

CHAPTER I

INTRODUCTION

This chapter explains about the research background, problem formulation, research objective, problem limitation and outline of the report used in writing a research report.

1.1 Background

Indonesia's economic growth has tough defiance. It's according to the domestic and global economic movements that make Indonesia always be ready for change, due to diversified commodities requirement and the development of advanced technology. Nowadays, Indonesia's national logistics performance has a significant increase compared to previous years. Based on the results of the logistics performance index which is conducted by the World Bank in 2018, Indonesia increased 17 levels from position 63rd in 2016 to 46th from 160 countries.

Table 1.1 Logistic Performance Index

Top-performing lower-middle-income economies, 2018								
Economy	2018		2016		2014		2012	
	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Vietnam	39	3.27	64	2.98	48	3.15	53	3.00
India	44	3.18	35	3.42	54	3.08	46	3.08
Indonesia	46	3.15	63	2.98	53	3.08	59	2.94
Côte d'Ivoire	50	3.08	95	2.60	79	2.76	83	2.73
Philippines	60	2.90	71	2.86	57	3.00	52	3.02
Ukraine	66	2.83	80	2.74	61	2.98	66	2.85
Egypt, Arab Rep.	67	2.82	49	3.18	62	2.97	57	2.98
Kenya	68	2.81	42	3.33	74	2.81	122	2.43
Lao PDR	82	2.70	152	2.07	131	2.39	109	2.50
Jordan	84	2.69	67	2.96	68	2.87	102	2.56

The increase of Indonesia's logistics performance is not well-matched with the decline of Indonesia's logistics costs, based on data from the Indonesian Logistics and Forwarder Association (ALFI), Indonesia's logistics costs still in

advanced that reaches out 25% of gross domestic product. The composition of logistics costs summarized in **Figure 1.1**.

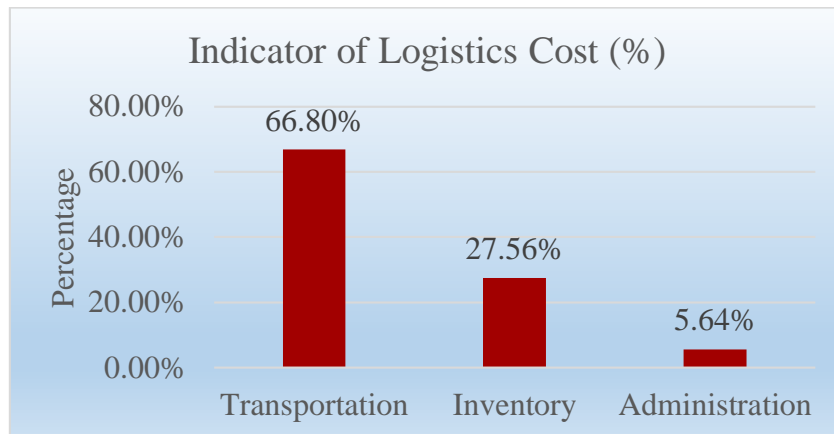


Figure 1.1 Composition of Logistics Cost
(Source: Supplychainindonesia.com)

In **Figure 1.1**, transportation costs are the dominant composition as they contribute about 66.8% of the logistic costs. High transportation cost requires freight forwarding companies and logistics service providers to execute continuous improvements because four out of six deciding factors to determine Indonesian logistics performance exist in these companies. The strategy to reduce transportation costs is improved distribution and transportation networks. Efficient distribution and transportation systems are some ways to reduce transportation costs which will affect logistics costs.

Distribution and transportation are vital elements that involve individuals, groups, private companies and government agencies that can influence competitive advantage to survive and compete in a business environment. Distribution and transportation are logistic activities that have an important role in the business entities to meet customer's demand. Distribution is a set of interrelated functional activities to distribute the number of finished goods to customers. Transportation and distribution system are closely related as transportation provide the media in the shipping of products or services from origin to destination to meet customer needs. Regarding the goods transportation process, the distance of warehouse to destination and vehicle capacity are some factors impacting the duration of the

transportation process. It is something crucial in the process of determining the distribution route. Therefore, determine the optimal configuration of the shipping line to the right place at the right time with minimal costs is one of the crucial considerations in the company.

Determination the shipping route plays an important in the distribution process. Therefore, it is important to choose the right route by each vehicle. Transportation problems is one of a route optimization problems that commonly known as vehicle routing problems (VRP). Vehicle routing problem is transportation problem to determine a set of route from depot to a set of customer to minimize the transportation cost consider the number of constrains to represent the real system (Toth & Vigo, 2002). These constraints will be considered in the companies to reduce operational costs, especially in transportation. Vehicle routing problem is used to find distribution routes from one depot to a set of customers with dynamic demand. The issue of determining this distribution route prosecutes all companies must be able to handle, so it can fulfil consumer demand and minimize costs incurred, including Bulog Corporation.

Bulog is a state-owned general company engaged in food logistics. It is a government agency that conducts distribution activities. For example, distribute subsidised rice to people who have low incomes, commonly referred to as the Raskin program. The objective of the Raskin program is to improved welfare and meet society's food requirements. Bulog divided into several Divre in Indonesia, among them is Bulog Divre west Sumatera. It has a responsibility to distribute Raskin in West Sumatra, especially at Padang Pariaman. Raskin distribution starts from the Bulog Warehouse (GBB) Pampangan located in Bypass, Pampangan Nan XX to the distribution point, i.e. the sub-district. Padang Paraiamn consists of 17 sub-districts and 45 villages that are widespread. The widespread sub-districts location in Padang Pariaman and Bulog warehouse seen in **Figure 1.2**.



Figure 1.2 Administrative Map of Padang Pariaman

In **Figure 1.2**, the spread out Raskin distribution locations in Padang Pariaman and a considerable distance from Bulog warehouse prosecute Perum Bulog must be able to determine the route selection carefully and precisely. Besides, each distribution point has different demands and varying distances between the distribution point. Wrong route selection will affect the distribution process will not run smoothly, long-distance travel, long time travel, and it may be expensive due to the wrong route.

Satker Perum Bulog must distribute Raskin every month to 17 sub-districts and total Raskin distribute is 196.150 kg/month. The time needed to distribute Raskin is 6-7 days.

At present, Raskin distribution at Perum Bulog Divre West Sumatera does not have own transportation mode. To facilitate the Raskin distribution from the warehouse to the distribution point Perum Bulog West Sumatera cooperates with Jasa Prima Logistik (JPL). At this time, Perum Bulog Divre West Sumatra does not have a fixed and definite route determination system to serve a set of distribution points. As a result, the Raskin distribution route changes every month. At present, Bulog's policy to determine distribution routes based on a policy which serve first the sub-districts which have completed their administration. The sequence of Raskin distribution routes for each distribution point was determined based on the closest distance according to the intuition of the salesman.

Inappropriate distribution routes will cause long distances and take a long time. Moreover, it also increased transportation costs, especially increment fuel costs due to the wrong route selection. In this final project, it is necessary to design a Raskin distribution route at Bulog Divre West Sumatra considering the vehicle capacity, Raskin demand and the distance of each distribution point, Raskin Demand and the distance of each distribution point. So, with the design of the new Raskin distribution route, expected to get the best route with smaller transportation costs.

1.2 Problem Formulation

The problem formulation in this final project is how to design a better solution for Raskin distribution route considering vehicle capacity, distance and Raskin demand in each distribution point.

1.3 Research Objectives

The objective of this final project is to determine the best route for the Raskin distribution process considering the vehicle capacity, distance traveled and Raskin demand in Bulog Divre West Sumatra.

1.4 Scope of the Problem

The scope of the problem in this final project are:

1. This research has focused on the Raskin distribution at Padang Pariaman.
2. The data used is Raskin distribution in 2018.
3. The vehicle to distribute Raskin is a truck rented from a subsidiary of Bulog, it is Jasa Prima Logistics.
4. The distribution time accordance with Bulog Divre West Sumatera working hour.

1.5 Outline of Report

Writing this final project report consists of several chapters are as follows:

CHAPTER I INTRODUCTION

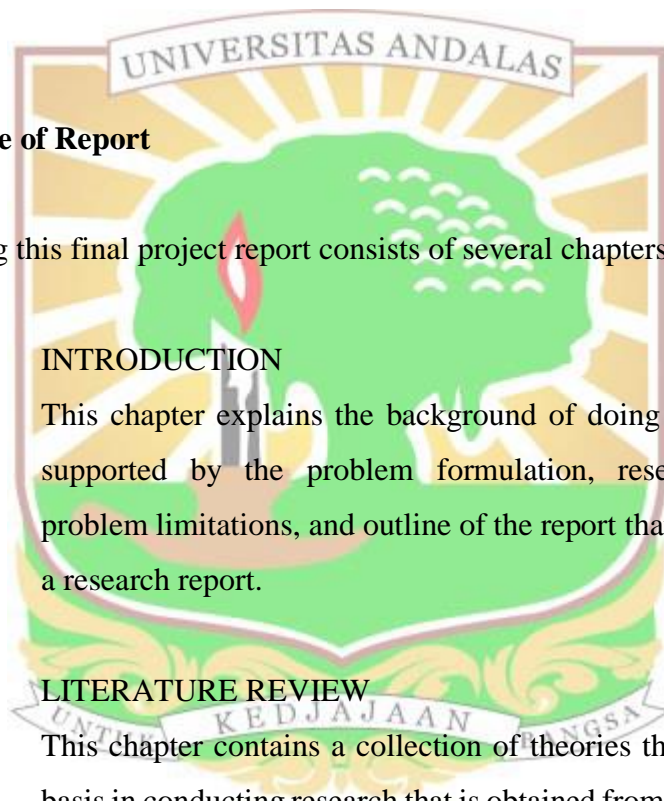
This chapter explains the background of doing research that is supported by the problem formulation, research objective, problem limitations, and outline of the report that used in writing a research report.

CHAPTER II LITERATURE REVIEW

This chapter contains a collection of theories that are used as a basis in conducting research that is obtained from books, previous research journals, and scientific articles.

CHAPTER III RESEARCH METHODOLOGY

This chapter contains the steps taken to solving research-related problems.



CHAPTER IV DATA COLLECTION AND PROCESSING

This chapter contains data collection used to solve research problems and then the data will be processed to get the best route group.

CHAPTER V ANALYSIS

This chapter explains the analysis related to solving the problems in this research.

CHAPTER VI CONCLUSIONS

This chapter contains conclusions obtained from the results of research and suggestions given for further research.

