

**REVERSE LOGISTIC PRACTICES AND CHALLENGES IN PHARMACEUTICAL
IMPORTING INDUSTRIES IN ADDIS ABABA, ETHIOPIA.**

**A THESIS SUBMITTED TO IN PARTIAL FULFILLMENT FOR THE
REQUIREMENT FOR DEGREE OF MASTER OF BUSINESS ADMINISTRATION**

BY: TATEK WAMISHO

ADVISOR: TAREKEGN DEA (PhD)

**ADAMA SCIENCE AND TECHNOLOGY UNIVERSITY
DEPARTMENT OF MANAGEMENT
ADAMA, ETHIOPIA**

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Declaration

I, Tatek Wamisho, hereby declare that the thesis work entitled “reverse logistic practice and challenges in pharmaceutical manufacturing and importing and distributing companies in Ethiopia.” submitted to Adama Science and Technology University, Department of Management in partial fulfillment of the degree of Masters of Business Administration is my original work, and has not been conducted and/or presented for any purpose in any other institutions. Meanwhile, all sources of material used for the thesis have been duly acknowledged.

Name: Tatek Wamisho

Signature: _____

Date: December, 2015

Thesis Approval Form

Student's Name: Tatek Wamisho Hossiso

Degree sought: Masters in Business Administration

Thesis title: "Reverse logistic practice and challenges in pharmaceutical manufacturing and importing and distributing companies in Ethiopia"

University: Adama Science and Technology University

We, the undersigned, recommend that the thesis stated above be accepted in partial fulfillment of the degree requirement.

Approved by:

Thesis Advisor:

<u>Dr.Tarekegne Dea</u>	_____	_____
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Advisor's Name	Signature	Date
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Board of Examiners:

_____	_____	_____
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External Examiner's Name	Signature	Date
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_____	_____	_____
Internal Examiner's Name	Signature	Date

_____	_____	_____
Chairperson	Signature	Date

Approved by the Department

_____	_____	_____
Head of the Department	Signature	Date

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Acronyms

EBG: Equatorial Business Group

FDRE: Federal Democratic Republic of Ethiopia

FMHACA: Pharmaceutical Fund and Supply Agency

PASS: Pharmaceutical Administration and Supply Service

PSC: Pharmaceutical Supply Chain

RL: Reverse Logistic

SCM: Supply Chain Management

SPSS: Statistical Package for Social Sciences

V-TAG: Vision Tsegaye and Genet

WHO: World Health Organization

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ABSTRACT

This paper examines reverse logistics practices and challenges in the pharmaceutical manufacturing industry in Ethiopia. The sample was selected on hierarchical levels using stratified sampling methods. With a 100% response rate, data gathered from both primary and secondary sources were analyzed using quantitative and qualitative techniques. The research revealed a gap in the flow of reverse logistic activities; from drug returns to its disposal. Most returns were from both wholesalers and retailers with the end consumer playing little or no role. Drugs were frequently disposed of by burning in open containers or through open uncontrolled non engineering dumps. However such practices are recommended as a last resort in the extant literature. We recommend adoption of an enterprise system such as enterprise resource planning (ERP) for drugs reverse logistics activities and implementation of an efficient method for drug disposal by pharmaceutical manufacturing companies in Ethiopia.

Keywords- *Supply chain management, reverse logistic, pharmaceutical logistics, pharmaceutical reverse logistic*

CHAPTER ONE

INTRODUCTION

This introduction includes a description of the background of the study and the problem statement. Also, the objective and the basic research questions of the paper are mentioned and described. The chapter ends with an outline of the thesis structure.

1.1. Background of the Study

In common scenario a product or service is developed to be manufactured or created and go through the supply chain (e.g. Manufacturer-wholesaler-retailer) to be sold to a consumer

Cheah, E.Chan, W. (2007). The supply chain is integrating more activities than those concerned with supply chain alone like to include service and product recovery. Here we will focus on especially reverse logistics, i.e. the handling of products back to manufacturer's or producer's end. The objective is to minimize the handling cost while maximizing the value of the goods, or proper disposal. Essentially, reverse logistics is the opposite of logistics management. Goods or materials move in the opposite direction of the supply chain, that is, from the customer back to the supplier. Autry, C. (2005).

The products are returned to the manufacturer or retailer for any number of reasons. Some of the more common reasons are warranty failures, damaged products, product recalls, incorrect product orders/shipping, exchange of impaired products for functional ones, reusable packaging materials, product upgrading and so on. Whatever the reason, returned goods have to be processed in the best manner possible. Linton, J.; Klassen, R. & Jayaram, V. (2007).

Reverse Logistics has become a fairly serious issue in recent times primarily because retailers have been forced, due to increased competition, many forces drive reverse logistics, like, competition and marketing motives, direct economic motives and concerns with the environment. Whatever the reason, returned goods have to be processed in the best manner possible. Kumar, S. & Putman, V. (2008).

Reverse logistics in the pharmaceutical industry are extreme important, not only from the economic point of view, but also for the environment as well as regulatory point of view. The pharmaceutical returns industry is worth US\$2. 5 billion. There is also an estimated reverse flow of goods worth US\$5 billion Savage, C.J., Roberts, K.J., and Wang, X.Z. (2006), Some important considerations for the industry when it comes to reverse logistics are the security of the returned goods, keeping the cost low with the help of automation, traceability of the goods returned from the customer to the final stage of disposition. Jorgensen, T. (2008).

The market for pharmaceuticals and medical supplies in Ethiopia is obtained either through imports (purchase and donation) or from local manufacturers. The domestic market is highly dependent on imports as the local manufacturing units cover only a small portion of the requirement for Pharmaceutical Industry domestic needs. Drugs, manufactured locally only cover 15 percent of the national demand PSLD (2007). The rest is filled through import. The

total of seventeen (17) pharmaceutical manufacturing (two public and fifteen private) and sixty one (61) pharmaceuticals importing companies that are operating in a country. Only two firms and export veterinary medicine. Two state run companies and eleven private owned pharmaceutical companies engaged in the production of human and veterinary drugs with a total capital outlay of 516 million Birr (\$ 52 Million) they are mainly involved in the manufacturing of tablets, capsules and IV fluids (Mohamed, 2008).

Out of these seventeen factories only thirteen factories are currently operational while four factories have been closed due to financial problem. And most of the existing companies are manufacturing below installed capacity and produced a limited number of products.

In starting to search for a topic, it was discovered that there is a great need to engage in research on reverse logistics. It seems that organizations do not give enough attention to this part of the supply chain. Up to now, academic research in the field of reverse logistics has been neglected. In addition, as far as my knowledge is concerned, it seems that pharmaceutical companies in Ethiopia do not realize the importance of reverse logistics.

1.2. Statement of the Problem

During the last decade, reverse logistics have obtained focus in research and practice both. Many drugs are highly sensitive to temperature; some are extremely valuable; and all are subject to a complex array of government and international regulations. Pharmaceutical logistics are such a specialized discipline that drug manufacturers have long been reluctant (Kabir, 2013). Reverse logistics in the pharmaceutical industry work differently from many other industries. Drugs or products returned in a pharmaceutical industry are seldom repaired or resold. Instead, they need to be destroyed and disposed properly (Bhavin, 2010). There are various considerations to be taken into account such as needed for accurate tracking and visibility, Batches and Expiry control, Cold Chain requirements, Proper storage and disposal, Pedigree reporting, and Anti-counterfeiting and so on (Kabir, 2013). Medicines play an important role in order to cure, prevent and diagnose human disease and keep people healthy. However, causing some quality defects or loss of effectiveness of the medicines surge into the market which not only badly put in danger the lives of the people, vibrate the strength of society, environment and cause the awful impact, but also force to look the Reverse Logistics

process, thus it is necessary to recollect the unused medicines (Singh, Bharati, & Kumar, 2013). In addition, increasing concern for environmental difficulty and pressure from the aggressive global market place towards the further improvement of customer service, Quality and cost, have been presenting firms and industries with a new challenge, in the form of management and development of effective Reverse Logistics processes (Singh, Bharati, & Kumar, 2013). Reverse logistics in pharmaceutical industry is an imperative process in modern times due to various reasons such as government regulations, growing environmental concerns, growing consumerism, and competitive advantage (Kabir, 2013). Likewise, food, medicine and health administration control authority of Ethiopia (FMHACA), has developed directive on proper disposal of returning medicine that impose on firms more corporate social responsibility and force them to act in environmentally friendly. According to research done in Pakistan the information available on pharmaceutical reverse logistics suggests that 3-4% of the medicines sent out in the forward cycle eventually return to the pharmaceutical company (Khan & Subzwri, 2009).

However, Reverse logistics in the pharmaceutical industry are considered a bullet in the company's profits and an expensive process most times. Nowadays, pharmaceutical companies are multi-product, multi-purpose and multi-site facilities operating in different countries and dealing with a global-wide international clientele. Therefore, the issues related to the threading structure of the company have to be taken into account when deciding on the optimal multi-site investment strategy of the company; therefore, the return of the drug products can be very complex (Margarida & Jose, 2012). As cited by Mohammad A (2008), most often pharmaceutical firms don't consider reverse logistics as part of their traditional or forward logistics of their supply chain system. According to research done in India, reverse Logistics management for Pharmaceutical industry is not developed and it is ignored at the operational level (Singh, Bharati, & Kumar, 2013).

If reverse logistics in pharmaceutical industry is an imperative process in modern times due to government regulations, growing environmental concerns, growing consumerism, and competitive advantage and if most pharmaceutical firms don't consider it as part of their supply chain system and it is ignored at the optional level in the industry. Therefore, this

particular research will assess reverse logistic practice and its challenges in pharmaceutical industries in Ethiopia.

1.3. Basic Research Questions

In this study, the researcher attempted to answer the following basic research questions:

- ❖ How do pharmaceuticals importing companies' practice reverse logistic?
- ❖ What are challenges of reverse logistic in pharmaceuticals importing companies?

1.4. Objectives of the Study

1.4.1 General Objective

The general objective of the study is to assess reverse logistic practice and challenges in selected pharmaceuticals importing companies in Addis Ababa, Ethiopia

1.4.2 Specific Objectives

- To assess the practice of reverse logistics in pharmaceuticals importing companies.
- To assess challenges on practicing Reverse logistic in pharmaceuticals importing companies.

1.5. Significance of the Study

The significance of this study lies in serving the following purposes:

- It helps in the management of pharmaceuticals importing companies at large who will gain insight into how their organization could effectively manage and use Reverse logistic practices.
- It helps to offer an understanding of the pharmaceutical importing companies on the importance of adopting Reverse logistic and as such will improve their performance and competitiveness in the pharmaceutical sector.
- It serves as an additional source of information to academicians to further research in related areas.

1.6. Scope of the study

The scope of the study was delimited to 15 pharmaceutical importing companies found in Addis Ababa. The selection of the case companies was based on their year of establishment and experience they had in flour production

1.7. Limitation of the study

Since the study was aimed to use the cross sectional technique to collect primary data, random and systematic errors might occur.

1.8. Definition of Key Terms

Drugs: Definition of Drug According to Proclamation No 176/19999 of FDRE, drugs are defined as follows: "Drugs" are substances used in the diagnosis, treatment, mitigation or prevention of diseases that include narcotic and psychotropic substances, pesticides, animal food additives, poisons, blood and blood products, vaccine, sera, radioactive pharmaceuticals, cosmetics and sanitary items, medical instruments and medical supplies.

Medical Supplies: include articles for diagnosis or treatment of diseases such as suturing materials, syringes and needles, bandages, gauze, cotton and other similar articles, artificial teeth, chemicals and x-ray films.

Medical equipment's: include various diagnostic, laboratories, surgical and dental, medical instruments.

Supply chain- is an important aspect of business strategy that requires integrated decision making and includes the entities from the origin point to the final consumption such as suppliers, customers and the organization itself.

Supply chain management: is the management of material flow, information flow and money flow along the pipeline in a supply chain.

The Pharmaceutical Supply Chain (PSC): is a supply chain where pharmaceutical medications are produced, transported and consumed.

Medicine wastes: unfit to use drugs generated in the pharmacy premises of the health facilities, but not to the medical equipment's, and other health care wastes generated by the health facilities

1.9. Organization of the paper

This study was organized in five chapters. The first chapter deals with introduction in relation to the topic under study. Specifically, it tried to discuss in brief about the background of the study, a statement of the problem and basic research questions, objective of the study, scope, and significance of the study and definition of key terms.

The second chapter of the paper presents a review of related literature. Specifically, it reviewed different books and journals, under the conceptual section.

The third chapter concentrates on methodology, specific discussion on research design, sampling, data collection tools and method of data analysis as well as the reliability and validity issues of the instrument.

In the fourth chapter the collected data analyzed in detail and present the findings of the research. Finally, the paper ends up by reaching on conclusions based on the findings and by suggesting.

Chapter Two

Review of Related Literature

This chapter begins by introducing the basic concept of Reverse Logistics, and then focuses on past research works on different dimensions of Reverse logistics practices related to the topic under the study, and finally conceptual framework of the study also presented on the basis of the reviewed literatures.

2.1. Reverse logistics: An Overview

Reverse logistics, which is sometimes referred to as “logistics backward” because its flow of goods is the exact opposite to the flow of the conventional supply chain (BearingPoint, 2008). Steven, 2004:163), has become an important issue. Once labelled as “the forgotten child of the supply chain” (Gupta & Tiwari, 2009:3), reverse logistics has not enjoyed an attractive reputation because of the misconception that it is only a cost drain and adds no value to the supply chain (Mukhopadhyay & Setaputra, 2006). However, reverse logistics can be classified as an asset rather a liability. If the products are returned it does not necessarily mean that they do not have any value (De Brito, 2003). Traditionally, organizations have focused on improving the forward logistics activities, and for many years, most of the organizations have not treated the reverse logistics process with the same care and diligence afforded traditional areas of logistics. They generally hold that the flow of goods typically ends with the consumer in a supply chain (Sople, 2007).

This situation, however, is changing because many organizations now consider the cost and impact of reverse logistics when designing products, rather than forward considerations such as manufacturing costs, marketability and sales margins (Doherty, 2009). Organizations always look for ways to improve, and this has made areas forgotten in the past a key source of efficiency (Zuluaga, 2005). The reason for the increasing focus on reverse logistics in the last decade is because of competition and marketing motives, direct economic motives and concerns with the environment as well as strategic and managerial implications. Organizations are giving more and more attention to reverse logistics because of environmental issues and the impact of these issues on public opinion. With legislative measures tightening up, organizations do not have any choice but to engage in reverse logistics practices (Ravi & Shankar, 2005). Consequently, the high rate of goods being returned, increasing environmental regulations and standards and growing consumer awareness have all contributed to organizations rethinking the significance of reverse logistics.

Reverse logistics are an issue that organizations need to master and it is thus necessary to develop a reverse logistics system that rivals traditional outbound channels in terms of efficiency, cost effectiveness and competitiveness (Smith 2005). Managing the reverse supply

chain is an entirely different process where credit returns, warranty replacements, exchanges, repairs and end of leases occur (Kim, 2001).

Reverse logistics has become a new frontier of management, including activities such as reverse distribution, recycling, reuse and the reduction of the amounts of materials in the forward system (Carter & Ellram, 1998) just, to name but a few. Activities in reverse logistics can cover retailers, manufacturers and service entities and can also cut across organizational functions such as marketing, operations, logistics, distribution and transportation, finance and accounting, customer service, quality, purchasing, and design and .

This chapter will include definitions of reverse logistics, and the concepts closely related to reverse logistics will be identified and discussed. The importance of reverse logistics will be emphasized by identifying and discussing the drivers in reverse logistics and the benefits of reverse logistics. This chapter will also look at product returns by exploring the type of returns that exist as well as identifying the reasons for product returns.

2.2. Definition of RL and Related Concepts

There are many different definitions of the concept, because reverse logistics, despite an apparent lack of interest in and awareness of it, is one of the fastest developing fields in business logistics, which results in constant changes in scope and significance (Vogt, Pienaar & De Wit, 2002). Despite this, there are also other terms closely related to reverse logistics which often cause confusion. In this section, the different definitions of reverse logistics will be highlighted, followed by a description of the concepts closely related to the phenomenon.

2.2.1 Definitions of Reverse Logistics

Reverse logistics are essentially the opposite of logistics. The Council of Supply Chain Management Professionals (CSCMP, 2010) defines logistics as the “process of planning, implementing, and controlling procedures for the efficient and effective transportation and storage of goods including service, and related information from the point of origin to the point of consumption for the purpose of conforming to customer requirements”. Reverse logistics, however, can be defined as a “specialized segment of logistics focusing on the

movement and management of products and resources after the sale and after delivery to the customer”. It also “includes product returns for repair and/or credit”. Furthermore, reverse logistics is a process that enables organizations to become more environmentally capable through recycling, reusing and reducing the amount of materials used (CSCMP, 2010).

Table 2.1: Definitions of reverse logistics

Author or scholar and year	Definition of reverse logistics
Dowlatshahi (2011)	Reverse logistics is the process in which products (e.g. End of life products) is returned from consumers or customer service centers for the purpose of gaining their value or planning for their proper disposal
Zhang (2010)	Reverse logistics are the physical movement of goods formed by repairing and returning substandard goods as well as turnover containers returned to supply side from the demand side. This involves the item entities’ reverse flow process such as reclaiming pallets and containers used to transport, receiving the customer returns, collecting containers, raw materials, scrap and spare parts processing defects in the product sales
Fleischmann et al. (1997)	The term refers to the role of logistics in the return product, origin, reduction, recycling, material substitution, reuse of

	materials, repair and remanufacturing, and is a model systematic business that provides the best logistics and engineering better methods of management in the company to profit this flow.
Guide et al (2000)	The task of recovering discarded products, including packing and shipping to a central point for recycling
Carter and Ellram (1998)	RL is the process through which companies can reach to be more environmentally efficient through recycling, reuse and reduce the amount of materials used.
Rogers and Tibben-Lembke (2001)	Is the process of planning, implementing and efficiently control the flow raw materials, inventory in progress, finished goods and related information, from the point of consumption towards the point of origin in order to recapture, create value, or disposal.
Stock (1998)	RL is a term often used to refer to role of logistics in product returns, reduced supplies, recycling, and reuse of materials substitution, elimination waste,

	reprocessing, repair and remanufacturing.
Tibben-Lembke (2002)	RL manages the return of the goods in the supply chain supply, the most effective and economical manner.

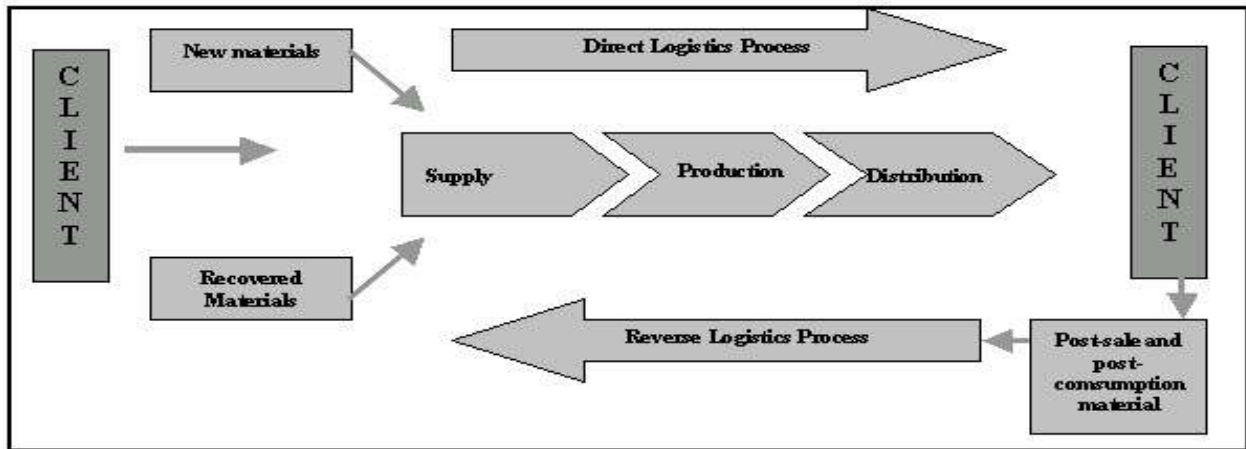
Source: Compiled by a researcher

2.2.2 Related Concepts of Reverse Logistics

The success of any industry in today's highly competitive business environment depends to a large extent on supply chain effectiveness. Supply Chain is defined by The Council of Logistics Management as: "The process of planning, implementing, and controlling the efficient, cost effective flow of raw materials, in-process inventory, finished goods and related information from the point of origin to the point of consumption for the purpose of conforming to customer requirements (Armstrong, Scott, & Kesten C, 2005). Supply chain describes all direct and indirect parties who comes together to fulfill a customer's needs Management understands that mistakes from any member of the supply chain can affect the operation and profitability of the organization. Reuse of material is a common practice in supply chains. However, the backward or reverse supply chain has long been overlooked by some companies. Such reverse supply chain is referred to as reverse logistics (Ninlawan, Seksan, Tossapol, & Pilada, 2010).

Reverse logistic is defined as "The process of planning, implementing, and controlling the efficient, cost effective flow of raw materials, in-process inventory, finished goods and related information from the point of consumption to the point of origin for the purpose of recapturing value or proper disposal (Armstrong, Scott, & Kesten C, 2005). A more environmental oriented definition was given by some authors describing it as a process of becoming environmentally efficient through recycling, waste disposal, reusing material and material reduction. This is considered green logistics by others (Stock, 1998). Most of these definitions focus on the return process, but reverse logistics is more recently defined as the management of assets across various industries and disciplines. This does not only focus on

the returns process, but in other areas such as order fulfillment, customer service, parts management and end of life manufacturing.



Source: Adapted of Rogers & Tibben-Lembke (1999)

Figure 2.1: Reverse Logistics Process

2.3. Driving Factors of RL

Reverse Logistics are driven by several forces, such as competition and marketing purposes, direct economic purposes and concerns with the environment (Kabir, 2013). The main reasons for considering RL are economic, legal and good corporate citizenship.

Businesses must be competitive in order to sell their goods or services in the marketplace. Competitiveness determines whether a firm prospers, survives, or fails. Competitiveness can be defined as how effectively a business meets the wants and needs of customers relative to other businesses that offer similar products or services (Sahin & Robinson, 2002). Firms must continually strive to improve their competitiveness due to the continuous increase in competition in the global and local markets. As a direct result thereof, the philosophy of continuous improvement was developed in order to sustain a competitive advantage (Stevenson, 2005).

The residual value in the returned product, ability to salvage some of the inputs and reducing disposal cost are some of the direct and indirect economic incentives of handling returns. A survey conducted by Rogers and Tibben-Lembke (1999) showed that 27.5% of those involved

in reverse logistics cited recapturing value as one of the reasons for implementing Reverse logistic.

The regulatory requirements to recover and /or take the items back in many cases are other reasons for implementing reverse logistics. Rogers and Tibben-Lembke (1999) found that 28.9% of respondent to their survey indicated legal disposal issues for RL.

A good corporate image is another reason for considering reverse logistics. Companies pride themselves in protecting the environment and minimizing environmental impact of their supply chain. Like corporate image, competitive reasons are often cited as one of the most important reason for implementing RL. As a part of customer service companies are following liberal return policies of their competitors to stay competitive (Ravi & Shankar, 2006). Nearly 65% of the respondent to the survey cited competitive reasons for accepting returns (Rogers & Tibben-Lembke, 1998).

2.4. Benefits of Reverse Logistic

The main reasons for considering RL are economic, legal and good corporate citizenship. The residual value in the returned product, ability to salvage some of the inputs and reducing disposal cost are some of the direct and indirect economic incentives of handling returns. A survey conducted by Rogers and Tibben-Lembke (1998) showed that 27.5% of those involved in reverse logistics cited recapturing value as one of the reasons for implementing RL.

A good corporate image is another reason for considering reverse logistics. Companies pride themselves in protecting the environment and minimizing environmental impact of their supply chain. Like corporate image, competitive reasons are often cited as one of the most important reason for implementing RL (Sarwar & Ahmed, 2014).

In view of the importance of reverse logistics for the supply chains, the desire to minimize costs, extraction of residual value and environmental friendly disposal of products, RL has acquired immense importance in the recent years. Advances in inventory management and information technology have enabled the supply chains to monitor and manage their products and systems from inception to ultimate disposal.

2.5. Product return

There are many reasons why products are returned, either by consumers or by the companies involved in the distribution chain. Retailers may return products because of damage in transit, expired date code, the model being discontinued or replaced, seasonality, excessive retailer inventories, retailer going out of business, etc. On the other hand, consumers can return products for such reasons as quality problems, failure to meet the consumer's needs, for remanufacturing, or for proper disposal.

Reverse logistics also includes processing returned merchandise due to damage, seasonal inventory, restock, salvage, recalls, and excess inventory. It also includes recycling programs, hazardous material programs, obsolete equipment disposition, and asset recovery (Johan, 2000).

New products enter into the market as a forward logistics process, then purchased and used by consumers, the used products are recollected and categorized as —Scrap and —Reusable, sorting or test of the products done for segregation of used products. Reusable products are recycled and forwarded again to the market. Recovery facilities play very important role in the reverse logistics, the efficient recovery of the products and sorting make it profitable.

The information available on pharmaceutical reverse logistics suggests that 3-4% of the medicines sent out in the forward cycle eventually return to the pharmaceutical company(Johan, 2000). The ability to trace and track medicines supplied to the market can protect the customers, pharmaceutical companies image and also ensure that only the genuine products are accepted back when the expired medicine are cleaned from the market. According to De Brito and Dekker (2004), four perspectives need to be considered in analyzing the reverse logistics process; the “Why” referring to the reverse logistics, driving force; the “What” describing the product type, the “How” in reference to the recovery process and the “Who” referring to the facilitators of the reverse.

2.5.1. Way to Manage Returned Products:

Managing the returned products has become very critical for achieving economic and Environmental benefits. Returned products are used as input material for producing Bi-

products and the cost of the material is reduced. Through effective management of returning goods an organization can have enhanced customer relationship, environment friendly activities that can help in the best use of resources in such a situation when the resources are depleted very fast. Land filling of hazardous waste creates pollution.

2.5.2. Types of Returned Products:

From a regulatory perspective effectively any item made can be returned or recalled due to manufacturing defect, expiry, safe disposal or recycling. The competitive reasons and clearing the old stock from the market (clean channel) effectively all products are subject to return and hence reverse logistics.

Return of the products occurs in three stages in an organization,

A) Manufacturing - Excessive supply of raw material, faulty product and components and By-Products are returned from the manufacturing stage. The raw material is supplied for manufacturing.

B) Distribution - In Distribution stage sometimes products are recalled due to some quality problems, customers return and the packaging of the products is also returned from the distribution channel.

C) Customers - Customers return occurs for reimbursement purpose, warranty claims, service returns, End of lease returns and End of life returns.

2.5.3. What Happens to the Returned Products?

Any man- made product is discarded after its useful life. What happens to this product afterwards is a concern for reverse logistics. In many cases, legal issues require the producer to handle its product's disposal.

Discarded or used products are collected from various places like offices, residential areas, etc. at a specific place the segregation of the products is done in three categories, some of the products are sent for recycling purposes and recycled for converting in raw material, and some of the products are reprocessed and sold in the secondary market. From both places a certain

portion of discarded products is not reusable that is disposed of (Andersen & Christensen, 2005).

2.5.4. Who Manages the Returned Products?

The actors who play a role in the reverse logistics process include a member of the forward supply chain, specialized facilitators of reverse logistics such as collection agents, recycling specialists, public private organization and even charitable organizations. For Sensitive products where intermediaries can damage company reputation, organizations set up their own reverse logistics mechanisms. Issues such as safety and health risk in handling or misappropriation of returning product also justifies a company managed collection system.

There are definitively the roles of the actors involved in the managing returned products, conventionally suppliers, manufacturers, wholesalers and retailers perform the role of Forward Supply Chain Players whereas —'Remanufacturers and Recyclers' involve in the product recovery. Policy for returned products is made by Government through municipal authorities. Primary and secondary markets accommodate the returned products (Ninlawan, Seksan, Tossapol, & Pilada, 2010).

2.6. Reverse Logistics & Pharmaceutical Sector

The nature of Reverse logistics in pharmaceutical industries differs from other manufacturing industries as such; products returned and retrieved at times of reverse logistics are seldom repaired or resold but instead destroyed and disposed of properly (Kabir, 2013). Blumberg in 2008 indicated that the general direction of global pharmaceutical reverse comprises recall management, disposal & destruction, Asset recovery & liquidation, Rebalancing & restocking of products as well as Optimization of transportation & shipping costs. The ability to track, retrieve and manage return product in the entire supply chain is of prime importance in the pharmaceutical manufacturing sector. Lots of pharmaceutical products are unable to be recovered in times of reverse logistics. It was estimated that only 3-4 % of pharmaceutical products are returned to the manufacturer for disposal (Sarwar & Ahmed, 2014).

The majority of pharmaceutical reverse logistics concerns deal with counterfeit and drug expiry, low shelf lives, unscrupulous mediators and improper disposal of unused and

unwanted pharmaceuticals (Ninlawan, Seksan, Tossapol, & Pilada, 2010). It has been estimated that in developing countries, approximately 1% of pharmaceutical trade involves counterfeit drugs. This ranges from 30% to 40% in developing countries. Also, 80% of waterways tested in the USA showed traces of common medication (Abbas, 2013). In Ghana, 20% of chronic diseases like kidney disorders have been attributed to the intake of expired drugs (Andersen & Christensen, 2005). Due to this, a lot of consideration is taken into account with reverse activities in pharmaceutical manufacturing industry, among these include; accurate tracking and visibility, batches and expiry control, cold chain requirements, proper storage and disposal.

It would be the responsibility of the pharmaceutical companies to develop the reverse logistics networks and the flow options in order to avoid the dissatisfaction of the customers, counterfeit drugs, and return of outsourced drugs. This would also involve developing credit rules to guide the returns process for the customers and suppliers and creating a framework of metrics for the supplier relationships. Each of these sub-processes are defined by activities such as initiation of a return request, determining the right routing to keep the reverse logistics at a minimal cost, averting counterfeit drugs, crediting consumers and suppliers, thus analyzing the returns and performance of the reverse supply chain (Ninlawan, Seksan, Tossapol, & Pilada, 2010).

A pharmaceutical supply chain are characterized by the high level of wastage and spill over and also faces the common issues of returns and recall of drugs, companies require a proper system in place to deal with such circumstances. The reverse logistics operations of hospitals are of three kinds of activities, namely “Reuse”, “Recycle” and “Disposal” which should be applied on the basis of the integrity of medicines. Reverse logistics in the pharmaceutical industry are extremely important for the economic, environmental as well as regulatory point of view. Some important considerations are the security of the returned goods, keeping the cost low with the help of automation, traceability of the goods returned from the customer to the final stage of disposition (Kabir, 2013).

Medication is produced and prescribed in large volumes every year. Disposal of expired or unwanted medication can be very costly and harmful to the environment, and medications

have been detected in sewage effluent, surface water, ground water and even drinking water. In line with the guidance, community pharmacies are bound by contractual obligation to offer a returns service for medication the strategic aim of which is to facilitate safe disposal, remove excessive storage of medicines in the home and to reduce the environmental damage from inappropriate disposal method (Xie & Breen, 2012). The Pharmaceutical Supply Chain (PSC) is a supply chain where pharmaceutical medications are produced, transported and consumed. Disposal of the medication waste is harmful to the environment and costly (Verma & Dr. Gangele, 2012).

The pharmaceutical sector is possibly one of the most important sectors where the high costs of products, low to moderate shelf lives, and potential for unscrupulous intermediaries compromising the integrity of products are major concerns. In addition, infiltration of counterfeit medicine and hazards associated with misuse of many of the products give the ability to track, recall, retrieve, salvage, and ensure effective removal when necessary a very high degree of importance in the pharmaceutical industry (Mohamed,2008).a

The other very important issue regarding management of pharmaceuticals is management of medical wastes. Pharmaceuticals designed for humans often become unfit to use for a variety of reasons, ranging from a physical damage of packaging to expiration. These unfit to use accumulated pharmaceuticals represent sub-optimal delivery of health care and the potential for environmentally unsound disposal, which can pose exposure risks for humans and animals.

2.7. Expired & Damaged Product Return

As we can see from above, the importance of effective RL management is obvious. The wrongly delivered, expired and products with a damaged packing need to be quickly recovered and replaced with a saleable product to avoid disruption in sales. It is imperative to make sure the channel is completely cleared of all expired medicines to avoid legal complications. The forward supply chain follows a “one-to-More” model that is one company supplies the product to many customers/channel members; the reverse logistics on the other hand follows a “more-to-one model” where more customers or downstream channel members

are returning the expired or recalled product by the company (Rao, Phillips, & Jonhson, 2006).

An effective return policy by the company can ensure better cooperation from downstream channel members and ensure a complete clearing of channels. The planning of reverse logistics requires a multi objective optimized approach. What needs to be done with the returned material is the next part of RL management.

2.8. Counterfeiting Concerns

Counterfeiting is a major concern for the pharmaceutical industry. According to the World Health Organization, “a counterfeit medicine is one, which is deliberately and fraudulently mislabeled with respect to identity and/or source. Counterfeit drugs may contain wrong active ingredients, wrong amounts of the ingredients or no active ingredients at all”(WHO, 2009). Medicines are expensive. If patients receive a counterfeit medicine, the benefit they are expecting to derive from the drug is not available and they lose trust in the pharmaceutical companies. This lack of trust is also damaging to the future profits of the companies. Counterfeit drugs are a significant problem all over the world but in Pakistan, this is a problem of great magnitude. It has been estimated that 40-50% of all medicines marketed in Pakistan qualify for counterfeit drugs by WHO definitions(WHO, 2009). Product recall requires organization to be able to reverse the normal logistics flow from suppliers to customers so that inventory deemed unsuitable can be located by customers and returned to suppliers in a timely and cost effective manner (Xie & Breen, 2012).

2.9. Security Issues in Pharmaceutical Supply Chain

The concern with the integrity of medicine in the forward and reverse logistics, ensuring customer confidence in the genuineness of the medicine and protecting the supply chain from saboteurs and unscrupulous elements has created a need to invest in security technology for the supply chain. International Society for Pharmaceutical Engineering provides a more detailed assessment of security devices available for protecting the supply chain. From a simple unidirectional bar code that provides enough information for the sales point, 2-D, 3-D bar codes and Radio Frequency Identification (RFIDs) Systems are now available and are gradually being introduced to monitor the integrity of the medicines and ensure RL process

too. Basta (2008) argues that even for highly unsafe product requiring mandatory recall, the recovery of recalled medicine is rarely 100%. Introduction of modern technology can eliminate these concerns.

2.10. Empirical Evidences on Reverse logistic Practices

The issue of RL practice was not obtained properly focuses by most researchers particularly in Ethiopia. As far as the researcher's knowledge is concerned, there is no study that made an investigation specifically for pharmaceutical companies. However, the researcher comes across five researches (Table 2.1) related to RL practices on different manufacturing sectors in different countries. These are:

Table 2.2 Summary of Empirical Evidences on RL Practice

S/N	Title and Author	Objectives of the studies	Major findings
1	Directing reverse logistics: a corporate paradigm shift. Reverse Logistics Magazine. (Walker, K. 2010.)	To determine best practices in reverse logistics and to compile a framework that can assist organizations to manage their reverse logistics more efficiently.	Effective reverse logistics reduce costs or increase profits.
2	Reverse Logistics Management and Environmental Sustainability Drive in Nigeria (Study of the Food and Drink Industries): (A. E. Ndu Oko & Nkamnebe, Anayo D, 2013)	To identify factors those are responsible for the poor attitude of manufacturing firms in Nigeria to reverse logistics programs.	Reverse Logistic increases customer satisfaction and has competitive advantages

3	Reverse Logistics in Pharmaceutical Industry: (Kabir, 2013)	To assess aspects of reverse Logistics on the issues that pharmaceutical organizations Faces.	Environmental legislation is the important driving factors to engage companies on reverse logistics
4	Reverse Logistics and competitiveness: A brief review of this relationship. (Dowlatshahi, 2000)	To assess the influence of reverse Logistics upon the enterprise competitiveness	Reverse logistics lead to competition of firms within the same industry, causing the production of quality products and goods. Disposal of the unused medicines, if not handled properly, is harmful for the living beings in the system
5	Investigation of green supply chain management practices in the pharmaceutical industry and their relation drivers, practices and performances. (Verma, A., & Dr. Gangele, A. 2012)	To investigate green supply chain management practice in the pharmaceutical industry and their relation.	Disposal of the medication waste is harmful to the environment and costly.

Source: Compiled by the researcher from empirical evidences.

From the summary of empirical evidences, it was observed that all researchers have tried to emphasize the benefits of RL if firms consider it as part of their supply chain system. The major findings are also portrayed the consequences of improper disposal of medicaments. However, the practices and challenges of RL in Ethiopia were not investigated.

Chapter Three

Research Design and Methodology

This chapter was focused on the approach of the study and, it covered research design, population of the study, sample and sampling techniques, research data and collection instruments. Finally, methods of data processing and analysis were described.

3.1. Research Design

To achieve the stated research questions, the study employed of descriptive research design. According to (Salaria, 2012), descriptive research is devoted to the gathering of information about prevailing conditions or situations for the purpose of description and interpretation. This type of research method is not simply amassing and tabulating facts, but includes proper analysis, interpretation, comparisons, identification of trends and relationships. The research questions of the study were intended to determine and examine current practices and challenges and to develop information surrounding trends in reverse logistics practices and challenge in pharmaceuticals importing companies in Ethiopia. This design was deemed appropriate as it allowed the researcher to draw conclusion on current reverse logistic practices and challenges in pharmaceuticals importing companies.

3.2. Data Type and Sources

This study is based on both primary and secondary sources of data for collecting facts relating to the topic under research. The primary data collected through self-administered questionnaire from respondents. The secondary data were collected from official documents of the selected factories and government offices related to Supply Chain Management practices.

3.3. Research Population, Sample and Sampling Techniques

The population of the study was senior officers/executives in charge of SCM practice of the selected pharmaceutical companies who can be expected to have an experience about the operation and management of reverse logistics practice in their respective Pharmaceutical companies. Those include sales and operation manager, finance officer and warehouse officer. The researcher assumed that those respondents have enough knowledge to comprehend and respond to questions concerning reverse logistics practices and challenges in their respective pharmaceutical companies and included all of them to respond the questionnaire (Table 3.1).

The sampling technique used in this study was absolute sampling that enables to select all existing respondents. As stated by Chapin (2004) Absolute (Census) sampling is used takes place when the researcher included all members of the population in the study; usually if the population number is too small. Thus, this sampling technique was used considering respondents' job position and their responsibilities directly related to Logistics in the pharmaceutical importing companies and their number was small.

Table 3.1: Population and Sample Respondents

No	Factories	Population	Sample	Responded	%
1	MEDTECH pharmaceutical importing PLC	3	3	3	100
2	ZAF pharmaceutical importing PLC	3	3	3	100
3	Kefyalew pharmaceutical importing PLC	3	3	2	66.67
4	Etab Intermedica Human Drugs And Medical Supplies Importer And Wholesaler	3	3	2	66.67
5	Badreg Human Drug and Medical supplies importer and wholesaler	3	3	3	100
6	Teddy pharmaceutical importing PLC	3	3	3	100
7	Pharmabirbir pharmaceutical	3	3	3	100

	importing and distributing PLC				
8	Gunfire pharmaceutical importing PLC	3	3	3	100
9	BEKER pharmaceutical importing PLC	3	3	3	100
10	Afri med Human Drug & Medical supplies Importer &wholesale	3	3	3	100
11	Afro german drug and medical supplies importer and wholesaler	3	3	3	100
12	Ageca ethiopia company drug and medical supplies importer and wholesaler	3	3	2	100
13	Agmas Human Drugs and Medical Supplies Importer and wholesaler	3	3	3	100
14	Amba Drug and Medical Supplies Importer and Wholesale	3	3	3	100
15	Dat Intrnational Trading Drug And Medical Supplies	3	3	3	100

	Importer And Wholesaler				
	Total	45	45	43	95.6

Source: Secondary data obtained from FMHACA (2015)

Accordingly, as illustrated in table 3.1, a total of 45 sales and operating managers, finance officers and warehouse officers in 15 pharmaceuticals importing companies were considered as a population and all of them were taken as a sample for this study purposefully to respond the questionnaire. Thus, initially the questionnaires were distributed to 45 sample respondents selected from the 15 companies. Out of 45 questionnaires distributed to the respondents, 43 (95.56%) were correctly filled and returned. However, two (4.44%) of them were not correctly filled and responded the questioner.

3.4. Data Collection and Instruments

There are a number of instruments used to collect data for researches. The selection of them, however, based on types of researches which undertaken. As stated by William, Barry, Babin (2010), a decision of a researcher to select a particular instrument of data collection required considering the type of people dealing with, the name of the social circumstances, the disposition of the social environment, and the character of the people selected as a sample respondent for the study. Accordingly, a self - administered questionnaire was selected for data collection in this study.

3.5. Validity and Reliability of the Data Collection Tools

According to Cohen et.al (2007), the validity of a measurement instrument is about the extent to which the instrument measures what it is actually intended to measure. Whereas reliability of measurement instrument is referred as the extent to which the instrument yields consistent result when the characteristics being measured has not changed (Tavakol & Dennick, 2011). Reliability is an indicator of a measure's internal consistency. Coefficient alpha (α) or Cronbach alpha is the most commonly applied estimate of a multiple-item scale's reliability. Cronbach alpha is a measure of internal consistency, that is, how closely related a set of items are as a group. Internal consistency describes the extent to which all the items in a test

measure the same concept or construct and hence it is connected to the inter-relatedness of the items within the test.

Coefficient alpha ranges in value from 0, meaning no consistency, in 1, meaning complete consistency (all items yield corresponding values). Generally speaking, scales with a coefficient α between 0.80 and 0.95 are considered to have very good reliability. Scales with a coefficient α between 0.70 and 0.80 are considered to have good reliability, and α value between 0.60 and 0.70 indicates fair reliability. When the coefficient α is below 0.6, the scale has poor reliability (Zikmund, Babin, Carr, & Griff, 2010).

In order to assure data quality, the questionnaire prepared for this study was validated and tested at pilot level for its reliability before distributing for sample respondents and used as a data collection tool.

Primarily, the validity of the instruments was tested by two experts of the department, including the research advisor to judge the items on their appropriateness and clarity of the contents. Based on the comments forwarded by the experts, amendment was made on data collection instruments. Then, the reliability of the instruments was tested through the pilot study. In the pilot study the questioner was distributed to randomly select 12 respondents from two Pharmaceutical Importing companies not included in the study; namely EBG and V-TAG Drugs and medical supplies importer.

Finally, to test the reliability of the questioner Cronbach's alpha coefficient was calculated and the results were illustrated in Table 3.2.

Table 3.2. Reliability Statistics for Pilot Test

Case Processing Summary

	N	%
Valid	12	100.0
Cases Excluded	0	.0
Total	12	100

Reliability Statistics

Cronbach's Alpha	N of Items
0.80	12

Accordingly, the researcher distributed 12 questionnaires for respondents who were accessible to know Coefficient alpha values for each specific questionnaire. Distributed questionnaires were collected and analyzed by SPSS and the result of questionnaires was 0.8. Therefore, this result is acceptable according to the literature. Moreover, the questionnaires were commented by three logistic officers, three expert pharmacists and my adviser ensure validity.

3.6. Data Processing and Analysis

Since the data collected was quantitative, descriptive statistics such as mean, frequency, and percentage was used in the analysis by generating tables with respect to basic research questions

The collected data were compiled, sorted, edited and coded to have the required quality, accuracy and completeness. Then the data gathered was entered into the computer using the Statistical Package for Social Sciences (SPSS v. 20.) for analysis.

3.7. Ethical Considerations

The study was ethically governed by principle of research. The researcher took a support letter from Department of Management: School of Business and Economics of Adama Science and Technology University. Accordingly, the data which was collected from respondents through questionnaire, permission was obtained from respondents.

To maintain confidentiality of the information provided by the respondents, they were instructed not to disclose their names on the questionnaire and assured that their responses would be used only for academic purpose and kept confidential.

In addition, brief description of the study and the potential benefit of the research outcome were explained to the respondents. Finally, they were included in the study based on their free will and interest. Furthermore, no personal details of individual respondents are produced in any part of the study document. Besides, any confidential information revealed by respondents will be kept secret except they could be used for academic purpose.

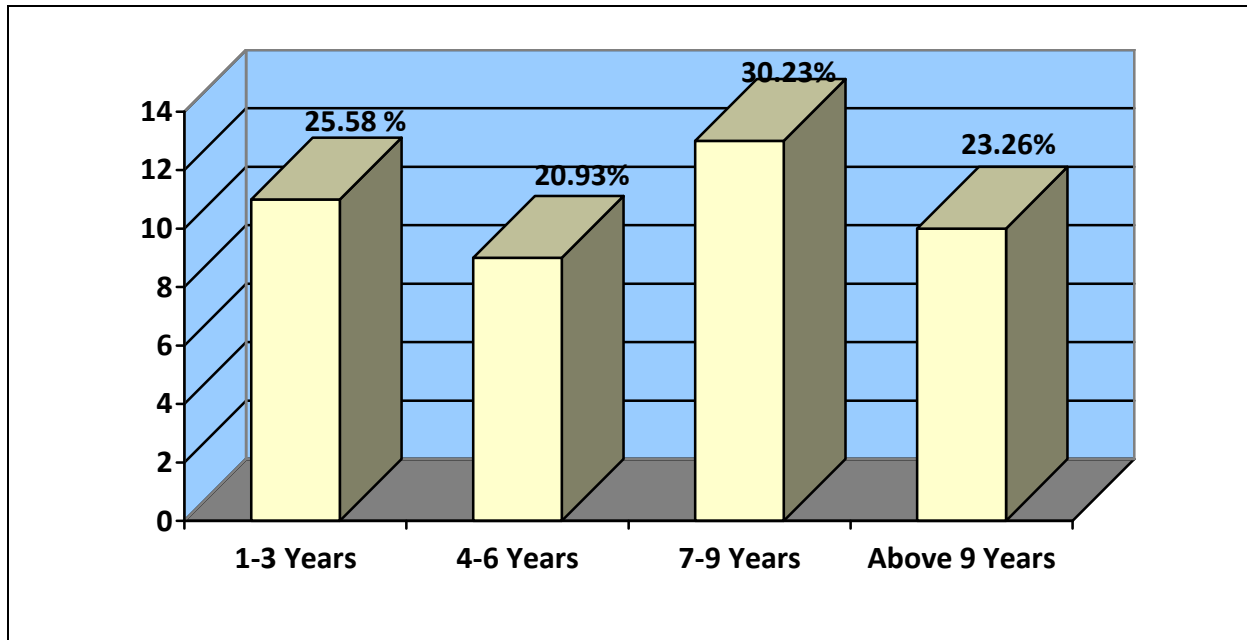
Chapter Four

Data Presentation and Analysis

This chapter presents the results of statistical analysis of the data collected from the respondents. First, the demographic information of the respondents that describe job position, educational status and work experience of respondents were stated. This was followed by data presentation and analysis of respondent's responses on Reverse Logistics practices. Then, correlation coefficient results about adoption of RL practice with challenges to practice RL were presented and analyzed.

4.1. Background Information of the Respondents

Background information on the respondents includes work experiences, educational status and job positions of the respondents. The analyses of them were presented using three figures hereunder.

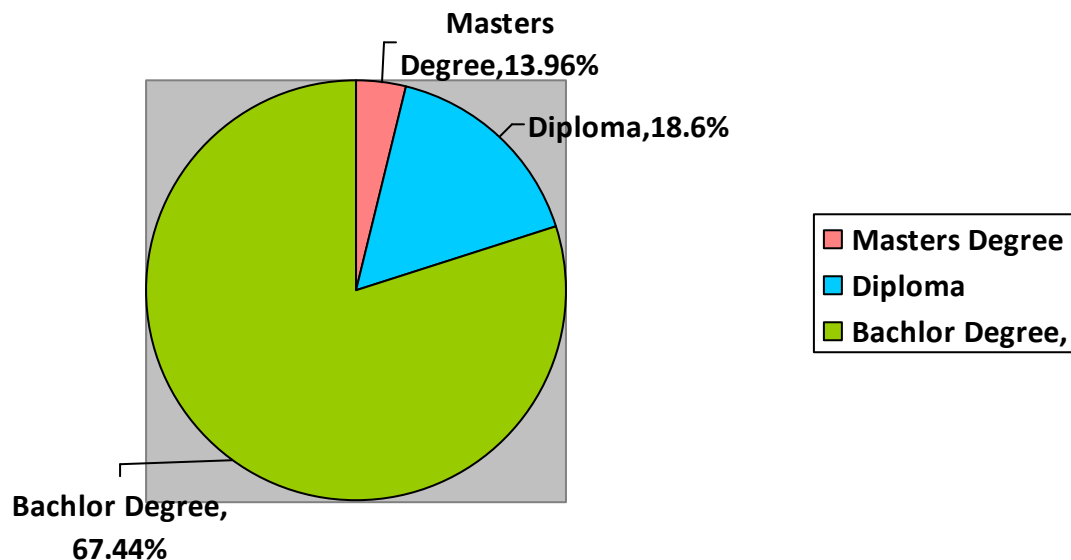


Source: Primarily data collected by the researcher from the field survey (October, 2015)

Figure 4.1: Respondent's service year in the current company

Regarding service years of the respondents in current company the data in figure 4.1 showed that, most of the respondents (30.23%) were working in their companies for 7 to 9 years, (25.58%) for 1-3 years, (23.26%) were working for above 9 years and (20.93%) of them

were served from 4-6 years. In general, the data of the figure shows, the majorities of the respondents were served in their respective factory for more than three years and can be considered as they are well familiar about their company's reverse logistics practices and challenges to respond the questioner.



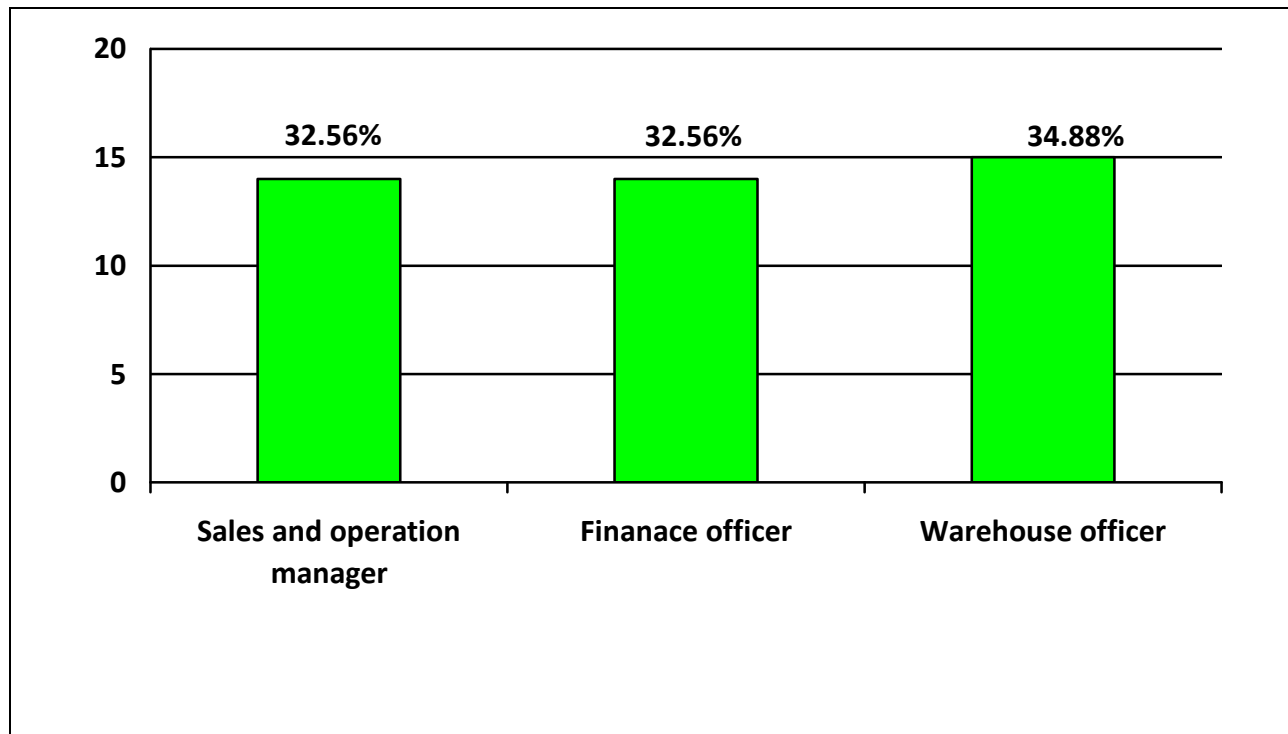
Source: Primarily data collected by the researcher from the field survey (October, 2015)

Figure 4.2: Educational background of the respondents

Figure 4.2 Illustrates educational background of the respondents participated in this study. As it depicted in the figure majority of the respondents (67.44%) were bachelor degree holders, and (18.6%) respondents were graduated at diploma level education. The remained respondents (13.96. %) were with the master's degree level. This shows that, most of them are educated and they can easily understand the questionnaire presented to them. Therefore, the researcher took this opportunity so as to collect the required data without translating the questionnaire to another language convenient for them.

Concerning current job position of the respondents, the data in **figure 4.3** indicated that a higher share of respondents was warehouse officers (34.88%). Both sales and operation manager and financial officer share equal number of respondents (32.56). This shows that

almost all respondents are valid respondents because; they can represent the practices of reverse logistics at different stages and expected to be well informed about study variables.



Source: Primarily data collected by the researcher from the field survey (October, 2015)

Figure 4.3 Current job positions of the respondents

4.2. The Practices of Reverse Logistics

The data were collected using questioner. Initially the questionnaires were distributed to 45 sample respondents selected from the 15 pharmaceuticals importing companies. Out of 45 questionnaires distributed to the respondents, 43 (95.56%) were correctly filled and returned. However, two (4.44%) of them were not correctly filled and responded the questioner. Thus, data presentation and analysis in this study was based on the responses of these 43 respondents' responses.

The data collected for this study were organized and presented in tables and graphs. Subsequently, analysis and interpretation of the data were made. In addition, discussions on the findings of the study were made by comparing the results with literature review and empirical evidences.

This part focuses on determining whether the selected pharmaceutical importing companies practice reverse logistics or not. It focused on respondents responses related to the first basic research question: How do pharmaceuticals importing companies' practice reverse logistics. The data related to reverse logistics practice are presented and analyzed separately as follows.

Table4.1. Reverse logistics practice in selected pharmaceutical importing companies.

Sn	Items	N	Mean	SD
1	Companies allow product return and manage the returned product.	43	2.30	0.814
2	Companies practice reverses Logistics	43	1.74	0.639
All Items			2.02	0.727

Source: Primarily data collected by the researcher from the field survey (October, 2015)

A pharmaceutical supply chain are characterized by the high level of wastage and spill over and also faces the common issues of returns of drugs, companies require a proper system in place to deal with such circumstances.

There are many reasons why products are returned, either by consumers or by the companies involved in the distribution chain. From a regulatory perspective effectively any item made can be returned or recalled due to manufacturing defect, expiry, safe disposal or recycling. The competitive reasons and clearing the old stock from the market (clean channel) effectively all products are subject to return and hence reverse logistics (Johan, 2000).

Considering the above facts, respondents were asked to rate the current reverse logistics practice and their responses were organized and presented in table 4.1. Thus, the data in the table illustrate the respondents' responses on the product return and existence of reverse logistics practice in their respective companies.

From the results majority of the respondents agreed that organizations do not practiced reverse logistics (M=1.74, SD=0.639) and also confirmed with the product allowed to be returned

(M=2.30, SD=0.814) whenever possible as shown in table 4.1. The average mean score was 2.02 which is closer to the mean score of both companies allow the product return and companies practice reverse logistics this would mean that an average of the companies do the same. From the above results majority of pharmaceutical importing companies ignore reverse logistics and do not consider as part of the supply chain as it had the lowest mean score.

4.3. Challenges in Successfully Implementing RL

4.3.1. External barriers to practice RL

In this part, data collected on external barriers in successful implementing RL were presented and analyzed to answer the second basic research question of the study; that is what are challenges on reverse logistic in pharmaceuticals importing companies in pharmaceutical importing companies in Addis Ababa.

Table 4.2: The result of descriptive Statistics on external barriers to practice RL in selected pharmaceutical importing companies

S.N	Items	N	Mean	SD
1	There is a shortage of financial resource to practice RL	43	4.09	0.781
2	Regulatory body enforces pharmaceutical company to practice RL	43	2.09	0.432
3	There is a top management awareness on the importance of RL	43	1.95	0.585
4	There is a directive of pharmaceutical RL	43	3.02	0.831
All Items			2.78	0.657

Source: Primarily data collected by the researcher from the field survey (October, 2015)

No system is perfectly smooth; barriers/obstacles exist everywhere. Reverse logistics is by its very nature a complex process and a specialized area of any supply chain.

In relation to this, four items were used to measure external barriers to practice RL the case of selected pharmaceutical importing companies. Accordingly, the data in the table 4.2 revealed, out four items developed to see external barriers to practice RL three of them score below the average mean value 3. Accordingly, a shortage of financial resource to practice RL, which

scores ($M=4.09$, $SD=0.781$) it implies that financial resources is one of the external barriers to practice reverse logistics in selected pharmaceutical importing companies. One of the biggest pressures on organizations with regard to reverse logistics is the internal mandate to reduce costs (Pollock, 2010). Organizations do not plan for products to ‘fail’ and enter the reverse logistics stream, which consequently results in very few resources being allocated to this part of the supply chain (Rogers & Tibben-Lembke, 2001).

Moreover, awareness of the existence of a directive for pharmaceutical RL and enforcement by regulatory body on pharmaceuticals importing company to practice RL scored ($M=3.02$, $SD=0.831$) and ($M=2.09$, $SD=0.432$) correspondingly. It can be realized that the selected pharmaceutical importing companies did not know the availability of a directive that is set by Food, Medicine and Health Care Administration Control Authority (FMHACA) that guides how the pharmaceutical companies to practice RL. In connection to this, FMHACA didn’t not contributing to the development of reverse logistics in pharmaceutical industry in particular through executing the policy and taking various measures /actions so as to reduce the impacts of medical wastes on the environment and thereby ensure a healthy environment for the society.

Similarly, the mean value of lack of awareness on the importance of RL by top management who have the responsibility to execute organizational and regulatory body policies ($M=1.95$, $SD=0.585$) clearly tell us there is a lack of awareness on the importance of RL of top management in the selected pharmaceutical importing companies.

4.3.2. Internal Barriers to Practice, RL

In this part also data collected on internal barriers in successful implementing RL were presented and analyzed to answer the second basic research question of the study; that is what are challenges on reverse logistic in pharmaceuticals importing companies in pharmaceutical importing companies in Addis Ababa.

Table 4.3. Internal barriers to practice in selected pharmaceutical importing companies

No	Items	N	Mean	SD
----	-------	---	------	----

1	Reverse logistics are included in strategic planning	43	2.30	0.505
2	There is trained manpower to practice reverse logistics in our company	43	2.86	0.706
3	There is a reverse logistics policy in our company	43	2.84	0.252
4	There is commitment of top management to practice reverse logistics in our company	43	2.98	0.971
	Total	43	2.75	0.609

Source: Primarily data collected by the researcher from the field survey (October, 2015)

As depicted in table 4.3, the mean value of the presence of reverse logistics policy in selected pharmaceutical companies' scores ($M=2.84$, $SD=0.252$) and reverse logistics incorporated in strategic planning is scored ($M=2.30$, $SD=0.505$) which is below the average 3. It implies that companies do not want to see their “junk” cannibalizing their first quality or they often develop policies that make them profitable.

Furthermore, trained manpower to practice RL ($M=2.86$, $SD=0.706$) which indicated there is a lack of trained manpower in the selected pharmaceutical importing companies since the mean value is above the average. As the result shows in table 4.3, there is commitment by top management to practice RL in their respective companies ($M=2.98$, $SD=0.971$).

4.4. Relationship of RL Practice with External Barriers

Table 4.4: Correlation matrix external barriers to practice RL

	RL practice
Items	

Shortage of financial resource to practice reverse	Correlation	-0.563**
	Sig. (2-tailed)	0.000
Enforcement by regulatory body to practice reverse	Correlation	0.491**
	Sig. (2-tailed)	0.000
Lack of top management awareness on the importance of RL	Correlation	-0.327*
	Sig. (2-tailed)	0.032
There is a directive of pharmaceutical RL	Correlation	0.397*
	Sig. (2-tailed)	0.028

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

* . Correlation is significant at the 0.05 level (2-tailed).

Source: Primarily data collected by the researcher from the field Survey (October, 2015)

As can be seen from the table the relationship of the shortage of finance to practice reverse with RL practice was positive and strong. This shows that the shortage of finance is one of the external barriers that make pharmaceutical importing companies not to practice RL. Almost similar positive, but weak relationship of lack of top management awareness on the importance of RL was observed with there is a directive of pharmaceutical RL ($r=0.327$, $P<0.05$) and with suppliers ($r=0.397$, $P<0.05$) at the 0.01 level of significance. Regulatory body enforces the pharmaceutical companies to practice RL with RL practice was positive and strong. Food medicine and health administration control authority of Ethiopia (FMHACA), has developed directive on return and proper management of returned medicine that impose on firms more corporate social responsibility and force them to act in environmentally friendly This means, the regulatory body which has the authority to execute the policies, that

direct the pharmaceutical companies to accept and properly managed returned drugs, didn't enforce the companies and as the result companies didn't give attention to practice RL.

4.4. Relationship of RL Practice with Internal Barriers

Table 4.5: Correlation matrix internal barriers with RL practice

Pearson Correlation (N=43)		RL practice
RL is included in the strategic planning	Correlation	0.540**
	Sig. (2-tailed)	0.000
Lack of trained manpower to practice reverse	Correlation	-0.463**
	Sig. (2-tailed)	0.000
RL policy	Correlation	0.417**
	Sig. (2-tailed)	0.001
Commitment by top management to practice RL	Correlation	0.509**
	Sig. (2-tailed)	0.000

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

Source: Primarily data collected by the researcher from the field Survey (October, 2015)

The correlation coefficient calculated between RL practices and internal barriers to practices RL of the selected pharmaceutical importing companies were illustrated in table 4.5. As seen in the table, the relationship between RLs is included in strategic planning and RL policy with RL practices were positive. This means, if the selected pharmaceutical importing companies incorporate RL in the company strategic planning, they would get all the benefits of practicing RL stated in the literatures. To have a successful reverse logistics process in place requires a

shift in the organization. Many organizations' policies, structures and strategies' get in the way of the change necessary for the successful implementation of reverse logistics (Ravi & Shankar, 2004).

Lacks of trained manpower to practice reverse and lack of top management commitment to practice reverse both tend to be perceived as a problem/challenge to a great extent.

Chapter Five

Summary, Conclusions and Recommendations

This chapter focuses on the summary of major findings, conclusions drawn from the findings and recommendations that the researcher forward in order to improve SCM practices in flour producing factories and the efficiency of their operation management.

5.1. Summary of Major Findings

The major purpose of this study was to investigate reverse logistics practice and challenges in selected pharmaceutical importing companies in Addis Ababa. In order to achieve this objective attempt was made to answer basic research questions. In doing so the data were collected using questionnaires. Initially the questionnaires were distributed to 45 sample respondents selected from the 15 pharmaceutical importing companies. Out of 45 questionnaires distributed to the respondents, 43 (95.56%) were correctly filled and returned. Analyses and interpretation were made using the data illustrated in tables and graphs. In addition, discussions on the findings of the study were made by comparing the results with literature review and empirical evidences. Thus, based on the analysis made in accordance with the study objectives, major findings were summarized as follows.

5.1.1. Background information of the respondents,

Regarding service years of the respondents in current company the data in figure 4.1 showed that, most of the respondents (30.23%) were working in their firms for 7 to 9 years, (25.58%) for 1-3 years, (23.26%) were working for above 9 years and (20.93%) of them were served from 4-6 years. In general, the data of the figure shows, the majorities of the respondents were served in their respective factory for more than three years.

Background information on the respondents includes work experiences, educational status and job positions of the respondents. With regards to the job position of the respondents, the highest share of respondents was warehouse officers (34.88%). Both sales and operation manager and financial officer share equal number of respondents (32.56). This shows that almost all respondents are valid respondents because; they can represent the practices of

reverse logistics at different stages and expected to be well informed about study variables inventory manager accounts only 13.56% and 8.47% respectively.

5.1.2. RL Practice in the Selected Pharmaceutical Importing Companies

As it was described in the literature review, all sales and deliveries are not always final. The customer may come to return the same product or offering for a number of reasons. Unsold products are returned at the end of a selling season from retailers to manufacturers due to overstocking of inventory. Therefore, there must be a provision of another similar flow or chain which could carry these returned products backwards. Due to an ever-increasing awareness about the economic, environmental and social benefits associated with the reverse logistics, the reverse logistics have started attracting the attention of companies since the last decade (Ravi & Shankar, 2006). However, the overall mean score (2.02) results of practice of product return and management as well as the overall RL practice of the selected pharmaceutical companies were weak. The variables tested in this regard, including companies allow the product return and manage the returned product and companies practice reverses Logistics. This may affect the effectiveness of pharmaceutical SCM of the companies and their relationship with the customers for future business strategy.

5.1.3. Challenges to Practice, RL in the Selected Pharmaceutical Importing Companies

Concerning the challenge to practice RL, the overall mean score (2.78) results of external barriers to practice RL of the selected pharmaceutical companies was weak. Four items were used to measure external barriers to practice RL the case of selected pharmaceutical importing companies. Accordingly, the data in the table 4.2 revealed, out four items developed to see external barriers to practice RL three of them score below the average mean value 3. Accordingly, a shortage of financial resource to practice RL, which scores ($M=4.09$, $SD=0.781$) it implies that financial resources is one of the external barriers to practice reverse logistics in selected pharmaceutical importing companies. One of the biggest pressures on organizations with regard to reverse logistics is the internal mandate to reduce costs (Pollock, 2010) Cost considerations are a prime challenge in commercial companies to practice RL. Companies require allocation of funds and other resources for the implementation of reverse logistics. Information and technology systems require more funds because without these, the

returns product tracking and management are difficult (Stock, 1992). Moreover, awareness of the existence of a directive for pharmaceutical RL and enforcement by regulatory body on pharmaceuticals importing company to practice RL scored ($M=3.02$, $SD=0.831$) and ($M=2.09$, $SD=0.432$) correspondingly. It can be realized that the selected pharmaceutical importing companies didn't know the availability of a directive that is set by Food, Medicine and Health Care Administration Control Authority (FMHACA) that guides how the pharmaceutical companies to practice RL. In connection to this, FMHACA didn't not contributing to the development of reverse logistics in pharmaceutical industry in particular through executing the policy and taking various measures /actions so as to reduce the impacts of medical wastes on the environment and thereby ensure a healthy environment for the society.

Similarly, the mean value of awareness on the importance of RL by top management who have the responsibility to execute organizational and regulatory body policies ($M=1.95$, $SD=0.585$) clearly tell us there is a lack of awareness on the importance of RL of top management in the selected pharmaceutical importing companies.

As depicted in table 4.3, the mean value of the presence of reverse logistics policy in selected pharmaceutical companies' scores ($M=2.84$, $SD=0.252$) and reverse logistics incorporated in strategic planning is scored ($M=2.30$, $SD=0.505$) which is below the average 3. It implies that companies do not want to see their “junk” cannibalizing their first quality or they often develop policies that make them profitable.

Furthermore, trained manpower to practice RL ($M=2.86$, $SD=0.706$) which indicated there is a lack of trained manpower in the selected pharmaceutical importing companies since the mean value is above the average. As the result shows in table 4.3, there is poor commitment by top management to practice RL in their respective companies ($M=2.98$, $SD=0.971$). The training of personnel related to the reverse logistics is very important for efficiently managing and eventually making the reverse logistics profitable. However, all these require financial support. (Stock, 1992)

5.2 Conclusion

The central objective of the study was to assess RL practical and challenges in the selected pharmaceutical importing companies; and to analyze the effects. In this regard, the most cited reasons and incorporated in this research are shortage of financial resource, absence of regulatory body enforcement to pharmaceutical companies to practice RL, lack of top management awareness on the importance of RL and all internal barriers attributed to poor reverse logistics practice in the selected pharmaceutical importing companies. For this purpose, two general dimensions of RL practices and challenges (external and internal) that hinder pharmaceutical companies not to engage themselves to practice RL were used as research variables. The results of the study show that the implementation of RL practices is weak in selected pharmaceutical importing companies in Addis Ababa due to the external and internal barriers. It can, therefore be concluded that the sector is doing business as usual and no attention was given to reverse logistics in the pharmaceutical sector yet. Despite all the barriers, it has been found that reverse logistics should be important, and organizations can enjoy many benefits if they do engage in reverse logistics practices in an efficient and effective manner. The research discussed in this article was based on the literature in which reverse logistics were explored. It was found that there are negative attitudes towards reverse logistics. Most businesses and workers are not aware of the potential benefits or opportunities presented by correctly managed reverse logistics. Organizations that adopt reverse logistics have processes well structured. For the customer this means ensuring capacity to meet their needs, generating customer loyalty and making it difficult for competitors to imitate simple services that are geared towards value creation and the environment. By understanding the reverse logistics as it is possible for companies to understand what are the opportunities to gain competitiveness.

Since there is still a scarcity of academic research in Ethiopia in the field of reverse logistics, the aim of this study was to contribute to this field and increase awareness of the significance of reverse logistics in the pharmaceutical sector. Hopefully this will open up opportunities for future research and practices in reverse logistics for both academics and businesses in Ethiopia.

5.3. Recommendations

In terms of the research findings, an extensive literature study and empirical study onto reverse logistics, the following recommendations can be made:

- Organizations should familiarize themselves with the concept of reverse logistics and the scope of reverse logistics activities in Organizations.
- Organizations should pay more attention to reverse logistics and realize the importance and benefits of it.
- Organizations should identify the problems/challenges they experience in reverse logistics practice and consider possible solutions and best practices to implement in order to resolve these problems.
- Organizations should include reverse logistics in their strategic planning and create clear policies for it.
- Organizations should consider outsourcing their reverse logistics function, if they lack the necessary expertise or knowledge.
- Organizations should communicate and share information with their supply chain partners regarding reverse logistics.
- FMHACA should enforce the companies to practice RL and take appropriate measure

5.4. Implication for Further Research

Finally, since in this study, the researcher gave attention only few pharmaceutical importing companies, other pharmaceutical manufacturing companies are not included. Therefore, it is recommended for future research on pharmaceutical manufacturing companies.

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Appendices

Adama Science and Technology University
School of Business and Economics
Department of Management
Questionnaire

The purpose of this questionnaire is to undertake a research for the partial fulfillment of Master of Business Administration (MBA) on the title “*Reverse logistics practice and challenges in selected pharmaceuticals importing companies in Addis Ababa*”. The study is conducted for academic purpose and cannot affect you and your organization in any case. So, your genuine, honest and timely response is vital for successful accomplishment of this study on time. Therefore, I kindly ask you to give your response to each item/questions carefully.

Thank you in advance!!!

Part I. Personal information

Name of your organization_____

1. Year of work experience in the organization:

- 1-3 years ☐
- 4- 6 years ☐
- 7-9 years ☐
- 10-12 years ☐
- Above 12 years ☐

2. Educational background

- | | |
|---|--|
| • Primary School ☐ | • Diploma ☐ |
| • Secondary School ☐ | • Bachelor degree ☐ |
| • Preparatory ☐ | • Master’s Degree and above ☐ |

3. Job title

- Sales and operation Manager ☐
- Finance officer ☐
- Warehouse officer ☐

Part II. Items related to reverse logistics Practices Please indicates the extent to which you agree or disagree with the following statements regarding your company Reverse logistics practices and Challenges. Please use "√" to indicate your choice. (1: Strongly disagree, 2: disagree, 3: neutral, 4: agree, 5: strongly agree)

S.N	Items	Scale				
		1	2	3	4	5
A	Reverse logistic practice					
3	I know that our company allows product return and managed properly.					
4	I know that our company practice reverse logistics					

Part II. Challenges In Successfully Implementing RL

	Items	1	2	3	4	5
A	External Barrier					
1	I know that there is shortage of financial resource to practice reverse logistic in our company					
2	I know that regulatory agency enforce pharmaceutical reverse logistic					
3	I know that there is a top management awareness on the importance of reverse logistics					
4	I know that there are directives for pharmaceutical reverse logistic					
B	Internal Barrier					
1	I believe that reverse logistics are included in strategic planning					

2	I know that there I trained manpower to practice reverse logistic in our company					
3	I know that there is reverse logistic policy in our company					
4	I know that there is a commitment of top management to practice reverse logistic in our company					