Barriers to Green Logistics Implementation in Indonesia: A Preliminary Study

Suryadi Hadi
Management study Program
Faculty of Economy and Business
Tadulako University
Palu, Indonesia
suryadihadi@untad.ac.id

Sulaeman Miru
Management study Program
Faculty of Economy and Business
Tadulako University
Palu, Indonesia

Saharuddin Kaseng
Management study Program
Faculty of Economy and Business
Tadulako University
Palu, Indonesia

Asngadi
Management study Program
Faculty of Economy and Business
Tadulako University
Palu, Indonesia

Syamsuddin
Management study Program
Faculty of Economy and Business
Tadulako University
Palu, Indonesia

Femilia Zahra
Accountancy study Program
Faculty of Economy and Business
Tadulako University
Palu, Indonesia

Abstract— **The sustainability of a business is inseparable from the ability to maintain environmental quality. Business awareness in various sectors today, especially in the logistics sector, has also increased. Logistics business players in developed countries have implemented this compared to emerging countries. Barriers still exist in implementing green logistics, especially in Indonesia. This article aims to identify these barriers by conducting a literature study. The results of the search show that technological factors, organizational climate, competition and regulation are barriers to implementing green logistics in Indonesia. The results obtained from this article can be used as a reference for further research in the focus area of green logistics in Indonesia.**

Keywords— barriers, implementation, green logistics, Indonesia.

I. INTRODUCTION

Indonesia is an island nation with hundreds of islands, efficient logistics operations might assist efficient distribution of products across provinces and islands[1] (Muslimin, Hadi and Ardiansyah, 2015). The government has built roads, sea tolls, and other infrastructure during the past ten years to serve as a support system for logistical operations. But in terms of logistics performance, Indonesia remains behind several other nations within ASEAN[2]. As a result, Indonesia's government and logistics firms must find a solution to this major problem in order to make it easier for goods to be distributed. The next challenge is the emergence of consumer awareness to maintain environmental sustainability. This is the reason why business people today must start paying attention to aspects of environmental sustainability so that it has an impact on the logistics sector[3]. Logistics activities are required to be able to support the sustainability in every stage of the process or known as green logistics[4].

Green logistics refers to efforts to lessen the potential harm that logistics processes, particularly during the distribution of commodities, may produce. Supply chain management incorporates green logistics into environmental performance from upstream to downstream[5]. The major focus of the notion of "green logistics" is on minimizing waste in each operation, such as minimizing the use of harmful materials when packing goods and minimizing the excessive use of fossil fuels while carrying out distribution [6]. Logistics activities that lead to environmental sustainability will support a circular economy system that includes: green packaging, green transport, storage and flow of processing [7].

Indonesia's ability to apply the concept of green logictics is the main obligation in supporting the integration of global logistics[8]. The challenge faced by Indonesia is how to make logistics performance equal to or exceed the achievements of logistics performance in other ASEAN countries, such as Thailand. The next challenge is how to make the implementation of logistics activities in Indonesia run accordingly without neglecting environmental sustainability standards[9]. In other words, logistics activities in Indonesia can also apply the concept of green logistics.

The problems discussed in this article are what things can affect the application of green logistics in Indonesia. The results of a search of several articles and synthesis activities will support the statement of the description related to green logistics. The expected output from the preparation of this article is that the results of research conducted by other researchers conducted abroad can be a comparison when describing conditions that occur in Indonesia. The preparation of this article aims to get an initial idea of what obstacles can affect the implementation of green logistics in Indonesia. The results of the preparation of this article can also be a reference material in supporting the policy of implementing green logistics in Indonesia and become a reference for future research.

II. RESEARCH METHODS

This study was carried out by conducting a search using the keyword "barriers and green logistics" on several scientific articles indexed in reputable journal databases. The author chooses the article by analyzing several factors, including problems, methods, and results obtained. If it does not address the issues raised in this article, the author will not include it as a supporting document in the manuscript. This study identified several obstacles to using green logistics in Indonesia after reviewing several articles and referring to the process described earlier.

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III. RESULTS AND DISCUSSION

Technological factors

It is vital that the logistics industry be set up to release funds that will enable a green revolution. In order to improve logistics performance, technological application is primarily driven by green investment decisions that influence the use of renewable energy [10]. Green logistics practices have a beneficial impact on purchasing decisions and, as a result, the use of goods whose manufacturing procedures are based on green practices [7].

Green logistics implementation in Indonesia may be affected by regional disparities in the willingness of logistical support technology that have not been balanced, particularly in the eastern region [9]. Information technology services are one of the challenges in adopting green logistics. Logistics companies must improve their information technology services in order to manage product transportation. [7]. The positive aspect of this information service for logistics organizations is that it may eliminate roadside disruptions caused by poor performance. Green logistics will operate more efficiently if this divergence can be reduced.

Organizational climate

The ability of personnel to service customers accurately and swiftly is a quality that customers may judge[12]. Human resources, that include knowledge and skills gained through education and training, as well as staff attitudes and beliefs, provide a solid foundation for the organization's capacity. This is an important aspect of organizational climate because it affects the quality of the organization's services and performance.[13]. Logistics companies must consider environmental sustainability as well as commercial sustainability. Leaders in the logistics industry must grow and adopt the right mindset in order to ensure environmental sustainability [14].

Activities that might be made to provide training and short courses on the green idea in order to shift the attitude that has been utilizing the traditional thinking. Human resources in the logistics business should operate with a green revolution perspective. The impact of greenhouse gases is not just the responsibility of the government; business players, particularly those engaged in logistics business operations, have a strong obligation to preserving life's sustainability by minimizing business procedures that harm the environment. The far more prominent thing that can be done is to minimize the activity of producing paper-based sheets of papers by switching to digital-based documents. Various changes will be presented to customers after the organizational environment has been successfully accomplished. The most apparent thing we can see is delivering new same-day delivery options. The knowledge of logistics service workers and corporate executives to be devoted to lowering growing pollution by replacing types of vehicles that utilize more environmentally friendly fuels is one sort of innovation as a result of a positive organizational climate. This type of service can boost client happiness, which will have a favorable influence on the company's earnings.

Competition

Several issues impact the competitiveness of logistics organizations, including costs, services, human resources, and networks. When considered from the angle of cost, logistics enterprises in Indonesia are still characterized as adopting expensive expenditures. This is impacted by the inflexibility of the services given, as well as the issue of end-to-end solutions and consumer demands. To withstand the fierce competition, logistics company management personnel must cultivate positive connections with suppliers and customers[15][16]. The capacity to innovate is also a major factor in the logistics industry's fierce competitiveness. A market winner will be able to generate new improvements in services, facilities, and infrastructure.[17]. The capability of human resources substantially supports this circumstance. Costs can be reduced by collaborating with other logistics businesses while transporting products. Collaboration that is covered by the width of the owned network can aid in business resilience while competing. The distribution of physical assets in logistics, particularly for shipments through the same route, is one example of the effect of collaboration in the logistics industry. This will be mutually beneficial and therefore will maintain the logistics industry competitive [16]. Several logistics companies are now doing this in Indonesia. However, the ability of logistics organizations to conduct environmentally friendly operations may be the most important determinant of future competitive success.

Regulation

The orientation of the logistics business is not only influenced by the pressure of consumers who pay attention to the green process on the products they consume. Policies that lead to the implementation of green logistics must be created by the government to regulate the application of green logistics. Regulation can be a guide to companies to implement an eco-friendly production process[9]. Countries in Europe have agreed on several forms of regulation that can reduce carbon emissions produced by logistics activities. Logistics development activities that are increasing in Indonesia, it is considered necessary to formulate a green logistics policy with a more environmentally friendly standardization[18]. Several previous studies have proven that the implementation of environmentally friendly logistics activities will have a positive impact on economic performance, namely the creation of higher efficiency[19][20] (Mealy and A. Teytelboym, 2020). Another thing that also needs to be part of the regulation is the control of reverse logistics. Controlling the return of goods that have been sent based on green logistics can reduce costs and maximize service[9][21]. If there is damage to the goods or not in accordance with the wishes of the consumer, the logistics business manager will control the amount of goods returned to the consumer.

IV. Conclusion

The transportation sector is a trigger for the absorption of energy use globally and this has a major impact on the environment. Indonesia is obliged to support global decisions related to reducing greenhouse emissions because transportsmanship activities are a supporting part of all logistics activities. Indonesia needs to improve itself as soon as possible so as not to lag other countries, especially countries in ASEAN. Therefore, the role of the government is needed in building a joint commitment of all stakeholders involved in implementing green logistics and controlling the implementation of green logistics policies. The logistics sector plays a huge role in supporting the common goal of a Golden Indonesia by 2045. The role of researchers is no less important in supporting the application of green logistics through empirical studies that produce solutions to obstacles encountered in the implementation process. What is highly expected is that this nation will not only advance in terms of economy but also advance in maintaining environmental sustainability.

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