



BULLETIN 394 /

FACILITATION OF TRANSPORT  
AND TRADE IN LATIN AMERICA  
AND THE CARIBBEAN

# Proposal for the implementation of a ferry service through Public Private Partnerships (PPP's) in the Eastern Caribbean Region

## Background

Transport networks are an essential element for the economic and social development of any country and are frequently part of national and regional development strategies. The efficiency and sustainability of such systems, however, are often hampered by many factors, including insufficient or



Background	1
I. Technical and economic analysis	4
II. Analysis of the private sector participation in the development of a ferry system in the Caribbean region	8
III. Suggested decision tree for investment	14
IV. Final remarks	15
V. Bibliography	16
VI. Annex Summary tables per route and type of vessel	17
VII. Publications of interest	21

This *FAL Bulletin* is part of the reflections on infrastructure and connectivity that have been frequently addressed in documents of the Economic Commission for Latin America and the Caribbean (ECLAC). It contributes to the reflections under the project “Transport and Trade Connectivity in the Age of Pandemics: Contactless, Seamless and Collaborative UN Solutions”. This edition analyzes the possibility of implementing a ferry network in the Eastern Caribbean region through Public Private Partnerships (PPP's) to promote better and more fluid connectivity.

This document was prepared by Diogo Aita, Associate Economic Affairs Officer of the Infrastructure Services Unit in the International Trade and Integration Division of ECLAC, based on the Project Document “Evaluación preliminar técnica, económica e institucional para la implementación de un servicio de ferris en el Caribe Oriental”, prepared by Eduardo Lugo, Alberto Undurraga, Ricardo J. Sánchez, and Jorge A. Lupano. This original study was developed within the framework of a technical assistance provided to the Association of Caribbean States (AEC-ACS). For further information on this subject, please contact [diogo.aita@cepal.org](mailto:diogo.aita@cepal.org).

The boundaries and names shown on the maps included in this publication do not imply official endorsement or acceptance by the United Nations.

The views expressed in this document, that did not undergo formal editorial review, are those of the authors and do not necessarily reflect the views of the Organization or the countries it represents.





inadequate infrastructure, long distance from major markets, cumbersome transit procedures, poor security, among others. Such challenges often translate into higher transport costs. For this reason, better connectivity and regional integration are crucial to overcome development bottlenecks, notably for developing and middle-income countries.

In the Caribbean region, ferry services are an important alternative to improve connectivity, but the options currently offered are usually operated over short distances and between islands of the same country or its neighbors, with very few exceptions such as the route between Puerto Rico and the Dominican Republic. The Organization of Eastern Caribbean States (OECS) and the Caribbean Community (CARICOM), aware of this reality, have contracted several studies to evaluate the implementation of regional ferry services, and private initiatives have also been presented. The project faces great challenges, among which are inefficiency in processes, technology, customs, migration and regulatory issues, the lack of a common policy, small volumes of traffic, obsolete and inadequate infrastructure, and very limited availability of data to analyze the efficiency of the services provided, among others.

According to information obtained from BlueWater (Lugo and others, 2022), there are 90 regular maritime transport line services in the Caribbean region, of which 74% have weekly services and 7% operate every two weeks. 69% of the ships are regular line services (container ships), 12% are multipurpose ships, 18% can transport rolling cargo (Ro-Ro), and 1% are refrigerated ships. 49% of the services are provided by regional operators, mainly shipping lines from the United States, 48% are offered by global shipping lines and 3% by European lines serving the region. 44% of the ships have less than 1,500 TEUs of capacity (Lugo and others, 2022).

Of the 90 maritime transport lines in the region, 61 (almost 68%) are local; that is, services that originate in the continental Caribbean and serve the insular Caribbean. Only fifteen (15) of these regional services serve the islands that are part of the Eastern Caribbean. The ports with the highest frequency of regular container line services in the region are Point Lisas and Port of Spain, in Trinidad and Tobago, *Pointe-à-Pitre*, in Guadeloupe, Georgetown, in the Cayman Islands, and Bridgetown, in Barbados (Lugo and others, 2022).

As for the ferry lines currently available in the region, internet information and data from the Central American Maritime Transport Commission (COCATRAM) identified 43 intra-regional services (Lugo and others, 2022). Most of the ferries carry passengers exclusively, by catamaran or high-speed vessels. In very few cases, services are provided on Ro-Ro type ferries which have the capacity to transport also private and commercial vehicles, as well as passengers. Only six companies that offer this type of transport were identified (Lugo and others, 2022).

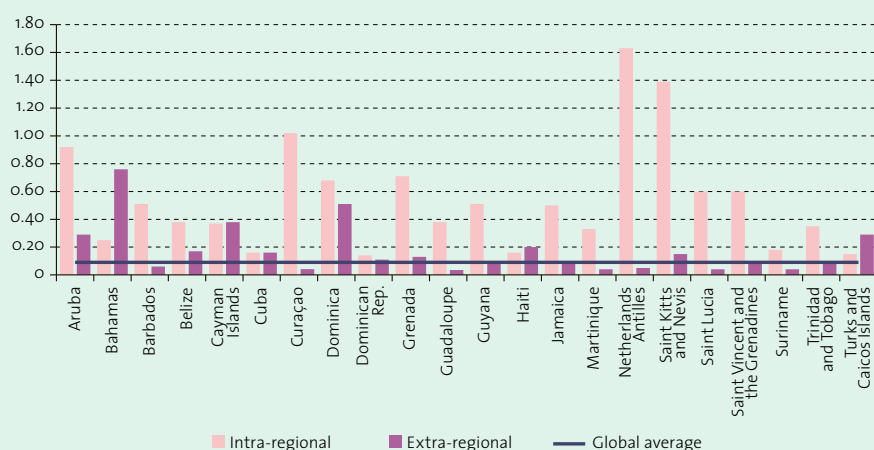
On the contrary, air transport is well established in the region and is essential for handling cargo, generally transported in passenger planes. However, this option is 10 to 12 times more expensive than maritime transport. Even so, it has been used regularly by the Caribbean islands, and between 2016 and 2018 it increased by 50% (World Bank, 2020).

Air transportation services in the Caribbean are expensive, mainly impacted by the small and fragmented size of the market, with high costs, low frequency, and inconvenient itineraries, being a barrier to regional connectivity. The average airline revenue per passenger and per kilometer is much higher than the global average (see figure 1). Moreover, intra-regional figures are generally even higher than the extra-regional revenue. Taxes, fees, and charges in the region are also high and represent approximately 35% of the cost of a one-way airfare, much higher than the worldwide average of approximately 15% (CDB, 2018).

**Figure 1**

Average revenue per passenger, per kilometer, by country, 2016

(In dollars)



**Source:** Visual interpretation by the author, based on Air Transport Competitiveness and Connectivity Study 2018, Caribbean Development Bank (CDB, 2018).

To assess the implementation of a ferry service that could improve connectivity in the Eastern Caribbean, the first part of this bulletin provides a technical proposal of four different routes, with the evaluation of its possible economic benefits, impacts, and limitations. The selection of such routes, presented in this FAL Bulletin according to the author's own interpretation and translation, was made in the main study: *“Evaluación preliminar técnica, económica e institucional para la implementación de un servicio de ferris en el Caribe Oriental”*, conducted by Eduardo Lugo, Alberto Undurraga, Ricardo J. Sánchez, and Jorge A. Lupano (cited in this FAL Bulletin as Lugo and others, 2022).

The second part of the study considers that both the current port infrastructure and the connectivity services available in the region are not adequate and would require investments to be able to handle the higher volumes of passengers and cargo. This part analyses the possibility of private sector participation in the development of such a system, through Public-Private Partnerships (PPPs) or even government subsidies for the financing and operation of ferry routes and ports. Moreover, two successful examples of maritime transport implementation are presented: the “Motorways of the Sea” program in Europe and the subsidy system for maritime, river and lake transportation in southern Chile. This part also includes a decision tree to guide investment possibilities.

Additionally, it is important to consider the possibility of using the “People-First” approach to PPPs for investments in ferries in the region, placing the projects under the umbrella of the Sustainable Development Goals (SDGs). Such instruments ensure that out of all stakeholders, ‘people’ are on the top (UNECE, 2022), improving the quality of life of the communities involved.

The analysis is then concluded with the consideration of potential risks and challenges such as financing needs, possible alternatives and the institutional requirements involved. It is suggested to approach the proposal of a ferry system in the Caribbean with contractual arrangements through multilateral entities instead of by each country individually. Thus, the participation of multilateral banks is recommended since it generates the framework of both resources and trust necessary for the development of such a project.



## I. Technical and economic analysis

According to a survey carried out by the World Bank with leading active tourism operators and residents of the islands, there is apparent demand for intra-regional travel through a regional ferry system. A ferry that makes it easier for tourists to travel from one island to another would have a positive impact on tourism trends in the region (World Bank, 2015), potentially increasing passenger flows. It would also improve trade and internal connectivity between the islands.

Additionally, it is important to remark that the Eastern Caribbean islands do not have open skies policies (bilateral or multilateral agreements that consolidate different regulations into a framework for commercial air service). Although some progress has already been made to increase competition, Leeward Island Air Transport (LIAT) remains as the region's main airline, and its fares are high.<sup>1</sup> In 2018, a Multilateral Air Service Agreement (MASA) was signed between members of CARICOM, which may expand opportunities for airlines in the region. Its full implementation would be an alternative for the liberalization of open skies agreements.

The current regulatory framework in the region is not harmonized, so the complexity of complying with different laws, regulations and practices impose additional costs on airlines. On many occasions, this is a limitation for the provision of the services. As a reference, the average air travel rate from LIAT between the OECS islands in 2014 was 1.50 dollars per mile, over 102% higher than the average of 0.74 dollars per mile charged by the same airline for traveling from Trinidad and Tobago or Barbados to Miami, in the United States (Lugo and others, 2022).<sup>2</sup>

### A. Assumptions considered in the study

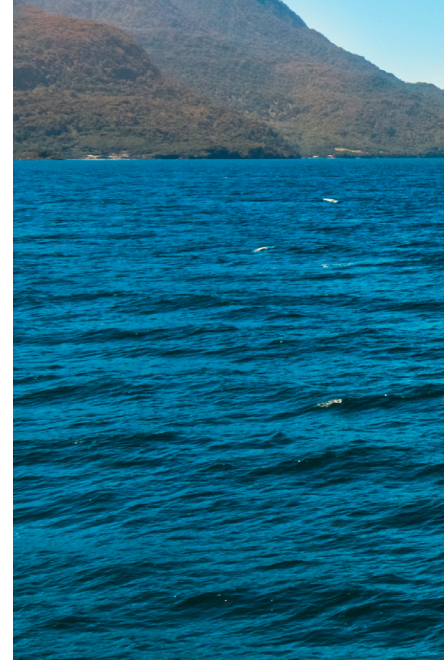
Transportation costs per mile are also influenced by further issues such as travel distance, port charges, payments to government agencies, ship speed and capacity, as well as administrative costs. To provide an economic evaluation of the ferry service possibilities, the exercise conducted in this study considered twenty ports in different countries in the region (Lugo and others, 2022). Due to geographical characteristics, Trinidad and Tobago (Port of Spain port) was defined as the main connection point for the routes analyzed and Saint Lucia (Castries port) as a secondary hub.

The rates used to estimate passenger transport revenues were obtained from a study from the World Bank, being 1.06 dollars per nautical mile the average rate in the Eastern Caribbean region (World Bank, 2015). This represents approximately 2/3 of the 1.50 dollars per mile average for air transportation from LIAT between the OECS islands, as mentioned in the previous section. The rate for high-speed ferry services is 2.71 dollars per nautical mile, and 0.99 dollars per nautical mile for Ro-Ro ferry services in Trinidad and Tobago (OECS, 2009). The rate used to estimate revenues from cargo transport was 47.50 dollars per ton, which corresponds to the average between the formal and informal sectors in the region (OECS, 2009).

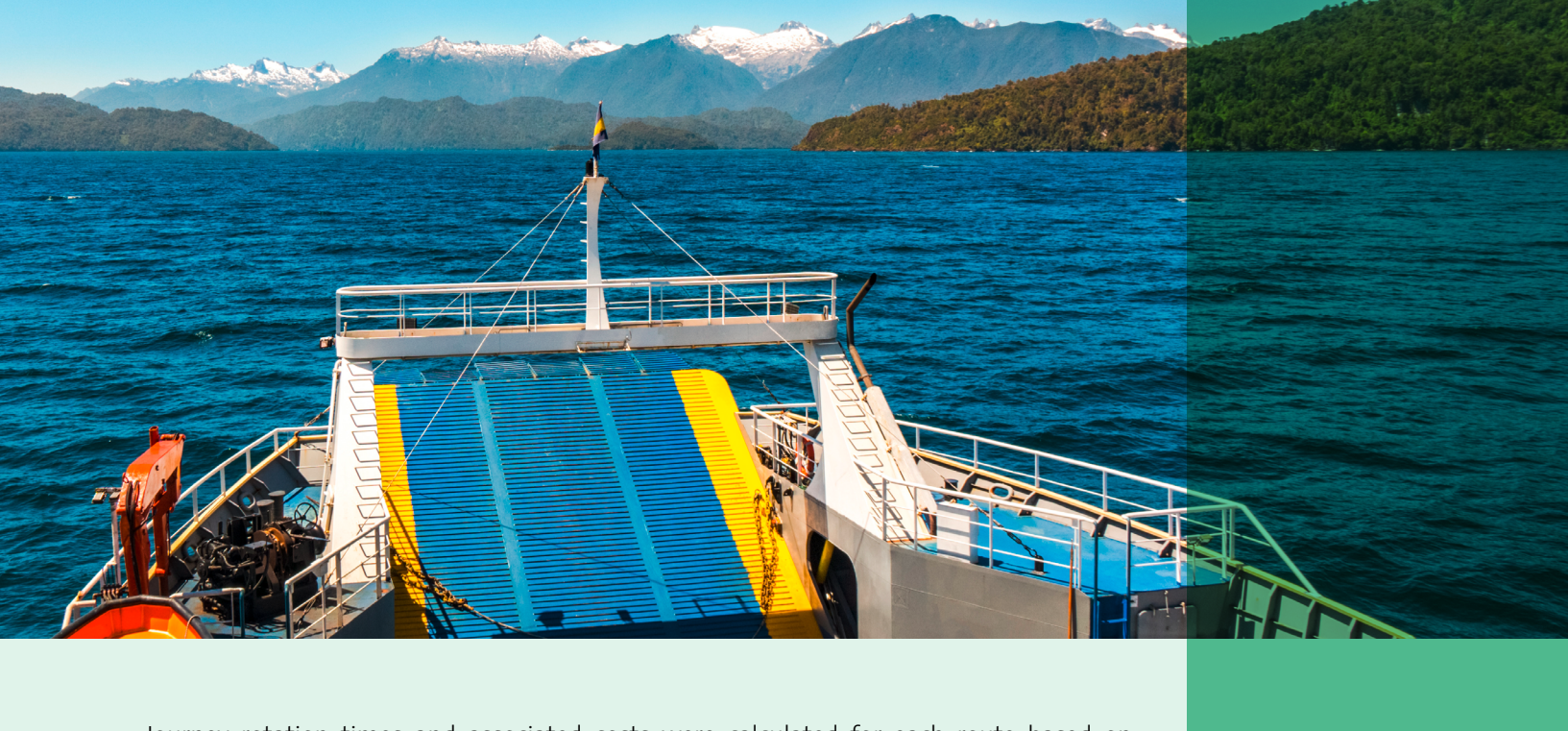
The selected countries were distributed in four routes according to their geographical location (see map 1). Since the vessels do not have overnight accommodations, the distances were intended to comprise a maximum range of 1,600 nautical miles. It was assumed that passengers will not travel more than 24 hours on the ship, so that in each docking port they carry out loading and unloading operations for passengers and cargo.

<sup>1</sup> On 27 June 2020, the company was announced to be liquidated following increased financial difficulties and the economic impact of the COVID-19 pandemic (source: <https://simpleflying.com>). LIAT (1974) Ltd. is under Administration as of 24th July 2020 (source: <https://www.liat.com>), and has since been operating with a limited number of aircraft, reduced schedule and limited workforce (source: <https://antiguaobserver.com>), adding further pressure to intra-regional transport options.

<sup>2</sup> Current rates may vary significantly due to different economic circumstances or changing market conditions. Therefore, this initial assessment requires regular updating.







Journey rotation times and associated costs were calculated for each route based on distance and speed of the selected ship. It was defined that the time of stay in each port, for all the routes presented, is 6 hours, which corresponds to one hour for docking or undocking maneuver and two hours in the reception/loading/unloading operations of the vessel.

Four vessel types were considered, depending on their speed and cargo capacity: one cargo landing craft with average speed of 10 knots (AMT2255), a passenger ferry with average speed of 20 knots (Mexico V), and two RO-PAX ferries (an acronym for ships that transport rolling cargo and passengers) with average speed of 37 and 39.5 knots (APT James and Bucco Reef, respectively). These ships already operate in the Caribbean and the information on costs and technical specifications was provided by an operator of a Trans Caribbean company in Mexico, as well as on-island contacts and ship manufacturer websites (Lugo and others, 2022). The port charges and fees considered were obtained from the study “Short Sea Shipping Network and Finance Model for the Caribbean” (IDB, 2018). See figure 2.

**Figure 2**  
Analyzed Vessels



**Source:** Prepared by the author with the information available at Lugo and others, 2022, based on Australian Marine Technology (AMT2255); VesselFinder.com (Mexico V) at <https://www.vesselfinder.com/es/vessels/MEXICO-V-IMO-9101754-MMSI-345110005>; Kern Holder, MarineTraffic.com (APT James) at [https://www.marinetraffic.com/es/ais/details/ships/shipid:6462606/mmsi:362254000/imo:9877717/vessel:A\\_P\\_T\\_JAMES](https://www.marinetraffic.com/es/ais/details/ships/shipid:6462606/mmsi:362254000/imo:9877717/vessel:A_P_T_JAMES); and FleetMoon.com (Bucco Reef) [https://www.fleetmon.com/vessels/buccoo-reef\\_9895408\\_8513376/?language=en](https://www.fleetmon.com/vessels/buccoo-reef_9895408_8513376/?language=en).

The income estimates provided assume that the ships sail at 50% capacity for both passengers and cargo. The first simulation considers the average rate in the Eastern Caribbean region of 1.06 dollars per nautical mile (World Bank, 2015) as general rate for all four vessels. Another simulation maintained this rate for the slower vessels (AMT2255 and Mexico V) but considered the rate of 2.71 dollars per nautical mile, the average for high-speed ferry services, as more realistic rates for the vessels APT James and Bucco Reef. A third and final simulation was then carried out considering 60% capacity for vessels Mexico V, APT James and Bucco Reef.

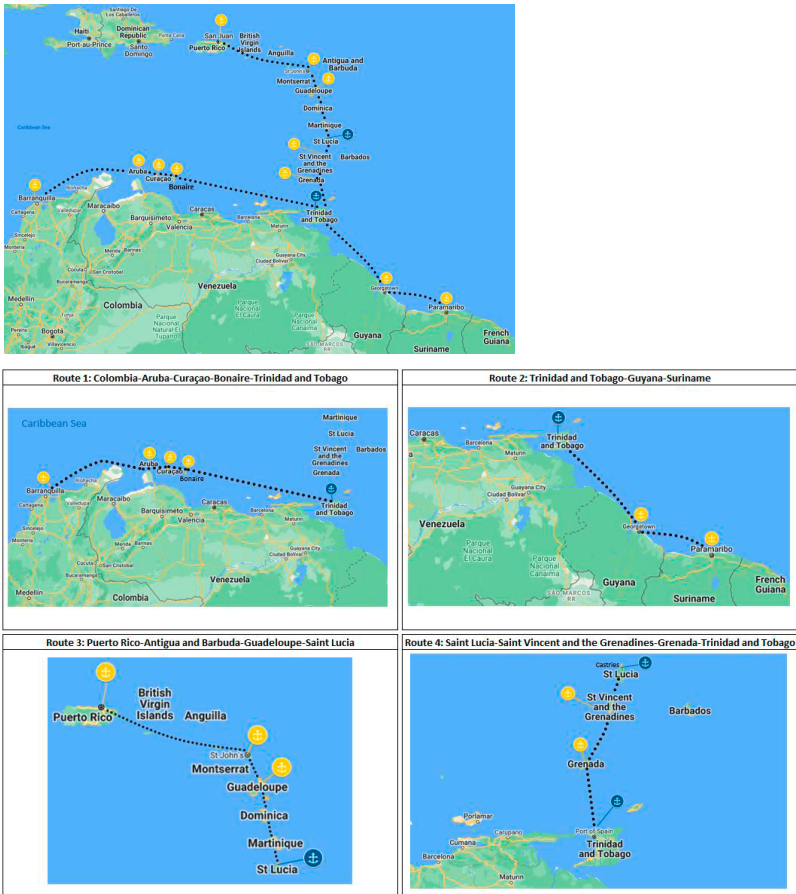
All these assumptions are provided in detail in the annex of this report. It is also considered that the regional demand for international freight and passenger transport services is highly sensitive to price, frequency and reliability. Therefore, if services can be established at reasonable prices, consumers in the region would use them.

Finally, it is important to highlight that any disruptions in the assumptions, such as delays due to weather conditions or port inefficiencies, would directly affect the results.

B. Ferry service proposal

In this proposal, it is recommended that the most distant ports with higher cargo volumes are connected through already existing lines in the region, forming a rotation through the existing ports between Puerto Rico and Trinidad and Tobago. Possible integrating ports of smaller Caribbean islands would be Caucedo, located in the Dominican Republic, and Port of Spain, in Trinidad and Tobago. As already mentioned, it is suggested to use the port of Castries, in Saint Lucia, as a minor hub, taking advantage of the connectivity it has with the nearby islands (see map 1).

Map 1  
Eastern Caribbean region: four proposed routes for ferry services



Source: Google Maps and Lugo and others (2022).

Proposed Routes:

- **Route 1:** Colombia, Aruba, Bonaire, Curaçao, Trinidad and Tobago.
- **Route 2:** Trinidad and Tobago, Guyana and Suriname.
- **Route 3:** Puerto Rico, Antigua y Barbuda, Guadalupe and Saint Lucia.
- **Route 4:** Saint Lucia, Saint Vincent, Granada and Trinidad and Tobago.

The first and second rotations would use Port of Spain, in Trinidad and Tobago, as main hub to integrate Colombia, Aruba, Curaçao and Bonaire in one direction (Route 1), with Suriname and Guyana in the other (Route 2). The third and fourth rotations use the port of Castries, in Saint Lucia, as secondary hub. To the north, it would connect Puerto Rico through Antigua and Barbuda and Guadalupe (Route 3). To the south, through Granada and St. Vincent and Grenadines to Port of Spain, in Trinidad and Tobago, it integrates these islands into the rotation of the main line. This service proposal was based on the maritime trade already in place in the year 2019 between each location (Lugo and others, 2022).

The study considers only the private profitability of each route per vessel as economic results of the implementation of the ferry service, without adding public benefits or any positive externalities for the impacted population. In this sense, it is important to point out that the initiative would also involve further social benefits and environmental impacts. The assessment of such potential could improve the results of implementation and economically justify the granting of explicit public subsidies to ferry services offered.

### C. Results and recommendations

---

The results provided in the study indicate that the AMT2255 and the Mexico V ferries present better economic results than the high-speed vessels. This seems natural and expected, since the operating costs for the faster ships are high, above all, due to the extra fuel needed to reach the higher average speed of navigation. However, such vessels have the necessary capacity to carry trucks, with which inter-modality could be implemented. Also, due to time and comfort factors, passengers tend to prefer shorter trips and less than one day of navigation, for which a high-speed ferry would be a better option. Additionally, it would be important to consider ships with better performance and more environment friendly options.

At 50% capacity utilization levels both for passengers and cargo, slower vessels are economically profitable on all four routes with the passenger rates of 1.06 dollars per mile, the average in the Eastern Caribbean region. One exception is the Mexico V ship, which is not a high-speed vessel, and requires its capacity utilization levels to be maintained at 60% to be economically profitable on Route 4. The price of 1.06 dollars per mile is considered very competitive because it is almost 30% lower than the average rate for the use of air transportation in the Caribbean, calculated at 1.50 dollars per mile, as shown previously. The high-speed vessels, however, require passenger rates of 2.71 dollars per mile to be profitable. This is almost 81% more expensive than the average rate for air transportation, and therefore could restrain the implementation of the service.

The detailed financial results of the study are provided in the annex of this report. For the four routes analyzed, the implementation of the service is possible, and the evaluation of the main results draw the following conclusions:

- Route 2 (Trinidad and Tobago, Guyana and Suriname) leaves the best profit margins for the service. According to the main study, for a frequency of two departures per week, it would need one vessel both in the case of a passenger ferry option (Mexico V) or for the two options of high-speed ferries (APT James and Bucco Reef).
- As a second option, the implementation of Route 4 would be recommended to improve connectivity in the region. To be profitable, it would require a higher passenger transport capacity of at least 60% for the entire route and higher minimum rates of 2.71 dollars per nautical mile for the high-speed vessels.



- The third option recommended is Route 3, connecting Saint Lucia with Guadeloupe, Antigua and Barbuda, and Puerto Rico. It is in this case that Saint Lucia becomes the secondary hub for the ferry service, keeping Trinidad and Tobago as the main hub.
- Route 1 is not recommended in a first stage of implementation (pilot project) due to the long trajectory that it represents and its large time duration to be completed.

Further political integration would be critical to ensure the success of the ferry service implementation. First, the Chaguramas Treaty, which established the Caribbean Community and the Common Market (CARICOM), should be revisited to identify opportunities for improvement, facilitating the entry of work vehicles (cargo trucks, etc.) and ensuring free transit in the countries where the service would operate. Similarly, customs and immigration regulations for the flow of goods and people should be reviewed and improved to speed up the process and reduce transaction costs.

Port capacity is another key success factor, so that the time needed for the ships to remain in ports is as short as possible for better operation efficiency. This study considered similar operation times for all ports throughout the rotations established so that the proposed itineraries can be fulfilled.

The lack of updated and available data in the Caribbean is a limitation for this type of exercise and for larger simulations. The estimates presented in this document are based on information available from secondary sources and studies, often dating back many years. Moreover, as the identification of intra-regional flows of both passengers and cargo is limited and could represent inconsistencies, the analysis of revenue and costs was based instead on the capacity utilization levels of the selected vessels. To overcome such challenges, a possible solution would be to propose a second stage of this study, collecting primary data on the intra-regional flows to obtain precise demand estimates and to carry out first-hand inspections which could accurately describe the infrastructure situation of the selected ports.

The Caribbean region, despite being an attractive market with many countries, has great challenges in terms of intra-regional logistics integration due to the large number of islands that comprise it, which undermines the possible economies of scale from a single market. This is a limitation to establishing independent transport services that could promote greater regional integration, as well as economic and social development in the region, especially to improve the post-pandemic economic recovery.

Another limitation for the implementation of the ferry service in the Caribbean is the lack of efficiency in port infrastructure, measured in terms of availability of port equipment, labor, information systems, fluidity of the processing of ship arrival information and registration of passengers and merchandise.

## II. Analysis of the private sector participation

预览已结束，完整报告链接和二维码如下：

[https://www.yunbaogao.cn/report/index/report?reportId=5\\_31995](https://www.yunbaogao.cn/report/index/report?reportId=5_31995)

