusia antara 21 – 55 tahun?

(a) Ya (b) Tidak
- Apakah Anda telah mengkonsumsi Teh Botol Sosro dalam 6 bulan terakhir?

(a) Ya (b) Tidak
- Apakah Anda telah melihat armada Sosro dalam 6 bulan terakhir?

(a) Ya (b) Tidak

Jika salah satu jawaban Anda di atas adalah “Tidak”, maka Anda tidak perlu melanjutkan ke pertanyaan berikutnya. Terima kasih.

Bagian II: Pertanyaan Utama

II.1. Minuman Teh Olahan Siap Saji

Petunjuk Khusus Bagian II.1.:

- Isilah jawaban Anda pada tempat yang telah disediakan
- Jawaban tidak boleh lebih dari 3 kata.

- Merek teh kemasan botol apa yang pertama sekali terlintas dalam pikiran Anda?
.....
- Hal apa yang terlintas dalam pikiran Anda mengenai teh kemasan botol yang Anda sebutkan tadi?
.....

II.2. Minuman Teh Botol Sosro

II.2.1. Frekuensi konsumsi

- 3) Seberapa sering Anda makan di luar rumah/ kos dalam sebulan?
- (a) < 10 x (b) 10 – 20 x (c) 21 – 30 x (d) > 30 x

Petunjuk:

Seterusnya frase makan & minum mengacu pada makan & minum diluar rumah/kos.

- Apakah tiap makan, Anda selalu memesan Teh Botol Sosro sebagai minuman Anda?

(a) Ya, selalu (c) Jarang

(b) Belum tentu, tapi lebih sering ya (d) Tidak pernah
- Apabila Anda membeli Teh Botol Sosro, berapa botol yang Anda pesan pada satu kesempatan minum?

(a) 1 botol saja (c) > 2 botol

(b) 2 botol (d) Tidak pernah

Petunjuk Khusus Bagian II.2.2. – II.2.10:

Beri tanda (X) pada salah satu kolom untuk tiap satu baris pilihan jawaban:

Keterangan: **STS** = Sangat Tidak Setuju **N** = Netral **SS** = Sangat Setuju
TS = Tidak Setuju **S** = Setuju

Misal:

Berbagai jenis minuman di bawah ini disukai oleh konsumen Indonesia:	Sangat Tidak Setuju	Tidak Setuju	Netral	Setuju	Sangat Setuju
(a) Air mineral dalam kemasan			X		
(b) Sari buah				X	
(c) Teh Olahan					X
(d) Minuman Ringan					X
(e) Bir dan minuman beralkohol		X			
(f) Minuman kesehatan dan energi			X		

Tanda (X) berarti Anda tidak setuju bir dan minuman beralkohol disukai oleh konsumen Indonesia, Anda setuju sari buah disukai oleh konsumen Indonesia, Anda sangat setuju teh olahan dan minuman ringan sangat disukai oleh konsumen Indonesia, dan Anda bersikap netral terhadap air mineral dalam kemasan dan minuman kesehatan dan energi dalam kaitan kesukaan oleh konsumen Indonesia.

II.2.2. Nilai Proposisi						
6	Hal apa yang terlintas dalam pikiran Anda mengenai Teh Botol Sosro?	Sangat Tidak Setuju	Tidak Setuju	Netral	Setuju	Sangat Setuju
	(a) Produknya selalu baru, unik dan khusus					
	(b) Meminumnya menumbuhkan kepercayaan diri saya					
	(c) Kualitasnya Ok, harganya terjangkau					
	(d) Tersedia di banyak tempat, mudah memperolehnya					
	(e) Produknya sangat pas menggambarkan diri saya					
	(f) Cara saya mengkonsumsi minuman ini bisa fleksibel					
II.2.3. Persepsi tentang Manfaat Teh Botol Sosro						
7	Manfaat apa yang Anda rasakan saat mengkonsumsi Teh Botol Sosro?	Sangat Tidak Setuju	Tidak Setuju	Netral	Setuju	Sangat Setuju
	(a) Memenuhi rasa haus					
	(b) Kesehatan saya jadi lebih baik					
	(c) Memberikan energi ekstra untuk beraktivitas					
	(d) Memberikan perasaan positif seperti rasa bangga bagi saya					
	(e) Identitas saya dalam pergaulan semakin jelas					
	(f) Nyaman di genggam					
	(g) Harganya terjangkau					
	(h) Mudah ketemu penjualnya					
	(i) Tidak rumit untuk membeli dan mengkonsumsinya					
II.2.4. Persepsi tentang Harga Teh Botol Sosro						
8	Apa saja pengorbanan yang Anda keluarkan untuk mengkonsumsi Teh Botol Sosro?	Sangat Tidak Setuju	Tidak Setuju	Netral	Setuju	Sangat Setuju
	(a) Selain harga beli, ada biaya waktu, karena tidak selalu bertemu penjualnya, jadi perlu waktu juga untuk mencari penjualnya.					
	(b) Selain harga beli, ada biaya energi, karena tidak selalu bertemu penjualnya, jadi keluar ongkos/tenaga untuk mencari penjualnya.					
	(c) Selain harga beli, ada biaya psikologis, misalnya: "Saya harus mengucapkan secara lengkap nama Teh Botol Sosro agar penjual mengerti produk minuman apa yang saya inginkan."					
9	Yang saya bayarkan ketika membeli satu botol Teh Botol Sosro adalah:	Sangat Tidak Setuju	Tidak Setuju	Netral	Setuju	Sangat Setuju
	(a) Air tehnya saja					
	(b) Air teh dan botolnya					
	(c) Air teh, biaya pengemasan dan biaya transportasi botolnya					
	(d) Belum jelas buat saya					

II.2.5. Metode Konsumsi						
10	Setelah membeli, bagaimana Anda menghabiskan The Botol Sosro?	Sangat Tidak Setuju	Tidak Setuju	Netral	Setuju	Sangat Setuju
	(a) Langsung dihabiskan di tempat kosong di sekitar penjual					
	(b) Tuang isinya ke gelas, kembalikan botolnya lalu minum dimana suka					
	(c) Bawa botolnya, kembali ke posisi makan, lalu minum di situ					
	(d) Bawa botolnya, cari posisi enak dimana saja, lalu santai minum di situ					
11	Apabila Anda membeli Teh Botol Sosro dan meminumnya tidak langsung di depan penjual, apa yang Anda lakukan terhadap botol kosongnya selesai minum?	Sangat Tidak Setuju	Tidak Setuju	Netral	Setuju	Sangat Setuju
	(a) Pergi saja, yang penting saya sudah minum. Botol yang kosong sudah tidak ada gunanya lagi.					
	(b) Pergi saja, si penjual sudah mengerti saya minum dimana. Nanti dia ambil sendiri botolnya.					
	(c) Pergi saja, pasti ada orang yang mengurus botol ini. Paling tidak ada pemulung atau Dinas Kebersihan yang bakal mengurusnya.					
	(d) Ingin membawa pulang botolnya, nanti dikumpulin terus dijual lagi.					
	(e) Ingin membawa pulang botolnya, tetapi nanti saja kalau sudah sepi supaya tidak dianggap pencuri.					
II.2.6. Persepsi terhadap Kemasan Terbuang						
12	Apa yang Anda pikirkan ketika melihat botol kosong Teh Botol Sosro terhampar di sembarang tempat tanpa pemilik?	Sangat Tidak Setuju	Tidak Setuju	Netral	Setuju	Sangat Setuju
	(a) Tidak penting untuk dipikirkan, karena itu hanya sebuah botol kosong yang sudah tidak berguna lagi.					
	(b) Mengapa bisa ditelantarkan seperti itu, apakah tidak dipakai lagi oleh pabriknya?					
	(c) Yang seperti inilah yang nanti membuat banjir.					
	(d) Ingin membawa pulang, nanti kalo sudah banyak saya jual lagi.					
	(e) Ingin membawa pulang, tetapi nanti dianggap aneh bila terlihat memungutnya.					
		Sangat Tidak Setuju	Tidak Setuju	Netral	Setuju	Sangat Setuju
13	Setelah selesai minum, botol kosong Teh Botol Sosro harus dikumpulkan kembali dan tidak dibiarkan terhampar di sembarang tempat					
		Sangat Tidak Setuju	Tidak Setuju	Netral	Setuju	Sangat Setuju
14	Botol Kosong Teh Botol Sosro yang terhampar di sembarang tempat, lebih sering dalam kemasan utuh dibanding pecahan/sompel					
15	Siapa yang bertanggung jawab terhadap pengumpulan kembali botol kosong Teh Botol Sosro?	Sangat Tidak Setuju	Tidak Setuju	Netral	Setuju	Sangat Setuju
	(a) Masing-masing produsen minuman.					
	(b) Setiap pengecer/outlet yang menjual minuman ke konsumen.					
	(c) Setiap pembeli minuman.					
	(d) Pemerintah.					

II.2.7. Wawasan Lingkungan						
16	Menurut Anda, botol kosong Teh Botol Sosro yang terbuang di sembarang tempat berdampak negatif dalam bentuk apa?	Sangat Tidak Setuju	Tidak Setuju	Netral	Setuju	Sangat Setuju
	(a) Mengapa tidak ada yang memanfaatkan botol kosong ini? Bukankah bisa untuk bahan kerajinan tangan atau hiasan rumah?					
	(b) Ketidakpedulian pabrik minuman atas botol kosong. Bukankah botol kosong lebih bermanfaat bagi pabrik dibanding masyarakat umum?					
	(c) Merusak pemandangan mata dan bersama sampah lain berpotensi menimbulkan banjir.					
	(d) Semakin banyak botol kosong terbuang seperti ini, semakin besar nilai ekonomi atas botol-botol tersebut yang terbuang sia-sia.					
	(e) Dapat disalahgunakan untuk aksi kriminal atau saat tawuran.					
II.2.8. Persepsi terhadap Strategi Peningkatan Pengumpulan Botol Kosong						
		Sangat Tidak Setuju	Tidak Setuju	Netral	Setuju	Sangat Setuju
17	Sosro saat ini mengenakan denda kepada pengecer bila botol kosong yang dikembalikan lebih sedikit dari yang dikirimkan pabrik.					
		Sangat Tidak Setuju	Tidak Setuju	Netral	Setuju	Sangat Setuju
18	Denda yang dikenakan Sosro sebesar Rp 500 per botol adalah ideal untuk merangsang tingkat pengembalian botol kosong.					
		Sangat Tidak Setuju	Tidak Setuju	Netral	Setuju	Sangat Setuju
19	Selain Sosro, semua produsen minuman dalam kemasan harus membuat sistem denda untuk merangsang pengembalian botol kosong.					
		Sangat Tidak Setuju	Tidak Setuju	Netral	Setuju	Sangat Setuju
20	Sistem denda yang diterapkan Sosro kepada pengecer/outlet belum umum diketahui konsumen.					
		Sangat Tidak Setuju	Tidak Setuju	Netral	Setuju	Sangat Setuju
21	Sistem denda yang diterapkan Sosro pasti lebih efektif untuk meningkatkan pengembalian botol bila telah umum diketahui oleh konsumen.					
22	Menurut Anda, strategi apa yang lebih tepat dilakukan untuk mengurangi jumlah botol kosong Teh Botol Sosro yang terbuang sia-sia?	Sangat Tidak Setuju	Tidak Setuju	Netral	Setuju	Sangat Setuju
	(a) Sosro mengganti kemasan botol gelas dengan botol plastik atau karton saja.					
	(b) Pengenaan pajak tambahan untuk tiap botol baru yang dicetak.					
	(c) Pengaktifan usaha kecil khusus pengumpul botol kosong.					
	(d) Memperbanyak tong sampah di tempat-tempat umum.					
	(e) Penerapan DRS (Deposit Refund System).					

Bila Anda belum memahami dengan jelas istilah pada pertanyaan terakhir di atas, tunda dulu menjawabnya. Anda dipersilakan membaca paparan di halaman berikut lalu kembali ke bagian ini dan melanjutkan menjawab pertanyaan-pertanyaan pada bagian II.2.9 hingga selesai.

DRS (Deposit Refund System) merupakan biaya tambahan selain harga pokok atas produk-produk yang berpotensi menimbulkan polusi bagi lingkungan. Ketika polusi dapat dihindarkan dengan mengembalikan material sisa produk utama, sejumlah biaya tambahan tadi dikembalikan kepada pihak yang mengembalikannya.

DRS dirancang untuk mendorong pengembalian material lewat proses penggunaan, pembuangan dan daur ulang kembali secara terorganisasi. Sistem ini mendorong konsumen meninggalkan pilihan lama yang lebih mudah, yakni sekedar membuangnya sebagai sampah. Kebijakan ini ditargetkan pula dapat mencegah masuknya material sisa produk utama yang sulit dilarutkan oleh alam ke dalam saluran pembuangan sampah.

Lewat sistem DRS, sejumlah biaya tambahan sementara dikenakan untuk setiap barang jadi yang diidentifikasi berpotensi merusak lingkungan di akhir konsumsi oleh pelanggan. Dikatakan sementara karena biaya tambahan tersebut diperlakukan sebagai deposit bagi yang membayarkannya.

Kemasan minuman merupakan target umum DRS, meskipun skema ini dapat diterapkan pada material berbahaya lainnya. Meskipun demikian, beberapa negara telah menerapkan sistem ini terhadap beragam jenis material lainnya, diantaranya:

- DRS atas baterai kering di Swedia
- DRS atas ban di Amerika
- DRS atas aki mobil di Jerman
- DRS atas besi kendaraan di Swedia

Walaupun variasi dalam regulasi sangat beragam, DRS telah diterapkan oleh banyak negara, diantaranya:

- | | | | |
|-------------------|-------------|------------|------------|
| - Afrika Selatan | - Denmark | - Jerman | - Peru |
| - Amerika Serikat | - Estonia | - Kanada | - Portugal |
| - Austria | - Finlandia | - Malta | - Spanyol |
| - Australia | - Hungaria | - Meksiko | - Swedia |
| - Belanda | - Islandia | - Norwegia | - Swiss |

Terhadap konsumen, secara sederhana DRS menyebabkan jumlah uang yang dibayarkan konsumen saat pertama membeli suatu produk, bertambah. Ini dikarenakan nilai total pembayaran adalah paket berupa harga normal ditambah simpanan sementara atas kemasan botol gelas. Setelah pembayaran paket tadi, konsumen memiliki hak penuh atas air dan botol gelas sebagai kemasannya. Botol gelas

yang sudah kosong dapat dikembalikan oleh konsumen kepada penjual Teh Botol Sosro pada hari yang sama di outlet yang sama ataupun di lain hari dan outlet yang berbeda.

Lewat sistem DRS, setiap kali minuman diproduksi dan didistribusikan kepada distributor dan atau pengecer, produsen membayarkan sejumlah deposit tertentu kepada dewan pengawas peredaran botol. Saat minuman sampai di gudang distributor atau pengecer, distributor atau pengecer membayar deposit tertentu kepada produsen, sehingga produsen memperoleh kembali pembayaran deposit awalnya. Saat konsumen membeli produk tersebut, konsumen turut membayar deposit per unit minuman yang dia beli, sehingga pengecer memperoleh kembali pembayaran deposit awalnya.

Apabila setelah mengkonsumsi minuman konsumen langsung mengembalikan botol kemasan kepada pengecer, maka pengecer wajib mengembalikan deposit yang telah dibayarkan oleh konsumen di awal pembelian. Botol-botol yang telah terkumpul ini secara berkala dikembalikan ke distributor dan atau produsen, dan bersamaan dengan itu, dewan pengawas peredaran botol mengembalikan sejumlah deposit yang sebelumnya sudah dibayarkan oleh pengecer sewaktu membeli botol berisi dari distributor atau pabrik.

Maka, inti dari ide DRS dimaksudkan untuk mencapai sekaligus beberapa manfaat berikut:

- 1) Dari sisi konsumen:
 - mendorong sistem pembayaran atas produk yang benar-benar berguna di tangan konsumen
 - mendorong terciptanya pengetahuan yang seimbang antara produsen dan konsumen terkait harga yang ditransaksikan
- 2) Dari sisi rantai pasok (supply-chain):
 - meningkatkan penggunaan kembali material-material isi ulang oleh pabrik yang apabila dicetak dari awal lagi akan memakan tahapan waktu, biaya dan energi yang tidak sedikit
 - meningkatkan *utility of ownership* (kegunaan kepemilikan) dimana produk cetakan pabrik akan lebih tepat ditangani kembali oleh pabrik dibandingkan masyarakat awam yang tidak memiliki pengetahuan dan peralatan teknologi yang sama dengan pabrik
- 3) Dari sisi ekonomi:
 - mendorong efisiensi atas optimalisasi produk dan material yang masih bernilai tambah
 - mengantisipasi krisis sumber daya alam atas pasokan terus menerus dalam jumlah besar terhadap permintaan bahan baku dari alam untuk mencetak produk baru
- 4) Dari sisi lingkungan:
 - mengurangi jumlah sampah di masyarakat serta proses daur ulang dan pemanfaatan kembali yang tidak terkoordinasi, utamanya dari sisi kesehatan lingkungan
 - mencegah tertumpuknya bahan kimia berbahaya di alam, seperti pestisida dan baterai basah

III.2.9. Persepsi tentang penerapan DRS pada penjualan Teh Botol Sosro

Petunjuk Khusus:

Beri tanda (X) pada salah satu kolom untuk tiap pertanyaan berikut:

Keterangan: **STS** = Sangat Tidak Setuju **TS** = Tidak Setuju **N** = Netral **S** = Setuju **SS** = Sangat Setuju

	Secara Umum tentang DRS	Sangat Tidak Setuju	Tidak Setuju	Netral	Setuju	Sangat Setuju
1	DRS merupakan terobosan baru dalam sistem jual beli di Indonesia					
2	Kesulitan penerapan DRS hanya pada saat sosialisasi dan implementasi awal saja					
3	Saya lebih mudah menerima penerapan insentif yang bernilai uang (seperti DRS) dibanding yang tidak bernilai uang					
4	Penerapan DRS akan mengurangi jumlah botol kosong terbuang sia-sia					
	DRS pada Teh Botol Sosro	Sangat Tidak Setuju	Tidak Setuju	Netral	Setuju	Sangat Setuju
5	Saya tidak berkeberatan untuk membayar sejumlah tertentu di muka saat membeli Teh Botol Sosro, dan menerima kembali jumlah yang sama saat mengembalikan botol kosongnya					
6	Saya menganggap sejumlah tertentu itu seperti simpanan saja. Saya kembalikan botol dan saya ambil lagi simpanan saya itu.					
7	Penerapan DRS saat membeli Teh Botol Sosro dianggap tidak masuk akal apabila kita bermaksud mengkonsumsi Teh Botol Sosro di area outlet yang sama					
8	Penerapan DRS saat membeli Teh Botol Sosro baiknya tidak diseragamkan berlaku untuk semua outlet					
	Nilai DRS pada Teh Botol Sosro	Sangat Tidak Setuju	Tidak Setuju	Netral	Setuju	Sangat Setuju
9	Besaran nilai DRS berpengaruh terhadap persepsi konsumen atas nilai botol kosong Teh Botol Sosro					
10	Nilai DRS idealnya dibuat lebih dari 50% total nilai yang dibayarkan saat pembelian Teh Botol Sosro					
11	Besaran nilai DRS baiknya ditetapkan nilai nominal rupiah yang mudah ditukarkan, misalnya kelipatan Rp 2,000					
12	Semakin besar nilai DRS, semakin saya peduli terhadap botol kosong Teh Botol Sosro yang terbuang sia-sia					
	Mekanisme DRS pada Teh Botol Sosro	Sangat Tidak Setuju	Tidak Setuju	Netral	Setuju	Sangat Setuju
13	Penerapan DRS membuat saya lebih fleksibel dan bebas bergerak dalam mengkonsumsi Teh Botol Sosro					
14	Dibanding terhadap outlet di dalam kawasan tertutup (misalnya mall, hotel, ataupun rumah sakit), DRS akan lebih tepat sasaran bila diterapkan di outlet yang membuka unit usaha di tepi jalan raya					
15	Outlet perlu menyediakan kantong plastik ukuran tertentu bagi konsumen untuk memudahkan pengumpulan/pengembalian botol kosong bila konsumen ingin mengkonsumsi minuman di tempat lain					
16	Untuk mencegah penyalahgunaan kantong plastik yang disediakan outlet, saya akan membayarkan sejumlah uang tertentu kepada outlet sebagai biaya sementara kantong plastik. Pada saat saya kembali ke outlet, saya juga akan mengembalikan plastik tadi bersama botol kosong, dan outlet mengembalikan pembayaran awal saya atas kantong plastik di luar nilai DRS atas botol kosong.					

III.2.10. Persepsi tentang besaran nilai DRS

Petunjuk Khusus:

Diantara 7 kolom jawaban berikut, beri tanda (X) pada salah satu kolom yang menurut Anda lebih mendekati pilihan Anda. Bila pilihan Anda semakin cenderung pada sifat pertama (di bagian kiri), beri tanda (X) yang lebih mendekati kolom pertama. Sebaliknya, semakin mendekati kolom 7, pilihan Anda semakin cenderung pada sifat kedua. Kolom 4 menunjukkan Anda bersikap netral.

Ilustrasi: Bila DRS diterapkan, saya membayar lebih mahal di muka untuk 1 botol Teh Botol Sosro. Misal sekarang harga sebotol Rp 2,000. Bila kebijakan DRS sama besar dengan harga pokoknya, berarti saya nanti membayar Rp 4,000, dimana Rp 2,000 sebagai simpanan sementara atau nilai DRS. Menurut saya, penerapan DRS sebaiknya adalah memenuhi sifat2 berikut:

Sifat Pertama	Skala Penilaian							Sifat Kedua
	1	2	3	4	5	6	7	
1) Terhadap harga pokok yang stabil, nilai DRS konstan sepanjang waktu								Sekalipun harga pokok stabil, nilai DRS berubah-ubah secara berkala
2) Apabila harga pokok naik, nilai DRS dipertahankan tetap								Apabila harga pokok naik, nilai DRS juga harus naik
3) Nilai DRS tetap berapapun jumlah botol yg dikembalikan								Nilainya digandakan untuk jumlah botol tertentu
4) Nilai DRS tetap berlaku sekalipun fisik botol kosong tidak utuh								Hanya berlaku bila fisik botol kosong utuh
5) Nilai DRS ditetapkan sama untuk area distribusi yang berbeda								Ditetapkan berbeda tergantung area distribusinya
6) Nilai DRS lebih besar dari harga pokok								Lebih kecil dari harga pokok
7) Nilai DRS langsung dapat diuangkan saat pengembalian botol kosong								Dicatat dulu oleh outlet dan diuangkan secara berkala
8) Seluruh outlet wajib menerima botol kosong sekalipun pelanggan membeli botol minuman di outlet lain								Diberikan kebebasan kepada outlet untuk bisa menolak pengembalian botol kosong

Bagian III: Profil Responden

1) Jenis kelamin Anda?

- (a) Laki-laki (b) Perempuan

2) Usia Anda?

- (a) 21 – 25 tahun (d) 36 – 40 tahun (f) 46 – 50 tahun
 (b) 26 – 30 tahun (e) 41 – 45 tahun (g) 51 – 55 tahun
 (c) 31 – 35 tahun

3) Pendidikan terakhir atau yang sedang ditempuh?

- (a) SMA/ sederajat (c) S1 (e) S3
 (b) Akademi/ sederajat (d) S2

(4) Pekerjaan Anda saat ini?

- (a) Mahasiswa (c) Pegawai negeri (e) Profesional *
 (b) Pegawai swasta (d) Pedagang/ pengusaha (f) Ibu R-Tangga

* Auditor, pengacara, notaris, dokter, perawat yang bekerja di kantor profesional.

(5) Berapa pengeluaran untuk konsumsi dalam sebulan?

- (a) < 1 juta (c) 1,5 – 2 juta (e) 2,5– 3 juta
 (b) 1–1,5 juta (d) 2-2,5 juta (f) > Rp 3 juta

* Konsumsi meliputi biaya tempat tinggal, makan dan minum, pakaian, transportasi dan komunikasi

* Bila fluktuatif, Anda dapat menggunakan jumlah rata-rata dalam enam bulan terakhir.

----- Terima kasih -----

APPENDIX 2: Frequency Table Characteristic of Respondents

1. Respondents by Sex

Respondents by Sex

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	117	58.5	58.5	58.5
	2.00	83	41.5	41.5	100.0
	Total	200	100.0	100.0	

2. Respondents by Age

Respondents by Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	28	14.0	14.0	14.0
	2.00	101	50.5	50.5	64.5
	3.00	35	17.5	17.5	82.0
	4.00	15	7.5	7.5	89.5
	5.00	13	6.5	6.5	96.0
	6.00	6	3.0	3.0	99.0
	7.00	2	1.0	1.0	100.0
	Total	200	100.0	100.0	

3. Respondents by Education

Respondents by Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	4	2.0	2.0	2.0
	3.00	164	82.0	82.0	84.0
	4.00	29	14.5	14.5	98.5
	5.00	3	1.5	1.5	100.0
	Total	200	100.0	100.0	

4. Respondents by Occupation

Respondents by Occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	10	5.0	5.0	5.0
	2.00	108	54.0	54.0	59.0
	3.00	43	21.5	21.5	80.5
	4.00	3	1.5	1.5	82.0
	5.00	34	17.0	17.0	99.0
	6.00	2	1.0	1.0	100.0
	Total	200	100.0	100.0	

5. Respondents by Disbursement

Respondents by Disbursement

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	14	7.0	7.0	7.0
2.00	31	15.5	15.5	22.5
3.00	43	21.5	21.5	44.0
4.00	21	10.5	10.5	54.5
5.00	27	13.5	13.5	68.0
6.00	64	32.0	32.0	100.0
Total	200	100.0	100.0	

APPENDIX 3a: Frequency Table Brand Awareness of RTD (Ready To Drink) Brewed Tea

1. Top of Mind Brand of Bottle Packaged Tea

Top of mind brand of bottle packaged tea

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Teh Botol Sosro	169	84.5	84.5	84.5
	Nu Green Tea	4	2.0	2.0	86.5
	Fruittea	5	2.5	2.5	89.0
	Fretea	10	5.0	5.0	94.0
	Tekita	2	1.0	1.0	95.0
	Teh Kotak	2	1.0	1.0	96.0
	STee	6	3.0	3.0	99.0
	Others	2	1.0	1.0	100.0
	Total	200	100.0	100.0	

2. Top of Mind Perception of The Mentioned Brand

Top of mind mentioned brand

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Taste	37	18.5	18.5	18.5
	Fresh	78	39.0	39.0	57.5
	Aroma	7	3.5	3.5	61.0
	Price	12	6.0	6.0	67.0
	Easy to find	10	5.0	5.0	72.0
	Package	23	11.5	11.5	83.5
	Brand	11	5.5	5.5	89.0
	Volume	6	3.0	3.0	92.0
	Advertisement	3	1.5	1.5	93.5
	Alternative drink	13	6.5	6.5	100.0
	Total	200	100.0	100.0	

3. Cross-Tabulation of Top of Mind Brand and Perception

Top of mind brand of bottle packaged tea * Top of mind perception Crosstabulation

Count

		Top of mind perception										Total
		Taste	Fresh	Aroma	Price	Easy to find	Package	Brand	Volume	Ads	Alternative drink	
Top of mind brand of bottle packaged tea	Teh Botol Sosro	30	67	4	12	10	19	11	1	3	12	169
	Nu Green Tea	1	2	0	0	0	1	0	0	0	0	4
	Fruittea	3	2	0	0	0	0	0	0	0	0	5
	Fretea	3	5	2	0	0	0	0	0	0	0	10
	Tekita	0	0	0	0	0	0	0	2	0	0	2
	Teh Kotak	0	0	0	0	0	2	0	0	0	0	2
	STee	0	0	1	0	0	1	0	3	0	1	6
	Others	0	2	0	0	0	0	0	0	0	0	2
Total		37	78	7	12	10	23	11	6	3	13	200

APPENDIX 3b: Frequency Table Frequency of Consumption of Teh Botol Sosro

Frequency eat out per month

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid < 10x	92	46.0	46.0	46.0
10 - 20x	61	30.5	30.5	76.5
21 - 30x	26	13.0	13.0	89.5
> 30x	21	10.5	10.5	100.0
Total	200	100.0	100.0	

Order Teh Botol Sosro per eat out

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes, always	10	5.0	5.0	5.0
Yes, most of the time	80	40.0	40.0	45.0
Seldom	108	54.0	54.0	99.0
Never	2	1.0	1.0	100.0
Total	200	100.0	100.0	

Frequency eat out per month * Number of bottle of Teh Botol Sosro ordered per eat out Crosstabulation

Count

		Number of bottle of Teh Botol Sosro ordered per eat out			Total
		Only 1 bottle	2 bottles	> 2 bottles	
Frequency eat out per month	< 10x	86	5	1	92
	10 - 20x	52	9	0	61
	21 - 30x	25	1	0	26
	> 30x	20	1	0	21
Total		183	16	1	200

APPENDIX 4a: Inferential Analysis Value Proposition of Teh Botol Sosro

Reliability Statistics

Cronbach's Alpha	N of Items
.611	6

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.500
Bartlett's Test of Sphericity	Approx. Chi-Square	24.691
	df	1
	Sig.	.000

Anti-image Matrices

		Kualitasnya Ok, harganya terjangkau	Tersedia di banyak tempat, mudah memperolehnya
Anti-image Covariance	Kualitasnya Ok, harganya terjangkau	.882	-.303
	Tersedia di banyak tempat, mudah memperolehnya	-.303	.882
Anti-image Correlation	Kualitasnya Ok, harganya terjangkau	.500 ^a	-.343
	Tersedia di banyak tempat, mudah memperolehnya	-.343	.500 ^a

a. Measures of Sampling Adequacy(MSA)

Communalities

	Initial	Extraction
Kualitasnya Ok, harganya terjangkau	1.000	.671
Tersedia di banyak tempat, mudah memperolehnya	1.000	.671

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.343	67.141	67.141	1.343	67.141	67.141
2	.657	32.859	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
Kualitasnya Ok, harganya terjangkau	.819
Tersedia di banyak tempat, mudah memperolehnya	.819

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Correlations

			Kualitasnya Ok, harganya terjangkau	Tersedia di banyak tempat, mudah memperolehnya
Spearman's rho	Kualitasnya Ok, harganya terjangkau	Correlation Coefficient	1.000	.271**
		Sig. (2-tailed)	.	.000
		N	200	200
	Tersedia di banyak tempat, mudah memperolehnya	Correlation Coefficient	.271**	1.000
		Sig. (2-tailed)	.000	.
		N	200	200

** . Correlation is significant at the 0.01 level (2-tailed).

APPENDIX 4b: Frequency Table Value Proposition of Teh Botol Sosro

1. Price Minimizer

Kualitasnya Ok, harganya terjangkau

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	4	2.0	2.0	2.0
	3.00	36	18.0	18.0	20.0
	4.00	137	68.5	68.5	88.5
	5.00	23	11.5	11.5	100.0
	Total	200	100.0	100.0	

2. Simplifier

Tersedia di banyak tempat, mudah memperolehnya

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	3	1.5	1.5	1.5
	3.00	3	1.5	1.5	3.0
	4.00	79	39.5	39.5	42.5
	5.00	115	57.5	57.5	100.0
	Total	200	100.0	100.0	

APPENDIX 5a: Inferential Analysis Customer Perceived Benefits of Teh Botol Sosro

Reliability Statistics

Cronbach's Alpha	N of Items
.708	9

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.653
Bartlett's Test of Sphericity	Approx. Chi-Square	134.146
	df	3
	Sig.	.000

Anti-image Matrices

		Harganya terjangkau	Mudah ketemu penjualnya	Tidak perlu repot untuk memperoleh dan mengkonsumsinya
Anti-image Covariance	Harganya terjangkau	.779	-.123	-.195
	Mudah ketemu penjualnya	-.123	.630	-.311
	Tidak perlu repot untuk memperoleh dan mengkonsumsinya	-.195	-.311	.597
Anti-image Correlation	Harganya terjangkau	.755 ^a	-.176	-.286
	Mudah ketemu penjualnya	-.176	.635 ^a	-.508
	Tidak perlu repot untuk memperoleh dan mengkonsumsinya	-.286	-.508	.617 ^a

a. Measures of Sampling Adequacy(MSA)

Communalities

	Initial	Extraction
Harganya terjangkau	1.000	.539
Mudah ketemu penjualnya	1.000	.686
Tidak perlu repot untuk memperoleh dan mengkonsumsinya	1.000	.729

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.954	65.149	65.149	1.954	65.149	65.149
2	.642	21.392	86.542			
3	.404	13.458	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
Harganya terjangkau	.734
Mudah ketemu penjualnya	.828
Tidak perlu repot untuk memperoleh dan mengkonsumsinya	.854

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Correlations

			Harganya terjangkau	Mudah ketemu penjualnya	Tidak perlu repot untuk memperoleh dan mengkonsumsinya
Spearman's rho	Harganya terjangkau	Correlation Coefficient	1.000	.372**	.429**
		Sig. (2-tailed)	.	.000	.000
		N	200	200	200
	Mudah ketemu penjualnya	Correlation Coefficient	.372**	1.000	.643**
		Sig. (2-tailed)	.000	.	.000
		N	200	200	200
	Tidak perlu repot untuk memperoleh dan mengkonsumsinya	Correlation Coefficient	.429**	.643**	1.000
		Sig. (2-tailed)	.000	.000	.
		N	200	200	200

** . Correlation is significant at the 0.01 level (2-tailed).

APPENDIX 5b: Frequency Table Customer Perceived Benefits of Teh Botol Sosro

1. Economic Benefit

Harganya terjangkau

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	6	3.0	3.0	3.0
	3.00	20	10.0	10.0	13.0
	4.00	146	73.0	73.0	86.0
	5.00	28	14.0	14.0	100.0
	Total	200	100.0	100.0	

Mudah ketemu penjualnya

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	3	1.5	1.5	1.5
	2.00	5	2.5	2.5	4.0
	3.00	12	6.0	6.0	10.0
	4.00	128	64.0	64.0	74.0
	5.00	52	26.0	26.0	100.0
	Total	200	100.0	100.0	

Tidak ribet untuk memperoleh dan mengkonsumsinya

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	.5	.5	.5
	2.00	3	1.5	1.5	2.0
	3.00	9	4.5	4.5	6.5
	4.00	127	63.5	63.5	70.0
	5.00	60	30.0	30.0	100.0
	Total	200	100.0	100.0	

APPENDIX 6a: Inferential Analysis Customer Perceived Costs of Teh Botol Sosro

Reliability Statistics

Cronbach's Alpha	N of Items
.787	3

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.500
Bartlett's Test of Sphericity	Approx. Chi-Square	255.132
	df	1
	Sig.	.000

Anti-image Matrices

		Makan waktu untuk mencari penjualnya	Keluar ongkos dan tenaga mencari penjualnya
Anti-image Covariance	Makan waktu untuk mencari penjualnya	.275	-.234
	Keluar ongkos dan tenaga mencari penjualnya	-.234	.275
Anti-image Correlation	Makan waktu untuk mencari penjualnya	.500 ^a	-.852
	Keluar ongkos dan tenaga mencari penjualnya	-.852	.500 ^a

a. Measures of Sampling Adequacy(MSA)

Communalities

	Initial	Extraction
Makan waktu untuk mencari penjualnya	1.000	.926
Keluar ongkos dan tenaga mencari penjualnya	1.000	.926

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.852	92.580	92.580	1.852	92.580	92.580
2	.148	7.420	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
Makan waktu untuk mencari penjualnya	.962
Keluar ongkos dan tenaga mencari penjualnya	.962

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Correlations

			Makan waktu untuk mencari penjualnya	Keluar ongkos dan tenaga mencari penjualnya
Spearman's rho	Makan waktu untuk mencari penjualnya	Correlation Coefficient	1.000	.883**
		Sig. (2-tailed)	.	.000
		N	200	200
	Keluar ongkos dan tenaga mencari penjualnya	Correlation Coefficient	.883**	1.000
		Sig. (2-tailed)	.000	.
		N	200	200

** . Correlation is significant at the 0.01 level (2-tailed).

APPENDIX 6b: Frequency Table Customer Perceived Costs of Teh Botol Sosro

1. Time Cost

Makan waktu untuk mencari penjualnya

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	45	22.5	22.5	22.5
	2.00	117	58.5	58.5	81.0
	3.00	29	14.5	14.5	95.5
	4.00	9	4.5	4.5	100.0
	Total	200	100.0	100.0	

2. Energy Cost

Keluar ongkos dan tenaga mencari penjualnya

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	44	22.0	22.0	22.0
	2.00	117	58.5	58.5	80.5
	3.00	29	14.5	14.5	95.0
	4.00	9	4.5	4.5	99.5
	5.00	1	.5	.5	100.0
Total		200	100.0	100.0	

APPENDIX 7: Inferential Analysis Substance of Purchasing a Bottle of Teh Botol Sosro

Reliability Statistics

Cronbach's Alpha	N of Items
.644	4

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.473
Bartlett's Test of Sphericity	Approx. Chi-Square
	182.452
	Df
	6
	Sig.
	.000

Anti-image Matrices

		Tea only	Both tea and bottle	Tea and cost for packaging and transporting the product	Not clear
Anti-image Covariance	Tea only	.689	-.289	.183	-.019
	Both tea and bottle	-.289	.416	-.314	-.097
	Tea and cost for packaging and transporting the product	.183	-.314	.558	.004
	Not clear	-.019	-.097	.004	.940
Anti-image Correlation	Tea only	.423 ^a	-.540	.295	-.024
	Both tea and bottle	-.540	.483 ^a	-.653	-.156
	Tea and cost for packaging and transporting the product	.295	-.653	.450 ^a	.006
	Not clear	-.024	-.156	.006	.801 ^a

a. Measures of Sampling Adequacy(MSA)

Communalities

	Initial	Extraction
Tea only	1.000	.389
Both tea and bottle	1.000	.837
Tea and cost for packaging and transporting the product	1.000	.538
Not clear	1.000	.191

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.954	48.847	48.847	1.954	48.847	48.847
2	.914	22.838	71.685			
3	.881	22.022	93.707			
4	.252	6.293	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
Tea only	.623
Both tea and bottle	.915
Tea and cost for packaging and transporting the product	.734
Not clear	.436

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

APPENDIX 8a: Inferential Analysis Consumption Method of Teh Botol Sosro

Reliability Statistics

Cronbach's Alpha	N of Items
.638	5

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.500
Bartlett's Test of Sphericity	Approx. Chi-Square	24.886
	Df	1
	Sig.	.000

Anti-image Matrices

		Botol kosong sudah tidak berguna lagi	Botol kosong pasti dikumpulkan lagi oleh si penjual
Anti-image Covariance	Botol kosong sudah tidak berguna lagi	.882	-.303
	Botol kosong pasti dikumpulkan lagi oleh si penjual	-.303	.882
Anti-image Correlation	Botol kosong sudah tidak berguna lagi	.500 ^a	-.344
	Botol kosong pasti dikumpulkan lagi oleh si penjual	-.344	.500 ^a

a. Measures of Sampling Adequacy(MSA)

Communalities

	Initial	Extraction
Botol kosong sudah tidak berguna lagi	1.000	.672
Botol kosong pasti dikumpulkan lagi oleh si penjual	1.000	.672

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.344	67.204	67.204	1.344	67.204	67.204
2	.656	32.796	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
Botol kosong sudah tidak berguna lagi	.820
Botol kosong pasti dikumpulkan lagi oleh si penjual	.820

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Correlations

		Botol kosong sudah tidak berguna lagi	Botol kosong pasti dikumpulkan lagi oleh si penjual
Spearman's rho	Botol kosong sudah tidak berguna lagi	Correlation Coefficient Sig. (2-tailed) N	1.000 .000 200
	Botol kosong pasti dikumpulkan lagi oleh si penjual	Correlation Coefficient Sig. (2-tailed) N	.322** .000 200

** . Correlation is significant at the 0.01 level (2-tailed).

APPENDIX 8b: Frequency Table Consumption Method of Teh Botol Sosro

1. Functionality perception

Botol kosong sudah tidak berguna lagi

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	25	12.5	12.5	12.5
	2.00	75	37.5	37.5	50.0
	3.00	42	21.0	21.0	71.0
	4.00	48	24.0	24.0	95.0
	5.00	10	5.0	5.0	100.0
	Total	200	100.0	100.0	

2. SCM perception

Botol kosong pasti dikumpulkan lagi oleh si penjual

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	9	4.5	4.5	4.5
	2.00	37	18.5	18.5	23.0
	3.00	44	22.0	22.0	45.0
	4.00	96	48.0	48.0	93.0
	5.00	14	7.0	7.0	100.0
	Total	200	100.0	100.0	

**APPENDIX 9a: Inferential Analysis Parties Responsible for Collecting
Teh Botol Sosro' Used Glass Bottle**

Reliability Statistics

Cronbach's Alpha	N of Items
.655	4

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.500
Bartlett's Test of Sphericity	Approx. Chi-Square	40.894
	df	1
	Sig.	.000

Anti-image Matrices

		Beverage producer	Each outlet
Anti-image Covariance	Beverage producer	.813	-.352
	Each outlet	-.352	.813
Anti-image Correlation	Beverage producer	.500 ^a	-.432
	Each outlet	-.432	.500 ^a

a. Measures of Sampling Adequacy(MSA)

Communalities

	Initial	Extraction
Beverage producer	1.000	.716
Each outlet	1.000	.716

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.432	71.623	71.623	1.432	71.623	71.623
2	.568	28.377	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
Beverage producer	.846
Each outlet	.846

Extraction Method: Principal
Component Analysis.

a. 1 components extracted.

Correlations

			Beverage producer	Each outlet
Spearman's rho	Beverage producer	Correlation Coefficient	1.000	.553**
		Sig. (2-tailed)	.	.000
		N	200	200
	Each outlet	Correlation Coefficient	.553**	1.000
		Sig. (2-tailed)	.000	.
		N	200	200

** . Correlation is significant at the 0.01 level (2-tailed).

APPENDIX 9b: Frequency Table Parties Responsible for Collecting Teh Botol Sosro' Used Glass Bottle

Beverage producer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	23	11.5	11.5	11.5
	3.00	26	13.0	13.0	24.5
	4.00	111	55.5	55.5	80.0
	5.00	40	20.0	20.0	100.0
	Total	200	100.0	100.0	

Each outlet

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	.5	.5	.5
	2.00	2	1.0	1.0	1.5
	3.00	8	4.0	4.0	5.5
	4.00	133	66.5	66.5	72.0
	5.00	56	28.0	28.0	100.0
	Total	200	100.0	100.0	

APPENDIX 10a: Inferential Analysis Perception on Wasted Teh Botol Sosro' Used Glass Bottle

Reliability Statistics

Cronbach's Alpha	N of Items
.712	5

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.694
Bartlett's Test of Sphericity	Approx. Chi-Square	144.535
	df	3
	Sig.	.000

Anti-image Matrices

		Pabrik tidak mengoptimalkan manfaat botol kosong	Berpotensi menimbulkan banjir	Nilai ekonomi botol kosong terbuang sia-sia
Anti-image Covariance	Pabrik tidak mengoptimalkan manfaat botol kosong	.665	-.193	-.233
	Berpotensi menimbulkan banjir	-.193	.662	-.236
	Nilai ekonomi botol kosong terbuang sia-sia	-.233	-.236	.629
Anti-image Correlation	Pabrik tidak mengoptimalkan manfaat botol kosong	.704 ^a	-.290	-.360
	Berpotensi menimbulkan banjir	-.290	.702 ^a	-.365
	Nilai ekonomi botol kosong terbuang sia-sia	-.360	-.365	.677 ^a

a. Measures of Sampling Adequacy(MSA)

Communalities

	Initial	Extraction
Pabrik tidak mengoptimalkan manfaat botol kosong	1.000	.662
Berpotensi menimbulkan banjir	1.000	.665
Nilai ekonomi botol kosong terbuang sia-sia	1.000	.697

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.024	67.475	67.475	2.024	67.475	67.475
2	.514	17.136	84.610			
3	.462	15.390	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
Pabrik tidak mengoptimalkan manfaat botol kosong	.814
Berpotensi menimbulkan banjir	.815
Nilai ekonomi botol kosong terbuang sia-sia	.835

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Correlations

			Pabrik tidak mengoptimalkan manfaat botol kosong	Berpotensi menimbulkan banjir	Nilai ekonomi botol kosong terbuang sia-sia
Spearman's rho	Pabrik tidak mengoptimalkan manfaat botol kosong	Correlation Coefficient	1.000	.507**	.543**
		Sig. (2-tailed)	.	.000	.000
		N	200	200	200
	Berpotensi menimbulkan banjir	Correlation Coefficient	.507**	1.000	.582**
		Sig. (2-tailed)	.000	.	.000
		N	200	200	200
	Nilai ekonomi botol kosong terbuang sia-sia	Correlation Coefficient	.543**	.582**	1.000
		Sig. (2-tailed)	.000	.000	.
		N	200	200	200

** . Correlation is significant at the 0.01 level (2-tailed).

APPENDIX 10b: Frequency Table Perception on Wasted Teh Botol Sosro' Used Glass Bottle

1. SCM perception

Pabrik tidak mengoptimalkan manfaat botol kosong

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	11	5.5	5.5	5.5
	3.00	55	27.5	27.5	33.0
	4.00	102	51.0	51.0	84.0
	5.00	32	16.0	16.0	100.0
	Total	200	100.0	100.0	

2. Environmental perception

Berpotensi menimbulkan banjir

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	2	1.0	1.0	1.0
	3.00	15	7.5	7.5	8.5
	4.00	125	62.5	62.5	71.0
	5.00	58	29.0	29.0	100.0
	Total	200	100.0	100.0	

3. Economic perception

Nilai ekonomi botol kosong terbuang sia-sia

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	5	2.5	2.5	2.5
	3.00	32	16.0	16.0	18.5
	4.00	118	59.0	59.0	77.5
	5.00	45	22.5	22.5	100.0
	Total	200	100.0	100.0	

APPENDIX 11a: Inferential Analysis Perception on Current Strategy to Increase Recycling Rate

Reliability Statistics

Cronbach's Alpha	N of Items
.721	5

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.500
Bartlett's Test of Sphericity	Approx. Chi-Square	23.349
	df	1
	Sig.	.000

Anti-image Matrices

		Concept by Sosro not yet known well by consumer	If known well by consumer, returnable rate wil increase
Anti-image Covariance	Concept by Sosro not yet known well by consumer	.888	-.297
	If known well by consumer, returnable rate wil increase	-.297	.888
Anti-image Correlation	Concept by Sosro not yet known well by consumer	.500 ^a	-.334
	If known well by consumer, returnable rate wil increase	-.334	.500 ^a

a. Measures of Sampling Adequacy(MSA)

Communalities

	Initial	Extraction
Concept by Sosro not yet known well by consumer	1.000	.667
If known well by consumer, returnable rate wil increase	1.000	.667

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.334	66.696	66.696	1.334	66.696	66.696
2	.666	33.304	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
Concept by Sosro not yet known well by consumer	.817
If known well by consumer, returnable rate wil increase	.817

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Correlations

			Concept by Sosro not yet known well by consumer	If known well by consumer, returnable rate wil increase
Spearman's rho	Concept by Sosro not yet known well by consumer	Correlation Coefficient	1.000	.408**
		Sig. (2-tailed)	.	.000
		N	200	200
	If known well by consumer, returnable rate wil increase	Correlation Coefficient	.408**	1.000
		Sig. (2-tailed)	.000	.
		N	200	200

** . Correlation is significant at the 0.01 level (2-tailed).

APPENDIX 11b: Frequency Table Perception on Current Strategy to Increase Recycling Rate

Concept by Sosro not yet known well by consumer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	.5	.5	.5
	2.00	4	2.0	2.0	2.5
	3.00	30	15.0	15.0	17.5
	4.00	102	51.0	51.0	68.5
	5.00	63	31.5	31.5	100.0
	Total	200	100.0	100.0	

If known well by consumer, returnable rate wil increase

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	3	1.5	1.5	1.5
	2.00	9	4.5	4.5	6.0
	3.00	38	19.0	19.0	25.0
	4.00	108	54.0	54.0	79.0
	5.00	42	21.0	21.0	100.0
	Total	200	100.0	100.0	

APPENDIX 12a: Inferential Analysis Perception on Alternative Strategy to Increase Recycling Rate

Reliability Statistics

Cronbach's Alpha	N of Items
.613	5

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.500
Bartlett's Test of Sphericity	Approx. Chi-Square
	24.776
	df
	1
	Sig.
	.000

Anti-image Matrices

		Pajak tambahan untuk pencetakan botol baru	Penerapan DRS (Deposit Refund Scheme)
Anti-image Covariance	Pajak tambahan untuk pencetakan botol baru	.882	-.303
	Penerapan DRS (Deposit Refund Scheme)	-.303	.882
Anti-image Correlation	Pajak tambahan untuk pencetakan botol baru	.500 ^a	-.343
	Penerapan DRS (Deposit Refund Scheme)	-.343	.500 ^a

a. Measures of Sampling Adequacy(MSA)

Communalities

	Initial	Extraction
Pajak tambahan untuk pencetakan botol baru	1.000	.672
Penerapan DRS (Deposit Refund Scheme)	1.000	.672

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.343	67.168	67.168	1.343	67.168	67.168
2	.657	32.832	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
Pajak tambahan untuk pencetakan botol baru	.820
Penerapan DRS (Deposit Refund Scheme)	.820

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Correlations

			Pajak tambahan untuk pencetakan botol baru	Penerapan DRS (Deposit Refund Scheme)
Spearman's rho	Pajak tambahan untuk pencetakan botol baru	Correlation Coefficient	1.000	.310**
		Sig. (2-tailed)	.	.000
		N	200	200
	Penerapan DRS (Deposit Refund Scheme)	Correlation Coefficient	.310**	1.000
		Sig. (2-tailed)	.000	.
		N	200	200

** . Correlation is significant at the 0.01 level (2-tailed).

APPENDIX 12b: Frequency Table Perception on Alternative Strategy to Increase Recycling Rate

Pajak tambahan untuk pencetakan botol baru

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	13	6.5	6.5	6.5
	2.00	50	25.0	25.0	31.5
	3.00	47	23.5	23.5	55.0
	4.00	62	31.0	31.0	86.0
	5.00	28	14.0	14.0	100.0
	Total	200	100.0	100.0	

Penerapan DRS (Deposit Refund Scheme)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	4	2.0	2.0	2.0
	2.00	7	3.5	3.5	5.5
	3.00	43	21.5	21.5	27.0
	4.00	102	51.0	51.0	78.0
	5.00	44	22.0	22.0	100.0
	Total	200	100.0	100.0	

APPENDIX 13: Frequency Table Perception on Applicability of DRS Strategy on Packaging of Beverage Product

DRS as new breakthrough in Indonesia

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	2	1.0	1.0	1.0
	2.00	12	6.0	6.0	7.0
	3.00	39	19.5	19.5	26.5
	4.00	116	58.0	58.0	84.5
	5.00	31	15.5	15.5	100.0
	Total	200	100.0	100.0	

DRS only difficult on socialization and early implementation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	5	2.5	2.5	2.5
	2.00	26	13.0	13.0	15.5
	3.00	44	22.0	22.0	37.5
	4.00	108	54.0	54.0	91.5
	5.00	17	8.5	8.5	100.0
	Total	200	100.0	100.0	

Incentive with monetary value is more acceptable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	5	2.5	2.5	2.5
	2.00	8	4.0	4.0	6.5
	3.00	58	29.0	29.0	35.5
	4.00	102	51.0	51.0	86.5
	5.00	27	13.5	13.5	100.0
	Total	200	100.0	100.0	

DRS will effectively reduce wasted used glass bottles

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	3	1.5	1.5	1.5
	2.00	6	3.0	3.0	4.5
	3.00	34	17.0	17.0	21.5
	4.00	113	56.5	56.5	78.0
	5.00	44	22.0	22.0	100.0
	Total	200	100.0	100.0	

APPENDIX 14: Frequency Table Perception on Mechanism of DRS Strategy on Teh Botol Sosro

Additional payment in advance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	11	5.5	5.5	5.5
	2.00	40	20.0	20.0	25.5
	3.00	33	16.5	16.5	42.0
	4.00	99	49.5	49.5	91.5
	5.00	17	8.5	8.5	100.0
	Total	200	100.0	100.0	

Advance payment as refundable deposit

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	7	3.5	3.5	3.5
	2.00	31	15.5	15.5	19.0
	3.00	42	21.0	21.0	40.0
	4.00	107	53.5	53.5	93.5
	5.00	13	6.5	6.5	100.0
	Total	200	100.0	100.0	

Unrealistic for direct consumption

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	4	2.0	2.0	2.0
	2.00	26	13.0	13.0	15.0
	3.00	75	37.5	37.5	52.5
	4.00	76	38.0	38.0	90.5
	5.00	19	9.5	9.5	100.0
	Total	200	100.0	100.0	

Applied uniquely to outlets

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	6	3.0	3.0	3.0
	2.00	33	16.5	16.5	19.5
	3.00	64	32.0	32.0	51.5
	4.00	82	41.0	41.0	92.5
	5.00	15	7.5	7.5	100.0
	Total	200	100.0	100.0	

DRS makes consumption more flexible

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	8	4.0	4.0	4.0
	2.00	35	17.5	17.5	21.5
	3.00	79	39.5	39.5	61.0
	4.00	70	35.0	35.0	96.0
	5.00	8	4.0	4.0	100.0
	Total	200	100.0	100.0	

More proper for streetside' outlets

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	8	4.0	4.0	4.0
	2.00	15	7.5	7.5	11.5
	3.00	56	28.0	28.0	39.5
	4.00	101	50.5	50.5	90.0
	5.00	20	10.0	10.0	100.0
	Total	200	100.0	100.0	

Plastic bag to support DRS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	4	2.0	2.0	2.0
	2.00	12	6.0	6.0	8.0
	3.00	44	22.0	22.0	30.0
	4.00	124	62.0	62.0	92.0
	5.00	16	8.0	8.0	100.0
	Total	200	100.0	100.0	

Deposit too for plastic bag

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	13	6.5	6.5	6.5
	2.00	46	23.0	23.0	29.5
	3.00	65	32.5	32.5	62.0
	4.00	67	33.5	33.5	95.5
	5.00	9	4.5	4.5	100.0
	Total	200	100.0	100.0	

**APPENDIX 15: Frequency Table Perception on Financial Charge
Applied for DRS Strategy on Teh Botol Sosro**

DRS is adjustable though price is stable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	49	24.5	24.5	24.5
	2.00	48	24.0	24.0	48.5
	3.00	21	10.5	10.5	59.0
	4.00	41	20.5	20.5	79.5
	5.00	18	9.0	9.0	88.5
	6.00	15	7.5	7.5	96.0
	7.00	8	4.0	4.0	100.0
	Total	200	100.0	100.0	

DRS increases if price increases

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	43	21.5	21.5	21.5
	2.00	35	17.5	17.5	39.0
	3.00	23	11.5	11.5	50.5
	4.00	38	19.0	19.0	69.5
	5.00	22	11.0	11.0	80.5
	6.00	22	11.0	11.0	91.5
	7.00	17	8.5	8.5	100.0
	Total	200	100.0	100.0	

DRS is at progressive amount for particular quantity returned

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	27	13.5	13.5	13.5
	2.00	30	15.0	15.0	28.5
	3.00	19	9.5	9.5	38.0
	4.00	40	20.0	20.0	58.0
	5.00	23	11.5	11.5	69.5
	6.00	33	16.5	16.5	86.0
	7.00	28	14.0	14.0	100.0
	Total	200	100.0	100.0	

DRS is redeemable only if perfect condition returned

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	21	10.5	10.5	10.5
	2.00	14	7.0	7.0	17.5
	3.00	20	10.0	10.0	27.5
	4.00	42	21.0	21.0	48.5
	5.00	23	11.5	11.5	60.0
	6.00	40	20.0	20.0	80.0
	7.00	40	20.0	20.0	100.0
	Total	200	100.0	100.0	

DRS is different for different distribution area

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	47	23.5	23.5	23.5
	2.00	28	14.0	14.0	37.5
	3.00	13	6.5	6.5	44.0
	4.00	40	20.0	20.0	64.0
	5.00	17	8.5	8.5	72.5
	6.00	24	12.0	12.0	84.5
	7.00	31	15.5	15.5	100.0
	Total	200	100.0	100.0	

DRS is lower than Price

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	22	11.0	11.0	11.0
	2.00	8	4.0	4.0	15.0
	3.00	5	2.5	2.5	17.5
	4.00	39	19.5	19.5	37.0
	5.00	20	10.0	10.0	47.0
	6.00	37	18.5	18.5	65.5
	7.00	69	34.5	34.5	100.0
	Total	200	100.0	100.0	

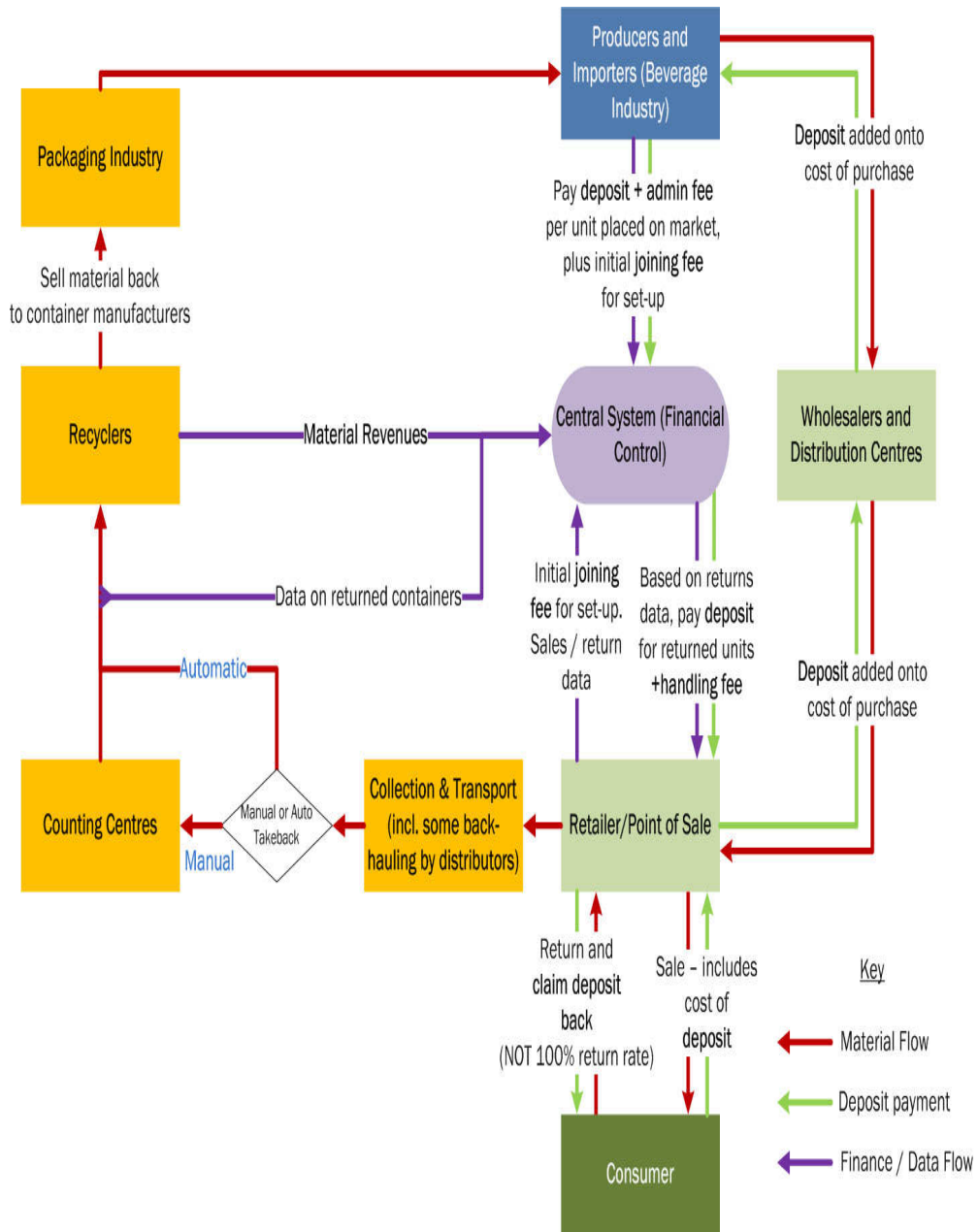
DRS is not directly redeemable when bottle returned

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	91	45.5	45.5	45.5
	2.00	34	17.0	17.0	62.5
	3.00	18	9.0	9.0	71.5
	4.00	30	15.0	15.0	86.5
	5.00	12	6.0	6.0	92.5
	6.00	7	3.5	3.5	96.0
	7.00	8	4.0	4.0	100.0
	Total	200	100.0	100.0	

Outlets are free to accept or not if returned bottles purchased at different outlet

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	76	38.0	38.0	38.0
	2.00	35	17.5	17.5	55.5
	3.00	10	5.0	5.0	60.5
	4.00	37	18.5	18.5	79.0
	5.00	10	5.0	5.0	84.0
	6.00	16	8.0	8.0	92.0
	7.00	16	8.0	8.0	100.0
	Total	200	100.0	100.0	

APPENDIX 16: Scenario of DRS



Source: Hogg, et al (2010)

APPENDIX 17: Practice of DRS in Other Countries

No	Country	System	Year of Introduction	Packaging/Container Covered	Deposit
1	Austria	Law to make deposit regulatory	1992	PET bottles (non-refillables excluded)	\$ 0.40
2	Belgium	Container taxed \$0.52 per litre unless they have deposit	1993	Beer, soda and soft drink containers	- \$ 0.12 < 50 cl - \$ 0.24 > 50 cl
3	Croatia	Deposit return plus 'incentive fee' to be paid by producer if \$ 50% refill isn't met	2005	Glass, PET and metal containers for beer, soft drinks, water, wine and spirits	No information
4	Denmark	Packaging Law. All beer and soft drinks must be sold in refillable bottles. Metal banned until 2002. Regulatory deposit for imported glass/plastic containers. Ecotax also.	1989 (amended 1991)	Beer and soft drinks containers. Deposits on some wine and spirit bottles dependent on retailer.	- € 0.13 Type A – Cans, plastic and glass bottles < 0.5l - € 0.20 Type B – Plastic Bottles @ 0.5l - € 0.40 Type C – Cans, plastic and glass bottles > 0.5l
5	Estonia	Deposit-return	2004	Beer, low alcohol drinks, carbonated/non carbonated soft drinks, water, juice, cider and perry	- 1.00 kroon – Glass and PET > 0.5l - 0.5 kroons - Metal and PET < 0.5l
6	Finland	Tax on beverage containers. Exemption from tax only if part of refillable deposit scheme.	1970s (amended 1990)	One-way beer and soft drink containers	- € 0.15 – cans - € 0.10 – plastic bottles < 0.35l - € 0.20 – plastic bottles 0.35l – 1l - € 0.40 – plastic bottles > 1l
7	Germany	Einwegpfand Deposit on one-way a standard amount, deposit on refillables manufacturer dependent, not legally specified, though tend to be similar	2003	Unless containers for wine, fruit juice or spirits	- € 0.25 - <= 1.5l - € 0.50 - > 1.5l
8	Netherlands	Agreement deposit	1993	Soft drinks and water in one-way and refillable glass and PET containers	- \$ 0.16 - < 0.5l - \$ 0.72 - > 0.5l

9	Norway	Deposit on containers and tax dependent on return rate. Refillables only exempt if 95% return rate is achieved. Retailers (on site >25m2) selling non refillables, must also sell similar products in refillables	1994	Most drinks excluding milk, vegetable juices and water	- \$ 0.16 - < 0.51 - \$ 0.40 - > 0.51
10	South Africa	Deposit return system	Around 1948	Approximately 75% beer, 45% soft drinks and some wine and spirits bottles	Between 8-15% of product cost (or 0.5-1% if wine spirit)
11	Sweden	Law requires rate of 90% recycling of aluminium cans, or complete ban. Industry implemented deposit system to avoid this. PET introduced later as well as deposit.	1984 for cans 1994 for PET	All beverage products	- \$ 0.16 - < 0.61 - \$ 0.40 - > 0.61
12	South Australia	Container Deposit Legislation – deposit required on almost all drinks containers, with	1975	Mostly included except wine (unless in plastic bottle), milk, pure fruit juice or flavoured milk >1l	\$ 0.05
13	Canada – Ontario	Deposit-return system on alcoholic drinks containers only.		Alcoholic drinks containers	- \$ 0.10 – Containers up to 630ml, or metal containers up to 1l - \$ 0.20 – Over those sizes
14	Canada – Quebec	Return to retail deposit system, with industry required to fund kerbside collection for containers not part of the system		All beer and soft drinks containers (not juice, water and iced tea)	- \$ 0.05 – Soft drinks and beer cans - \$ 0.10 – Beer bottles - \$ 0.20 – Beer bottles and soft drinks > 450ml
15	USA – California	California Beverage Container Recycling and Litter Reduction Act	1987 (expanded in 2000 to include all non-carbonated and non-alcoholic drinks excluding milk)	Non-refillable drinks containers, including beer, spirits, carbonated, fruit drinks and some vegetable juices. Not including milk.	- \$ 0.05 - < 24 oz - \$ 0.10 - > 24 oz
13	USA – Hawaii	Deposit Beverage Container Law	2002	All beverage containers excluding milk and dairy derived products, except tea and coffee or liquor containers	\$ 0.05

Source: Hogg, et al (2010)