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The Role of Sea Toll Shipping in Inter-Island Commodity Distribution: A Literature Review Study

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Abstract: The Sea Toll Program is a strategic initiative of the Indonesian government aimed at reducing price disparities and improving the distribution of goods between the western and eastern regions of the archipelago. This article presents a literature review study that examines the contribution of Sea Toll shipping to the distribution of commodities between islands through an analysis of various literature sources, policy documents, and secondary data. The results of the review indicate that Sea Toll plays an important role in strengthening national logistics connectivity, especially in the 3TP (underdeveloped, remote, outermost, and border) regions. This initiative has driven a decrease in distribution costs, opened market access for local business actors, and supported the smooth distribution of strategic commodities. However, the implementation of the program still faces obstacles, such as limited port infrastructure, imbalances in cargo flows (low return cargo), and lack of coordination between institutions. Other challenges include minimal involvement of the private sector and suboptimal utilization by local economic actors. Therefore, efforts are needed to increase synergy between the government, private sector, and the community, as well as the development of port facilities and production capacity in the destination areas. In conclusion, if managed well and sustainably, the Sea Toll shipping can be a main pillar in an efficient and equitable national logistics system, and can strengthen economic integration between regions in Indonesia.

Keywords: Sea Toll, Inter-Island Distribution, National Logistics, Commodities, 3TP Region, Literature Study

INTRODUCTION

Indonesia, as the largest archipelagic country in the world, consists of thousands of islands spread from the western tip to the eastern tip. This geographical condition poses a major challenge in terms of the distribution of goods and connectivity between regions. One consequence is the occurrence of price disparities and development gaps, especially between the more developed western region and the more underdeveloped eastern region. Limited access to transportation and logistics causes the price of basic necessities and important commodities in the 3TP (underdeveloped, remote, outermost, and border) areas to be much more expensive than other areas (Susanto et al., 2021).

As an effort to overcome this problem, the Indonesian government introduced the Sea Toll program in 2015. This program aims to provide fixed shipping lanes with regular schedules to facilitate the flow of goods, reduce logistics costs, and strengthen connectivity between islands. It is hoped that the Sea Toll can accelerate the distribution of commodities, create price stability, and open up economic opportunities for people in areas that have previously been less accessible to the national distribution network (Benned et al., 2020).

Although it has been running for several years, the implementation of the Sea Toll still faces various obstacles, including imbalances in cargo flows, limited port facilities, and lack of collaboration between related parties. Therefore, a literature-based study is needed to further examine the extent to which the Sea Toll plays a role in supporting the distribution of commodities between islands and how this program can be improved and optimized in the future. This article presents a literature review as a basis for analyzing the effectiveness and challenges faced by the Sea Toll program in the context of the national logistics system. The existence of the Sea Toll ship has had a significant positive impact on people living in disadvantaged, remote, and outermost (3T) areas in Indonesia. One of the main benefits is the decrease in the price of daily necessities that were previously expensive due to high distribution costs (Gultom, 2017; Salamah, 2021)

Through a regular shipping system and established routes, the process of shipping goods becomes more efficient, so that prices in the 3T areas become more stable and affordable. In addition, people now have easier access to essential goods such as food, medicines, and agricultural production facilities that were previously difficult to obtain. Furthermore, the Sea Toll also provides opportunities for local business actors to send their products to other areas through return cargo, which contributes to improving the regional economy. This program also opens up investment opportunities and strengthens access to public services and basic infrastructure in areas that have been isolated. Thus, Sea Toll shipping not only functions as a means of distributing goods but also as an instrument of regional development that supports economic equality and strengthens connectivity between islands to strengthen national integration (Gugat et al., 2022; Hakim, 2016)

The improvement of the Sea Toll shipping route has had a positive impact in supporting the smooth distribution of logistics in Indonesia. By adjusting shipping routes and schedules based on actual needs in the field, the efficiency of goods transportation has increased, distribution times have become shorter, and the coverage area of service has expanded, especially to areas that were previously difficult to reach. By periodically mapping the potential cargo at each port, the government has succeeded in improving the imbalance in logistics flows between the central and peripheral areas. In addition, cooperation with local governments and local economic actors in determining logistics needs has strengthened the effectiveness of this program. The results of these steps are reflected in the increase in the number of goods transported, the stability of goods prices in the 3T region, and the frequency of more routine shipping to remote areas. This optimization also contributes to reducing logistics operational costs, thus providing wider opportunities for business actors, especially small and medium-scale, to utilize Sea Toll services. The success of this strategy shows that route planning based on needs and field data can make the Sea Toll route an effective and sustainable development instrument (Cahyandi & Hendrawan, 2023; Mashuda et al., 2019).

The Sea Toll Program has made a major contribution in ensuring the availability of basic needs for the community, especially in disadvantaged, remote, and outermost (3T) areas that have had difficulty in accessing logistics. Before the implementation of this program, people in 3T areas often faced shortages of goods, very high prices, and uncertainty in distribution. Dependence on private transportation modes that do not have a fixed schedule makes the supply of goods uncertain, even in some cases, residents have to wait a long time

just to get basic necessities such as basic necessities, building materials, or medicines (Febriansyah & Sahara, 2023; Widiastuti et al., 2022).

With the regular shipping services through the Sea Toll, the distribution channels become more certain and organized. Sea Toll ships now reach small and remote ports, carrying various important commodities at more affordable prices and stable availability. This condition provides certainty for the community that their basic needs can be met routinely. In addition, easy access to goods also supports local economic activities. Small and medium business actors can now obtain raw materials more easily and distribute their products outside the region through return ship cargo, (Fofid, 2019; Hermawan & Muin, 2025).

Not only that, the Sea Toll also plays a vital role in maintaining the stability of the supply of goods during disasters or emergencies. These ships can be used to transport logistical assistance to affected areas, making this program important not only from an economic perspective, but also from a humanitarian and national resilience perspective. Overall, the Sea Toll strengthens the principle of distribution justice and guarantees the rights of people throughout Indonesia to obtain equal access to basic goods and services. The operational sustainability of the Sea Toll program is highly dependent on the active involvement and ongoing support of the government. Since it was first introduced in 2015 as part of Indonesia's vision as the world's maritime axis, the government has taken a central role in planning, funding, and supervising the implementation of this program. One concrete form of this support is the provision of subsidies to shipping routes that are economically less profitable, but have strategic value in strengthening connectivity and encouraging equitable development between regions (Awaluddin & Setiawan, 2023; Nasihah & Sudirman, 2025).

With this subsidy, Sea Toll ships can operate to areas that were previously not served by commercial shipping due to minimal profit potential. The government is also building and improving port facilities in the 3T region to support the smooth distribution of goods. In addition, various initiatives such as the provision of standardized containers, development of the Logistics Information System (SISLOG), and collaboration with BUMN and private business actors have strengthened the effectiveness of the program. The role of local governments is no less important in supporting the smooth operation of the Sea Toll, especially in terms of providing return cargo and empowering local business actors so that they can utilize this service optimally. All of this cross-sector support makes the Sea Toll not only a means of transporting goods, but also an instrument of national development policy that emphasizes the principles of justice, affordability, and integration in the national logistics system (Kundori & Pranyoto, 2023; Rizqi, 2023).

Although the Sea Toll program has played a significant role in Indonesia's national logistics development strategy since its launch in 2015, there remain several gaps in existing research. Most studies tend to focus on macro-level aspects, such as reducing logistics costs, improving inter-island connectivity, and contributing to national economic integration. However, an in-depth analysis of the program's impact on the welfare of communities in underdeveloped, remote, and outermost (3T) regions particularly from a micro-level perspective is still relatively limited. Moreover, there is a lack of research specifically assessing how route optimization and shipping schedules influence price stability and the availability of essential goods in destination areas. Many studies remain descriptive and have not adopted quantitative approaches or measurable evaluation models to assess the program’s effectiveness. Additionally, limited attention has been given to analyzing the synergy between central government, local authorities, and the private sector in implementing the Sea Toll program especially concerning challenges such as low return cargo loads, administrative obstacles, and underutilization of digital logistics systems. Furthermore, the role of local communities within the maritime logistics ecosystem has not been a primary focus in current

literature. This is crucial in understanding how well the Sea Toll program can adapt to local economic dynamics and needs. Therefore, more comprehensive, interdisciplinary, and context-specific research is necessary to fully evaluate the long-term social, economic, and institutional impacts of the Sea Toll initiative.

Based on the background of the problem above, the formulation of the problem is determined as follows: 1) Does the ship schedule affect logistics distribution? 2) Does the fleet affect logistics distribution?.

METHOD

This study applies the literature review method as the main approach to explore the role of Sea Toll shipping in facilitating the distribution of commodities between islands in Indonesia. This approach was chosen to collect and review various relevant and credible literature related to the topics of maritime logistics, goods distribution, and policies for the development of disadvantaged and remote areas. The focus of this study is to identify patterns, challenges, and impacts of the implementation of the Sea Toll program on the national distribution system. The data used comes from various sources such as scientific journal articles, academic books, official government reports, policy regulations, and publications from research institutions and international organizations. Literature collection was carried out by accessing several online databases such as Google Scholar, and ScienceDirect. The selected literature meets the criteria of topic relevance, author authority, and data novelty with a focus on sources published in the last five years. Literature analysis was carried out through a content analysis approach, which aims to identify and group important themes such as the effectiveness of goods delivery, price stability in 3T areas, return cargo strategies, government involvement, and the socio-economic impacts of the Sea Toll. The results of the study are arranged thematically and systematically to provide a comprehensive picture of the implementation of the Sea Toll program within the framework of inter-regional connectivity-based development. Through this approach, it is hoped that the article can provide academic contributions and practical insights in the formulation of national logistics distribution policies. The primary rationale for doing qualitative analysis was the exploratory nature of the research (Susanto et al., 2025).

RESULTS AND DISCUSSION

Result

Based on the results of the literature review, the Sea Toll shipping plays an important role in facilitating the distribution of commodities between islands in Indonesia, especially in disadvantaged, remote, and outermost areas (3T). This program has a positive impact in reducing price disparities between regions by providing routine, structured logistics delivery routes that reach areas that were previously difficult to access by commercial merchant ships. Several kinds of literature show that the prices of necessities in several 3T areas tend to decrease along with the increasing availability of supplies through the Sea Toll. This condition not only benefits consumers but also encourages local business actors to optimize opportunities for distributing goods outside the region by utilizing return cargo facilities.

Other findings show that improving routes and increasing ship cargo capacity have strengthened the operational efficiency of this program. Regions that previously faced limitations in shipping goods now have better access to national logistics routes. Government support, both through transportation subsidies and supporting regulations, plays a major role in realizing the sustainability of the Sea Toll. However, the involvement of local governments is also needed, especially in overcoming obstacles such as minimal return cargo and lack of port facilities at the destination location. Furthermore, the reviewed studies also emphasize that the Sea Toll program not only has an impact on the logistics side, but also brings socio-

economic changes. Several regions have experienced increased trade activity, the growth of new business actors, and a decrease in the dominance of distribution intermediaries. Even so, ongoing efforts are needed to strengthen the logistics system, maximize collaboration with the private sector, and increase community participation so that the Sea Toll program can provide broader and long-term benefits. The Sea Toll program has had a real impact in reducing the price gap between the western and eastern regions of Indonesia, especially in areas that are classified as lagging, remote, and outermost (3T). Before this program was implemented, the distribution process of goods to the eastern region was highly dependent on irregular and high-cost commercial shipping routes, causing the price of necessities in these areas to be much more expensive compared to the western region which is easier to reach.

With the presence of the Sea Toll as a national logistics solution, the distribution of goods has become more organized through scheduled and government-subsidized shipping. This regular shipping route ensures a stable supply of goods to the 3T region, which ultimately has an impact on reducing the prices of many basic necessities such as rice, cooking oil, sugar, and other consumer products. This price reduction brings great benefits to people in areas that were previously difficult to reach by logistics, as well as being real evidence that this program also supports national economic equality. Several studies and official reports have noted that the price difference between the eastern and western regions has begun to shrink, especially in areas such as Papua, Maluku, and Nusa Tenggara after the Sea Toll shipping route has been running consistently. This finding shows that the existence of the Sea Toll functions not only as a means of logistics transportation but also as a strategic instrument in balancing the economy between regions. Although still faced with challenges such as limited return loads and port infrastructure, this program has proven its role in increasing the affordability of prices and access to goods for people throughout Indonesia.

Although the Sea Toll program has made a major contribution to increasing connectivity between regions and reducing the disparity in the price of goods, its implementation in the field still encounters various obstacles. One of the main problems is the lack of return cargo from the destination area. Logistics ships carrying goods to eastern Indonesia often do not carry goods when returning to the port of origin, which causes low transportation efficiency and increases operational burdens. This condition is a serious challenge in maintaining the sustainability of the program. In addition, limited port infrastructure in a number of regions, especially in the 3T region, is also a significant obstacle. Many ports do not yet have adequate loading and unloading facilities, storage warehouses, or good road access so that the process of distributing goods from the port to the interior is slow and inefficient.

Another obstacle that also hampers the effectiveness of the implementation of the Sea Toll is the lack of coordination between stakeholders, both at the central and regional levels. The lack of integrated policies between the central government, regional governments, and logistics business actors often leads to overlapping policies and weak implementation in the field. In addition, the use of information technology in the national logistics system is also not optimal, so the process of monitoring and managing goods delivery still experiences various limitations. On the other hand, the minimal involvement of local business actors is also an obstacle to supporting the maximum utilization of the sea toll. Low production capacity, limited business capital, and the uncompetitiveness of local products make their contribution to the distribution chain still very limited. Therefore, comprehensive improvements in terms of infrastructure, policies, technology, and local economic empowerment are needed so that the Sea Toll program can run more effectively and sustainably.

Previous Research

Based on the problem formulation and research results above, previous research was determined as follows:

Table 1. Relevant Previous Research Results

No	Authors	Title	Result
1	(Ratnawati et al., 2021)	Sea Toll to Support the Flow of Goods: A Case Study of East Indonesia	The Sea Toll Program launched by the Indonesian government aims to reduce price disparities and facilitate logistics distribution between regions, especially in Eastern Indonesia. This case study examines the impact of the Sea Toll on the flow of goods in eastern Indonesia, such as Papua, Maluku, and Nusa Tenggara. The results show that this program is able to increase the frequency of goods deliveries, reduce the price of basic necessities, and improve connectivity between islands. However, challenges such as inadequate port infrastructure, coordination between institutions, and dependence on government subsidies are still major obstacles to the sustainability of the program.
2	(Fauzi et al., 2024)	The development and challenges of sea tolls in supporting Indonesia's vision 2045	The Sea Toll Program supports Indonesia's Vision 2045 by improving maritime connectivity, especially in the eastern region. By 2023, there are 39 active routes. The main challenges include limited port infrastructure, weak institutional coordination, and low return cargo. The suggested solutions are strengthening the blue economy and collaboration between stakeholders.
3	(Kurniawan et al., 2024)	Economic Impact Analysis of Sea Toll Program Implementation in Eastern Indonesia: A Review in Papua, Maluku, and East Nusa Tenggara Regions	Economic impact analysis of the implementation of the Sea Toll Program in Papua, Maluku, and East Nusa Tenggara shows that the program has succeeded in reducing the price disparity of basic goods by up to 30% in these regions. In addition, the program improves connectivity by connecting 115 ports through 39 active routes, accelerating the distribution of goods to remote areas. challenges such as inadequate port infrastructure and coordination between institutions still need to be overcome to increase the effectiveness of the program.
4	(Devintasari et al., 2022)	Synchronization Model of Sea Transport Scheduling of Pioneer Ship and Sea Toll: Case Study at Maluku	This study discusses the synchronization model of pioneer ship schedules and Sea Toll ships in the Maluku region to improve the efficiency of sea transportation.

Discussion

Timeliness in the delivery of goods is an important factor in supporting the success of the Sea Toll program, especially in ensuring the smooth flow of logistics to disadvantaged, remote, and outermost areas (3T). This accuracy plays a major role in maintaining supply stability, preventing shortages, and suppressing price fluctuations in the destination area. Therefore, various strategic approaches have been implemented to ensure the accuracy of the delivery schedule in the implementation of the Sea Toll. One of the main steps taken is to establish a structured and sustainable shipping schedule. Through the Ministry of Transportation, the government prepares routes and ship departure times in a planned manner, making it easier for related parties from goods providers, and shipping operators, to local governments to coordinate logistics more efficiently. A consistent shipping schedule also provides certainty of distribution, especially for areas that were previously not served regularly. In addition, the use of information technology such as the Cargo and Ship Information System (SIMK) supports the process of monitoring ships and cargo directly. This

system facilitates supervision and decision-making if there is a disruption in shipping so that shipping times can be maintained.

Other efforts are made through improving facilities and services at the port. Fast loading and unloading access, complete warehouses, and land transportation connectivity are important elements in accelerating post-ship arrival distribution. With adequate infrastructure, ship waiting time at the port can be minimized. In addition to technical aspects, coordination between agencies is also strengthened. The central government is working with regions, BUMN, and private logistics players to overcome field obstacles such as bad weather, ship delays, or other technical obstacles. Finally, the readiness of human resources and local logistics systems is also being improved so that the delivery process from the port to the end user can take place on time.

Through a combination of these strategies, the Sea Toll program is expected to be able to provide reliable and timely logistics services, as well as strengthen connectivity and distribution fairness between regions throughout Indonesia. The Sea Toll Program is not only designed to strengthen the distribution of goods to the outermost and remote areas in Indonesia but also has a strategic role in strengthening the National Logistics System (Sislognas). As a shipping lane with government subsidies that operates on a scheduled basis and has a fixed route, the Sea Toll is a solution to various national logistics challenges, such as high distribution costs, imbalances in logistics flows, and limited infrastructure outside of main areas such as Java. In the context of Sislognas, the Sea Toll functions as a main component in building efficient and sustainable inter-island maritime connectivity. One of the important pillars in the national logistics system is the integration of various modes of transportation, including sea, land, and air, which allows goods to move smoothly from producers to end consumers. The Sea Toll facilitates the movement of goods from producing areas to areas in need, thus supporting equal access to logistics throughout Indonesia. With scheduled shipping and strengthening ports as logistics hubs, the Sea Toll helps reduce national logistics costs which have so far been an obstacle to competitiveness. In addition, the presence of the Sea Toll accelerates the formation of logistics nodes in the regions, supports the growth of the small and medium industry sector, and opens up new market opportunities for local business actors to enter the national distribution network. However, in order for the Sea Toll to be truly integrated with Sislognas, efforts are still needed to improve the quality of logistics management, utilization of information technology, and synergy across sectors and institutions. Optimizing the digital system, loading and unloading efficiency, and increasing the utilization of return loads are key steps in supporting the sustainability of an inclusive and efficient logistics system. Overall, the Sea Toll has a strategic role not only as a means of transportation, but also as a catalyst in building an integrated, fair, and highly competitive national logistics system.The Sea Toll Program has had a significant impact in strengthening the distribution of basic necessities to various regions in Indonesia, especially in areas that are classified as underdeveloped, remote, and outermost (3T). This initiative was designed as an answer to the problem of price disparities and limited access to logistics in underserved areas. Through subsidized shipping lanes that operate on a schedule, the Sea Toll allows the delivery of basic necessities such as rice, cooking oil, sugar, and other basic necessities to be carried out consistently and efficiently. With the Sea Toll, previously high distribution costs can be reduced, so that the price of basic necessities in the destination area becomes more stable and affordable. This condition is very helpful for people in the 3T region who previously had to buy basic necessities at prices much higher than in urban areas or production centers. In addition to maintaining affordable prices, the existence of the Sea Toll also ensures that the availability of basic goods is maintained in the local market. On the other hand, this program also supports national food security through equal distribution of supply and smooth distribution of logistics. Local governments can better regulate the supply

chain of basic goods, as well as anticipate potential shortages or price spikes. Not only that, business actors in the regions also benefit because they can access raw materials at more economical prices, so that local economic activities can grow more optimally. Overall, the Sea Toll is not only a means of transportation between regions but also an important instrument in creating an inclusive, fair logistics system that supports the welfare of people throughout Indonesia.

Conceptual Framework

The framework of thinking has been determined based on the research results, past research, and the aforementioned debate.

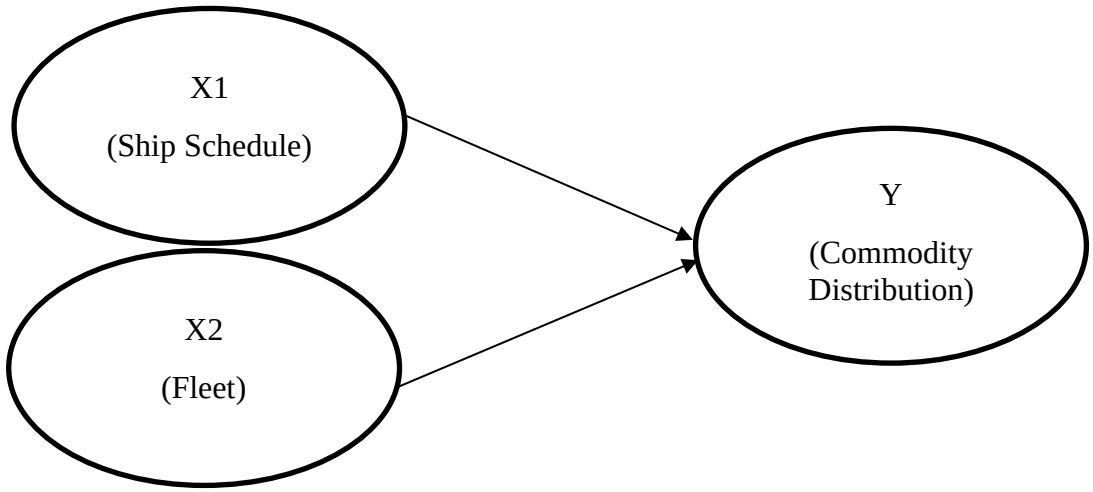

Figure 1. Conceptual Framework

CONCLUSION

The Sea Toll Program has become a strategic breakthrough made by the Indonesian government to reduce the inequality of logistics distribution between regions, especially to areas that have so far faced access barriers due to geographical factors. Through scheduled shipping supported by state subsidies, the Sea Toll can reach disadvantaged, remote, and outermost (3T) areas that are not commercially profitable for private operators. From the results of the literature review, it can be seen that the implementation of the Sea Toll has a significant impact on the efficiency of goods distribution, the stability of necessities prices, and encourages more equitable economic development. One of the most obvious benefits of the Sea Toll is its contribution to reducing the price gap between western and eastern Indonesia. The price of basic goods in areas such as Papua, Maluku, and Nusa Tenggara, which were previously very high, has now begun to decrease gradually thanks to the transportation of commodities using Sea Toll ships. With cheaper shipping costs and a consistent shipping schedule, the distribution process becomes more affordable and predictable, so that people in the destination areas are no longer burdened by high logistics costs.

In addition, the existence of the Sea Toll greatly supports national logistics and food security. Basic commodities such as rice, sugar, and cooking oil can now be sent regularly to areas that were previously prone to shortages. This condition allows local governments to maintain adequate supplies of necessities so that prices remain stable in local markets. Business actors in the 3T areas also feel the direct benefits because it is easier to obtain raw materials, which ultimately drives the economic growth of local communities and expands the market. Viewed from the perspective of the National Logistics System (Sislognas), the Sea Toll is a vital link that supports the integration between sea distribution routes and other

modes of transportation. This role is very important to accelerate the flow of goods from production centers to consumption points throughout the country. The use of digital technology such as electronic-based cargo and shipping reporting systems also strengthens the effectiveness of shipping and provides transparency in route and cargo management.

However, the implementation of this program is not entirely free from obstacles. Some of the main challenges include the less-than-optimal utilization of return cargo, limited facilities and infrastructure at small ports, and the need for stronger cross-agency coordination. There are still many ports in the 3T areas that have minimal supporting facilities, causing the loading and unloading process to be slow and inefficient. Likewise, the potential for cargo from destination areas to be transported back to the area of origin has not been optimized optimally, causing ships to return empty and reducing logistics efficiency. To ensure that the Sea Toll remains effective and sustainable, regular evaluation and policy updates are needed. The central and regional governments need to work together to adjust ship routes to the real needs of the community, as well as encourage the participation of business actors and local communities in supporting the use of this sea route. Infrastructure improvements, improving the quality of regional logistics human resources, and digitalizing port services are some important steps to overcome existing obstacles. Overall, the Sea Toll Road has become a symbol of the state's presence in answering the logistics needs of the Indonesian people as a whole. This program not only provides a means of transporting goods, but also plays a strategic role in balancing the national economy, ensuring the availability of basic commodities, and strengthening connectivity between regions. If it continues to be improved and managed adaptively, the Sea Toll Road has great potential to become the main foundation of a fair, efficient, and inclusive national distribution system for all Indonesian people.

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