

# CONSTRAINTS TO REGIONAL AIR CONNECTIVITY BETWEEN COUNTRIES OF THE GUYANA SHIELD AND SOUTH AMERICA

## FINAL REPORT

Submitted to:



By:

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## Acronyms and Abbreviations

ASA	Air Services Agreement
ATC	Air Traffic Control
BEL	Belem International Airport
BGI	Barbados Bridgetown International Airport
BOG	Bogota El Dorado International Airport
CAGR	Compound Annual Growth Rate
CARICOM	Caribbean Community
CASAS	Civil Aviation Safety Authority Suriname
CAY	Cayenne International Airport
CCCC	China Communications Construction Company
CCTV	Closed Circuit Television System
CHEC	China Harbour Engineering
CJIA	Georgetown Cheddi Jagan International Airport
CJIAC	Cheddi Jagan International Airport Corporation
COSIPLAN	South American Infrastructure and Planning Council
CUR	Hato Curacao International Airport
DCA	Department of Civil Aviation - Suriname
DME	Distance Measuring Equipment
FAA	Federal Aviation Administration
GCAA	Guyana Civil Aviation Authority
GDP	Gross Domestic Product
GEO	Georgetown Cheddi Jagan International Airport
IASA	International Aviation Safety Assessments Program
ICAO	International Civil Aviation Organization
IDB	Inter American Development Bank

ILS	Instrument Landing System
Km	Kilometers
MASA	Multilateral Air Services Agreement
OAG	Official Airline Guide
OGL	Ogle Airport
ORG	Zorg en Hoop Airport
PAPI	Precision Approach Path Indicator
PBM	Paramaribo Johan Adolf Pengel International Airport
POS	Port of Spain Piarco International Airport
PTY	Panama City Tocumen International Airport
SARP	Standards and Recommended Practices
SDQ	Santo Domingo Las Americas International Airport
SXM	Sint Marteen Princess Juliana International Airport
TOR	Terms of Reference
UNASUR	South American Nations Union
US	United States
USAID	United States Agency for International Development
USD	United States Dollar
VOR	Very-High Frequency Omnidirectional Radio
WB	World Bank
WTTC	World Travel and Tourism Council

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## **Executive Summary**

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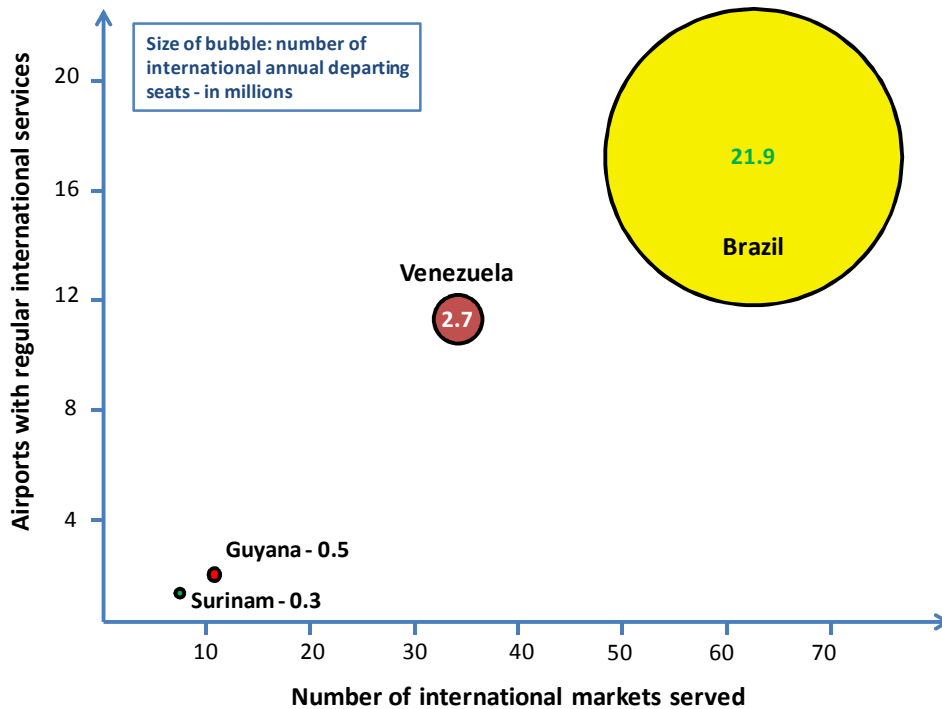
The Ministers of the South American Infrastructure and Planning Council (COSIPLAN) of the South American Nation Union (UNASUR) in the meeting celebrated on December 4th in Montevideo, approved the 2015 COSIPLAN's working plan. The Council designated the Federative Republic of Brazil as the coordinator for the activities related with air transport sector integration process, which includes among others, the coordination of a Study on air integration of the Guyanese Shield countries (Brazil, Guyana, Suriname and Venezuela), which was proposed during 2014 by Guyana, to investigate the constraints to Regional Air Connectivity between countries in the Guyana Shield and the rest of South America.

The objective of the study is to investigate the main causes of the constraints to regional air connectivity between countries of the Guyana Shield and with the other UNASUR member states. After reviewing the current connectivity levels, the study focuses on the different possible constraints that could explain the poor connectivity, including the state and the cost of the airport infrastructure, the institutional arrangement and the aviation policy at each one of the countries, and a market analysis. The study proposes specific recommendations to improve the connectivity.

### **Current connectivity of the countries of the Guyana Shield**

Each one of the countries of the Guyana Shield has different connectivity levels with the rest of the South American countries and with other regions of the world, as can be seen in Exhibit E.1. These differences in the observed connectivity levels are mainly explained by economic and social factors, as there is a direct relationship between the level of economic development that a country has with its international air transport connectivity level.

**Exhibit E.1 - Connectivity levels of the countries of the Guyana Shield**



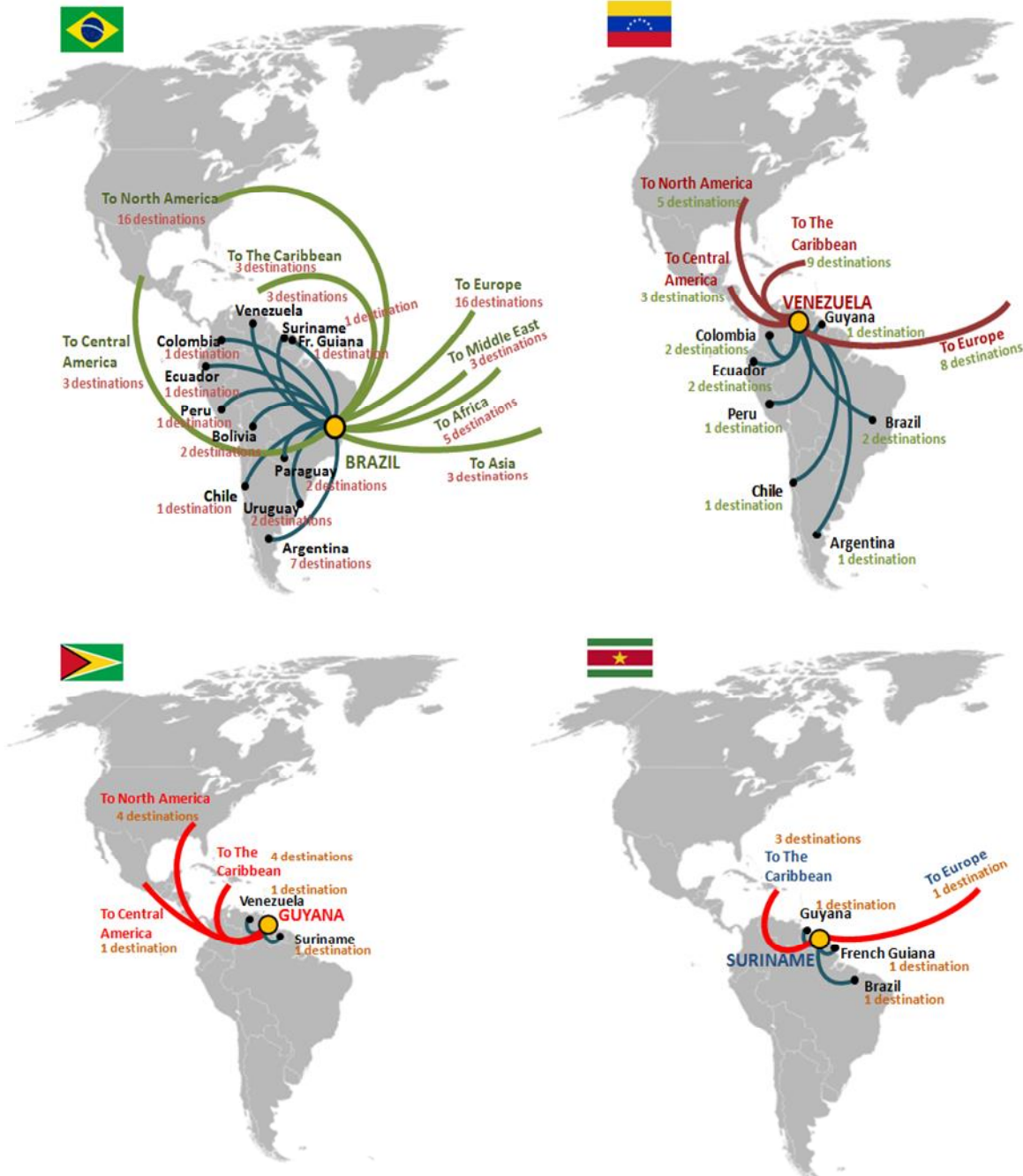
Source: consultant, using information from OAG (2015).

Note\*: annual departing seats for Brazil for 2015 were projected based on information from ANAC Brazil for the period January-September of 2015.

Brazil is the country of the Guyana Shield with the broadest connectivity level: it has 15 airports that currently offer non-stop services to 63 international destinations in 7 different regions (some of them even located in remote regions such as Asia, Africa and the Middle East). Being a member of the G-20 Group and South America's largest economy, Brazil currently has connectivity levels larger than many developed economies in the world.

Even without having a comparable air transport connectivity to that of Brazil, Venezuela also has significant connectivity levels: the country has 11 international airports with regular international services to 35 markets located in 5 different regions (including 8 markets located in Western Europe). The following chart presents a graphical comparison of the connectivity levels of the four Guyana Shield countries.

Exhibit E.2 - International connectivity of the countries of the Guyana Shield



Source: prepared by consultant using information from OAG (2015)

Exhibit E.2 shows the differences regarding regional and international connectivity: Brazil and Venezuela have direct services to regional long haul destinations such as Argentina, Peru, Bolivia, Brazil and Colombia, while Guyana and Suriname do not have any direct services to destinations in these nations. In addition, both Brazil and Venezuela have international services to at least 8 different destinations in Europe, whilst Guyana has no services to this continent and Suriname only has one direct service to the Netherlands. Another clear difference in the observed connectivity of these countries is that Brazil and Venezuela's connectivity to Central America and the Caribbean is broader than that of Guyana and Suriname's, as they have a larger number of served destinations in these regions.

Guyana has only two international airports with regular flights to 11 markets in 4 regions. Suriname has one airport with regular international services to just 7 destinations located in 3 regions. When it comes to South American connectivity, Guyana has seasonal services to Puerto Ordaz and regular services to Paramaribo, whilst Suriname has direct flights only to Belem, Georgetown and Cayenne.

It is evident that only Suriname and Guyana experience very low levels of connectivity, hampering their connection to the region and to the rest of the world in general. Therefore, this report focuses in the connectivity of Guyana and Suriname since it is their linkage to the region and to the world what needs to be analyzed to identify the opportunities for improvement.

## **Airports Infrastructure**

The existing airport infrastructure in Guyana and Suriname was assessed in order to determine actual and potential constraints to the development of the regional connectivity of these countries. The analysis focuses on potential capacity and operational constraints, both on airside and landside facilities.

Cheddi Jagan International Airport (GEO) is Guyana's largest airport and it is the country's largest international gateway. The airport is managed by the Cheddi Jagan International Airport Corporation (CJIAC), a state-owned company founded in 2001 by an amendment to the Public Corporations Act (1988). Georgetown Airport accounts for more than 95% of Guyana's international air transport passenger traffic.

The airport has two runways, one of them being capable of receiving ICAO category E aircraft (including Boeing 747-400s). This runway (06/24) has a full parallel taxiway with high-speed exits, which help increase the number of operations per hour by allowing aircraft to vacate the runways faster.

In a document released in 2014<sup>1</sup>, the CJAC stated that the airport's passenger terminal is needing investments to accommodate growing traffic levels (as passenger traffic has increased at an annual 8% between 2010 and 2014). The current situation generates a crowded terminal during peak periods (twice per day) and delays in aircraft movements due to operational bottlenecks.

Located about 10 kilometers away from Georgetown, there is another small airport, Ogle International Airport, that operates turboprop services to Bridgetown, Port of Spain, Suriname (Zorg En Hoop Airport), Lethem, Barticia, Ibaimadai, Kamarang and Chi-Chi. This facility is only suitable for short haul destinations and for turboprop operations.

With regards to Suriname, Johan Adolf Pengel International Airport (PBM) is the country's largest airport, being its sole international gateway. The airport has one runway with 11/29 orientation. It is 3480 x 45 meters and it is paved with concrete, also prepared to receive up to ICAO Category E aircraft. No specific operational constraints were pointed out with respect to the airside at Suriname Airport.

Within a short ride from Paramaribo, there is a second international airport: Zorg En Hoop Airport. The airport serves short haul and turboprop operations to domestic destinations and to Ogle Airport in Guyana. The airport facilities are only suitable for these type of operations.

The current state of the infrastructure of the main Georgetown and Paramaribo international airports does not constraint the development of the air transport sector nor the increase of their connectivity in the foreseeable future.

Despite needed investments to accommodate an increasing level of passenger traffic (particularly, at Georgetown), the capacity of the airport is not determined by the size or the existing conditions at airports' passenger terminal, but by the physical features of its airside (runway and taxiways). Should passenger terminals remain without any enhancements in the forthcoming years, the level of service experienced by passengers will be reduced even further. However, this will not represent a constraint for the development of the passenger throughput.

Given the fact that the operational areas on the airside are reasonably suitable for the foreseeable traffic, it can be said that the physical features of both airports do not

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<sup>1</sup> Cheddi Jagan International Airport Corporation - " Building Guyana's future Step By Step" - The Expansion of the Cheddi Jagan International Airport. February of 2014.



present any particular constraint to the development of the connectivity with any other region.

## **The cost of the airports infrastructure**

As part of the analysis of the connectivity of the Guyana Shield, the study explores if the cost for using the infrastructure could represent a constraint for the development of the market. The concept is to identify if the related cost to operate at any of the airports of Paramaribo and Georgetown is comparatively high and if it could hamper in any way the development of the traffic.

Therefore, a benchmarking analysis was performed to assess the pricing positioning of Georgetown and Paramaribo international airports in comparison with the other 12 most relevant international airports in South America. All the airports located in the main cities of South America were considered for the assessment.

In order to perform the assessment, two different types of charges were considered:

- Charges on passengers, including:
  - Passenger Facility Charges (PFCs)<sup>2</sup>
  - Security charges and Other fixed charges on passengers (Airport Improvement Fees, Airport Exit Tax fees and other fixed fees)
  - Taxes on ticket, generally called "Sales Tax" or "Ticket Tax". A tax on ticket is a fixed percentage levied by governments on the fare charged by airlines
- Charges on airlines, including landing fees and parking fees

In order to consider those taxes that are variable, normally based on the cost of the ticket, an assumption of an air fare of USD 500 was employed.

The analysis was carried out for an Airbus A320 aircraft, being one of the two typical equipment commonly seen in the region for local connectivity<sup>3</sup>. The A320 assumed for

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<sup>2</sup> At some airports these charges may also be called: *Passenger Service Charge, Passenger Boarding Charge, Passenger Departing Charge*, etc.

<sup>3</sup> The other is the Boeing 737 (with different versions)

the analysis was considered to have a single-class configuration of 164 seats and a load factor of 80%. Since some of the fees and charges at airports are levied on the aircraft weight, (specifically the maximum take-off weight, or MTOW), the specifications as per the manufacturer, of 77 metric tons, was employed to calculate the landing and parking fees.

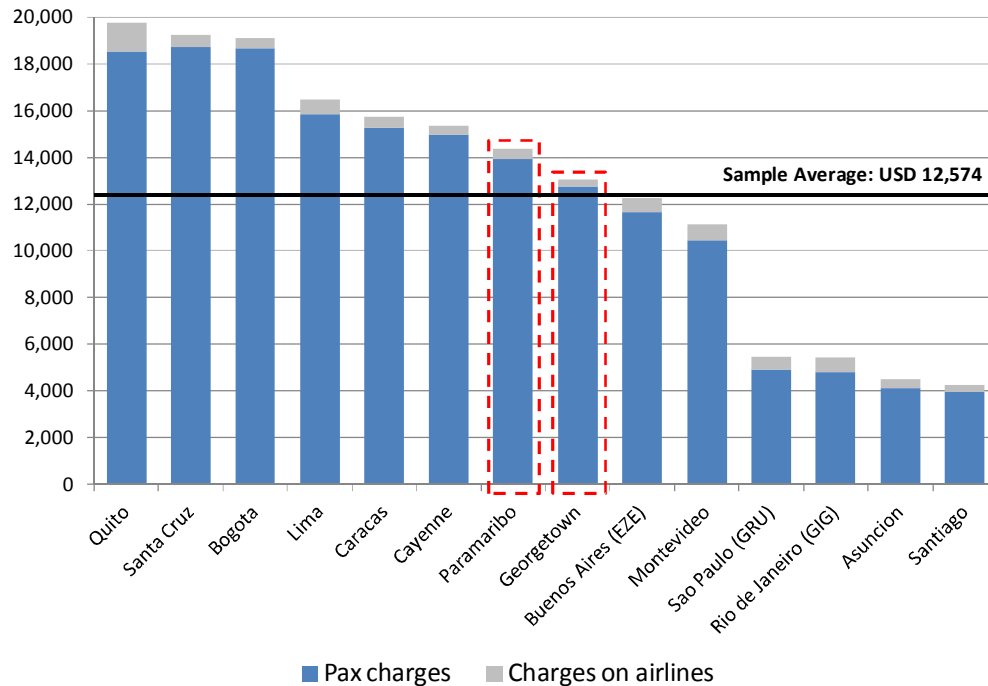
With respect to charges on passengers, of the 14 airports sample, only 3 airports charge just a Passenger Facility Charge (Santiago, Sao Paulo and Rio de Janeiro). Another 3 airports charge PFCs and taxes on the cost of the ticket (Montevideo, Georgetown and Lima). There are other 7 airports that charge PFCs and other fixed fees and taxes on ticket (Santa Cruz, Bogota, Quito, Caracas, Cayenne, Paramaribo and Buenos Aires). Asuncion is the only airport that charges PFC and other fixed fees only.

Regarding the charges on airlines, 10 airports of the sample grant at least 120 minutes free of charge (Georgetown, Paramaribo, Santiago, Montevideo, Santa Cruz, Quito, Bogota, Caracas, Cayenne and Asuncion), another 3 airports (Buenos Aires, Sao Paulo and Rio de Janeiro) do not have grace periods and Lima Airport has a grace period of only 90 minutes.

The following graph shows both charges on passengers and on airlines, for a 2-hour turnaround with the above described assumptions.

### Exhibit E.4 - Charges on passengers and charges on airlines at 14 South American airports

In USD, assuming a 2 hour turnaround



Source: prepared by consultant using information from ORSNA, Galeao International Airport, Guarulhos International Airport, OPAIN S.A., DGAC Chile, Montevideo International Airport, SABSA Bolivia, Lima Airport Partners, Johan Adolf Pengel International Airport and IATA Airport, ATC and Fuel Charges Monitor 2014.

Charges on passengers usually account for a larger amount than the charges levied on airlines (in this case, landing and parking fees). For the case of the 14 analyzed South American airports of this assessment, charges on passengers for an Airbus A320 account for more than 95% of the total charges.

Paramaribo and Georgetown airports are slightly above the sample average, with 6 airports more expensive and another 6 less expensive. PBM represents a total cost to passengers and airlines of USD 14,331 (14.0% above the sample average of USD 12,574), while GEO represents a total cost to passengers and airlines of USD 13,032 (3.6% above the sample average).

## **Institutional Framework (regulatory and legal analysis)**

The analysis of the institutional framework is essential for the development of a healthy sector. It is the international best practice that a clear separation of functions is found among the policy making, the technical regulation, the operation of the infrastructure and the investigation of incidents and accidents. These four main functions should be vested in separate and independent bodies.

It is for this reason that an assessment of the bodies responsible for the different functions of the institutional framework in Guyana and Suriname was carried out, with special focus on situations that could jeopardize the development of commercial air transport in the near future.

The analysis of the countries' current institutional frameworks was carried out through the research and analysis of the different legislations that regulate the development of air transport activities in Guyana and Suriname. The main laws that dictate the allocation of the different functions of air transport institutional frameworks are the *Guyana Civil Aviation Act of 2000 (Part III)* and the *Civil Aviation Regulations Act of Suriname*, respectively. These laws specify the institutions and entities that take part in Guyana's and Suriname's institutional frameworks.

The assessment of the legislation at both countries revealed different levels of potential conflicts that could eventually represent some constraints to the development of the sector in the near future.

There is a strong concentration of functions in the Guyana Civil Aviation Authority (GCAA) in Guyana, responsible for of the sector's economic policy making, technical regulation, operation of Air Traffic control and investigation of air accidents and incidents<sup>45</sup>. In turn, in Suriname there is an unhealthy concentration of the functions in the Civil Aviation Safety Authority of Suriname (CASAS), responsible for the sector's technical regulation and investigation of accidents and incidents.

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<sup>4</sup> Despite the fact that the Ministry of Infrastructure executes specific tasks related to air transport policy making, the GCAA is the entity that negotiates the country's bilateral agreements and is responsible for the sector's economic regulation, which constitute the two most relevant tasks of air transport economic policy making.

<sup>5</sup> The GCAA's official website indicates that "*in carrying out its mandate, the ASRD is required to conduct investigations into incidents and accidents involving Guyanese registered aircraft, and foreign-registered aircraft in Guyanese airspace*". The Aviation Safety Regulation Directorate (ASRD) is headed by the Director Aviation Safety Regulation (DASR), who reports directly to the Director General of the GCAA.

The following actions are recommended for Guyana:

- Policy making functions could be fully transferred to a different entity than the GCAA, potentially the Minister of Public Works. This entity would be the only authority in the economic regulation of the air transport sector, including the celebration of ASAs with other nations.
- Air traffic control operations would need to be transferred to a either new service provider that should operate independently from the GCAA, or, potentially to the CJIA Corporation. Any of the options would be fitting in the context of the proposed reforms, as there are no inherent conflicts of interest by having the airport and ATC operations performed by the same entity.
- An independent committee or board should be created to investigate accidents and incidents. Said committee or board should report directly to the President or the Guyanese Parliament as the only way to ensure a completely unbiased and independent outcome of its investigations.

In the case of Suriname, the only conflict of interest in its current institutional framework is the concentration of technical regulation and air accidents investigation functions, both vested at CASAS. In a similar way to what is recommended for Guyana, the creation of a fully independent and autonomous commission should be achieved, in order to assure successful and unbiased investigations.

However, it is important to remark that the main conclusion of the analysis is that these potential conflicts of interest do not necessarily represent a constraint for the development of the regional connectivity of Guyana and Suriname. However, it is also important to note that appropriate institutional frameworks that clearly separate the different functions among distinct bodies guarantee the development of effective aviation policies. By accomplishing a clear separation of functions, Guyana and Suriname would be able to foster both an unrestricted market access and a competitive environment for both local and foreign carriers.

### **Aviation Policy (analysis of the air service agreements)**

An assessment of Guyana's and Suriname's aviation policy was performed, mainly focused on these countries' existing bilateral and multilateral air service agreements. The goal of this analysis was to determine if the conditions stated in these agreements are currently acting as constraints to the development of the regional connectivity of Guyana and Suriname. The air service agreements of these countries were specifically analyzed in terms of available capacities, airline designation and the grant of fifth, sixth and seventh freedom rights.

Both Guyana and Suriname are signatory members to the CARICOM Multilateral Air Services Agreement (CARICOM MASA), which only applies to the operation of CARICOM air carriers. In summary, this agreement confers unrestricted third and fourth freedom<sup>6</sup> route rights to airlines owned and operated by CARICOM nationals, whilst fifth freedom traffic rights<sup>7</sup> are also allowed under this agreement. In addition, multiple designation is also established, as well as unlimited capacities/frequencies.

Suriname is also a signatory member of the Multilateral Air Services Agreement of the Association of Caribbean States (ACS). Even when this agreement is more limited in the provision of rights than the CARICOM MASA, it is relevant for Suriname because it provides the basis to establish air services with up to fourth freedom rights with all signatory members of the ACS. In other words, through this agreement Suriname is able to establish commercial air transport services with Colombia, Venezuela, French Guiana and all countries within Central America and the Caribbean, without the need of establishing bilateral air service agreements (ASAs) with these countries.

The following figure (Exhibit E.5) presents the degree of liberalization of Guyana's and Suriname's Air Service Agreements, taking into consideration designation, capacities and the existence of fifth freedom rights as the main analyzed criteria for the qualification of these countries' agreements.

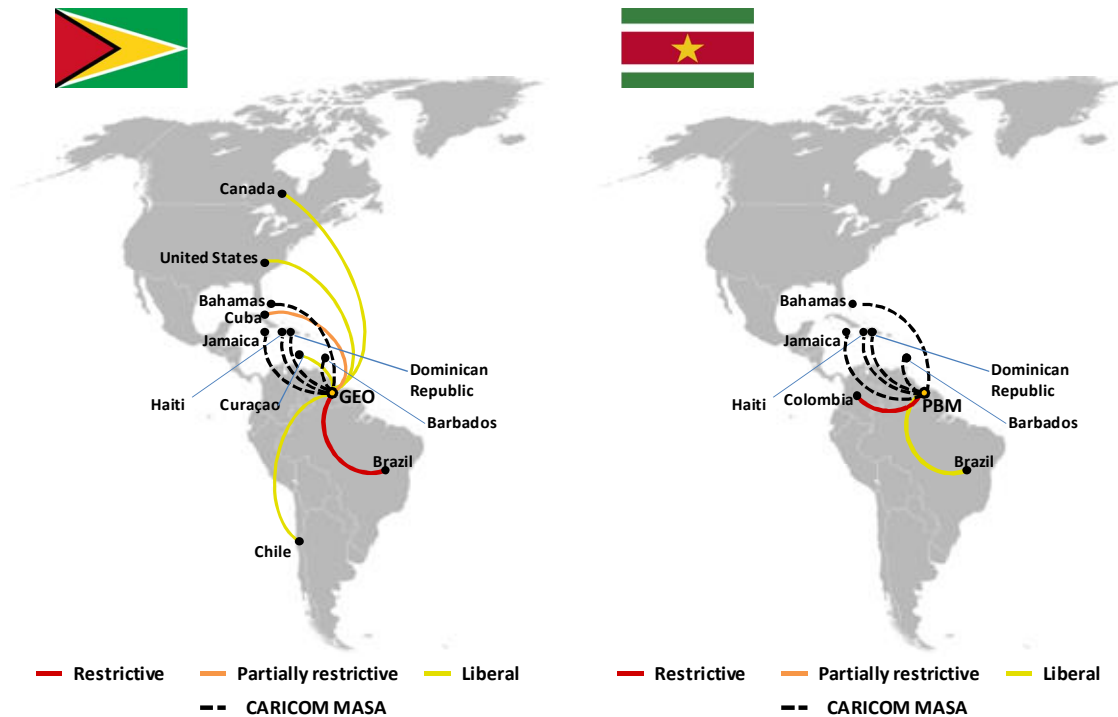
An important issue to be addressed in the future is the lack of bilateral agreements with the rest of the South American nations: Guyana has no ASAs with Peru, Bolivia, Argentina, Paraguay, Uruguay nor Ecuador, while Suriname has no ASAs with Argentina, Uruguay, Chile, Ecuador, Peru, Bolivia and Paraguay.

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<sup>6</sup> See Section 5.1 - Freedoms of the Air.

<sup>7</sup> See Section 5.1 - Freedoms of the Air.

**Exhibit E.5 - Guyana's and Suriname's Air Service Agreements' degree of liberalization - Americas and the Caribbean**



Source: prepared by consultant using information from World Trade Organization, "Trade Policy Review - Report by the Secretariat - Guyana", June of 2009 and Suriname's available Air Service Agreements.

The inexistence of these air service agreements is a reflection of the few existing cultural, social and economic ties between both Guyana and Suriname and the southern nations of South America. Even when the mere celebration of an air service agreement does not guarantee the development of traffic between two countries, it is a necessary condition for its existence. Therefore, should market demand arise in the future for the development of non-stop services to destinations in these countries, the first step for the Guyanese and Surinamese governments would be to negotiate and celebrate bilateral agreements with the authorities of these nations.

The conditions stated in Suriname's and Guyana's air service agreements in the present are not acting as active constraints to the development of these countries' air

connectivity. In fact, Guyana even grants fifth and seventh freedom rights<sup>8</sup> to international carriers such as Caribbean Airlines and Fly Jamaica, a situation that is not common in most South American countries, who usually have protective policies towards their local carriers.

One exception that can be mentioned is the current bilateral air service agreement between Suriname and Colombia. This agreement is highly restrictive, as it limits the available capacity to only 2 weekly frequencies per side, with aircraft of up to 150 seats. This situation is important as Bogota is the main hub of Avianca and it represents one of the most important opportunities for both Guyana and Suriname of increasing their connectivity to South American destinations. A renegotiation of the current conditions of the agreements is desirable, in order to provide a more liberal relationship with this country and provide the necessary framework to enhance Suriname's connectivity.

Guyana has a restrictive ASA with Brazil under which there is a limit to the capacity that can be offered in routes between these countries. In this sense, a maximum of 3 weekly services per side can be offered with Boeing B757 aircraft (or inferior), or 7 weekly frequencies with aircraft of up to 50 seats. It is worth mentioning that despite this capacity restriction, Guyana currently has no direct routes to Brazil, and therefore it is possible to conclude that in this case, the existence of a restrictive ASA is not limiting market forces in the present. Having this in consideration, the renegotiation of a more liberal ASA would be desirable, in order to allow for the potential development of this market (should market forces require a larger capacity in the future).

Despite the fact that flexible ASAs are desirable to have a more liberal air transport sector, the connectivity issues that today exist both in Guyana and Suriname are not explained by restrictive bilateral or multilateral agreements with other countries whatsoever; they are explained by insufficient demand for air transport services.

## **Market Overview**

The Market Overview presents a detailed assessment on the current connectivity of Guyana's and Suriname's main international gateways: Georgetown Cheddi Jagan International Airport and Paramaribo Johan Adolf Pengel International Airport. The objective of this section is to obtain a clear picture of the existing situation in terms of existing connectivity, airline competition, available frequencies and recent development of the air transport market in these countries.

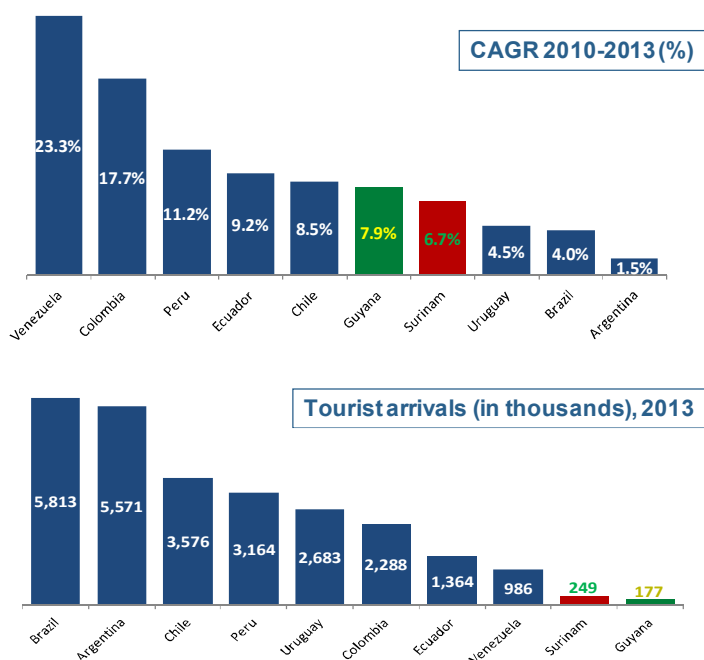
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<sup>8</sup> See Section 5.1 - Freedoms of the Air.



International tourist arrivals have increased in both countries between 2010 and 2013, as can be seen in the following graph.

**Exhibit E.6 - International tourist arrivals at 10 South American countries**



Source: prepared by consultant using information from World Bank.  
 Note\*: Guyana's latest informed value is of 2012. CAGR for Guyana was calculated for the period between 2010 and 2012.

Despite interesting CAGRs of 7.9% for Guyana and 6.7% for Suriname between 2010 and 2013, international tourist arrivals in 2013 for these countries were still very low in comparison with the rest of the continent. In this sense, Venezuela, the third smallest country in terms of international tourist arrivals (below Suriname and Guyana) had almost 4 times the arrivals registered in Suriname in that same year, and 5 times the arrivals registered by Guyana.

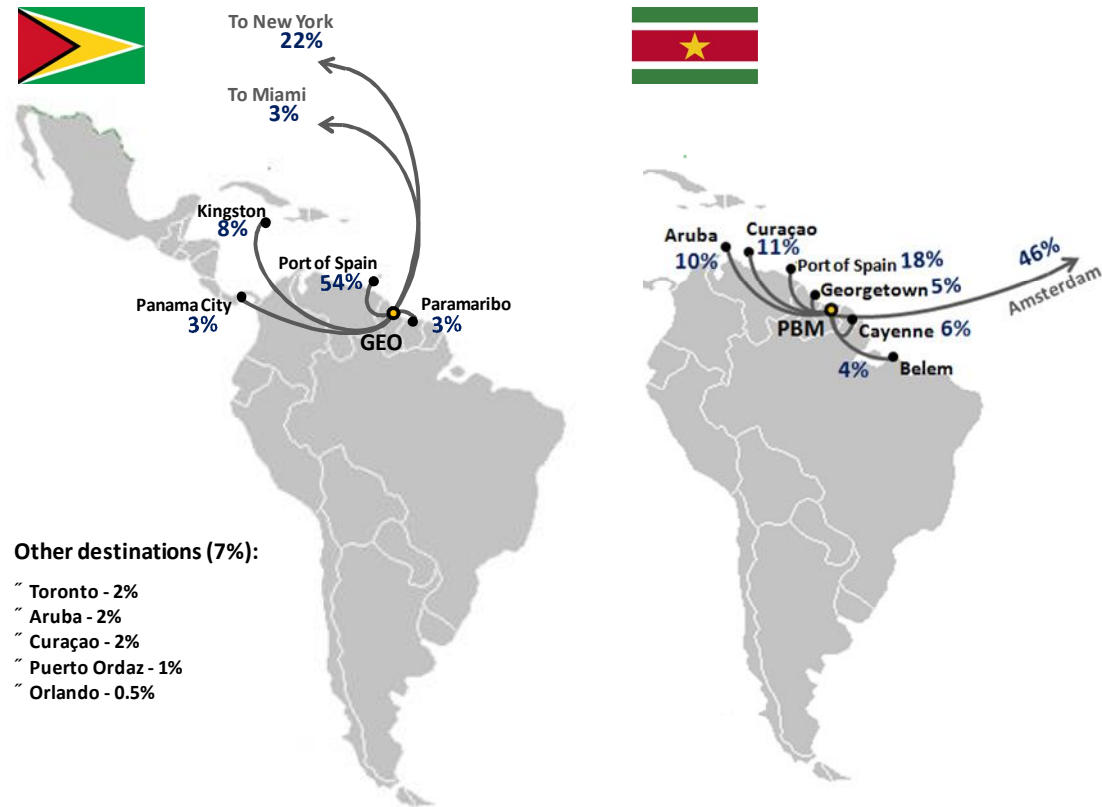
Georgetown Cheddi Jagan International Airport (GEO) and Paramaribo Johan Adolf Pengel International Airport (PBM) are Guyana's and Suriname's largest international gateways, respectively. Both airports serve the capital cities of Guyana and Suriname, and also account for 95% or more of these countries' air transport passenger traffic (in the case of Suriname, PBM accounts for the totality of scheduled air services).

The number of departing seats out of Georgetown and Paramaribo has been increasing steadily in the past 6 years: in the case of GEO, departing seats have increased from 309,000 in 2010 to 458,000 in 2015 (CAGR of 8.2%), while in Paramaribo, departing seats have grown from 274,000 in 2010 to 325,000 in 2015 (CAGR of 3.5%).

These airports serve a limited number of destinations, as it can be observed in the following graph (Exhibit E.7).

Four out of 11 markets operated from Georgetown are located in the Caribbean Region and another 4 markets are located in North America, while Central America accounts for 1 market and South America for 2 markets. International connectivity at GEO is dominated by foreign airlines, which not only use third and fourth freedom rights to connect passengers to their hubs, but also use fifth (Suriname Airways to Miami) and seventh freedom rights (Fly Jamaica and Caribbean Airlines to Toronto and New York) to offer direct services to certain markets at North America.

Exhibit E.7 - Departing seats out of GEO and PBM by destination market - 2015



Source: consultant, using information from OAG (2015) and airlines' schedules.

In turn, three of the seven markets out of PBM are located in the Caribbean, while another 3 markets are located in South America. However, the largest market out of Paramaribo is the only market in the European continent: Amsterdam.

Airline capacity in Georgetown is mainly supplied by Caribbean Airlines, which accounts for more than 66% of the seats in GEO, most of them being offered in the Georgetown-Port of Spain route. Fly Jamaica is the second largest carrier operating in GEO, with available seats to Kingston, Toronto and New York. Dynamic Airways accounts for another 8% of the available seats, followed by Suriname Airways (6% of the available seats). These 4 carriers hold a combined 92% of the available seats out of GEO.

In turn, capacity share in PBM is evenly distributed between foreign carriers and Suriname's national flag carrier, Suriname Airways. The Surinamese airline accounts for roughly half of the seats out of PBM, while KLM is the second largest carrier in the airport (24% capacity share): these two airlines concentrate almost three quarters of the airport's seats. Insel Air accounts for another 15% of the available seats, followed by Caribbean Airlines (10%). These 4 carriers hold a combined 98% of the available seats out of Paramaribo.

In summary, Georgetown has non-stop connections to 11 international markets. However, most of them are served with low frequencies of service and low competition levels, in terms of airlines serving each market. A similar situation is experienced in Paramaribo, with non-stop connections to 7 international markets that are also served with low frequency and competition levels.

### ***The idea of developing a hub***

Any airport hub is not the creation of an airport operator or a policy maker, but the derived action of an airline willing to establish an operational base. A hub will imply that an airline will combine point to point operations from different origins to congregate passengers at one particular airport, from where they will be re-distributed onwards by use of the point to point network.

An airline will select an airport to develop a hub whenever the local mass of origin and destination (O&D) traffic (as opposed to the connecting traffic) is substantial enough. It is the O&D traffic that develops the network that the airline uses to feed and distribute the traffic, or to put it in other words, the O&D traffic subsidizes the connecting traffic.

O&D traffic represents to the airline a higher yield (or revenue per passenger) than the connecting traffic, and only when that volume is significant an airline can establish a hub. The largest European hubs, even with large volumes of connections, still have O&D shares of over 50%.

For this reason, the possibility of developing a hub at this point in time, at either Georgetown or Paramaribo is difficult. In the foreseeable future, airlines could not develop a viable business by connecting other cities through either one of these two capitals, since the O&D volume is very low.

### ***Recommendation: the development of connectivity through regional hubs***

South American capitals and main cities are relatively well connected to regional destinations, as well as to other markets in Europe, North America, Central America and the Caribbean. However, this is not the case for Guyana and Suriname.

Given the limited options for Guyana and Suriname to develop non-stop services to most destinations in South America and Europe, the connectivity of both countries will depend on how well connected GEO and PBM are to close regional hubs. It is very important to remark that neither Suriname nor Guyana will be able to develop a similar level of connectivity to that of Peru or Brazil with the rest of South America, at least in the short term. However, by increasing the number of available services to regional hubs, both countries would increase their connectivity, allowing departing passengers from GEO and PBM to reach multiple destinations in South America using these hubs as gateways to the rest of the continent.

The main closest regional hubs to GEO and PBM are:

- Panama City Tocumen International Airport (PTY) - Copa Airlines
- Port of Spain Piarco International Airport (POS) - Caribbean Airlines
- Hato Curacao International Airport (CUR) - Insel Air
- Bogotá El Dorado International Airport (BOG) - Avianca

**Exhibit E.8 - Copa Airlines' main routes and weekly services**

Main routes out of PTY - Copa Airlines



Copa Airlines network

15 markets	San Jose, Cancun, La Habana, Miami, Santo Domingo, Lima, Mexico City, Santiago de Chile, Orlando, Sao Paulo (GRU), Quito, Guatemala City, Guayaquil, Los Angeles, New York	3 daily flights or more
15 markets	Managua, Caracas, Buenos Aires, San Juan de Puerto Rico, Rio de Janeiro, Punta Cana, Washington DC, San Salvador, David, Montevideo, Asuncion, Santa Cruz de la Sierra, Bogota, Las Vegas, Brasilia	Between 10 and 20 weekly flights
17 markets	Port of Spain, Chicago, Cartagena, Cordoba, Manaus Tegucigalpa, Guadalajara, Valencia, Porto Alegre, Boston, Belo Horizonte, Sao Paulo (VCP), Monterrey, Toronto, San Andres, Fort Lauderdale	Between 5 and 9 weekly flights
25 markets	Medellin, St Maarten, Tampa, Nassau, Montreal, Kingston, Montego Bay, Port Au Prince, Barranquilla, New Orleans, Curacao, San Francisco, Liberia, Georgetown, Santa Clara, Aruba, Puebla, Iquitos, San Pedro Sula, Cali, Villahermosa, Bucaramanga, Cucuta, Pereira	Between 1 and 4 weekly flights

Source: Copa Airlines' schedule and OAG (2015).

Through its PTY hub, Copa Airlines reaches 72 airports in the Americas. More than half of these routes (38) are operated with an average of a daily service, and 15 of them are operated with 3 daily services or more. In the present, the two weekly services from GEO to PTY have several connecting options, located in Central, South and North America, as well as Europe (Amsterdam and Lisbon) and the Caribbean.

For Suriname, it would also be very valuable to establish new services to PTY, either as a non-stop service or as a continuation of the biweekly service between PTY and GEO (this possibility would be even more attractive if traffic rights were granted to transport passengers between GEO and PBM). Such an opportunity would increase the regional connectivity of PBM by offering more connections in the Americas, the Caribbean and Europe through the PTY hub.

**Exhibit E.9 - Caribbean Airlines' main routes and weekly services**

2015

Main routes out of POS - Caribbean Airlines



Caribbean Airlines network

3 markets	Tobago, Georgetown, New York	3 daily flights or more
3 markets	Barbados, Toronto, Grenada	Between 10 and 20 weekly flights
4 markets	Caracas, Miami, Fort Lauderdale, St Lucia	Between 5 and 7 weekly flights
6 markets	Paramaribo, London, Kingston, Orlando, Antigua, St Maarten	Between 1 and 4 weekly flights

Source: Caribbean Airlines' schedule and OAG (2015).

Caribbean Airlines connects POS with 16 markets, 10 of which are served with at least 5 weekly services. Port of Spain also offers connectivity options for the arriving flights from Georgetown and Paramaribo, which also makes POS into an attractive hub that could boost the connectivity of Guyana and Suriname. Given the high

number of weekly frequencies between GEO and POS (32), POS is an attractive connecting hub for passengers that need to travel at specific dates and times of the day.

However, Port of Spain Piarco Airport is operating under extremely inefficient conditions, limiting the possibility of developing a successful hub. Inter-airline connecting passengers may require over 150 minutes to connect to clear immigration and security. However, passengers arriving and connecting with Caribbean Airlines may be able to connect within the transit area, but still confront delays of over 45 minutes to clear security.

The success of Caribbean Airlines will depend on the efficiency of Piarco as a connecting hub. The connectivity of Georgetown and Paramaribo will depend on the ability of Caribbean of developing the hub.

In the present, neither Guyana nor Suriname have direct services to connect local airports with Bogota, one of South America's largest hubs. However, Avianca has a network that connects this airport to a wide range of destinations located throughout North America, South America, Central America, the Caribbean and Europe, as can be seen in Exhibit E.10.

Developing a connection through Avianca with Bogota El Dorado International Airport would bolster the connectivity of Guyana and Suriname, as this airline has direct non-stop services to 29 international destinations in North America, Central America, South America, the Caribbean and Europe. In addition, Avianca is the largest carrier in the Colombian air transport market, offering non-stop services to 23 cities across its domestic network.

Another regional hub that offers connecting options for Guyana and Suriname is Curacao, base of operations for local carrier Insel Air. This airline offers 12 connections to South America, North America and the Caribbean for passengers that depart from Paramaribo or Georgetown and use Hato International Airport as a connecting point.

**Exhibit E.10 - Avianca's main routes and weekly services**

2015

Main routes out of BOG - Avianca



Avianca network

5 airports	Quito, Mexico City, Miami, Panama, Guayaquil	3 daily flights or more
7 airports	Santiago, Cancun, Caracas, Sao Paulo, San Jose, Madrid, New York	Between 2 and 3 daily flights
11 airports	Santo Domingo, Punta Cana, Rio de Janeiro, Orlando, Aruba, Fort Lauderdale, Barcelona, Washington DC, Guatemala City, La Paz, Lima	Between 1 and 2 daily flights
6 airports	Curaçao, La Habana, London, San Juan, Buenos Aires, Los Angeles	Between 2 and 6 weekly flights

Source: Avianca's schedule and OAG (2015).

Brasilia International Airport (BSB) is an interesting opportunity to further develop the connectivity of Guyana and Suriname, currently offering 9 international markets: 2 of them located in South America (Buenos Aires and Santiago de Chile), another 2 markets in Europe (Lisbon and Paris), 2 markets in the Caribbean (La Habana and Punta Cana), 2 markets in North America (Miami/Orlando and Atlanta) and the remaining market in Central America (Panama City)..



### Exhibit E.11 - International connectivity out of Brasilia International Airport

2015

International routes out of BSB



International routes by frequencies and airlines

Market	Weekly Frequencies	Airlines
Miami / Orlando	14	TAM 
Panama City	10	CopaAirlines 
Buenos Aires	8	TAM  
Lisbon	6	TP TAP PORTUGAL 
Atlanta	5	DELTA 
Paris	3	AIRFRANCE 
La Habana	1	CUBANA 
Punta Cana	1	TAM 
Santiago (Chile)	< 1	GOL 

Source: Consultant, using information from OAG (2015) and airlines schedules.

In addition to its international network, Brasilia International Airport offers Guyana and Suriname the possibility to connect with over 40 domestic destinations throughout Brazil, with regular services operated by Passaredo, Azul Airlines, Gol, TAM and Avianca Brazil.

However, and despite being an interesting opportunity to further develop Guyana's and Suriname's connectivity, Brasilia International Airport does not represent an important hub to connect with South America, at least to the same extent as Bogota and Panama City, which are large hubs for regional airlines. In this sense, BSB offers only 2 international routes to South America, a number that is considerably lower than that of Panama City through Copa Airlines (31 destinations in this region) and than that of Bogota through Avianca (9 markets in this region).

Another situation that should be considered relies on the recent announcement from TAM, who is projecting an investment of USD 1.2 billion for the establishment of an operations hub in the northeast of Brazil. No official announcement has been made

with regards to which city will be selected for the establishment of this hub, and there are currently 3 states (Ceara, Pernambuco and Rio Grande) involved in negotiations with TAM regarding this subject matter.

Taking this into consideration, the establishment of non-stop services departing in Georgetown and Paramaribo to the airport to be selected by TAM as its Northeast Brazil hub (construction works and migration of services would finalize by late 2016) would also increase the connectivity of Guyana and Suriname.

Through the establishment of additional services to the main regional hubs closest to Guyana and Suriname, both countries would increase their connectivity, allowing departing passengers from GEO and PBM to reach multiple destinations in South America using these hubs as gateways to the rest of the continent.

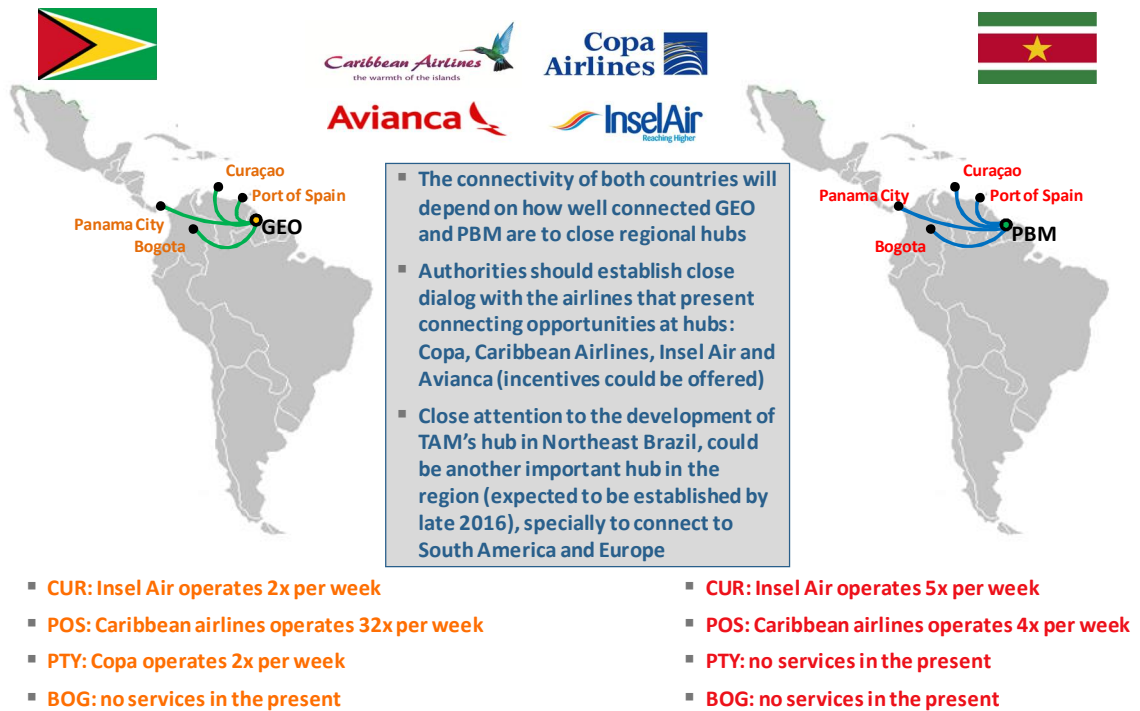
Developing a connection through Avianca with Bogota El Dorado International Airport would bolster the connectivity of Guyana and Suriname, as this airline has direct non-stop services to 29 international destinations in North America, Central America, South America, the Caribbean and Europe. In addition, increasing existing operations to Port of Spain (through Caribbean Airlines), Panama City (Copa Airlines) and Curaçao (Insel Air) would also contribute to the expansion of the available opportunities for passengers that need to travel to or from Guyana, using these hubs as connecting points.

It is recommended to the authorities of both Guyana and Suriname to have a close dialog with the airlines that present opportunities to increase their regional connectivity: Copa Airlines, Avianca, Caribbean Airlines, Insel Air and TAM, following very closely the development of its soon to be established Northeast Brazilian hub. All policies aimed towards the establishment of additional frequencies from these airlines to GEO and PBM will definitely have a positive impact in Guyana's and Suriname's connectivity.

Ideally, market forces should be able to provide for the development of these services to regional hubs. However, if existing demand for these services were to prove not to be large enough so as to be financially feasible, the governments of Guyana and Suriname could study the implementation of directed subsidies or other type of incentives for the development and sustainability of these services.

The following Exhibit summarizes the specific recommendations.

### Exhibit E.12 - Recommendations to increase connectivity



Source: Consultant.

### Next steps

The following table states the proposed next steps for both Guyanese and Surinamese authorities, based on the conclusions of the previous sections of this report, and with the objective of increasing the connectivity levels of both countries.

**Exhibit E.13 - Proposed next steps for Guyanese and Surinamese authorities**

Objective	Proposed actions	Time-frame	Probability of success
Increase/Establish Copa Airlines services to GEO and PBM	<ul style="list-style-type: none"> <li>✓ Establish dialog with Copa Airlines to investigate the airline requirements with respect to the development of services to Paramaribo</li> <li>✓ Different options could be analyzed:                             <ul style="list-style-type: none"> <li>○ Individual point to point flights to PBM and GEO from Panama City (PTY)</li> <li>○ Rotating flights from Panama to GEO and PBM (PTY-GEO-PBM-PTY on certain days of the week and on the opposite direction PTY-PBM-GEO-PTY on other days). This option will require traffic rights (fifth freedom) between PBM and GEO in both directions</li> <li>○ Round-trip flights from PTY with a connection at either PBM or GEO</li> </ul> </li> </ul>	Short-term	Mid to High
Establish new Avianca services to GEO and PBM	<ul style="list-style-type: none"> <li>✓ Investigate interest of Avianca to develop new services to GEO and PBM</li> <li>✓ Avianca might prefer not to compete with its Star Alliance partner. Another option could be the cooperation of flights with Copa in code share operations or combining both services at alternative days of the week</li> <li>✓ This alternative will require from Suriname and Colombia to initiate negotiations to liberalize the existing ASA (currently highly restricted to only 2 services per week per side)</li> </ul>	Short- to mid term	Mid
Increase Caribbean Airlines services to GEO and PBM	<ul style="list-style-type: none"> <li>✓ Investigate what the airline would need to increase its current frequencies to GEO and PBM</li> <li>✓ The development of Caribbean hub at POS will require efficiency improvements at border control facilities (immigration and security)</li> </ul>	Short-term	Mid
Increase Insel Air services to GEO and PBM	<ul style="list-style-type: none"> <li>✓ Investigate what the airline would need to increase its current frequencies to GEO and PBM</li> </ul>	Short-term	Mid

<b>Objective</b>	<b>Proposed actions</b>	<b>Time-frame</b>	<b>Probability of success</b>
Increase/Establish Gol services to PBM and GEO	<ul style="list-style-type: none"> <li>✓ Investigate potential interest from the airline to develop a non-stop services to GEO</li> <li>✓ Investigate interest from GOL to develop connections at Belem to points beyond, in South America</li> </ul>	Short-term	Low
Explore evolution of declared intention of TAM to develop a Northeast hub	<ul style="list-style-type: none"> <li>✓ Engage in talks with TAM to explore interests (eventually Brasilia could be a potential hub from where TAM could be interested)</li> </ul>	Medium Term	Quite low
Liberalize restrictive ASAs	<ul style="list-style-type: none"> <li>✓ For Guyana, engage in talks with Brazilian authorities to flexibilize the existing capacity constraint in the bilateral agreement (currently at 3 weekly services)</li> <li>✓ For Suriname, engage in talks with Colombia to increase current capacity constraints in the ASA (currently set at a maximum of 2 frequencies per side)</li> </ul>	Short - to Mid term	Mid

Source: Consultant.

## **1. Introduction**

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### **1.1. Background**

The Ministers of the South American Infrastructure and Planning Council (COSIPLAN) of the South American Nation Union (UNASUR) in the meeting celebrated on December 4th in Montevideo, approved the 2015 COSIPLAN's working plan. The Council designated the Republic of Brazil as the coordinator for the activities related with air transport sectoral integration process, with includes among others, the coordination of a Study on air integration of the Guiana Shield countries (Brazil, Guyana, Suriname and Venezuela), which was proposed during 2014 by Guyana, to investigate the constraints to Regional Air Connectivity between countries in the Guyana Shield and the rest of South America.

The result of the said study will be presented and discussed in the COSIPLAN forum, Guyana. Currently there is very limited air connectivity within the countries of Guyana Shield although the demand for air transportation could be termed as moderately high. There are no direct flights between Guyana and Brazil and only a once weekly flight between Puerto Ordaz Airport, Venezuela and CJIA, Guyana.

There are five weekly flights between Suriname and Belem, Brazil but none between Suriname and Venezuela. The situation between Guyana and Suriname is much more favorable with daily flights between Ogle International Airport, Guyana and Zorg-en-Hoop International, Suriname in addition to a twice weekly flight between Cheddi Jagan International Airport (CJIA) and the Johan Adolf Pengel International Airport.

The difficulties of air connectivity between these neighboring states extend beyond borders and result in very complex itineraries for air travel between Guyana/Suriname and the rest of South America. For the purpose of this study the situation with French Guiana will not be analyzed.

### **1.2. Objective**

The main objective of this study is to investigate the main causes of the constraints to regional air connectivity between countries of the Guyana Shield and with the other UNASUR member states.

### 1.3. Scope of Work

The scope of the study is to conduct a diagnostic study to investigate the constraints to regional air integration within the Guyana Shield.

The study must lay the foundation for a much more comprehensive Technical Study that will be designed to improve the air connectivity between the Guyana Shield countries (Venezuela, Guyana, Suriname, Brazil) and the rest of South America.

The analysis involves the elaboration of a matrix of contributing variables and the corresponding short, medium and long term measures that could help to improve regional air connectivity. The study focuses in the following:

1. Market analysis, regulatory analysis (including legislative), aviation policy and infrastructure in the Guyana Shield countries
2. Examination of the Air Services Agreement each country has with other countries
3. Evaluation of the trading policies to understand what options are available

Establishment of proposals of what could be achieved based on the findings of bullets 1, 2 and 3 above.

## **2. Current connectivity of the countries of the Guyana Shield**

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The objective of this study is to investigate the current level of connectivity of the countries of the Guyana Shield with the rest of South America. This study extends the analysis by exploring the connectivity of the four countries of the Guyana Shield with the rest of the world, since some connecting point outside South America would still be relevant as transfer airports to routes connecting with the region.

As it could be seen in the following table (Exhibit 2.1), each one of the countries of the Guyana Shield has different connectivity levels with the rest of the South American countries and with other regions of the world.

These differences in the observed connectivity levels are mainly explained by economic and social factors, as there is a direct relationship between the level of economic development that a country has with its international air transport connectivity level.



**Exhibit 2.1 - Connectivity levels of the countries of the Guyana Shield**

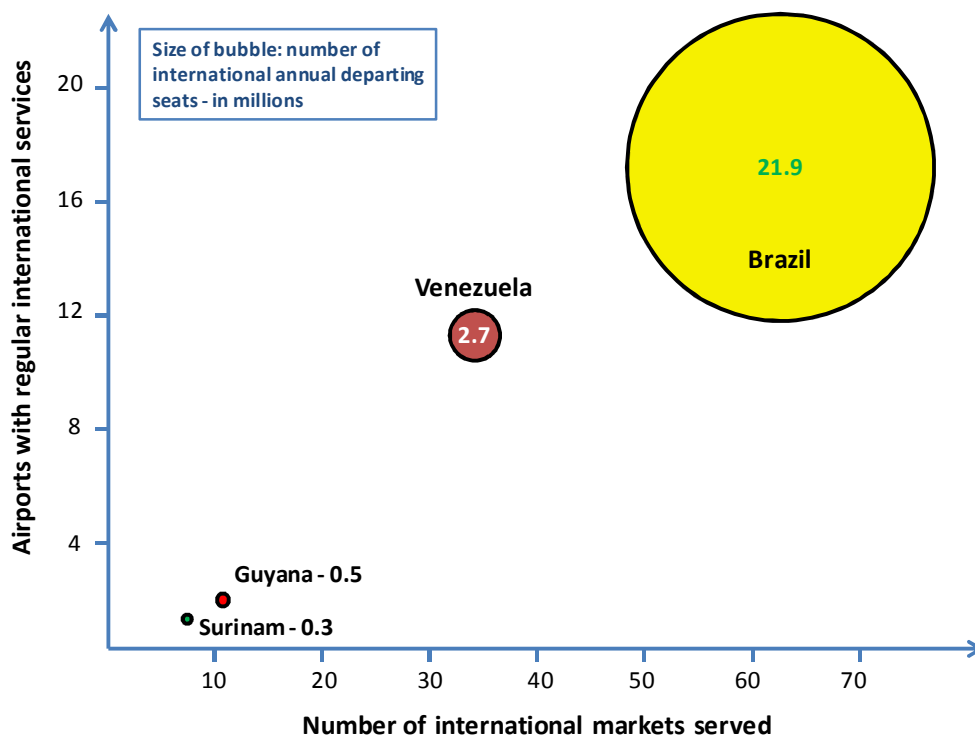
Country	Number of airports with scheduled international services	Number of international markets	Number of annual international departing seats - 2015	Regions served
Brazil	15	63	21,921,000*	South America: 17 markets Western Europe: 13 markets North America: 16 markets Central America and Caribbean: 6 markets Middle East: 3 markets Africa: 5 markets Asia: 3 markets
Venezuela	11	35	2,659,000	South America: 10 markets Western Europe: 8 markets Caribbean: 9 markets North America: 5 markets Central America: 3 markets
Guyana	2	12	497,000	South America: 2 markets Caribbean: 5 markets North America: 4 markets Central America: 1 market
Suriname	1	7	325,000	South America: 3 markets Western Europe: 1 market Caribbean: 3 markets

Source: consultant, using information from OAG (2015) and ANAC Brazil.

Note\*: annual departing seats for Brazil for 2015 were projected based on information from ANAC Brazil for the period January-September of 2015.

The following chart depicts a graphical representation of the parameters stated in Exhibit 2.1.

**Exhibit 2.2 -International connectivity of the countries of the Guyana Shield: annual international seats, international airports and international markets**



Source: consultant, using information from OAG (2015).

Note\*: annual departing seats for Brazil for 2015 were projected based on information from ANAC Brazil for the period January-September of 2015.

It stands out that Brazil is the country of the Guyana Shield with the broadest connectivity level: it has 15 airports that currently offer non-stop services to 63 international destinations in 7 different regions (some of them even located in remote regions such as Asia, Africa and the Middle East). Being a member of the G-20 Group and South America's largest economy, Brazil currently has connectivity levels larger than many developed economies in the world.

Even without having a comparable air transport connectivity to that of Brazil, Venezuela also has significant connectivity levels: the country has 11 international airports with regular international services to 35 markets located in 5 different regions (including 8 markets located in Western Europe). This connectivity level is partially explained by the fact that Venezuela is a developing country with a sizeable economy,

that has increased its GDP per capita at an average annual rate of over 8% in the last 25 years, according World Bank data.

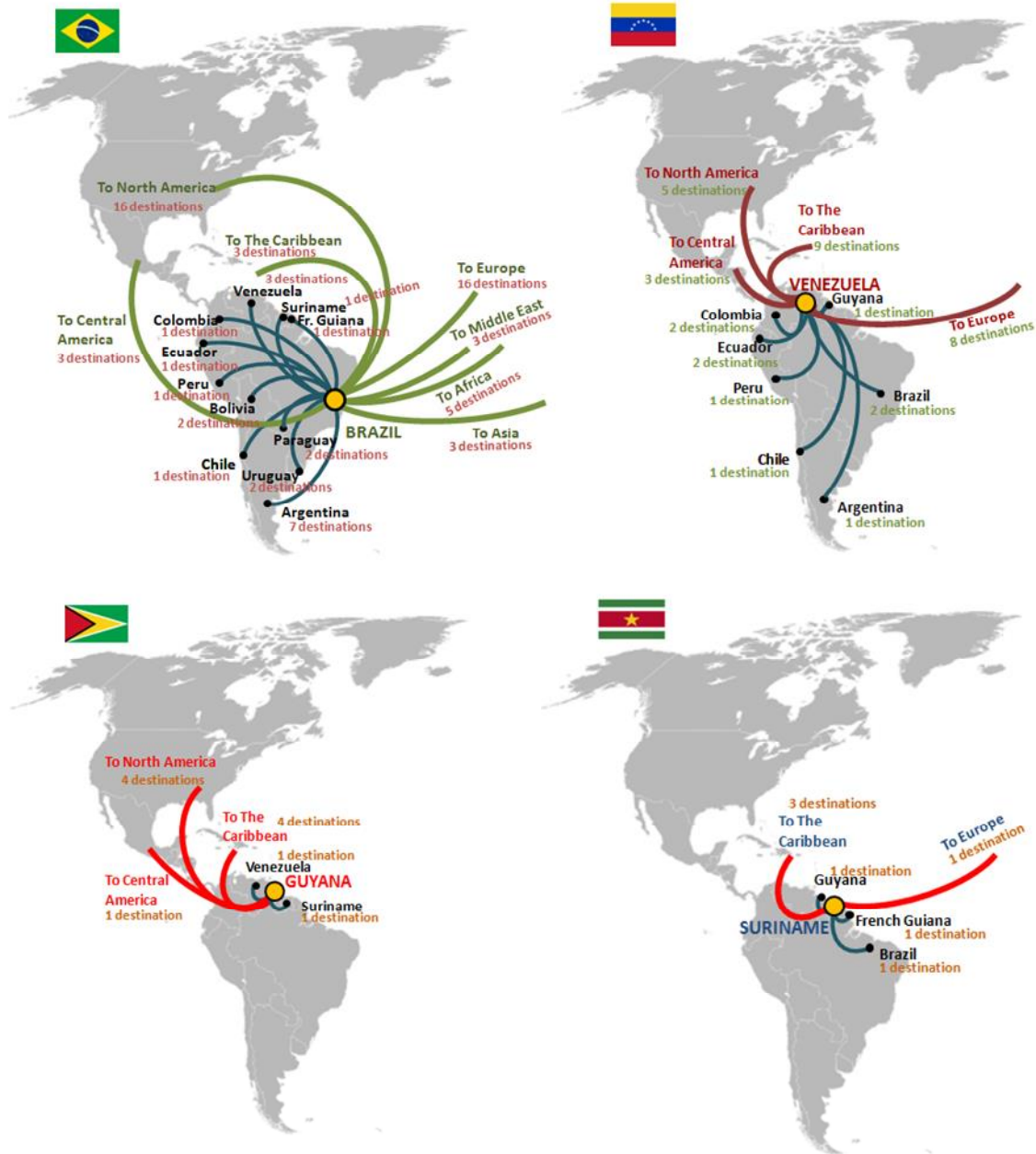
However, the situation is different when the assessment is performed in the remaining two countries of the Guyana Shield: Guyana has only two international airports with regular flights to 11 markets in 4 regions, while Suriname only has one airport with regular international services to just 7 destinations located in 3 regions.

The following chart (Exhibit 2.3) presents a graphical representation of the existing connectivity of the four countries of the Guyana Shield. It can be observed that Brazil and Venezuela present a high degree of connectivity with many destinations within South America, with the rest of Latin America, with North America and with other continents. The lower two maps represent the connectivity level of Guyana and Suriname, presenting a modest level of connectivity.

Specifically, Brazil and Venezuela have direct services to regional long haul destinations such as Argentina, Peru, Bolivia, Brazil and Colombia, while Guyana and Suriname do not have any direct services to destinations in these nations. In addition, both Brazil and Venezuela have international services to at least 8 different destinations in Europe, whilst Guyana has no services to this continent and Suriname only has one direct service to the Netherlands. Another clear difference in the observed connectivity of these countries is that Brazil and Venezuela's connectivity to Central America and the Caribbean is broader than that of Guyana and Suriname's, as they have a larger number of served destinations in these regions.

Therefore, this report focuses in the connectivity of Guyana and Suriname only, since it is their linkage to the region and to the world what needs to be analyzed to identify the opportunities for improvement.

Exhibit 2.3 - International connectivity of the countries of the Guyana Shield by destination markets



Source: consultant, using information from OAG (2015) and ANAC Brazil.

## **3. Airport Infrastructure**

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The existing airport infrastructure in Guyana and Suriname was analyzed in order to determine actual and potential constraints to the development of the regional connectivity of these countries.

The analysis focuses on potential capacity and technical constraints, both on airside and landside facilities.

### **3.1. Guyana**

#### **3.1.1. Georgetown Cheddi Jagan International Airport (GEO)**

Cheddi Jagan International Airport (GEO) is Guyana's largest airport and it is the country's main international gateway. GEO is located on the right bank of the Demerara River Timehri, 50 kilometers to the south of Georgetown. The airport is managed by the Cheddi Jagan International Airport Corporation (CJIAC), a state-owned company founded in 2001 by an amendment to the Public Corporations Act (1988). By this amendment, it is responsible for all non-regulatory functions of the Cheddi Jagan International Airport. The airport is capable of Boeing 777 and 747-700 aircraft, but operations with these equipments can take some sort of weight penalty.

The following figure depicts the aerial view of the airport, which is set on an approximate total land area of 212 hectares.

### **Exhibit 3.1 - Aerial view of Georgetown International Airport**



Source: Google Earth.

### **Airside**

The airport has two runways:

- 06/24: 2270 x 45 meters paved with asphalt, with ILS CAT 1.
- 11/29: 1525 x 45 meters paved with asphalt, with no ILS.

Besides Instrument Landing System<sup>9</sup> (ILS) the airport also has basic navigational aids such as VOR<sup>10</sup> and DME<sup>11</sup>, and PAPI<sup>12</sup> visual aids.

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<sup>9</sup> The ILS is a ground-based instrument approach system that provides precision lateral and vertical guidance to an aircraft approaching and landing on a runway, allowing precision landings with reduced visibility

<sup>10</sup> VOR: Very-High Frequency Omnidirectional Radio is a navigational aid consisting of a radio that emits an omnidirectional signal that allows the aircraft to determine its position relative to the emitting radio.

The airport's main runway (06/24) has a full parallel taxiway with high-speed exits, which allows the efficient use of the runway by allowing aircraft to vacate the runways faster.

## **Landside**

The airport's passenger terminal is currently set in a land area of approximately 4,000 square meters, with six ground level boarding gates. Facilities at CJIA are designed to manage a small volume of passengers, and according to the airport operator, the current passenger terminal facility is not able to manage the growing traffic of the airport. In a document released in 2014<sup>13</sup>, the CJIAC exposed the main critical issues of the airport's passenger terminal:

- Improper design of the roof leading to heavy condensation of AC duct system
- Insufficient capacity of sewer lines
- Crowded terminal during peak periods (twice per day)
- Delays in take-offs due to operational bottlenecks

The following picture Exhibit 3.2 depicts the current state of operations at the passenger terminal of CJIA, showing the situation during one of the busiest hours of the day.

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<sup>11</sup> DME: Distance Measuring Equipment, , used in conjunction with VORs, allows an aircraft to determine its distance from the emitting radio.

<sup>12</sup> PAPI: Precision Approach Path Indicator is a visual aid that helps pilots to establish and maintain a correct approach to an airport.

<sup>13</sup> Cheddi Jagan International Airport Corporation - " Building Guyana's future Step By Step" - The Expansion of the Cheddi Jagan International Airport. February of 2014.

### **Exhibit 3.2 - Current state of passenger terminal during peak hour situations**



Source: Cheddi Jagan International Airport Corporation.

### **Expansion project**

In November of 2011, the Government of Guyana awarded China Harbour Engineering (CHEC), a subsidiary company of China Communications Construction Company (CCCC), a USD 138 million contract for the expansion of CJIA. The expansion project primarily involves the extension of the 06/24 runway and the construction of a new passenger terminal building.

The expansion project is set to cover the following key points:

- Extension of the 06/24 runway to reach a total length of 3,336 meters, in order to be capable of receiving ICAO category E aircraft, including Boeing 747-400s.
- Passenger terminal area will increase in 12,000 square meters, featuring 2 new elevators and 2 new escalators, a new lounge for transit passengers and additional areas to be occupied by Duty Free and commercial concession shops



- Installation of 8 boarding bridges, with an increase of the existing Apron parking positions to 8
- Installation of 5 self check-in kiosks
- Installation of a CCTV system
- Acquisition of shuttle buses

Construction works were initially estimated to finalize by 2015.

### 3.1.2. Ogle International Airport (OGL)

Ogle International Airport is located on the Atlantic Coast of Guyana, approximately 10 kilometers away from Georgetown, to its east. The airport is managed by Ogle Airport Inc., a local consortium of airline operators who took over the operation and management of its facilities in December of 2001.

The airport currently has limited international activity, serving the operations of LIAT and Trans Guyana Airways. LIAT operates 2 daily services to Bridgetown and 4 flights per week to Port of Spain with ATR-42 aircraft (with a capacity of 48 seats). Trans Guyana Airways operates 12 weekly services to Zorg En Hoop Airport and multiple flights to 5 local airports: Lethem, Barticia, Ibaimadai, Kamarang and Chi-Chi. All these services are operated with Cessna Grand Caravan (13 seats) and Britten Norman Islander (9 seats) aircraft.

Operating hours are from 6 AM to 10 PM, local time. The following figure depicts the aerial view of the airport.

### **Exhibit 3.3 - Aerial view of Ogle International Airport**



Source: Google Earth.

### **Airside**

The airport has a single runway, suitable for small turboprop operations of up to (approximately) 40 seats:

- 07/25: 1280 x 30 meters paved with concrete, with no ILS

The airport has no basic navigational aids, nor any visual aids. The runway is connected to an asphalted parallel taxiway (a former runway) through a single exit, which is located in the middle of the runway.

With regards to fueling facilities, the airport has a mobile truck bowser that dispenses Jet A1, AVGAS 100LL, Phillips PAD 100 and Exxon 2380 fuel types.

## 3.2. Suriname

### 3.2.1. Paramaribo Johan Adolf Pengel International Airport (PBM)

Johan Adolf Pengel International Airport (PBM) is the largest airport of Suriname, also being the country's sole international gateway. PBM is located in the town of Zanderij, 45 kilometers south of Paramaribo. The airport is managed by Airport Management Ltd, a state-owned company.

The following figure depicts the aerial view of the airport, which is set on an approximate total land area of 340 hectares.

#### **Exhibit 3.4 - Aerial view of Paramaribo International Airport**



Source: Google Earth.

#### **Airside**

The airport has one runway with 11/29 orientation, of 3480 x 45 meters of concrete. The runway has a basic instrument landing system (ILS CAT 1). Besides the ILS, the airport also has basic navigational aids such as VOR and DME. However, it has no PAPI visual navigation aids. The runway is suitable to operate large aircraft up to Boeings 747s or 777s (ICAO Category E aircraft).

## **Landside**

The annual capacity of the airport is of 300,000 passengers, with a passenger terminal building that features 12 check-in desks, 2 boarding gates, 2 baggage claim belts, 350 short term parking spaces, 11 long term parking spaces and commercial facilities such as food and beverage bars, banks / financial services, car rental, VIP lounge, ground transport and general retail shops.

## **Expansion Plan**

In 2012, the Government initiated an expansion plan at PBM with an initial projected investment of USD 70 million. Between 2012 and 2013, enhancements have been made for an estimated value of USD 28.5 million that have been invested in the resurfacing of the airport's runway, the modernization of the apron, arrival lounges and car parking spaces, the installation of a backup electrical system and the replacement of the runway's lighting.

### **3.2.2. Zorg En Hoop Airport (ORG)**

Zorg En Hoop Airport is located in the city of Paramaribo. Given its proximity to residential areas and both runway and facility constraints, it is mainly used by flight academies for pilot training and for general aviation purposes. The airport is currently operated by carriers that serve mostly domestic routes within Suriname: Blue Wing Airlines, Caricom Airways and Gum Air. In addition, Trans Guyana Airways operates 12 weekly services to Ogle Airport, in Guyana. All of the above mentioned carriers operate these services with small sized aircraft (with less than 19 seats each), offering mostly charter services instead of scheduled ones.

The following figure depicts the aerial view of the airport.

### **Exhibit 3.5 - Aerial view of Zorg En Hoop Airport**



Source: Google Earth.

The airport has one runway with 11/29 orientation, which is 550 x 18 meters and paved with asphalt. There are no visual nor basic navigation aids available.

### **3.3. Main conclusions on Infrastructure**

In term of operational facilities, the current state of the infrastructure of Georgetown and Paramaribo international airports present no operational constraints.

Both terminal buildings, at Paramaribo and at Georgetown, offer a relatively low level of service to passengers. Even without proper measurement of the buildings, the dimensions and appearance of the facilities are not up to the international accepted levels of service. All areas related to passenger processing areas, particularly for outbound passengers, present deficient conditions of facilitation, comfort and acceptable level of service.

However, these conditions do not represent any restriction for the development of traffic. The level of service is expected to deteriorate even further with any increase in traffic that is not accompanied by investments, but the passenger throughput will not be affected.

Despite needed investments to accommodate an increasing level of passenger traffic the capacity of an airport is not determined by the size nor the existing conditions at airports' passenger terminal, but by the conditions of its airside (runway extension and characteristics, mainly). Should passenger terminals remain without any enhancements in the forthcoming years, the level of service experienced by passengers could be reduced. However, such situation would not represent a constraint for the development of passenger traffic.

Given that both Georgetown and Paramaribo are currently capable of receiving ICAO Category E aircraft (Georgetown may even receive Boeing 777 aircraft), and that there is no need for the construction of additional runways at these airports (traffic demand does not require an increase in capacity), it is possible to say that the existing infrastructure is sufficient to continue the development of the air transport sector in general, and the connectivity of both countries in particular.

## **4. The Cost of the Airport Infrastructure**

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As part of the analysis of the connectivity of the Guyana Shield, the role of the cost of using the airport infrastructure was considered. The concept is to identify if the related cost to operate at any of the airports of Paramaribo and Georgetown is comparatively high, and if it could hamper in any way the development of the traffic.

Therefore, a benchmarking analysis was performed to assess the pricing positioning of Georgetown and Paramaribo international airports in comparison with the other 12 most relevant international airports in South America. All the airports located in the main cities of South America were considered for the assessment.

In order to perform the assessment, two different types of charges were considered:

- Charges on passengers, including:
  - Passenger Facility Charges (PFCs)<sup>14</sup>
  - Security charges and Other fixed charges on passengers (Airport Improvement Fees, Airport Exit Tax fees and other fixed fees)
  - Taxes on ticket, generally called "Sales Tax" or "Ticket Tax". A tax on ticket is a fixed percentage levied by governments on the fare charged by airlines
- Charges on airlines, including landing fees and parking fees

In order to assure a reasonable comparison between all analyzed airports, a USD 500 ticket fare was assumed to determine the level of taxes on ticket.

An Airbus A320 aircraft was used to perform the analysis, as one of the two typical equipment used in the region for local connectivity. The A320 was considered to have a single-class configuration of 164 seats and a load factor of 80%. As per manufacturer, the aircraft weight (measured as maximum take-off weight, or MTOW) is of 77 metric tons, relevant for the calculation of landing and parking fees.

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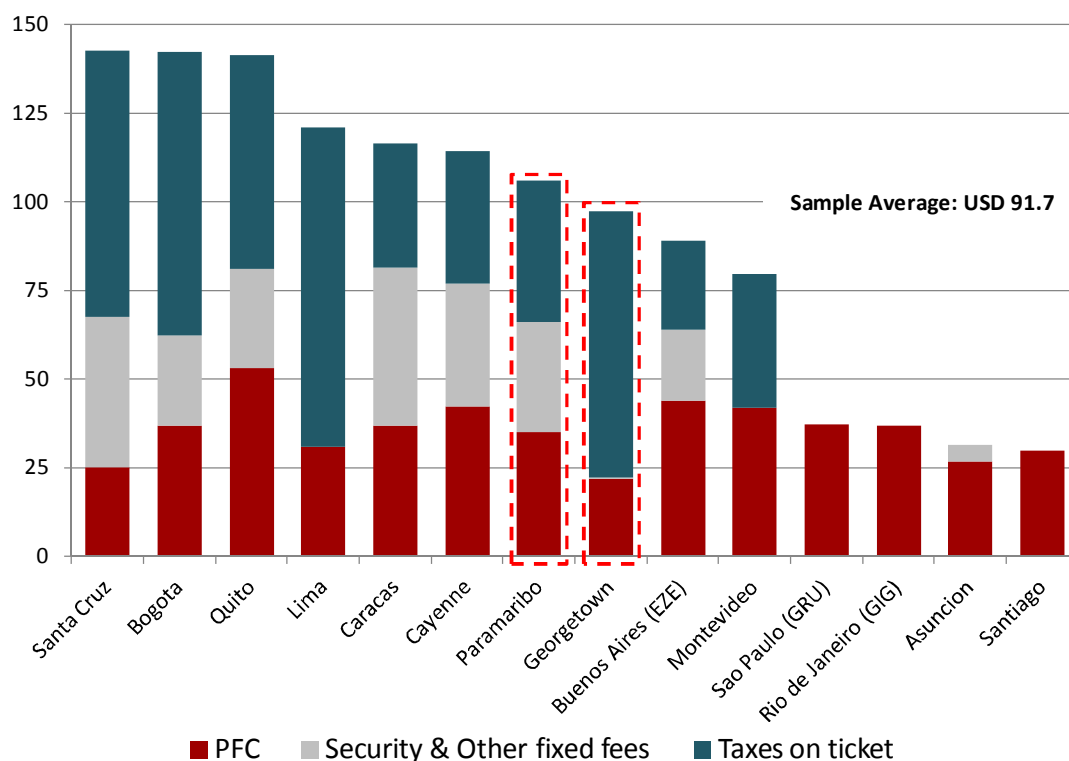
<sup>14</sup> At some airports these charges may also be called: *Passenger Service Charge, Passenger Boarding Charge, Passenger Departing Charge, etc.*

## 4.1. Benchmarking of Passenger charges

The benchmarking analysis was carried out considering the PFCs levied on departing passengers for international flights at the different airports. It must be noted that the PSC or PFC is generally collected by the airline at the time of sale<sup>15</sup>. Regardless of the way in which it is collected, the PSC or PFC is always ultimately paid for by the passenger.

### Exhibit 4.1 - Passenger charges at 14 South American airports

In USD per embarked passenger



Note: Taxes on ticket assume a return-ticket cost of USD 500.

Source: prepared by consultant using information from ORSNA (Argentina), Galeao International Airport (Rio de Janeiro), Guarulhos International Airport (Sao Paulo), OPAIN S.A. (Bogota), DGAC Chile, Montevideo International Airport, SABSA Bolivia, Lima Airport Partners, Johan Adolf Pengel International Airport (Paramaribo), Copa Airlines, Caribbean Airlines, Suriname Airways and IATA Airport, ATC and Fuel Charges Monitor 2014.

<sup>15</sup> It was the old practice, rarely found these days, that the passengers would pay the PSC/PFC at the airport upon check-in or at a dedicated counter.



For a ticket fare of USD 500, the sample average value for passenger charges is of 91.7 USD. Both Paramaribo and Georgetown airports are slightly above of this value: GEO charges USD 97.2 per embarked passenger (6.0% above the sample average) and PBM charges USD 106.0 per embarked passenger (15.6% above the sample average).

With regards to fixed charges, Paramaribo Airport currently charges a "Terminal Fee" of USD 25 per embarked passenger, besides from a PFC of USD 35 and a Security charge of USD 6. Georgetown Airport only charges a PFC of USD 22.2. However, taxes on ticket are higher at Georgetown: Guyana's Salex tax is of 75 USD (or 15% of the assumed USD 500 ticket fare) whilst Suriname's Goods and Services Tax is of USD 40 (or 8% of the assumed USD 500 ticket fare).

Within the sample of 14 airports, 3 airports only charge a Passenger Facility Charge (Santiago, Sao Paulo and Rio de Janeiro), another 3 airports charge PFCs and taxes on ticket (Montevideo, Georgetown and Lima), other 7 airports charge PFCs, other fixed fees and taxes on ticket (Santa Cruz, Bogota, Quito, Caracas, Cayenne, Paramaribo and Buenos Aires) and only one airport (Asuncion) charges a PFC and other fixed fees, without any taxes on ticket.

## 4.2. Benchmarking of charges on airlines

A benchmarking analysis was also performed for charges on airlines for the same sample of airports. The charges considered in this case are landing fees and parking fees, also assuming an Airbus A320 aircraft and a 2-hour turnaround.

Landing fees at these airports are levied according to aircraft's MTOW, using different methods of calculation. All the airports in the sample (with the exception of Bogota and Montevideo) use variable rates per ton of aircraft's MTOW to determine landing fees. With this method, in the case of the Airbus A320, each airport has its own variable rate, which is multiplied by the aircraft's 77 tons of MTOW. In the case of Bogota and Montevideo, these airports use weight bands of MTOW to determine fixed fees. This means that any given aircraft will fall into a fixed category fee, according to its MTOW.

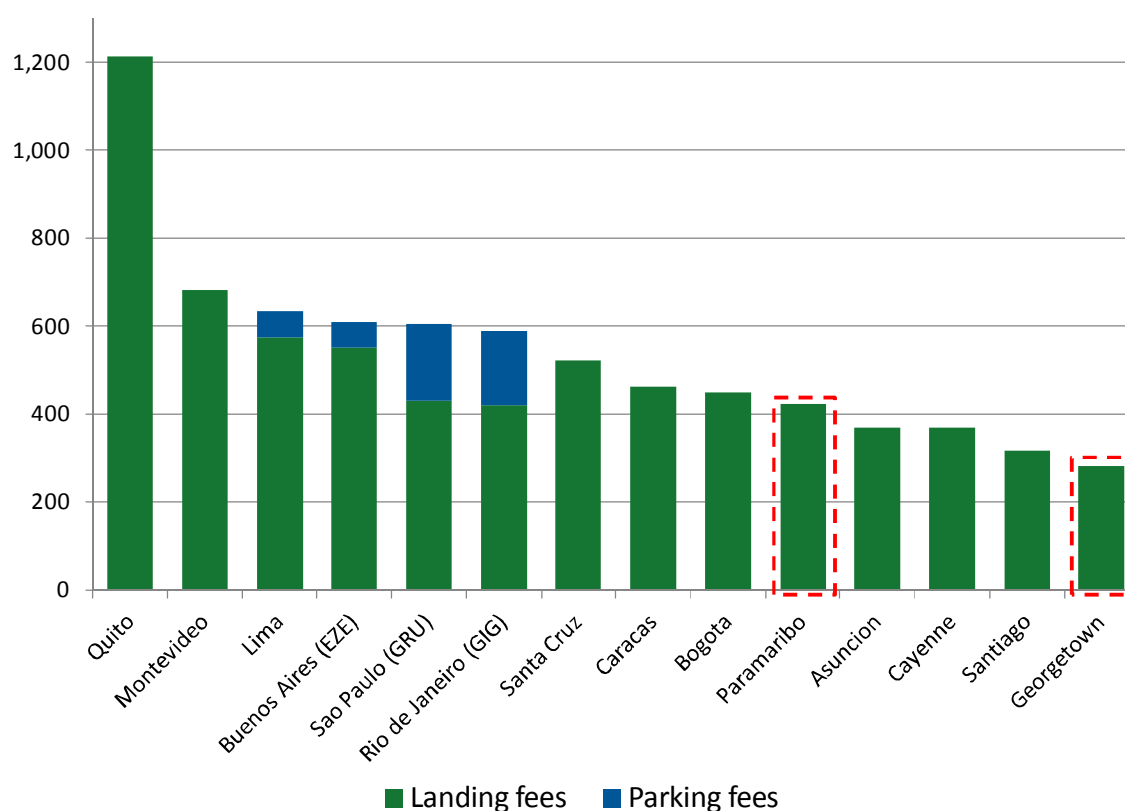
Parking fees are also calculated using variable fees according to aircraft's MTOW. At most airports, there is a specific grace period free of parking charges (usually between 90 and 180 minutes), while at other airports parking charges are levied from the moment the aircraft stops on the ramp. For the case of the 14 analyzed airports in this section, 10 of them grant at least 120 minutes free of charge (Georgetown, Paramaribo, Santiago, Montevideo, Santa Cruz, Quito, Bogota, Caracas, Cayenne

and Asuncion), while another 3 airports (Buenos Aires, Sao Paulo and Rio de Janeiro) do not have grace periods and Lima Airport has a grace period of only 90 minutes.

To make an *apples-to-apples* comparison, it has been assumed a two hour parking, so a specific charge was added for those airports that do not include any grace period.

#### **Exhibit 4.2 - Charges on airlines at 14 South American airports**

In USD, assuming a 2 hour turnaround



Source: prepared by consultant using information from ORSNA (Argentina), Galeao International Airport (Rio de Janeiro), Guarulhos International Airport (Sao Paulo), OPAIN S.A. (Bogota), DGAC Chile, Montevideo International Airport, SABSBA Bolivia, Lima Airport Partners, Johan Adolf Pengel International Airport (Paramaribo) and IATA *Airport, ATC and Fuel Charges Monitor 2014*.

Quito International Airport is clearly the airport with highest charges on airlines, almost doubling that of Montevideo International Airport, which is the second highest airport

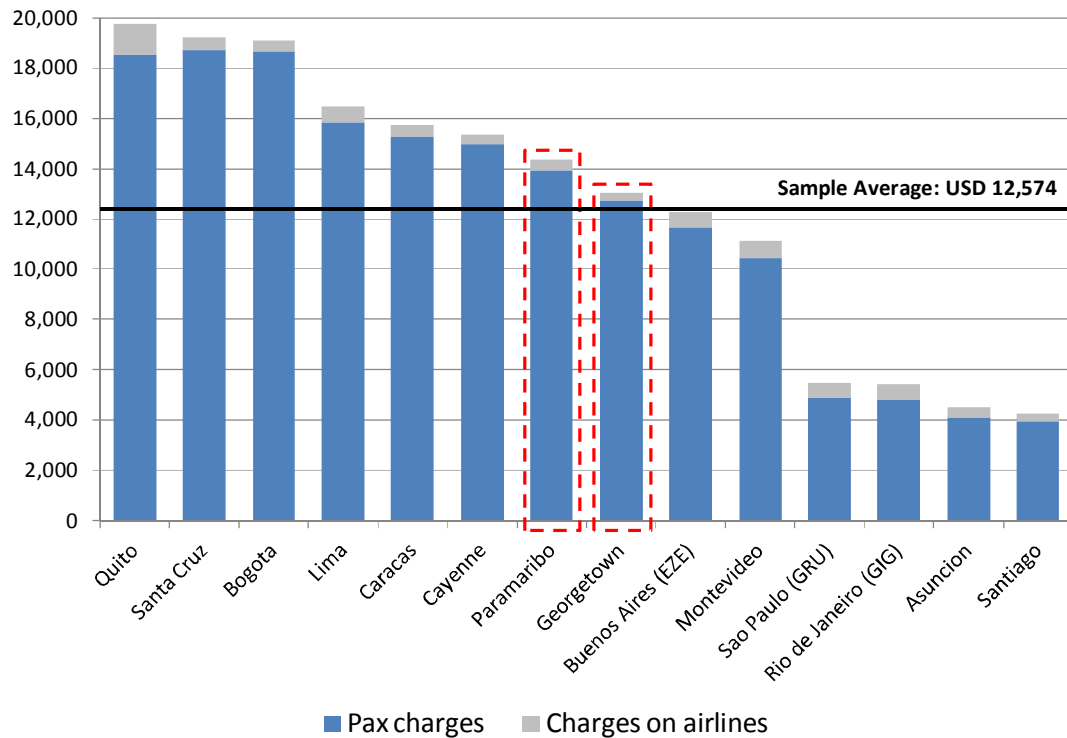
in terms of charges to airlines. Both Paramaribo (USD 423.5) and Georgetown (USD 281.7) airports are below the sample average of 537.3 USD.

### 4.3. Benchmarking of total costs

The following graph shows both charges on passengers and on airlines, for a 2-hour turnaround with the above described assumptions.

#### Exhibit 4.3 - Charges on passengers and charges on airlines at 14 South American airports

In USD, assuming a 2 hour turnaround



Note: Pax charges includes taxes on ticket, assuming a return-ticket cost of USD 500  
 Source: prepared by consultant using information from ORSNA (Argentina), Galeao International Airport (Rio de Janeiro), Guarulhos International Airport (Sao Paulo), OPAIN S.A. (Bogota), DGAC Chile, Montevideo International Airport, SABSAs Bolivia, Lima Airport Partners, Johan Adolf Pengel International Airport (Paramaribo), Copa Airlines, Suriname Airways, Caribbean Airlines and IATA Airport, ATC and Fuel Charges Monitor 2014.

Charges on passengers usually account for a larger amount than the charges levied on airlines (in this case, landing and parking fees). For the case of the 14 analyzed South American airports of this assessment, charges on passengers for an Airbus A320 account for more than 95% of the total charges.

Paramaribo and Georgetown airports are the seventh and eighth most expensive airports of the sample: PBM has a total cost of USD 14,331 (14.0% above the sample average of USD 12,574), while GEO has a total cost of USD 13,032 (3.6% above the sample average).

## 5. Institutional Framework review

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Unhealthy institutional frameworks do not necessarily represent constraints to the development of connectivity levels. However, it is important to remark that appropriate institutional frameworks that clearly separate the different functions among distinct organizations (independent to each other) guarantee the development of effective aviation policies. It is for this reason that this section presents an assessment of the bodies responsible for the different functions of the institutional framework in Guyana and Suriname.

### 5.1. Methodology

The analysis of the countries' current institutional frameworks was carried out through the research and analysis of the different legislations that regulate the development of air transport activities in Guyana and Suriname. The main laws that dictate the allocation of the different functions of air transport institutional frameworks are the *Guyana Civil Aviation Act of 2000 (Part III)* and the *Civil Aviation Regulations Act of Suriname*, respectively. These laws specify the institutions and entities that take part in Guyana's and Suriname's institutional frameworks:

- In Guyana, the Guyana Civil Aviation Authority (GCAA) and the Cheddi Jagan International Airport Corporation
- In Suriname, the Civil Aviation Safety Authority Suriname (CASAS), the Department of Civil Aviation (DCA), the Ministry of Transport, Communication and Tourism and Airport Management Ltd. (the operator of JAP International Airport)

Interviews with authorities of these government and private agencies were conducted during the month of August of 2015. The objective of these meetings was to understand the countries' main aviation policies, the evolution of policies applied in the past 10 years with regards to air transport's degree of liberalization and market entry access barriers, as well as obtaining information regarding the organizational structure, governance, and financing of the entities that compose the institutional framework of the air transport sector of both countries.

In addition, several secondary sources were consulted to search for additional relevant information, such as ICAO (International Civil Aviation Organization), IDB

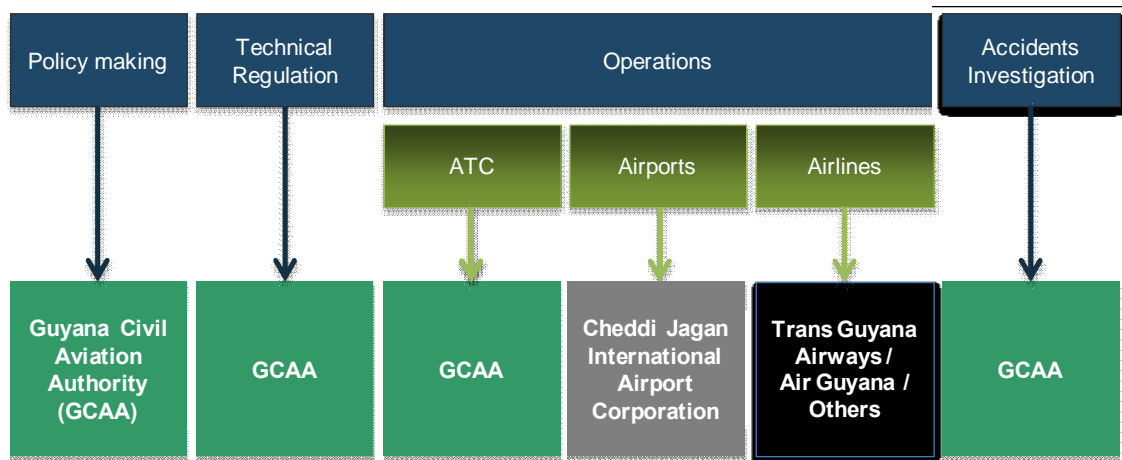
(Inter American Development Bank), World Bank (WB) and United States Agency for International Development (USAID).

## 5.2. Guyana

It is generally agreed that an efficient institutional framework must guarantee the complete independence between its four main functions: policy making, technical regulation, operations, and accidents/incidents investigation.

The following graph (Exhibit 4.1) illustrates Guyana's current institutional framework.

**Exhibit 5.1 - Overview of Guyana's air transport institutional framework**



Source: prepared by consultant

According to Guyana's *Civil Aviation Act* of 2000, Guyana's Civil Aviation Authority (GCAA) is the entity responsible for the Air Traffic Control (ATC) services operation, the technical regulation of the country's aviation, its economic policy making and the investigation of air accidents and incidents.

It is in this regard that the Civil Aviation Act of 2000, in its Chapter 53:01 (Part III), states that "*without prejudice to the generality of the subsection, the functions of the Civil Aviation Authority are: (a) to provide air navigation services including air traffic service, aeronautical telecommunication services and aeronautical meteorology services; (b) to provide safety services including registration of aircraft, the issuance, renewal, cancellation, and certificates of airworthiness and licenses to aviation personnel and the regulation of aerodromes and airlines; (c) to advise the Minister on*

*matters relating to the operation of this Act; (d) to participate in the negotiation of Air Service Agreements with other countries; (e) to promote development for air transport, including the establishment of training facilities for that purpose; and (f) to prescribe the fees to be charged for any service rendered by the Authority".*

The GCAA is responsible for formulating and setting the aviation policy. Aviation policy comprises issues such as access to foreign carriers into the air transport market as well as access of local carriers into foreign markets (typically set through the celebration of air service agreements), economic issues with respect to costs of air transportation, access of service providers, safety and security, environmental issues, etc.

Despite the fact that the Ministry of Infrastructure executes specific tasks related to air transport policy making, the GCAA is the entity that negotiates the country's bilateral agreements and is responsible for the sector's economic regulation, which constitute the two most relevant tasks of economic policy making.

Technical regulation is also conducted by the GCAA, which is empowered to oversee all technical aspects of the civil aviation sector according to the norms and recommendations of the Chicago Convention of 1944 and its Annexes. As such, the responsibilities of the GCAA include all technical aspects related to oversight and enforcement of compliance with local and international norms, such as ICAO Standards and Recommended Practices (SARP). Among others, it involves certification of aircraft airworthiness, of maintenance facilities, licensing of all aviation personnel (flight and cabin crews), certification of airports, of air navigation services, air cargo terminals and of all service providers related to air transport. In summary, the scope involves the oversight for all matters with respect to safety, and also to security (safeguarding against acts of unlawful interference).

The compliance of Annexes 1, 6 and 8<sup>16</sup> is reviewed not only by ICAO, but also by the Federal Aviation Administration (FAA) of the United States, through its International Aviation Safety Assessments Program (IASA)<sup>17</sup>.

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<sup>16</sup> Annex 1 - "*Personnel Licensing*", Annex 6 - "*Operation of Aircraft*" and Annex 8 - "*Airworthiness of Aircraft*"

<sup>17</sup> Under the International Aviation Safety Assessment (IASA) program, the FAA determines whether another country's oversight of its air carriers that operate, or seek to operate, into the U.S., or codeshare with a U.S. air carrier, complies with safety standards established by the International Civil Aviation Organization (ICAO)

At the present time, Guyana is on Category 2 of this program, according to the FAA's assessment of Guyana's Civil Aviation Authority. The economic implication of this situation for the country is the inability to access the United States airspace to all aircraft, crew or maintenance certifications credited in Guyana, valid for new frequencies and destinations between Guyana and the US. The Category 2 downgrade acts as a complete access barrier to markets in the US for local carriers, given that no Guyanese airline currently operates frequencies inside these country.

The operation of air traffic control services is also the responsibility of the GCAA, including communications, air navigation management, and meteorological service over the country's airspace.

The operation of the country's main international gateway, Cheddi Jagan International Airport (GEO) is carried out by the Cheddi Jagan International Airport Corporation, a public company established on October 5 of 2001 by an amendment to Guyana's Public Corporations Act of 1988. The country's second airport in importance is Ogle Airport (OGL) is operated by Ogle Airport Inc., a consortium formed by local airline operators.

The GCAA is also the authority responsible for conducting air accidents investigations. In this sense, the website of the GCAA clearly states that the Aviation Safety Regulation Directorate (ASRD) is headed by the Director Aviation Safety Regulation (DASR), who reports directly to the Director General of the GCAA. The GCAA's official website indicates that *"in carrying out its mandate, the ASRD is required to conduct investigations into incidents and accidents involving Guyanese registered aircraft, and foreign-registered aircraft in Guyanese airspace"*.

Further evidence demonstrates that the GCAA is the entity responsible for the investigation of air accidents investigations. In this sense, the GCAA officially investigated the accident involving Caribbean Airlines Flight #523, which overran the runway at Cheddi Jagan International Airport<sup>18</sup>.

### 5.3. Implications of the Current Framework - Guyana

The current degree of concentration of functions in the GCAA has potential implications that could prevent the healthy development of the civil aviation sector in the country.

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<sup>18</sup> "Guyana Civil Aviation Authority Aircraft Accident Investigation Report Runway Excursion On Landing" -. July 30, 2011, Guyana Civil Aviation Authority.



### 5.3.1. Policy Setting and Technical Regulation

The effective performance of the institutional framework may be compromised if the functions of policy-making and technical regulation are performed by a single body. It is important to assign these functions to independent entities to avoid any interference between these activities, which can go both ways. For example, it is essential for the technical regulator to be absolutely objective when carrying out safety oversights on local carriers, regardless of any policy that may encourage the protection of the local airlines.

Another potential problem that may arise from the combination of these functions is the manipulation of technicalities to implement policy. Considering that bilateral agreements that govern air services are very complex and time consuming to negotiate, it is important that policies be stated in a clear and transparent way. The goal achieved by the separation of the economic and technical regulation functions is that the latter will not be influenced in order to apply a certain unstated policy.

ICAO establishes this as a recommendation, by stating: *"In those States where the State is both the regulatory authority and the air traffic service provider, aerodrome operator, air operator, manufacturer or maintenance organization, the requirements of the Convention will be met, and public interest be best served, by clear separation of authority and responsibility between the State operating agency and the State regulatory authority. The approval, certification and continued surveillance procedures should be followed as though the operating agency were a non-governmental entity"* (ICAO Safety Oversight Manual, Doc 9734, paragraph 2.4.9).

### 5.3.2. Technical Regulation and Operations

It is essential to ensure the complete independence of the technical regulator from the operation of the infrastructure (air traffic control, airports or airlines) in order to ensure the correct implementation of ICAO's SARPs. If the regulator is somehow related to the operation of infrastructure (even through informal influence), it ends up regulating itself. The conflict of interest is such that regulation could become absolutely ineffective, seriously compromising the level of safety of the sector in general.

### 5.3.3. Accidents and Incidents Investigation, Technical Regulation and Operations

It is common practice for modern institutional frameworks to assure complete independence of the accident and incidents investigation body, by placing it on an independent board reporting directly to either the president or the parliament,

bypassing any other ministry or public body. This is the only effective way to guarantee the impartial opinion of the investigators, independent from any decision that could affect another body within the government apparatus.

The lack of separation between the investigator (GCAA) and the technical regulator (again GCAA) creates a potential conflict of interest when the proper execution of the regulation could have played a role in an accident or incident. An accident or incidents could be the result of different forms of negligence from the technical side, such as lack of appropriate monitoring, slack controls, failure to implement international standards or aircraft manufacturer's recommendations, improper certification of crews, aircraft or maintenance facilities, approving faulty procedures, among others. If GCAA regulates and investigates, it becomes "judge and jury" at the same time.

A similar situation arises given the fact that GCAA is the organization responsible for both accidents and incidents investigation and ATC functions. Should the cause of an accident be related to the operation of the ATC service, once again GCAA would be investigating itself, creating an unhealthy conflict of interests and the possibility of an unsuccessful investigation.

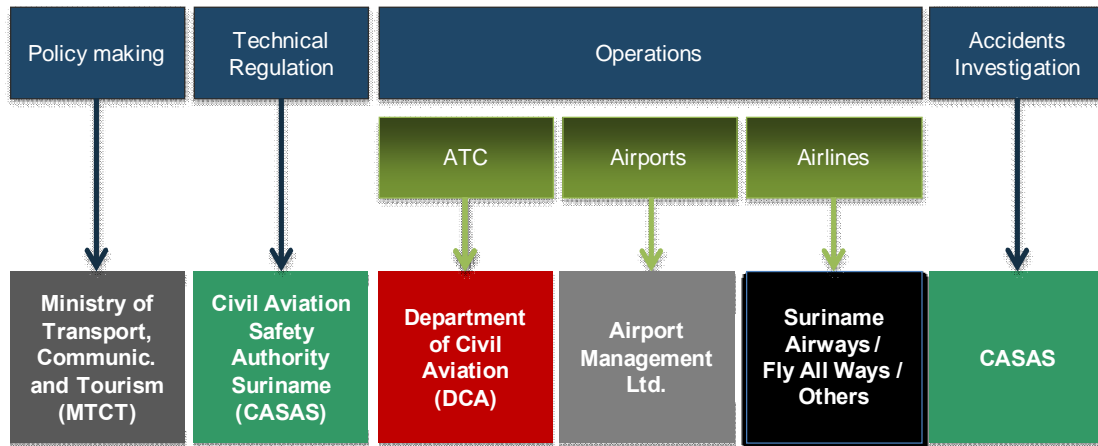
#### 5.3.4. Category 2 of the IASA program

Currently, no airlines based in Guyana have services to the US, and therefore, the downgrade does not represent any practical restrictions to the country's connectivity. However, the country's downgrade means that there exist some technical deficiencies that should be addressed in order to assure that the GCAA fully complies with ICAO's SARP.

## 5.4. Suriname

The following graph (Exhibit 4.2) illustrates Suriname's current institutional framework.

**Exhibit 5.2 - Overview of Suriname's air transport institutional framework**



Source: prepared by consultant

Suriname's Ministry of Transport, Communications and Tourism is the entity responsible for formulating and setting the aviation policy. This includes the determination on issues such as access to foreign carriers into the air transport market as well as the participation in bilateral and multilateral negotiations for the signing of the country's ASAs.

The Civil Aviation Safety Authority of Suriname (CASAS) is the organization responsible for the technical regulation of the sector, and as such is empowered to oversee all technical aspects of the civil aviation sector according to the norms and recommendations of the Chicago Convention of 1944 and its Annexes. Among its responsibilities, CASAS is the authority in charge of providing certifications of airworthiness, personnel licensing and for maintenance warehouses, the oversight of general aviation security and the regulation of aerodromes.

According to the *Civil Aviation Regulations Act of Suriname - Part 14*, "CASAS has been charged with all tasks related to aviation safety and security with regard to the services offered, and therefore is the responsible authority for the conduct of the investigation of aviation occurrences and in the case of an accident, the production of the preliminary report which shall be submitted to the Attorney General". Regarding technical regulation oversight through the IASA program, Suriname is currently on Category 1 of such program, having its airlines full market access to US destinations.

In this same document, in its Part 18, it is established that "*the Department of Civil Aviation is the statutory authority responsible for providing Air Traffic Services in Suriname. No other agency shall provide an air traffic service unless approved by the CASAS*".

Paramaribo International Airport (PBM), Suriname's largest airport, is operated by Airport Management Ltd., a state-owned company.

In general terms, Suriname's institutional framework has a clearer separation of functions than that of Guyana, with the exception of the concentration of technical regulation and accidents and incidents investigation functions, which is analyzed in the following section.

## 5.5. Implications of the Current Framework - Suriname

### 5.5.1. Accidents and Incidents Investigation and Technical Regulation

The lack of separation between the investigator (CASAS) and the technical regulator (again CASAS) creates a potential conflict of interest when the proper execution of the regulation could have played a role in an accident or incident. Given that different forms of negligence from the technical side could be the cause for an accident, the technical regulator should not be the entity responsible for its investigation. If CASAS regulates and investigates, it becomes "judge and jury" at the same time, compromising the credibility and accuracy of an investigation.

## 5.6. Main conclusions of the Institutional Framework analysis

As it was explained above in this section, there is a strong concentration of functions in the GCAA in Guyana, responsible for of the sector's economic policy making, technical regulation, operation of Air Traffic control and investigation of air accidents and incidents. In turn, in Suriname there is an unhealthy concentration of the functions in the CASAS, responsible for the sector's technical regulation and investigation of accidents and incidents.

These potential conflicts of interest do not represent constraints for the development of the connectivity of these two countries in the present. However, it is important to remark that appropriate institutional frameworks that clearly separate the different functions among distinct organizations (independent to each other) guarantee the

development of effective aviation policies. By accomplishing a clear separation of functions, Guyana and Suriname would be able to foster both an unrestricted market access and a competitive environment for both local and foreign carriers.

Therefore, the following actions are recommended for Guyana:

- Policy making functions should be fully transferred to a different entity than the GCAA, potentially the Minister of Public Works. This entity should be the only authority in the economic regulation of the air transport sector, including the establishment of ASAs with other nations.
- Air traffic control operations would need to be transferred to a either new service provider that should operate independently from the GCAA, or, potentially to the CJIA Corporation. Any of the options would be fitting in the context of the proposed reforms, as there are no inherent conflicts of interest by having the airport and ATC operations performed by the same entity.
- An independent committee or board should be created to investigate accidents and incidents. Said committee or board should report directly to the President or the Guyanese Parliament as the only way to ensure a completely unbiased and independent outcome of its investigations.

In the case of Suriname, the only conflict of interest in its current institutional framework is the concentration of technical regulation and air accidents investigation functions in the CASAS. In a similar way to what is recommended for Guyana, the creation of a fully independent and autonomous commission should be achieved, in order to assure successful and unbiased investigations.

## 6. Aviation Policy

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This section presents an assessment of Guyana's and Suriname's aviation policy, mainly focused on these countries' existing bilateral and multilateral air service agreements. The goal of this analysis is to determine if the conditions stated in these agreements are currently acting as constraints to the development of the regional connectivity of Guyana and Suriname.

The air service agreements of these countries were mainly analyzed in terms of available capacities, airline designation and the grant of fifth, sixth and seventh freedom rights<sup>19</sup>.

### 6.1. Introduction

In international air transport, the access to markets is regulated by bilateral or multilateral ASAs. These agreements usually establish which routes can be operated, the number of airlines that can operate them, the maximum capacities and frequencies that can be offered, and whether foreign airlines can operate cabotage rights, among others.

The degree of liberalization of bilateral ASAs, besides designation and capacity rights, is mainly determined by which Freedoms of the Air are granted between the signatory countries. Freedoms of the Air are the rights granted between countries when negotiating their own air service agreements:

- First Freedom. The freedom to overfly a foreign country (A) from a home country en-route to another (B) without landing. Also called the transit freedom.
- Second Freedom. The right to make a landing for technical reasons in another country without picking up nor delivering any revenue passengers at the point of arrival
- Third Freedom. The freedom to carry traffic from a home (A) country to another country (B) for purpose of commercial services.

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<sup>19</sup> For further detail on Freedoms of the Air, see Section 6.1.

- Fourth Freedom. The freedom to pick up traffic from another country (B) to a home country (A) for purpose of commercial services. Third and Fourth Freedoms are the basis for direct commercial services, providing the rights to load and unload passengers, mail and freight in another country.
- Fifth Freedom. The freedom to carry traffic between two foreign countries on a flight that is either originated in or is destined to the carrier's home country. It enables airlines to carry passengers from a home country (A) to another intermediate country (B), and then fly on to third country (C) with the right to pick passengers in the intermediate country (B). Also referred to as "beyond right". This freedom is divided into two categories: Intermediate Fifth Freedom Type is the right to carry from the third country to second country. Beyond Fifth Freedom Type is the right to carries from second country to the third country.
- Sixth Freedom. The use by an airline of country A of two sets of 3rd and 4th rights to carry traffic between two other countries but using its base A as a transit point. This right was not formally part of the original 1944 convention, it refers to the right to carry passengers between two countries (A and B) through an airport in the home country. Most airline networks that concentrate routes out of their own hubs, make use of this right to connect two other foreign countries.
- Seventh Freedom. The freedom to base aircraft in a foreign country for use on international services, establishing a de facto foreign hub. Covers the right to operate passenger services between two countries (A and B) outside the home country.
- Eighth Freedom. The freedom to carry traffic between two domestic points in a foreign country on a flight that either originated in or is destined for the carrier's home country. Also referred to as "cabotage" privileges. It involves the right to move passengers on a route from a home country to a destination country (A) that uses more than one stop along which passengers may be loaded and unloaded.
- Ninth Freedom. The freedom to carry traffic between two domestic points in a foreign country. Also referred to as "full liberalization" privileges. It involves the right of a home airline to move passengers within another country (A).

For the purpose of determining if current ASAs act as constraints to the connectivity of Guyana and Suriname, only third, fourth, fifth, sixth and seventh Freedoms of the Air were analyzed.

### 6.1.1. Methodology

Copies of all Air Service Agreements (ASAs) entered into by each country (including the minutes of the latest consultation meetings) were analyzed in order to determine<sup>20</sup>:

- Airlines designation (single or multiple)
- Available frequencies / total capacity granted
- Given traffic rights

The conditions set in both countries' ASAs affect the degree of liberalization of the Air Transport sector, and for that reason, the analysis of these conditions is vital to understand if they are currently acting as constraints to its development.

In addition, additional potential regulatory barriers were also analyzed, such as restrictions to the foreign property of airlines and other technical restrictions that may reduce the degree of liberalization of the Air Transport sector.

### 6.1.2. CARICOM Multilateral Air Services Agreement

Both Guyana and Suriname are signatory members to the CARICOM Multilateral Air Services Agreement (CARICOM MASA), which only applies to the operation of CARICOM air carriers. The Agreement allows all types of air services to be performed within the Community by those carriers designated by contracting states, according to the following criteria:

- Multiple designation: more than one carrier can be designated by a Contracting State to exercise the traffic rights granted under the Agreement.
- The traffic rights covered by the Agreement include the right to carry traffic between a Contracting State in which the carrier is registered and another Contracting State; and on a reciprocal basis, the right to carry traffic between another Contracting State and beyond.
- There is no obligation for a Contracting State to grant cabotage traffic rights to the carrier of another party, neither a prohibition to grant such rights.

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<sup>20</sup> Because of the geography of both countries, highly concentrated in the capital city and with no regular domestic operations, it was not relevant to assess the number of entry points granted at the different agreements.



- Tariffs are required to be submitted for approval, and are to be approved if neither of the two states express concerns within a specified period.
- The Agreement provides for a fair and equal opportunity for all CARICOM air carriers to compete in the air transportation routes covered by the Agreement.
- There is no provision for the direct control of capacity on any route.
- The undesirable practice of ~~dumping~~ (excessive capacity in order to force a competitor out of business) can be addressed on the basis of the commitment of member states to eliminate unfair competitive practices

In summary, this agreement confers unrestricted third and fourth freedom route rights to airlines owned and operated by CARICOM nationals, whilst fifth freedom traffic rights are also allowed under this agreement. It is worth mentioning that a revision of the CARICOM MASA is currently being negotiated among signatory states.

### 6.1.3. Association of Caribbean States Multilateral Air Services Agreement

Suriname is also signatory members of the Multilateral Air Services Agreement of the Association of Caribbean States (ACS). Even when this agreement is more limited in the provision of rights than the CARICOM MASA, it is relevant because it provides the basis to establish air services with up to fourth freedom rights with all signatory members of the ACS. In other words, through this agreement, Suriname is able to establish commercial air transport services with Colombia, Venezuela, French Guiana and all countries within Central America and the Caribbean. No further provisions regarding the available capacities to be offered and fifth freedom rights are established in this agreement.

## 6.2. Analysis of existing bilateral ASAs and their level of utilization

### 6.2.1. Guyana

In addition of being a signatory member of the multilateral agreements above described, Guyana has bilateral air services agreements with Brazil, Canada, France, Cuba, United States, Kuwait, Turkey. Additional negotiations bilateral ASAs have been finalized with Singapore, China, Kenya, Ghana, Nigeria, Curacao, Canada, United Kingdom, Norway, Netherlands, Qatar, United Arab Emirates and Chile.

With the exception of Norway, all of the before mentioned agreements are provisionally effective and administratively applicable until the formal Agreements are signed by the respective Governments. This means that traffic rights allowable under the Agreements can be immediately accessed by the bilateral parties of each ASA. The bilateral agreement with Canada is a renegotiated contract that stipulates more liberal conditions than those agreed upon in the existing ASA that was signed by both countries in May 2005 (in practice, the new arrangement replaces the existing formal ASA) - (Exhibit 6.1).

According to interviewed authorities, in general terms Guyana's policy for negotiating air services agreements is to grant up to sixth freedom traffic rights for passenger traffic and up to seventh freedom for all cargo traffic. The following table (Exhibit 6.1) presents the main characteristics of Guyana's existing Air Service Agreements, including agreements that have not been made official yet.

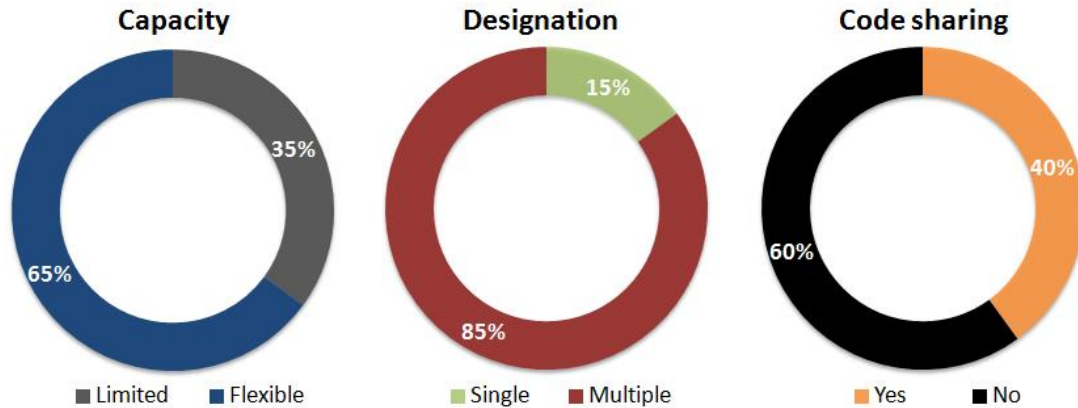
Guyana provides 5th freedom rights for every country with which it has a bilateral ASA. However, it is more restrictive in the provision of 7th freedom rights: it only concedes this freedom in 4 out of its 20 bilateral agreements. With regards to cabotage rights, Guyana has no active ASA with provision of such rights. The following figure (Exhibit 6.2) shows the distribution of different criteria in Guyana's bilateral ASAs.

**Exhibit 6.1 - Main characteristics of Guyana's Air Service Agreements**

Country - year	5th freedom	7th freedom	Cabotage rights	Capacity	Designation	Code sharing
Brazil, 2005	Yes	No	No	Pre-determination	Multi	Yes
Cuba, 1973	Yes	No	No	Flexible	Single	Yes
France, 1974	Yes	No	No	Flexible	Single	Yes
Kuwait, 2010	Yes	No	No	Flexible	Multi	Yes
USA, 2013	Yes	Yes	No	Flexible	Multi	No
Turkey, 2014	Yes	No	No	Flexible	Multi	No
China, 2014	Yes	No	No	Pre-determination	Two	No
Kenya, 2014	Yes	No	No	Flexible	Multi	No
Curacao, 2014	Yes	Yes	No	Flexible	Multi	Yes
Singapore, 2014	Yes	Yes	No	Pre-determination	Multi	Yes
Ghana, 2014	Yes	No	No	Pre-determination	Multi	Yes
UK, 2014	Yes	No	No	Pre-determination	Multi	No
Norway, 2014	Yes	No	No	Pre-determination	Multi	No
Netherlands, 2014	Yes	No	No	Flexible	Multi	No
Iceland, 2014	Yes	Yes	No	Flexible	Multi	No
Qatar, 2014	Yes	No	No	Flexible	Multi	No
Canada, 2014	Yes	No	No	Flexible	Multi	No
Nigeria, 2014	Yes	No	No	Pre-determination	Multi	Yes
UAE, 2014	Yes	No	No	Flexible	Multi	No
Chile, 2015	Yes	No	No	Flexible	Multi	No

Source: World Trade Organization, "Trade Policy Review - Report by the Secretariat - Guyana", June of 2009. Note" ASAs with South American countries are highlighted in green.

**Exhibit 6.2 - Capacity, designation and code sharing restrictions in Guyana's 20 bilateral Air Service Agreements**



Source: consultant, based on information from World Trade Organization, "Trade Policy Review - Report by the Secretariat - Guyana", June of 2009.

Only 4 of Guyana's 20 bilateral ASAs are actually under implementation in the present:

- USA (with regular services to Miami, New York and Orlando)
- Canada (with services to Toronto)
- Curaçao
- Cuba (only seasonal services to La Habana)

The remaining air transport services offered to and from Guyana are established under the conditions set in the CARICOM Multilateral Air Services Agreement. The following figure presents the degree of liberalization of Guyana's Air Service Agreements, taking into consideration designation, capacities and the existence of fifth freedom rights as the main analyzed criteria for the qualification of the country's agreements.

**Exhibit 6.3 - Guyana's Air Service Agreements' degree of liberalization - Americas and the Caribbean**



Source: consultant, based on information from World Trade Organization, "Trade Policy Review - Report by the Secretariat - Guyana", June of 2009.

Guyana has a restrictive ASA with Brazil under which there is a limit to the capacity that can be offered in routes between these countries. In this sense, a maximum of 3 weekly services per side can be offered with Boeing B757 aircraft (or inferior), or 7 weekly frequencies with aircraft of up to 50 seats. It is worth mentioning that despite this capacity restriction, Guyana currently has no direct routes to Brazil, and therefore it is possible to conclude that in this case, the existence of a restrictive ASA is not limiting the market in the present. Having this in consideration, the renegotiation of a

more liberal ASA would be desirable, in order to allow for the potential development of this market (should market forces require a larger capacity in the future).

Guyana also has a partially restrictive agreement with Cuba, allowing flexible capacities but also using single airline designation.

On the other hand, Guyana has flexible ASAs with United States, Canada, Curacao and Chile, allowing multiple designation, flexible capacities and granting fifth freedom rights.

One of the main conclusions of the analysis of Guyana's ASAs is that the country currently has practically no bilateral agreements with the rest of the South American nations, with the exception of Brazil and Chile. Even when the mere celebration of a bilateral ASA does not guarantee the development of traffic between two countries, it is a necessary condition for its existence.

For the case of Suriname, traffic to and from Venezuela, French Guiana and Colombia, is possible without a bilateral ASA given that these states are signatory members of either the CARICOM MASA and/or the Association of Caribbean States Multilateral Air Services Agreement.

Therefore, if Guyana desires to increase its connectivity to other South American countries through the implementation of non-stop services, at some point in the future it will have to negotiate ASAs with these nations (Peru, Bolivia, Argentina, Paraguay, Uruguay and Ecuador).

### 6.2.2. Suriname

For the case of Suriname, one of its most relevant ASAs is the one it holds with Brazil. In this ASA, fifth freedom rights are granted with unrestricted capacity for all flights within South America, and for up to 21 weekly frequencies (per side) for flights operated with fifth freedom routes outside South America. These conditions largely surpass the existing demand, as today there is only 1 weekly service per side (Suriname Airways for Suriname and Gol for Brazil) for the route between PBM and BEL. This situation is a clear example of how current ASAs in Suriname are not constraining potential demand.

Another relevant ASA is the one the country holds with Colombia. This agreement can be considered as highly restrictive, given the conditions stated in it:

- The routes out of Suriname for Surinamese airlines can have intermediate stops at POS and GEO, but can only reach Barranquilla and Cali in Colombian soil. In other words, the agreement does not grant any rights to establish services to Bogota for Surinamese airlines, but it does grant Colombian airlines the right to depart from Bogota and arrive to Paramaribo
- Capacity is significantly limited to 2 services per week for each side, with aircraft of up to 150 seats
- Single designation of airlines (only one airline per country can operate the market)

In order to develop a higher level of connectivity with Avianca's hub (Bogota), the current Air Service Agreement should be significantly amended, so as to grant a larger degree of liberalization between both countries: the main issue to be renegotiated is the limited capacity that is currently available between Bogota and Paramaribo.

The following figure presents the degree of liberalization of Suriname's Air Service Agreements, taking into consideration designation, capacities and the existence of fifth freedom rights as the main analyzed criteria for the qualification of the country's agreements.

**Exhibit 6.4 - Suriname's Air Service Agreements' degree of liberalization - Americas and the Caribbean**



Source: consultant, based on Suriname's available Air Service Agreements.

In similar fashion to what is observed for Guyana, Suriname has a lack of bilateral ASAs with most of the rest of South America's nations: Argentina, Uruguay, Chile, Ecuador, Peru, Bolivia and Paraguay. Since these states are not signatory members of neither the CARICOM MASA nor the Association of Caribbean States Multilateral Air Services Agreement, if Suriname desires to develop non-stop services to destinations in these countries, it should negotiate and establish bilateral ASAs with the authorities of these nations.



### 6.3. Main conclusions on Aviation Policy and Air Services Agreements

The conditions stated in Suriname's and Guyana's Air Service Agreements in the present are not acting as active constraints to the development of these countries' air connectivity. In fact, Guyana even grants fifth and seventh freedom rights to international carriers such as Caribbean Airlines and Fly Jamaica, a situation that is not common in most South American countries, who usually have protective policies towards their local carriers.

Even when flexible ASAs are desirable to have a more liberal air transport sector, the connectivity issues that today exist both in Guyana and Suriname are not explained by restrictive bilateral or multilateral agreements with other countries whatsoever; they are explained by insufficient demand for air transport services.

One exception that can be mentioned is the current bilateral ASA between Suriname and Colombia. This agreement is highly restrictive, as it limits the available capacity to only 2 weekly frequencies per side, with aircraft of up to 150 seats. This situation is important as Bogota is the main hub of Avianca, and it represents one of the most important opportunities for both Guyana and Suriname of increasing their connectivity to South American destinations. A renegotiation of the current conditions of the bilateral ASA is desirable, in order to provide a more liberal relationship with this country and provide the necessary framework to enhance Suriname's connectivity.

By being signatory members of both CARICOM MASA and the Association of Caribbean States Multilateral Air Services Agreement, both nations are able to establish air services with up to fourth freedom rights with all countries within Central America, the Caribbean, Colombia, Venezuela and French Guiana, as well as with each other.

However, there is a lack of bilateral ASAs with the rest of the South American nations:

- Guyana has no ASAs with Peru, Bolivia, Argentina, Paraguay, Uruguay and Ecuador
- Suriname has no ASAs with Argentina, Uruguay, Chile, Ecuador, Peru, Bolivia and Paraguay

The inexistence these bilateral ASAs is a clear reflection of the very few existing cultural, social and economic ties between both Guyana and Suriname and the southern nations of South America. Even when the mere celebration of a bilateral ASA does not guarantee the development of traffic between two countries, it is a

necessary condition for its existence. Therefore, should market demand arise in the future for the development of non-stop services to destinations in these countries, the first step for the Guyanese and Surinamese governments would be to negotiate and celebrate bilateral ASAs with the authorities of these nations.

## 7. Market Overview

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The Market Overview presents a detailed assessment on the current connectivity of Guyana's and Suriname's main international gateways: Georgetown Cheddi Jagan International Airport and Paramaribo Johan Adolf Pengel International Airport. The objective of this section is to obtain a clear picture of the existing situation in terms of existing connectivity, airline competition, available frequencies and recent development of the air transport market in these countries.

### 7.1. Methodology

The market analysis was produced with information of airline schedules obtained from the Official Airline Guide (OAG). This information contains data of all international flights departing from Johan Adolf Pengel and Cheddi Jagan international airports (PBM and GEO, respectively), including departing airport, destination (airport, city, country and region), annual frequencies and total number of available seats. Since some of the frequencies obtained from OAG were inaccurate or incomplete, information was cross-checked and complemented with information obtained directly from the airlines.

In addition, meetings were held with the majority of the airlines operating at both international airports, as follows:

- Caribbean Airlines
- Copa Airlines
- Fly Jamaica Airlines
- Trans Guyana Airways
- Suriname Airways
- Gum Air
- KLM
- Fly All Ways (expected to commence operations in PBM in the next months)

Airline representatives were interviewed about their current operations, the type of market, their needs and their concerns for further development.

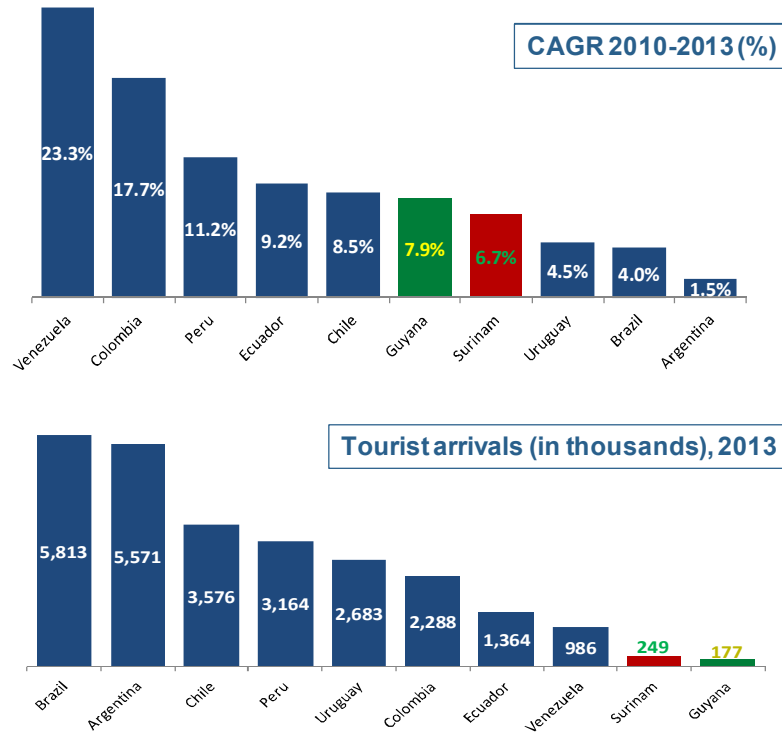
## 7.2. Introduction

Air transport is of vital importance for the Co-operative Republic of Guyana, representing the most important means of transport and international gateway for the country, which is located in the northern coast of South America. The country is a member state of the Caribbean Community (CARICOM). The Republic of Suriname is also located in the Northeast Atlantic coast of South America, being bordered by French Guiana to the east, Guyana to the west and Brazil to the south. Suriname is also a member state of the CARICOM.

International tourist arrivals have increased in both countries between 2010 and 2013, as can be seen in the following graph (Exhibit 7.1).

International tourist arrivals to Guyana and Suriname have grown at larger rates than Brazil and Argentina between 2010 and 2013. This is mainly explained because Argentina and Brazil are consolidated tourism markets with global recognition, whereas Guyana and Suriname are developing tourism markets of reduced size.

**Exhibit 7.1 - International tourist arrivals at 10 South American countries**

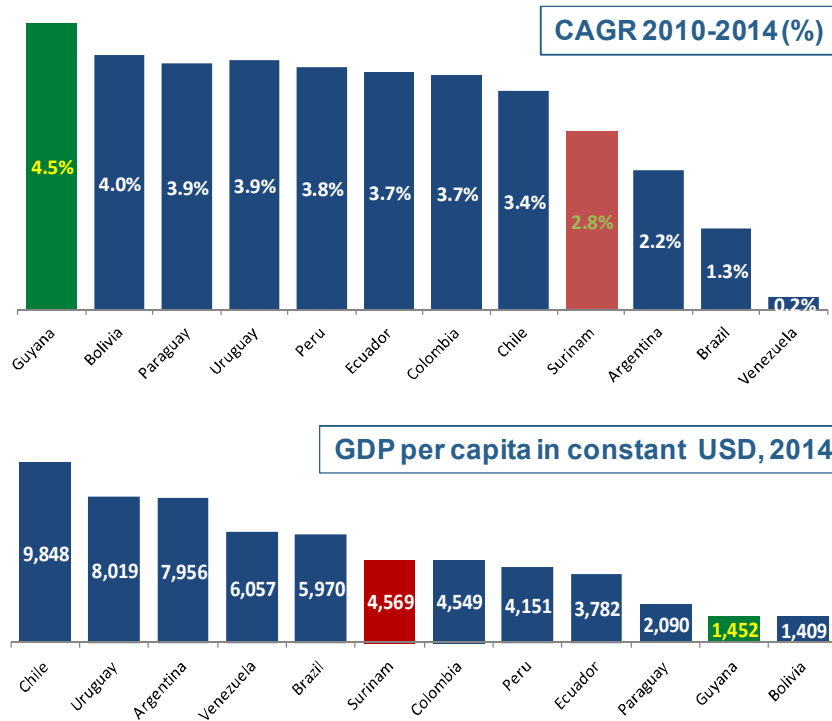


Source: prepared by consultant using information from World Bank.

Note\*: Guyana's latest informed statistics are for 2012. CAGR for Guyana was calculated for the period between 2010 and 2012.

Despite interesting CAGRs of 7.9% for Guyana and 6.7% for Suriname between 2010 and 2013, international tourist arrivals in 2013 for these countries were still very low in comparison with the rest of the continent. In this sense, Venezuela, the third smallest country in terms of international tourist arrivals (below Suriname and Guyana) had almost 4 times the arrivals registered in Suriname in that same year, and 5 times the arrivals registered by Guyana.

Exhibit 7.2 - GDP per capita at 12 South American countries



Source: prepared by consultant using information from World Bank.

Note\*: Suriname's latest informed value is of 2013. CAGR for Suriname was calculated for the period between 2010 and 2013.

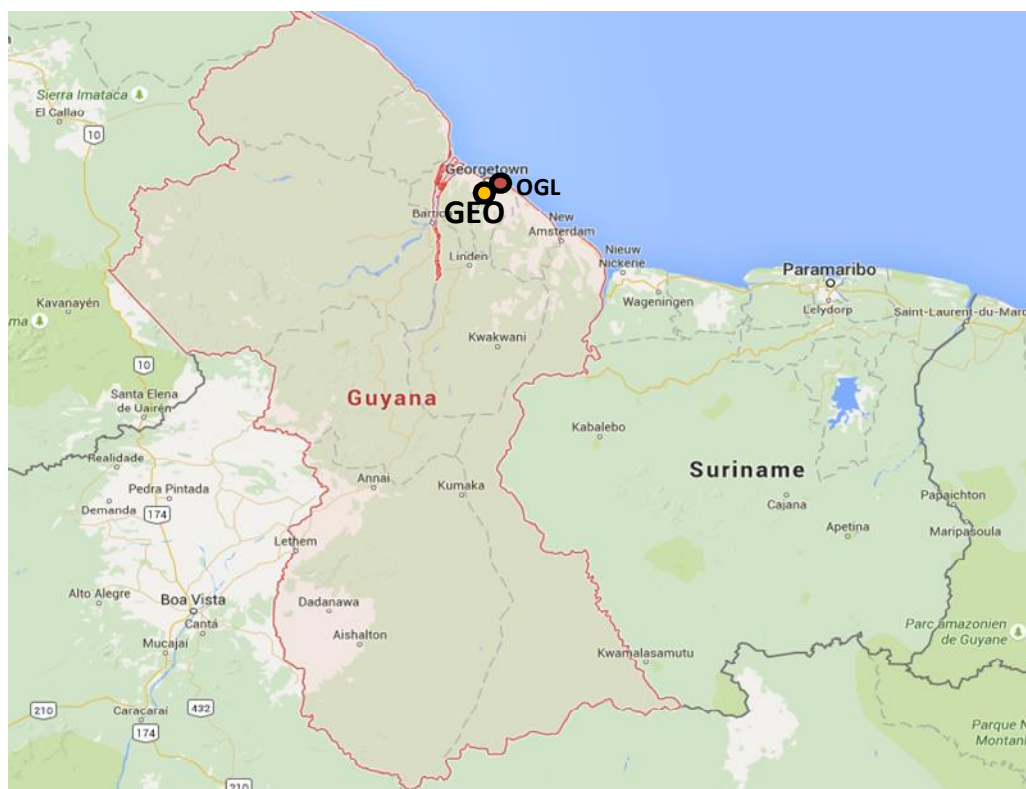
Guyana is the fastest growing economy of the continent in terms of GDP per capita, while Suriname's GDP per capita has grown at lower rates than the average of the region. Guyana's large growth is mainly explained by the fact that it is the country with one of the lowest GDP per capita in the region, currently experiencing development growth. In turn, it is worth remarking noting that Suriname's GDP per capita is larger than that of Colombia, Peru and Ecuador.

### 7.3. Guyana

Guyana has one main international entry point: Cheddi Jagan International Airport (GEO), which serves the capital of the country (Georgetown) and accounts for more than 95% of its international traffic. In addition, there is a second international

entrance with less relevance than GEO, Ogle Airport (OGL), which is located on the Atlantic Ocean coast of Guyana, very close to Georgetown. Exhibit 6.3 shows the geographic location of these airports.

### **Exhibit 7.3 - Guyana's main international airports**



Source: prepared by consultant

According to the World Travel and Tourism Council (WTTC), in 2014 the travel and tourism sector accounted for 8% of the country's GDP and 8.4% of the country's total employment, which is in line with the average contribution in Latin American countries (Tourism accounts for 9.2% of the region's GDP and 8.9% of the region's workforce).

#### **7.3.1. Georgetown Cheddi Jagan International Airport (GEO)**

GEO is served by 8 carriers offering non-stop services to 11 international markets in 9 countries (Exhibit 6.4).

#### **Exhibit 7.4 - International Markets Served from Georgetown**

	<b>Region</b>	<b>Country</b>	<b>Market</b>	<b>Carrier</b>
1	Caribbean	Jamaica	Kingston	Fly Jamaica
2		Trinidad and Tobago	Port of Spain	Caribbean Airlines
3		Aruba	Aruba	Insel Air
4		Curaçao	Curaçao	Insel Air
5	Central America	Panama	Panama City	Copa Airlines
6	North America	United States	Miami	Suriname Airways
7		United States	New York	Fly Jamaica, Dinamic Airways, Caribbean Airlines
8		United States	Orlando	Suriname Airways
9		Canada	Toronto	Caribbean Airlines, Fly Jamaica
10	South America	Venezuela	Puerto Ordaz	Conviasa
11		Suriname	Paramaribo	Suriname Airways

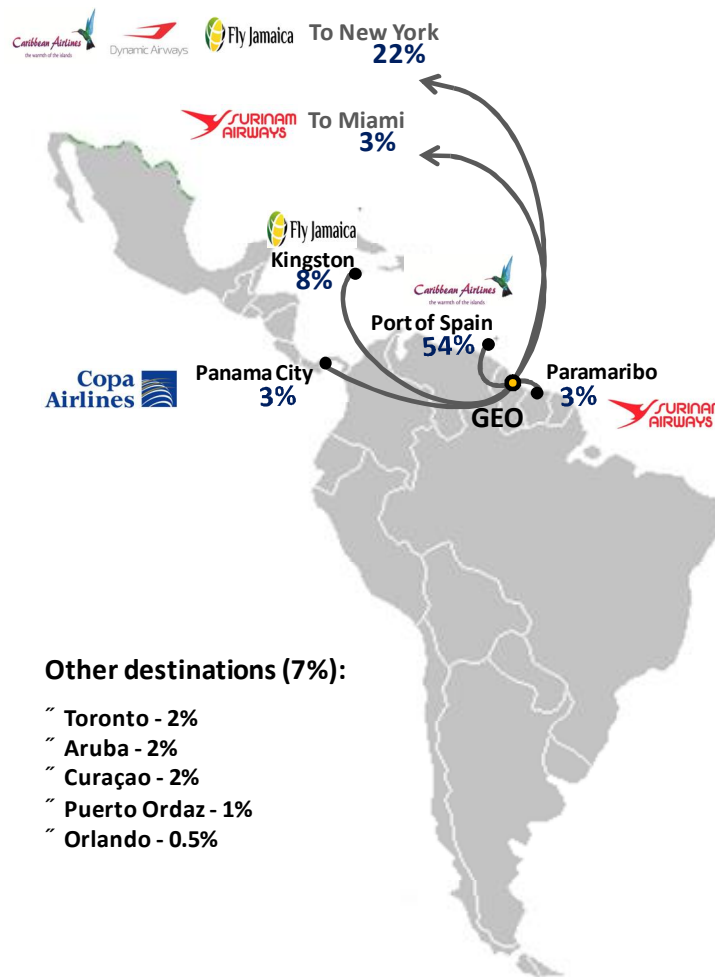
Source: prepared by consultant with information from OAG (2015) and airlines schedules.

International connectivity at GEO is dominated by foreign airlines, which not only use third and fourth freedom rights to connect passengers to their hubs, but also use fifth to offer direct services to certain markets at North America (Suriname Airways to Miami).

Four out of 11 markets operated from Georgetown are located in the Caribbean Region and another 4 markets are located in North America, while Central America accounts for 1 market and South America for 2 markets. The following graph (Exhibit 6.5) presents the international capacity out of Georgetown International Airport by destination market. It is important to remark that for the entire year of 2015, there are no scheduled domestic services in Guyana.



**Exhibit 7.5 - International Seat Capacity from GEO, by destination market**



Source: prepared by consultant with information from OAG (2015) and airlines schedules.

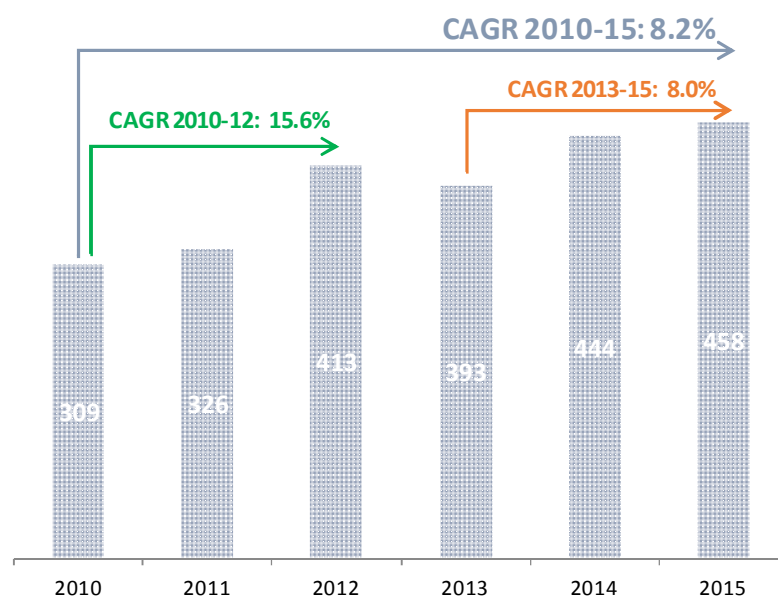
Port of Spain, in Trinidad and Tobago, concentrates more than half of the international seats out of Georgetown, being the most important market out of Guyana's main airport. The second largest market is New York with 22% of the airport's seats, followed by Kingston with 8% of the seats. These 3 airports concentrate 84% of GEO's seats.

With regard to destinations within the Guyanese Shield, Paramaribo accounts for 3% of GEO's seats, whilst Puerto Ordaz, in Venezuela, holds only 1% of the airport's capacity share.

The supply of scheduled air transport services out of Georgetown International Airport has grown significantly in the past 6 years, as it can be seen in Exhibit 6.6.

### **Exhibit 7.6 - Evolution of Seat Capacity out of GEO - 2010 to 2015**

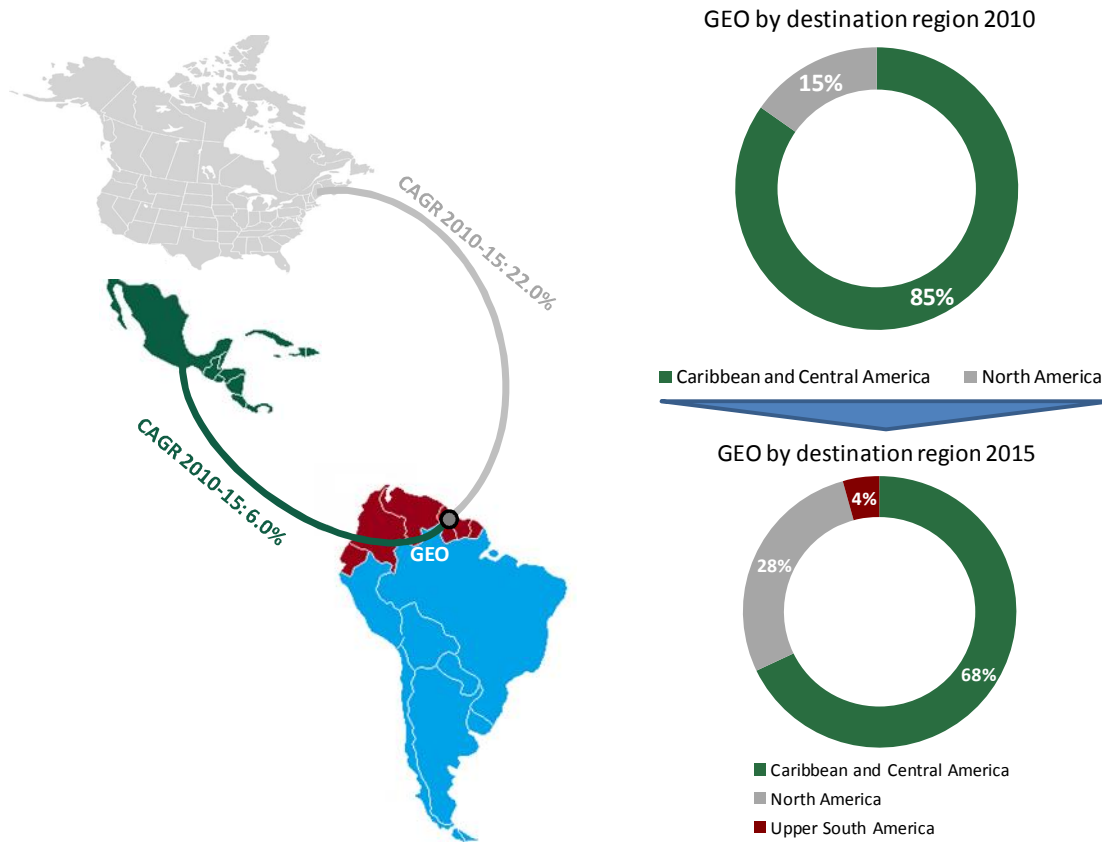
In '000 seats



Source: prepared by consultant with information from OAG (2015) and airlines schedules.

The number of departing seats out of GEO has had two major growth periods: from 309,000 to 413,000 seats between 2010 and 2012 (CAGR of 15.6%), and from 393,000 to 458,000 seats between 2013 and 2015 (CAGR of 8.0%). The significant growth in air services between 2010 and 2015 is mainly explained by the growth of available seats to destinations in North America and Central America and the Caribbean, as can be seen in the following graph.

**Exhibit 7.7 - Departing seats out of GEO by destination region - 2010 to 2015**



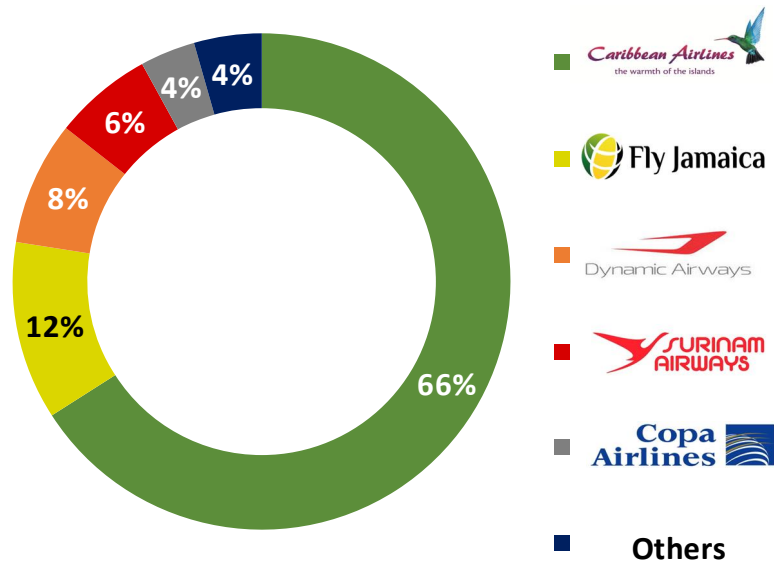
Source: prepared by consultant with information from OAG (2010 and 2015) and airlines schedules.

The only 2 destinations that were served in 2010 out of GEO with regular services are still served with scheduled frequencies: Port of Spain and New York. It is worth mentioning that for both of these markets, capacity has increased significantly (11% and 123% in 5 years, respectively).

Between 2010 and 2015, another 9 markets have been developed out of GEO, most of them located in North America and in the Caribbean. One of these 9 new markets is Paramaribo International Airport (PBM), operated by Suriname Airways with two non-stop services every week. Paramaribo and Puerto Ordaz (served by Conviasa) are the only 2 markets out of Georgetown that are located in South America, accounting for only 4% of the airport's seats in 2015.

Airline capacity in Georgetown is mainly supplied by Caribbean Airlines, as can be seen in Exhibit 6.8.

**Exhibit 7.8 - Seat Capacity out of GEO by carrier - 2015**

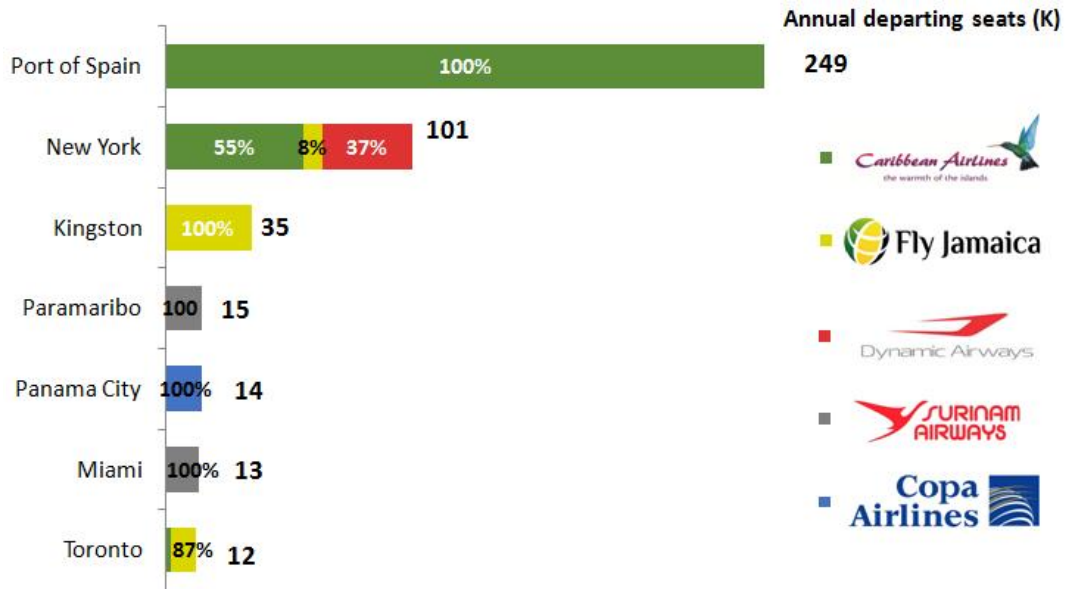


Source: prepared by consultant with information from OAG (2015) and airlines schedules.

The airline from Trinidad and Tobago accounts for more than 66% of the seats in GEO, most of them being offered in the Georgetown-Port of Spain route. Fly Jamaica is the second largest carrier operating in GEO, with available seats to Kingston, Toronto and New York. Dynamic Airways accounts for another 8% of the available seats, followed by Suriname Airways (6% of the available seats). These 4 carriers hold a combined 92% of the available seats out of GEO.

The following chart presents the existing competition in the main 7 routes out of GEO, which account for 95% of the supply in this airport.

**Exhibit 7.9 - Main 7 routes out of GEO by operating carrier - 2015**

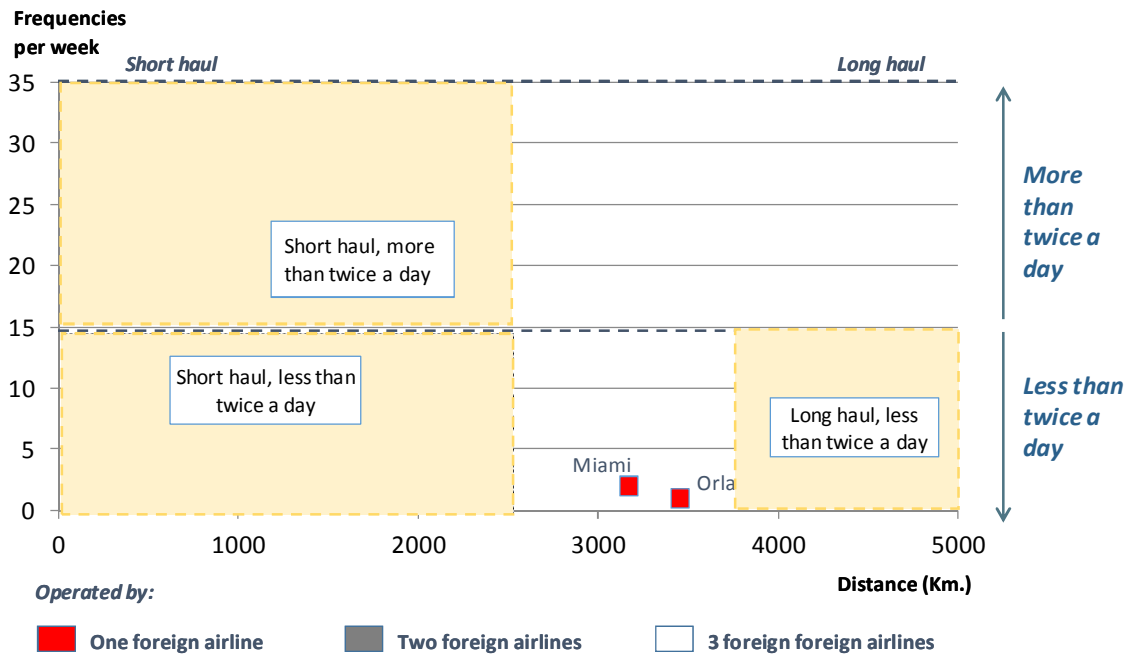


Source: prepared by consultant with information from OAG (2015) and airlines schedules.

Caribbean Airlines dominates the offering in the Georgetown - Port of Spain route (accounting for all of its seats) and has a 55% capacity share in the Georgetown - New York route, in which competes with Dynamic Airways (37% capacity share) and Fly Jamaica (8% share). On the other hand, the Georgetown route to Kingston is fully dominated by Fly Jamaica.

In order to assess the level of connectivity of Georgetown, an analysis was carried out to measure the number of airlines providing services, with their weekly frequencies and as a function of the range. The following graph presents the results:

**Exhibit 7.10 - Services out of GEO according to weekly frequencies and distance**

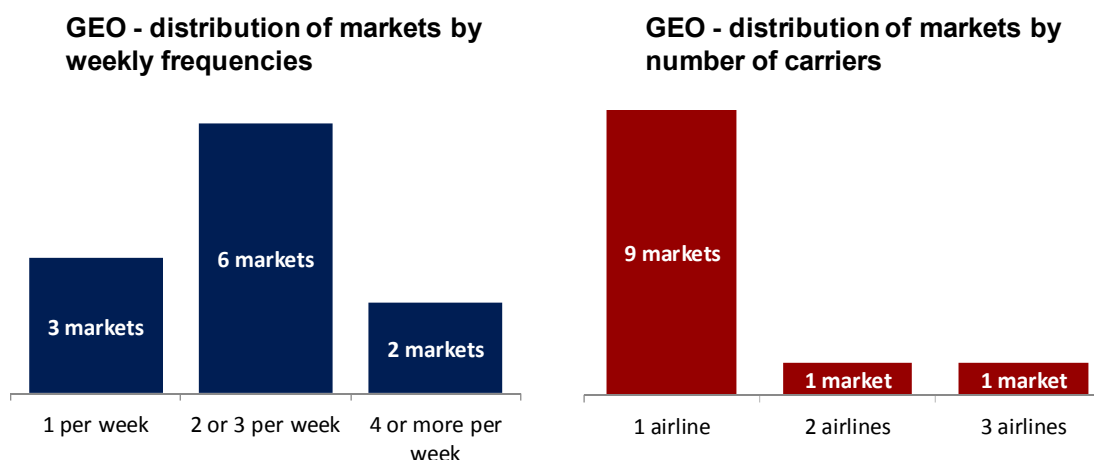


Source: prepared by consultant with information from OAG (2015) and airlines schedules.

Georgetown International Airport has 6 short haul destinations served with less than daily services, all of them operated by only one carrier. Only one short haul destination (Port of Spain) is served with more than daily services (in fact, it is operated with 5 daily services). Of the two long haul destinations out of GEO, New York is served with over 10 frequencies a week, while Toronto is served a couple of times per week. However, these two routes are operated by 2 and 3 carriers, respectively, assuring a higher level of competition than the remaining 9 markets out of GEO.

GEO has non-stop connections to 11 international markets. However, most of them are served with low frequencies of service and low competition levels, in terms of airlines serving each market (Exhibit 6.11).

**Exhibit 7.11 - Distribution of routes out of GEO by weekly frequencies and operating carriers - 2015**



Source: prepared by consultant with information from OAG (2015) and airlines schedules.

Port of Spain is served with an average of five daily flights operated by Caribbean Airlines. Aside from this market, only the New York market has at least daily services, serviced by three carriers. The remaining 9 markets out of GEO are served with between 1 and 3 weekly services, which implies that if a passenger needed to travel in a given date, it could not find a direct flight to its destination.

It is important to note that business traffic (the most profitable market segment for airlines) is difficult to develop on routes with such low frequencies. Business travelers demand a level of scheduling flexibility that is difficult to satisfy in the majority of the routes from GEO, which are operated with 3 flights per week or less.

With regards to airline competition, only Kingston is served by at least three different carriers, while Toronto is served by two airlines. In the remaining 9 markets out of GEO, there is only one airline option for travelers. In summary, there is only real competition in 2 of the 11 markets served out of GEO.

## 7.4. Suriname

Suriname has one main international entry point: Johan Adolf Pengel International Airport (PBM), which serves the capital of the country (Paramaribo) and accounts for

the totality of its international traffic. The airport is located 50 kilometers south of Paramaribo.

In addition to PBM, there is a second international airport with very little practical relevance, Zorg En Hoop (ORG), which is located in the country's capital. Given its geographical proximity to the city center, this airport is only used for general aviation and regional aircraft operations.

### **Exhibit 7.12 - Suriname's main international airports**



Source: prepared by consultant.

According to the World Travel and Tourism Council (WTTC), in 2014 the travel and tourism sector accounted for 2.7% of the country's GDP and 2.5% of the country's total employment. These indicators can be considered as relatively low, compared with other South American and Caribbean countries.

#### **7.4.1. Paramaribo Johan Adolf Pengel International Airport (PBM)**

PBM is served by 5 carriers offering non-stop services to 7 international markets in 7 countries (Exhibit 6.13).



**Exhibit 7.13 - International Markets Served from Paramaribo**

	<b>Region</b>	<b>Country</b>	<b>Market</b>	<b>Carrier</b>
1	Caribbean	Trinidad and Tobago	Port of Spain	Suriname Airways, Caribbean Airlines
2		Curacao	Curacao	Insel Air
3		Aruba	Aruba	Suriname Airways, Insel Air
4	South America	French Guiana	Cayenne	Suriname Airways
5		Brazil	Belem	Suriname Airways, Gol Linhas Aereas
6		Guyana	Georgetown	Suriname Airways
7	Europe	Netherlands	Amsterdam	Suriname Airways, KLM

Source: prepared by consultant with information from OAG (2015) and airlines schedules.

Three of the seven markets out of PBM are located in the Caribbean, while another 3 markets are located in South America. However, the largest market out of Paramaribo is the only market in the European continent: Amsterdam. The following graph (Exhibit 6.14) presents the international capacity out of Paramaribo International Airport by destination market. It is important to remark that for the entire year of 2015, there are no scheduled domestic services in Suriname.

**Exhibit 7.14 - International Seat Capacity from PBM, by destination market**



Source: prepared by consultant with information from OAG (2015) and airlines schedules.

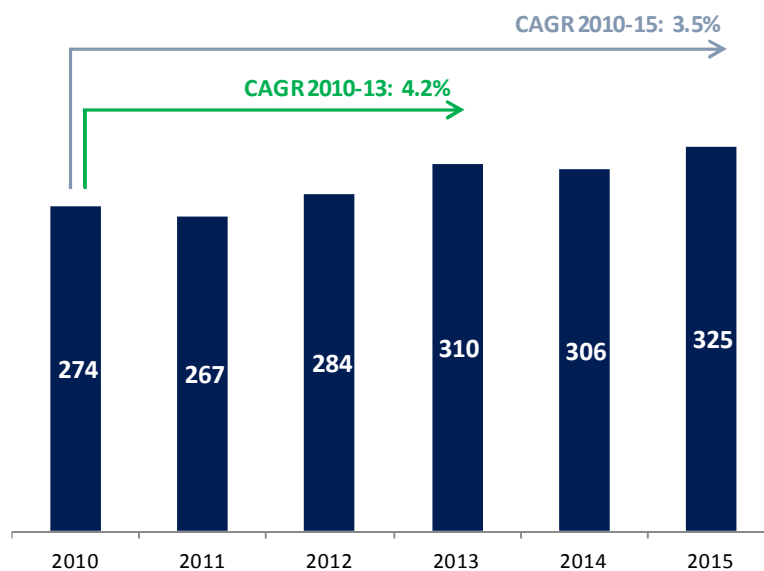
Amsterdam concentrates almost half of the international seats out of PBM, followed by Port of Spain, with 20% of the airport's seats. Curacao and Aruba are the third and fourth largest markets out of Paramaribo, with 11% and 10% capacity shares, respectively. Suriname Airways operates flights to Georgetown and Aruba with continuation to Miami using fifth freedom rights.

With regards to destinations within the Guyanese Shield, Georgetown accounts for 5% of PBM's seats, and Belem holds another 4% of the airport's seats.

The supply of scheduled air transport services out of Paramaribo International Airport has experienced modest growth in the past 6 years, as it can be seen in Exhibit 6.15.

### **Exhibit 7.15 - Evolution of Seat Capacity out of PBM - 2010 to 2015**

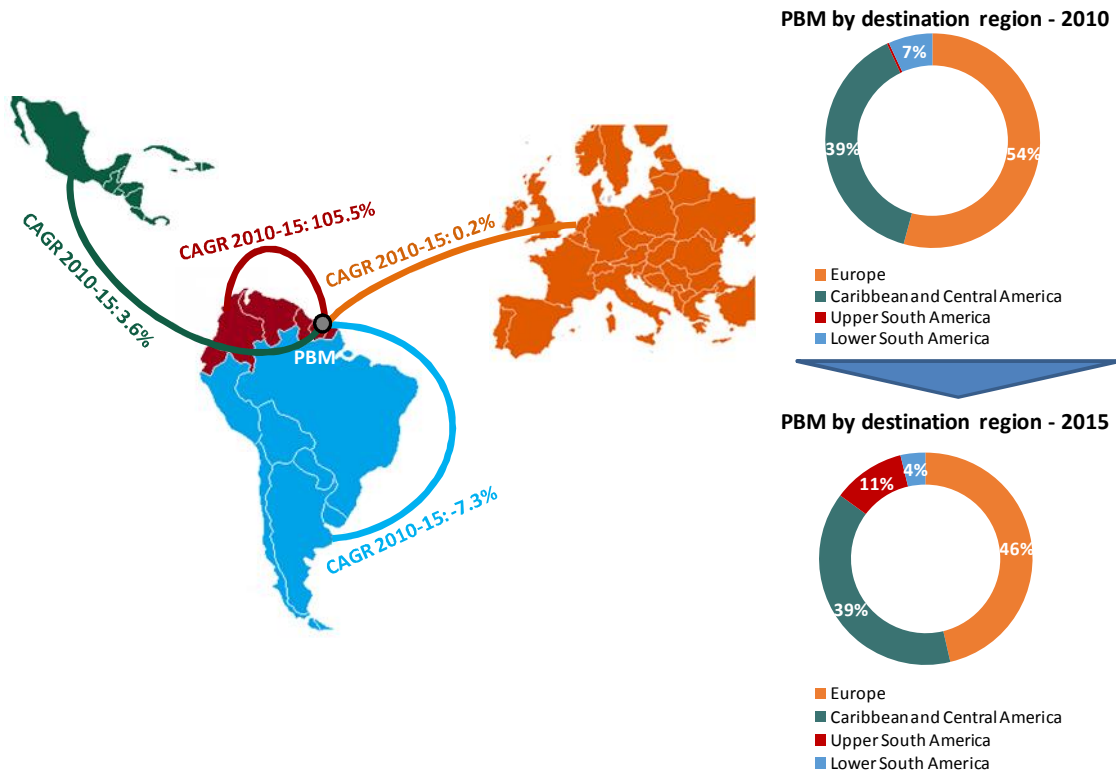
In '000 seats



Source: prepared by consultant with information from OAG (2015) and airlines schedules.

The number of departing seats out of PBM has grown steadily between 2010 and 2015, with exceptions in 2011 and 2014: in six years, departing seats have increased from 274,000 to 325,000 (CAGR of 3.5%). The overall growth in air services experienced between 2010 and 2015 is mainly explained by the growth of available seats to destinations in Central America, the Caribbean and Upper South America, as can be seen in the following graph.

Exhibit 7.16 - Departing seats out of PBM by destination region - 2010 to 2015

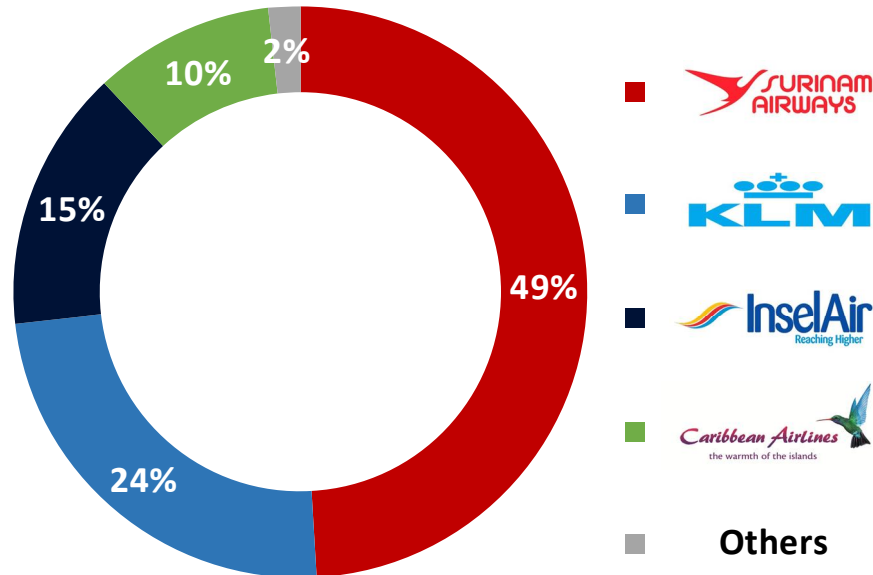


Source: prepared by consultant with information from OAG (2010 and 2015) and airlines schedules.

With the exemption of Belem and Port of Spain, the remaining 4 destinations that were served out of Paramaribo in 2010 have all increased its available capacity by 2015: Amsterdam (increase of 1%), Curacao (22%), Aruba (83%) and Cayenne (2050%). In addition, one new destination has been established within the Guyanese Shield countries in the last 6 years: Georgetown.

Capacity share in PBM is evenly distributed between foreign carriers and Suriname's national flag carrier, Suriname Airways, as can be seen in the following figure.

Exhibit 7.17 - Departing seats out of PBM by carrier - 2015

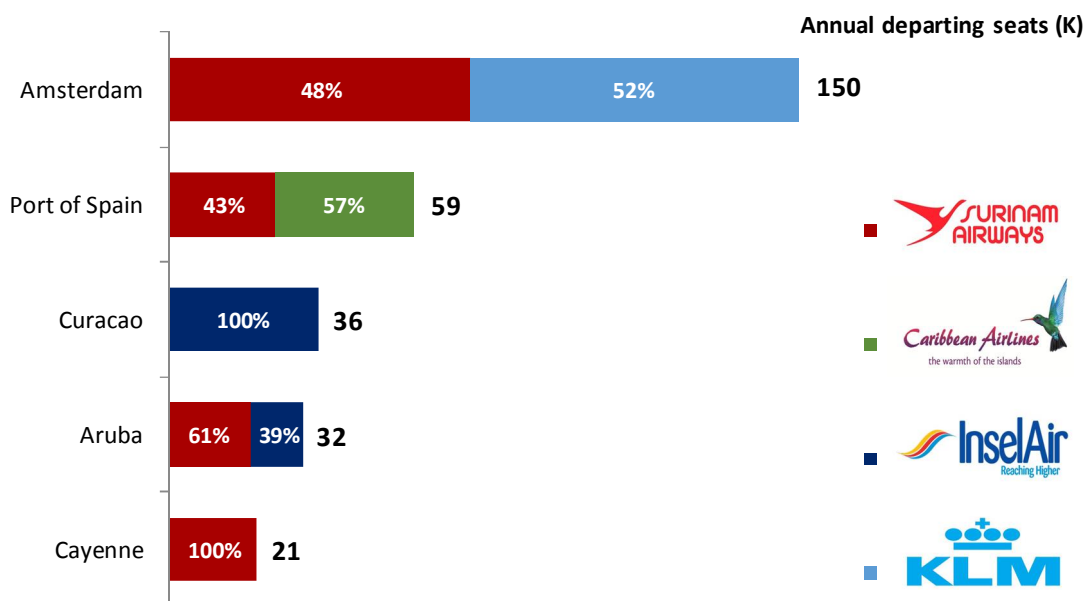


Source: prepared by consultant with information from OAG (2015) and airlines schedules.

Suriname Airways accounts for roughly half of the seats out of PBM, while KLM is the second largest carrier in the airport (24% capacity share): these two airlines concentrate almost three quarters of the airport's seats. Insel Air accounts for another 15% of the available seats, followed by Caribbean Airlines (10%). These 4 carriers hold a combined 98% of the available seats out of Paramaribo.

The following chart presents the existing competition in the main 5 routes out of PBM, which account for 91% of the supply in this airport.

**Exhibit 7.18 - Main 5 routes out of PBM by operating carrier - 2015**



Source: prepared by consultant with information from OAG (2015) and airlines schedules.

Suriname Airways has presence in 6 of the 7 routes out of PBM:

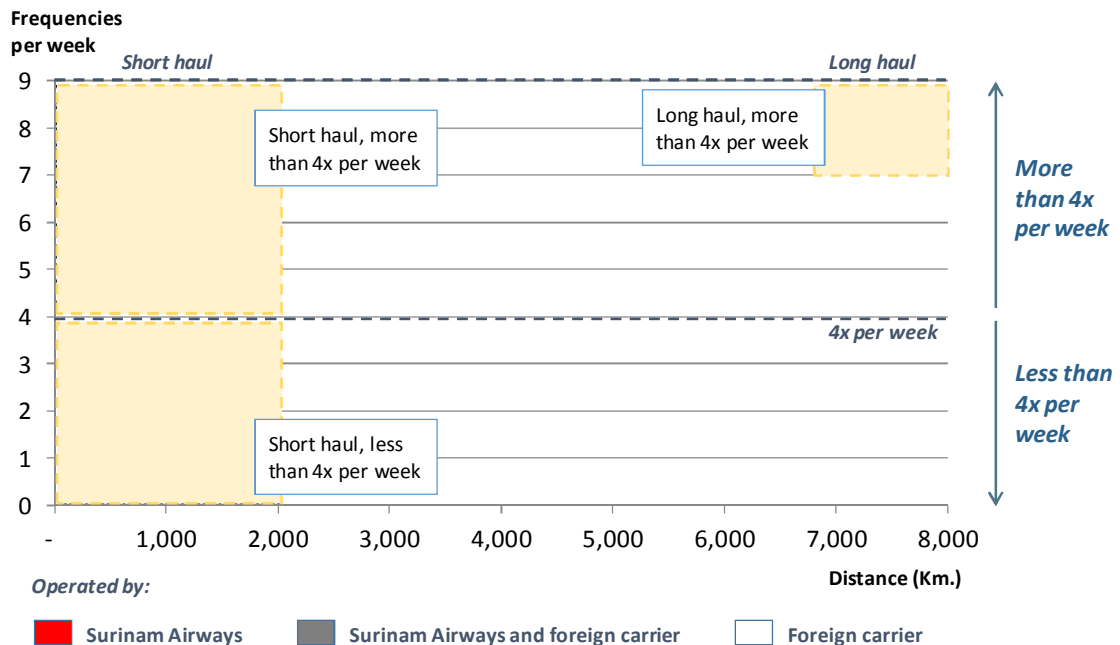
- In the Paramaribo-Amsterdam route, it has a similar capacity share as KLM (48% of Suriname Airways and 52% of the KLM)
- In the route to Port of Spain, it holds a 43% capacity share, competing with Caribbean Airlines (57% share)
- In the Paramaribo-Aruba route, it holds a 61% capacity share against a 39% share from Insel Air
- In the route to Belem, it has a 53% capacity share against a 47% of Gol Linhas Aereas
- In the routes to Cayenne and Georgetown, it offers the totality of the available seats

In the remaining route out of PBM, Insel Air offers all the available seats to Curacao.

The route Belem (Brazil)-PBM operated by Gol has a code share continuation to Amsterdam through KLM. This is part of a long-term strategic partnership between Air France-KLM and Gol for commercial cooperation between Brazil and Europe. The agreement includes expanded code sharing, enhanced joint sales activities and more benefits for customers based on frequent flyer program advantages in Brazilian and European markets. This partnership follows another strategic cooperation between Gol and Delta Air Lines (the main partner of Air France-KLM), implemented since 2011. As part of this agreement, Air France-KLM has invested USD100 million in Gol. The arrangement will strengthen the participation and cooperation between Gol and Sky Team members worldwide.

The analysis of connectivity for Paramaribo, based on the number of carriers, their frequencies and the range of the destinations, can be seen in the following graph:

**Exhibit 7.19 - Services out of PBM according to weekly frequencies and distance**



Source: prepared by consultant with information from OAG (2015) and airlines schedules.

Paramaribo International Airport has 3 short haul destinations served with less than 4 services per week, all of them operated solely by Suriname Airways (with the exception of Belem, also operated by Gol). Another 3 short haul destinations (Port of Spain, Aruba and Curaçao) are served with more than 4 weekly services, while the

remaining destination out of Paramaribo, Amsterdam is operated with more than one daily service in average, by two carriers.

Another airline is expected to commence operations in PBM in the next months: Fly All Ways. The local carrier will operate a "milk-run" service commencing in PBM and operating stops at GEO, Barbados (BGI), Sint Maarten (SXM) and Santo Domingo (SDQ). This route is intended to pick up and drop off passengers between these destinations, taking advantage of the limited options available in the present for connecting passengers in these airports (with the exception of SDQ, which is the final stop of the route, and where passengers can also connect to other destinations).

### **Analysis of Suriname Airways' schedule at PBM**

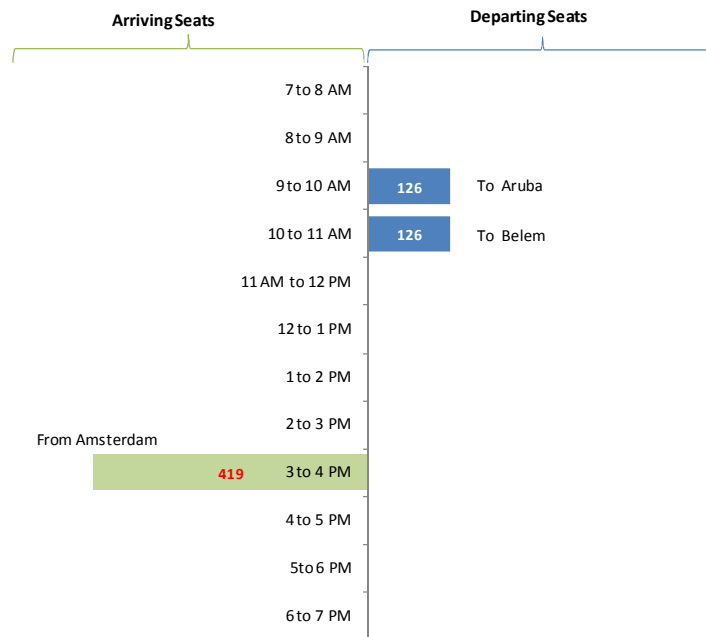
With the objective of determining if Suriname Airways is currently optimizing its passenger traffic and connectivity potential, an analysis of foreign airlines' arriving services and Suriname Airways departing flights' schedules was carried out. The main goal of this analysis is to assess whether Suriname Airways is taking advantage of connecting passengers' schedules, by offering departing flights at convenient hours of the day in order to maximize connection opportunities (i.e. flights that depart within 1 to 2.5 hours after the arrival of other airline's service).

In order to achieve this, PBM's weekly schedule was analyzed on an hourly basis, for all 7 days of the week from September 14 to September 20 of 2015. Airlines' schedules and OAG were used as sources in order to construct the airport's schedule. Exhibits 5.20 to 5.26 depict PBM's arrivals and departures, including origins and destinations and incoming/departing seats.



**Exhibit 7.20 - Hourly distribution of arriving and departing seats at PBM - Monday**

September 14th of 2015



Source: prepared by consultant with information from OAG (2015) and airlines schedules.

The schedule for Monday shows a clear example of departing services from Suriname Airways that do not take advantage from the arrival of international passengers. Flights to Aruba and Belem depart between 9 and 11 AM, whilst the only arriving service is a KLM flight from Amsterdam.

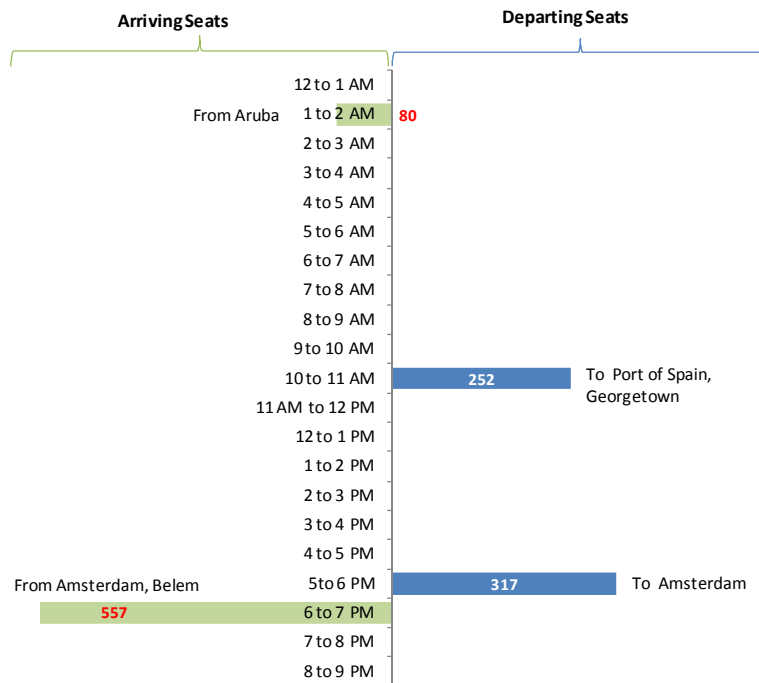
In the case of Aruba, a connecting flight at PBM is not so relevant given that KLM has direct flights from Amsterdam 5 times per week. However, for the case of Belem, KLM has no direct services out of AMS to this destination, which represents an opportunity for Suriname Airways.

This situation could be easily corrected to take advantage of the incoming 419 seats from AMS, by re-arranging the schedule of Suriname Airways' flights, making their departure times more convenient for passengers that want to use PBM to connect to

other destinations (i.e. departures to Aruba and Belem could be set between 4.45 and 6.15 PM).

**Exhibit 7.21 - Hourly distribution of arriving and departing seats at PBM - Tuesday**

September 15th of 2015



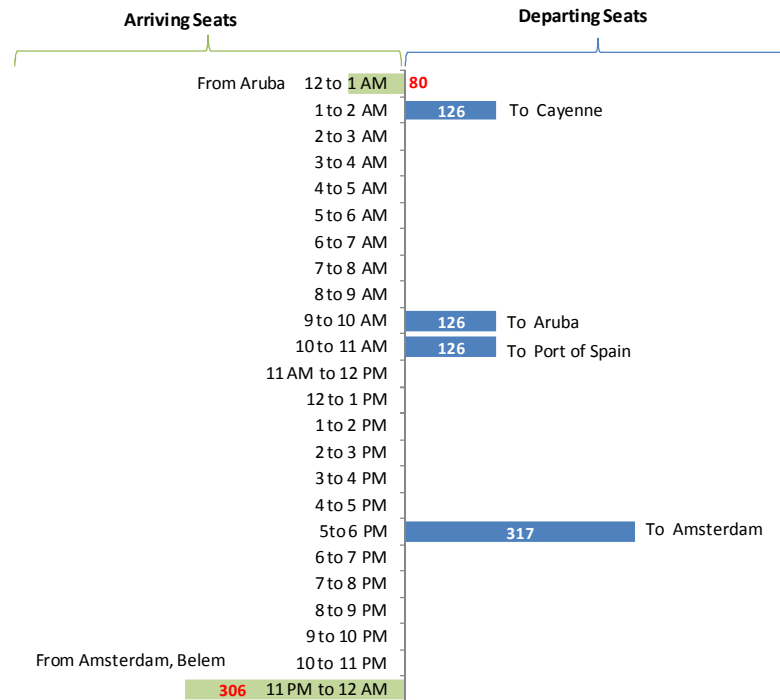
Source: prepared by consultant with information from OAG (2015) and airlines schedules.

This schedule also shows opportunities for improvement: the incoming flight from Aruba arrives 10 hours before Suriname Airways' departure Georgetown (the route AUA-PBM-POS does not represent a real opportunity, given the wide offering of direct services between Aruba and Port of Spain).

In addition, this flight to Georgetown cannot take advantage from the incoming flight from Belem, which arrives between 6 and 7 PM. The best option would be to re-arrange the Suriname Airways flight to Belem, so it departs between 7.30 and 8.45 PM, converting it into a real option for connecting passengers.

**Exhibit 7.22 - Hourly distribution of arriving and departing seats at PBM - Wednesday**

September 16th of 2015

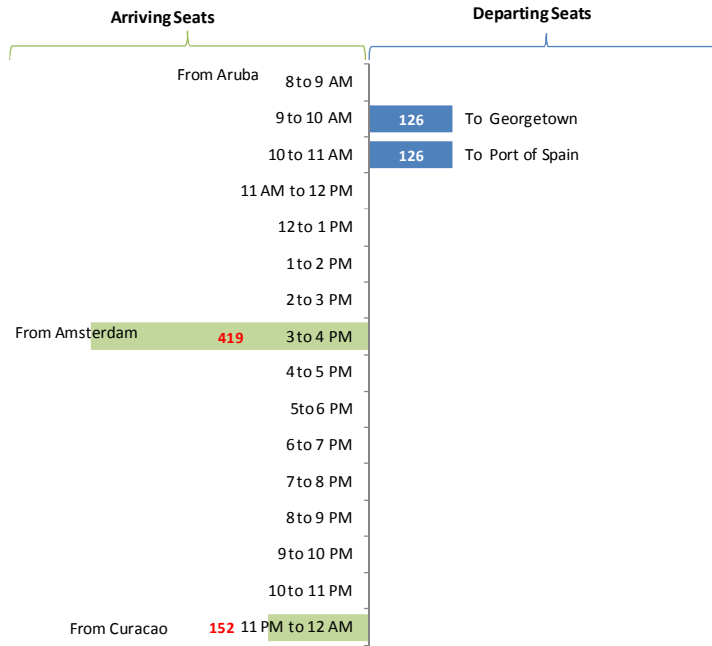


Source: prepared by consultant with information from OAG (2015) and airlines schedules.

Suriname Airways' flight to Cayenne departs 75 minutes after Insel Air's arrival from Aruba, being a convenient schedule for connecting passengers. However, flights to Aruba, Port of Spain and Amsterdam do not take advantage from any incoming services (all of them are several hours before the arrivals from Amsterdam and Belem, which occur between 11 PM and midnight).

**Exhibit 7.23 - Hourly distribution of arriving and departing seats at PBM - Thursday**

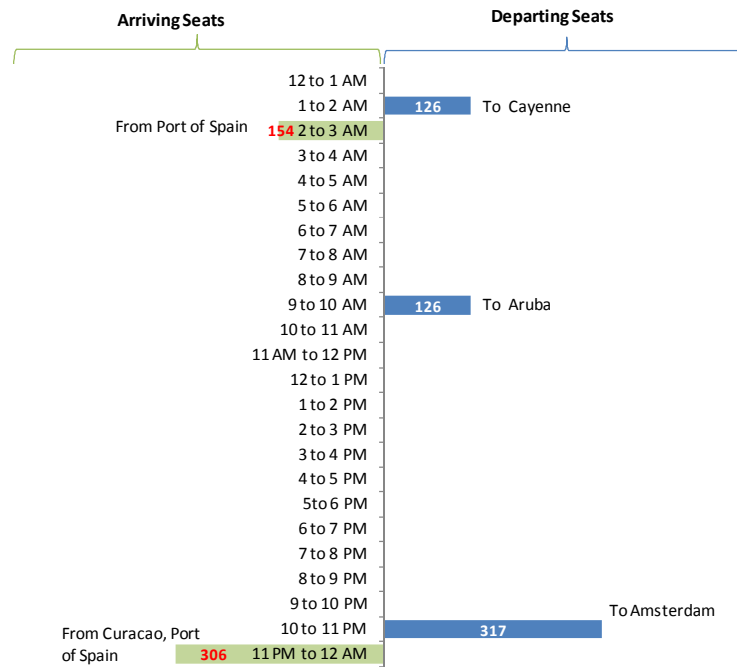
September 17th of 2015



Source: prepared by consultant with information from OAG (2015) and airlines schedules.

Once again, the Suriname Airways' departures to Georgetown and Port of Spain are several hours before other airlines' arrivals from Amsterdam and Curaçao. This schedule could be corrected to make Suriname Airways' flights more attractive to connecting passengers.

**Exhibit 7.24 - Hourly distribution of arriving and departing seats at PBM - Friday  
September 18th of 2015**

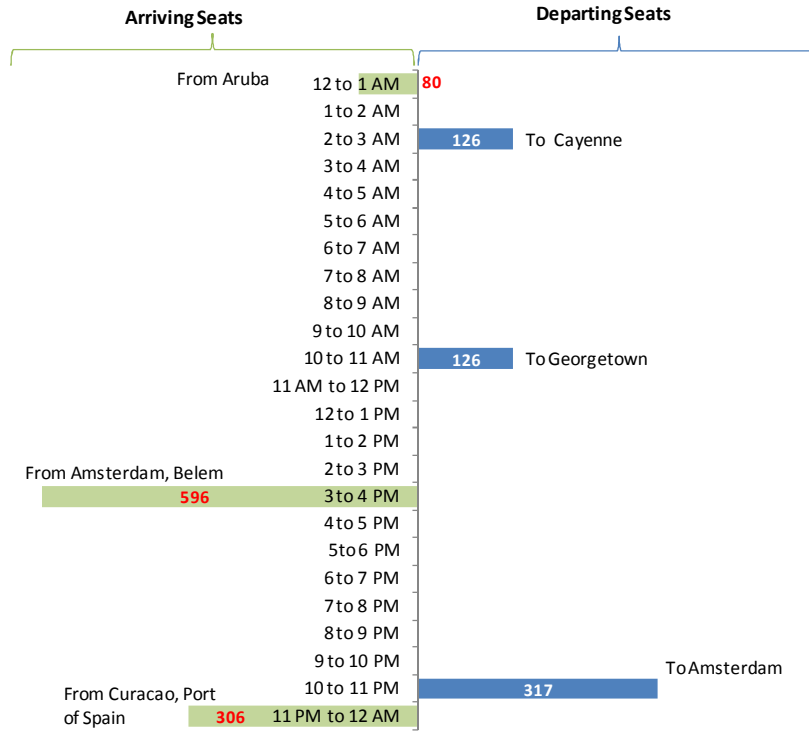


Source: prepared by consultant with information from OAG (2015) and airlines schedules.

Suriname Airways' flight to Cayenne departs one hour before the arrival of Caribbean Airlines' service from Port of Spain, being a wasted opportunity to connect passengers. Likewise, Suriname Airways' service to Amsterdam also departs one hour before arrivals from Curaçao and Port of Spain. Slight scheduling re-arrangements could improve Suriname Airways' load factors and traffic levels.

**Exhibit 7.25 - Hourly distribution of arriving and departing seats at PBM - Saturday**

September 19th of 2015

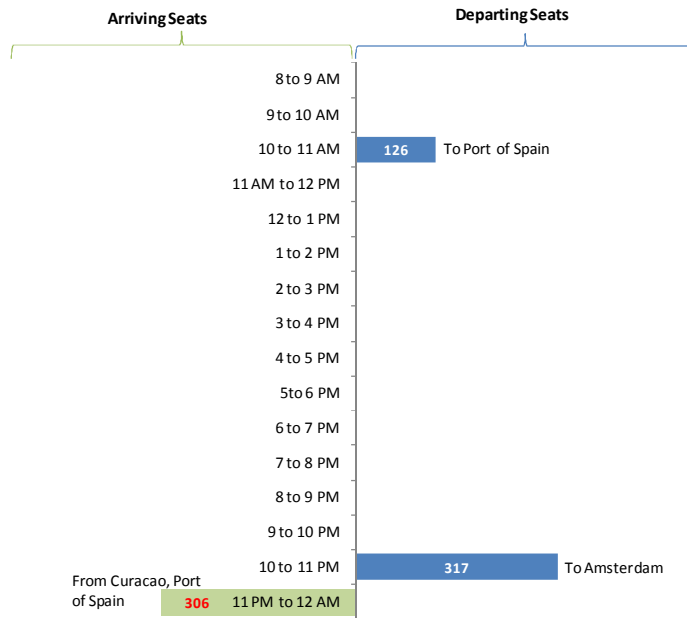


Source: prepared by consultant with information from OAG (2015) and airlines schedules.

Suriname Airways' flight to Cayenne departs two hours after Insel Air's arrival from Aruba. However, flights to Georgetown and Amsterdam do not take advantage of any incoming flights from other airlines.

**Exhibit 7.26 - Hourly distribution of arriving and departing seats at PBM - Sunday**

September 20th of 2015

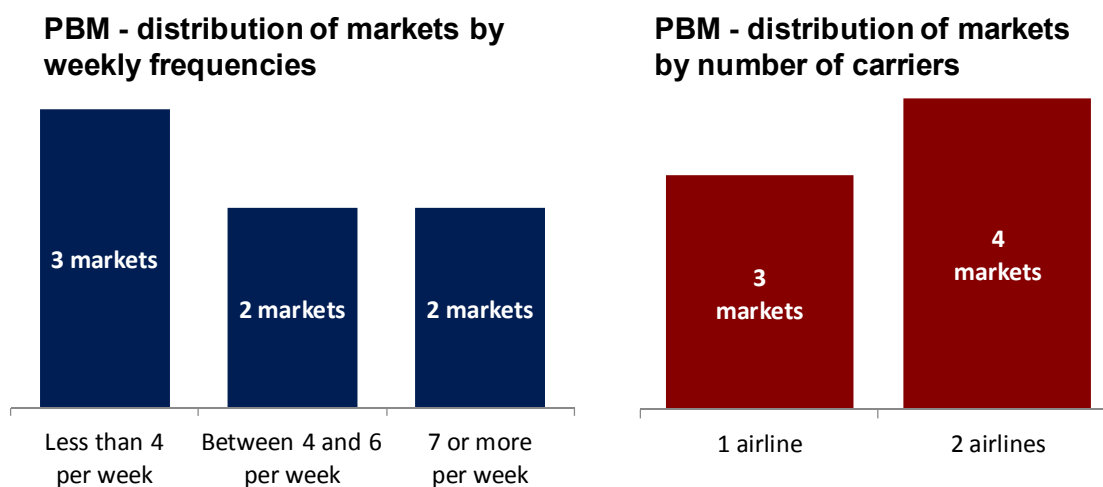


Source: prepared by consultant with information from OAG (2015) and airlines schedules.

Sunday's schedule at PBM also shows that Suriname Airways' flights to Port of Spain and Amsterdam are not scheduled to connect any incoming passengers from Curaçao and Port of Spain (as these incoming flights arrive after the departure of Suriname Airways' flights).

In summary, PBM has scheduled non-stop connections to 7 international markets, and most of them are served with low frequencies of service and low competition levels, in terms of airlines serving each market (Exhibit 6.27).

**Exhibit 7.27 - Distribution of routes out of Paramaribo by weekly frequencies and operating carriers - 2015**



Source: prepared by consultant with information from OAG (2015) and airlines schedules.

Amsterdam and Port of Spain are the best served markets out of PBM, with 8 weekly services each. In addition, these two markets are served by two carriers each, assuring a minimum level of competition (Amsterdam is served by Suriname Airways and KLM, while Port of Spain is served by Suriname Airways and Caribbean Airlines).

In the rest of the markets served out of PBM there is either a lower number of weekly frequencies, or no competition between carriers (or both):

- Aruba: 6 weekly services operated by two carriers (Suriname Airways and Insel Air)
- Curacao: 5 weekly services operated by one carrier (Insel Air)
- Cayenne: 3 weekly services operated by Suriname Airways
- Belem: 2 weekly services operated by Gol and Suriname Airways
- Georgetown: two services every week operated by Suriname Airways

As it was also remarked for Guyana, business traffic is difficult to develop on routes with such low frequency levels, and this situation compromises the development of the



air transport market given that airlines desire to develop this market segment, as it is their most profitable one.

Even when most of the markets served from PBM (4 out of 7) are operated by two carriers, competition is still very limited or nonexistent in these cases. This is explained by the fact the maximum number of frequencies these market is of 8 weekly services, which means that for all markets, there is only one carrier option (if any) on most days of the week.

## 7.5. Development of a hub in Georgetown or Paramaribo

There are two typical types of hubs:

- Those that work as a entry gateway to the country, distributing passengers to other local destinations. These hubs have a trunk route through which receive a large number of incoming passengers, who are then embarked to other lower volume domestic routes. These hubs are known as "spokes"
- Those that work as a connection between two or more international flights, passing by a connecting hub. In these hubs, airlines use sixth freedom rights to transport passengers between two countries that are not that of the airline

A hub must be geographically located in a way that allows passengers to connect to other destinations without implying an important delay in the main route. Hubs should be evaluated in both qualitative and quantitative terms: In quantitative terms, the important driver is the number of available connections, while in qualitative terms the most important variables are the total time to connect between flights and the simplicity of the process.

Airports have control over some of the factors that have an influence over the quality of connections, such as the infrastructure, the design of the terminals and the variety of services offered to passengers. However, a fundamental characteristic inherent to hub airports is the need to have an important volume of origin and destination (O&D) traffic. Airline profitability (yield per passenger) is higher with O&D passengers than with connecting ones, which is why airlines seek high volumes of O&D traffic to finance the development of hubs, which by definition will have a large number of low-profit connecting passengers. It is in fact the important volume of O&D traffic that develops a connecting network that is used to feed/distribute the connecting traffic. In summary, the O&D traffic subsidizes the connecting one.

Even when Paramaribo and Georgetown airports could in the future develop the necessary infrastructure to become hub airports (which they currently don't have), they would still need to have a large O&D traffic volume so as to attract an airline to develop a hub in one of these airports. Given that O&D traffic demand in these countries is scarce (and will probably continue to be scarce in the next 15 to 20 years compared to other regional hubs), it is unrealistic to think that an important airline will select either PBM or GEO as a regional hub in the near future.

In summary, the settlement of hubs answers to the action of market forces (airlines' profitability) and not to political will, and given current market dynamics and characteristics, neither Guyana nor Suriname will be able to develop a regional hub in the foreseeable future .

## 7.6. The connectivity with South America

As it was explained above, in the present Guyana's and Suriname's connectivity to South American destinations is very limited: GEO only has direct services to Paramaribo and Puerto Ordaz, while PBM only has services to Cayenne, Belem and Georgetown. Moreover, all these services are operated with 4 or less weekly services.

In contrast, South American capitals and main cities are relatively well connected to regional destinations, as well as to other markets in Europe, North America, Central America and the Caribbean. This contrast between Guyana and Suriname with the rest of the South American nations is mainly explained by the fact that these two countries have deeper historical, cultural, and economic links to countries of the Caribbean than to South American ones.

The only South American carrier operating in Suriname is Gol, having less than weekly services between Belem and Paramaribo (no Brazilian airline currently operates at Guyana). This situation is a clear reflection of the few existing economic, social and political ties between Guyana and Suriname and the rest of the South American nations.

Both Suriname Airways and Gol Linhas Aereas have one weekly service (in average) from Paramaribo to Belem International Airport (BEL). This route has been remarked by authorities as a potential gateway for the development of Suriname's air transport connectivity. However, the international connectivity of BEL is very limited, as it only serves other 3 international markets, besides PBM: Miami (operated by TAM), Cayenne (operated by Suriname Airways) and Lisbon (operated by TAP Portugal).

It is important to remark that the route PBM-BEL-CAY does not represent an attractive option for most passengers, given that there already exist available direct services to Cayenne out of Paramaribo, operated by Suriname Airways. Having this in mind, Belem only offers two international routes for connecting passengers (Miami and Lisbon), which is not a significant number so as to be considered as a potential gateway capable of increasing Suriname's connectivity.

Given the limited options for Guyana and Suriname to develop non-stop services to most destinations in South America, the connectivity of both countries with the rest of the region will depend on how well connected GEO and PBM are to close regional hubs. In this sense, the closest hubs to Guyana and Suriname that offer a wide array of connections to South American destinations are Bogota (main hub for Avianca) and Panama City (Copa Airlines' main hub).

Guyana already has 2 weekly services to Panama City through Copa Airlines, which enables passengers to reach multiple destinations in South America using PTY as a connecting hub: Caracas, Bogota, Quito, Guayaquil, Lima, Rio de Janeiro, Sao Paulo, Santiago de Chile, Buenos Aires, Montevideo, Asuncion, Santa Cruz de la Sierra, Cartagena, Cordoba, Barranquilla, Porto Alegre, Cali and San Andres, all of them served with at least 5 weekly services out of PTY. Suriname currently does not have any direct services to PTY, but could also benefit from a service to Panama City to increase its connectivity to South America, either as a non-stop service or as a continuation of the existing biweekly service between PTY and GEO.

The other main regional hub that is geographically close to Guyana and Suriname is Bogota, operated by Avianca. In the present, neither GEO nor PBM have direct services to Bogota, but their connectivity to other South American countries would definitely be increased through the implementation of a non-stop service to BOG. In this sense, Avianca has direct services from Bogota International Airport to Quito, Guayaquil, Santiago de Chile, Caracas, Sao Paulo, Rio de Janeiro, La Paz, Lima and Buenos Aires.

It is very important to remark that neither Suriname nor Guyana will be able to develop a similar level of connectivity to that of Peru or Brazil with the rest of South America, at least in the short term. However, by increasing the number of available services to these regional hubs, both countries would increase their connectivity, allowing departing passengers from GEO and PBM to reach multiple destinations in South America using these hubs as gateways to the rest of the continent.

## 7.7. The development of connectivity through regional hubs

The main closest regional hubs to GEO and PBM are:

- Panama City Tocumen International Airport (PTY) - Copa Airlines' hub
- Port of Spain Piarco International Airport (POS) - Caribbean Airlines' hub
- Hato Curacao International Airport (CUR) - Insel Air's hub
- Bogotá El Dorado International Airport (BOG) - Avianca's hub

### **Panama City - Copa Airlines**

In the case of Guyana, there is an interesting opportunity for the development of the country's connectivity with one of the most relevant regional hubs: Panama City, operated mainly by Copa Airlines. This airline has a service from Tocumen International Airport (PTY) to GEO two times per week, but according to interviewed authorities, this service may increase to 4 flights each week in 2016.

The increase in the number of services between PTY and GEO will definitely improve Guyana's connectivity to the rest of South America, by offering more available traveling dates for passengers departing to or from Georgetown. This increase in the number of frequencies will give more opportunities to passengers that need to travel to or from Guyana (using Copa's hub as a connecting point) to choose specific traveling dates, which are currently limited to two services per week.

### Exhibit 7.28 - Copa Airlines' main routes and weekly services

#### Main routes out of PTY - Copa Airlines



#### Copa Airlines network

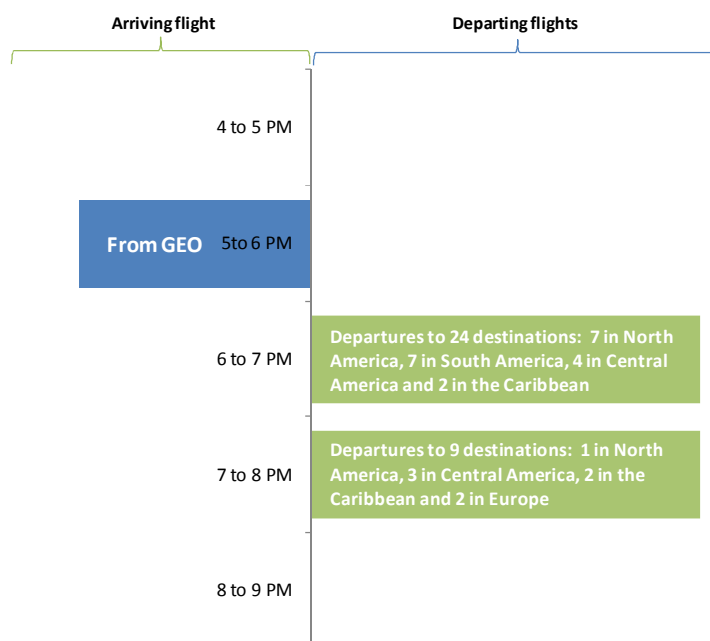
15 markets	San Jose, Cancun, La Habana, Miami, Santo Domingo, Lima, Mexico City, Santiago de Chile, Orlando, Sao Paulo (GRU), Quito, Guatemala City, Guayaquil, Los Angeles, New York	3 daily flights or more
15 markets	Managua, Caracas, Buenos Aires, San Juan de Puerto Rico, Rio de Janeiro, Punta Cana, Washington DC, San Salvador, David, Montevideo, Asuncion, Santa Cruz de la Sierra, Bogota, Las Vegas, Brasilia	Between 10 and 20 weekly flights
17 markets	Port of Spain, Chicago, Cartagena, Cordoba, Manaus Tegucigalpa, Guadalajara, Valencia, Porto Alegre, Boston, Belo Horizonte, Sao Paulo (VCP), Monterrey, Toronto, San Andres, Fort Lauderdale	Between 5 and 9 weekly flights
25 markets	Medellin, St Maarten, Tampa, Nassau, Montreal, Kingston, Montego Bay, Port Au Prince, Barranquilla, New Orleans, Curacao, San Francisco, Liberia, Georgetown, Santa Clara, Aruba, Puebla, Iquitos, San Pedro Sula, Cali, Villahermosa, Bucaramanga, Cucuta, Pereira	Between 1 and 4 weekly flights

Source: Copa Airlines' schedule and OAG (2015).

Through its PTY hub, Copa Airlines reaches 72 airports in the Americas. More than half of these routes (38) are operated with an average of a daily service, and 15 of them are operated with 3 daily services or more. In the present, the two weekly services from GEO to PTY have several connecting options, as can be seen in the following graph.

**Exhibit 7.29 - Potential Copa Airlines connections at PTY for the biweekly service from GEO**

Week of September 14th to September 20th of 2015



Source: Copa Airlines, KLM, United Airlines and TAP Portugal schedules, and OAG (2015).  
 Note\*: for potential connections at PTY, only flights from Copa Airlines and other Star Alliance members were considered.  
 Note\*\*: only days of operation for Copa Airlines' flights from GEO were considered.

The arriving flight from GEO has the potential to connect passengers with flights departing to other 27 destinations out of PTY within 2.5 hours after the arrival. These markets are located in Central, South and North America, as well as Europe (Amsterdam and Lisbon) and the Caribbean.

For Suriname, it would also be very valuable to establish new services to PTY, either as a non-stop service or as a continuation of the biweekly service between PTY and GEO (this possibility would be even more attractive if traffic rights were granted to transport passengers between GEO and PBM). Such an opportunity would increase the regional connectivity of PBM by offering more connections in the Americas and Europe through the PTY hub.

## Port of Spain - Caribbean Airlines

Another important regional hub close to Georgetown and Paramaribo (with current non-stop services to both of these airports) is Port of Spain (POS), which is mainly operated by Caribbean Airlines. This airline operates a non-stop service between Port of Spain and GEO 4 times per day and also a non-stop flight to Paramaribo 4 times every week. Port of Spain offers connectivity options to destinations in the Caribbean, North America and Europe (London) through Caribbean Airlines. The following figure depicts Caribbean Airlines' network, and the available potential connections for passengers departing out of POS.

### Exhibit 7.30 - Caribbean Airlines' main routes and weekly services

2015

#### Main routes out of POS - Caribbean Airlines



#### Caribbean Airlines network

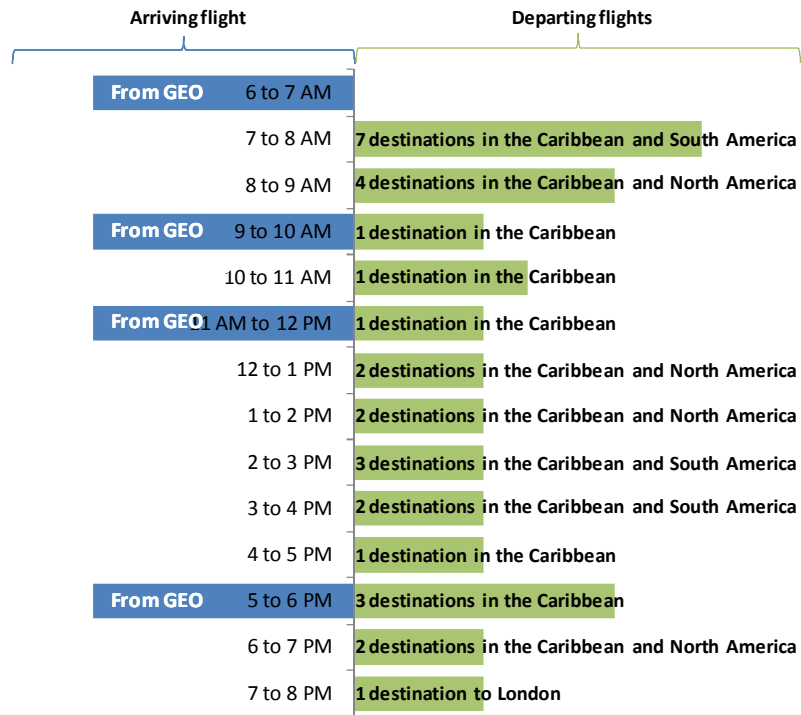
3 markets	Tobago, Georgetown, New York	3 daily flights or more
3 markets	Barbados, Toronto, Grenada	Between 10 and 20 weekly flights
4 markets	Caracas, Miami, Fort Lauderdale, St Lucia	Between 5 and 7 weekly flights
6 markets	Paramaribo, London, Kingston, Orlando, Antigua, St Maarten	Between 1 and 4 weekly flights

Source: Caribbean Airlines' schedule and OAG (2015).

Caribbean Airlines connects POS with 16 markets, 10 of which are served with at least 5 weekly services. Port of Spain also offers connectivity options for the arriving flights from GEO and PBM, as it is shown in the following figures (Exhibits 5.30 and 5.31).

**Exhibit 7.31 - Potential Caribbean Airlines connections at POS for the daily services from GEO**

Week of September 14th to September 20th of 2015



Source: Caribbean Airlines and British Airways schedules, and OAG (2015).

Note\*: for potential connections at POS, only flights from Caribbean Airlines and British Airways were considered (given code-share agreement between these two carriers).

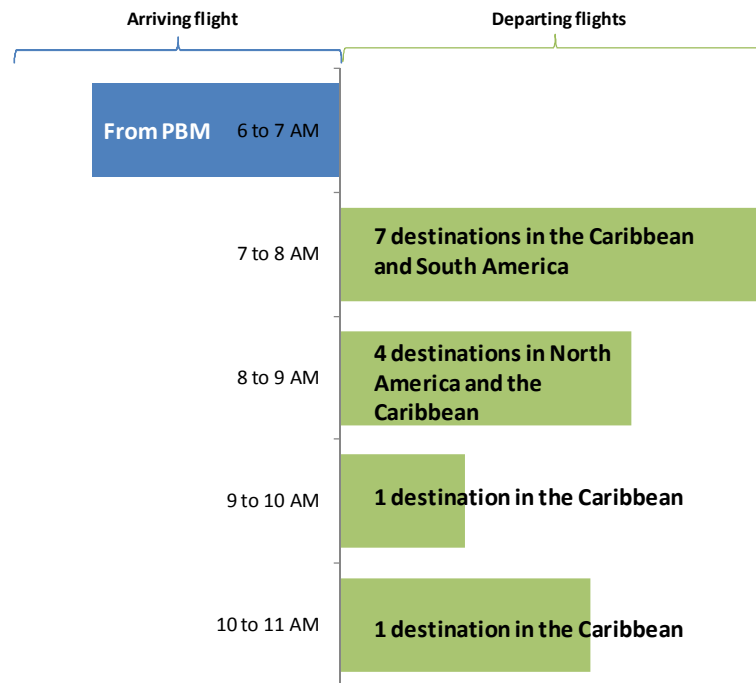
Note\*\*: only days of operation for Caribbean Airlines' flights from GEO were considered.

Sixteen destinations out of POS located in North America, South America, the Caribbean and Europe can be reached by arriving passengers from the Caribbean Airlines' services from GEO. Given the high number of weekly frequencies between GEO and POS (32), POS is an attractive connecting hub for passengers that need to travel at specific dates and times of the day.



**Exhibit 7.32 - Potential Caribbean Airlines connections at POS for the arriving services from PBM**

Week of September 14th to September 20th of 2015



Source: Caribbean Airlines and British Airways schedules, and OAG (2015).

Note\*: for potential connections at POS, only flights from Caribbean Airlines and British Airways were considered (given code-share agreement between these two carriers).

Note\*\*: only days of operation for Caribbean Airlines' flights from PBM were considered.

For the PBM-POS route operated 4 times every week by Caribbean Airlines, there are 10 potential connections also operated by this carrier: 6 of them in the Caribbean, 3 in North America and one in South America (Caracas).

However, Port of Spain Piarco Airport is operating under extremely inefficient conditions, limiting the possibility of developing a successful hub. Inter-airline connecting passengers may require over 150 minutes to connect to clear immigration and security. However, passengers arriving and connecting with Caribbean Airlines may be able to connect within the transit area, but still confront delays of over 45 minutes to clear security.

The success of Caribbean Airlines will depend on the efficiency of Piarco as a connecting hub. The related connectivity of Georgetown and Paramaribo will depend on the ability of Caribbean Airlines to further develop the hub.

## Curacao - Insel Air

Another regional hub that offers connecting options for Guyana and Suriname is Curacao, base of operations for local carrier Insel Air. This airline offers several connections to South America, North America and the Caribbean, as can be seen in Exhibits 3.33 and 3.34.

### Exhibit 7.33 - Potential Insel Air connections at CUR for the arriving services from GEO

Week of September 14th to September 20th of 2015



Source: Insel Air schedules, and OAG (2015).

Note\*: for potential connections at CUR, only flights from Insel Air were considered.

Note\*\*: only days of operation for Insel Air's flights from GEO were considered.

A total of 10 destinations in North America, South America (Colombia and Venezuela) and the Caribbean can be reached through connecting Insel Air services that depart within 3 hours of the arrival of the service from GEO.

**Exhibit 7.34 - Potential Insel Air connections at CUR for the arriving services from PBM**

Week of September 14th to September 20th of 2015



Source: Insel Air schedules, and OAG (2015).

Note\*: for potential connections at CUR, only flights from Insel Air were considered.

Note\*\*: only days of operation for Insel Air's flights from PBM were considered.

A total of 12 destinations can be reached by connecting passengers that depart from PBM and use CUR as a hub airport, distributed throughout North America, South America and the Caribbean.

**Bogota - Avianca**

In the present, neither Guyana nor Suriname have direct services to connect local airports with Bogota, one of South America's largest hubs. Avianca has a network that

connects this airport to a wide range of destinations located throughout North America, South America, Central America, the Caribbean and Europe, as can be seen in the following figure.

**Exhibit 7.35 - Avianca's main routes and weekly services**

2015

Main routes out of BOG - Avianca



Avianca network

5 airports	Quito, Mexico City, Miami, Panama, Guayaquil	3 daily flights or more
7 airports	Santiago, Cancun, Caracas, Sao Paulo, San Jose, Madrid, New York	Between 2 and 3 daily flights
11 airports	Santo Domingo, Punta Cana, Rio de Janeiro, Orlando, Aruba, Fort Lauderdale, Barcelona, Washington DC, Guatemala City, La Paz, Lima	Between 1 and 2 daily flights
6 airports	Curaçao, La Habana, London, San Juan, Buenos Aires, Los Angeles	Between 2 and 6 weekly flights

Source: Avianca's schedule and OAG (2015).

Developing a connection through Avianca with Bogota El Dorado International Airport would bolster the connectivity of Guyana and Suriname, as this airline has direct non-stop services to 29 international destinations in North America, Central America, South America, the Caribbean and Europe. In addition, Avianca is the largest carrier in the Colombian air transport market, offering non-stop services to 23 cities across its domestic network.

**Brasilia International Airport and potential gateway in the Northeast of Brazil**

Brasilia International Airport (BSB) also presents an interesting opportunity to increase Guyana's and Suriname's international and regional connectivity. The airport has a

large number of frequencies to destinations throughout Brazil, and an increasing number of international destinations, which can be seen in the following graph.

**Exhibit 7.36 - International connectivity out of Brasilia International Airport**  
2015

International routes out of BSB



International routes by frequencies and airlines

Market	Weekly Frequencies	Airlines
Miami / Orlando	14	TAM, DELTA
Panama City	10	CopaAirlines
Buenos Aires	8	TAM, GOL, Aerolíneas Argentinas
Lisbon	6	TAP TAP PORTUGAL
Atlanta	5	DELTA
Paris	3	AIRFRANCE
La Habana	1	CUBANA
Punta Cana	1	TAM, GOL
Santiago (Chile)	< 1	GOL

Source: OAG (2015) and airlines schedules.

BSB is an interesting opportunity to further develop the connectivity of Guyana and Suriname, currently offering 9 international markets: 2 of them located in South America (Buenos Aires and Santiago de Chile), another 2 markets in Europe (Lisbon and Paris), 2 markets in the Caribbean (La Habana and Punta Cana), 2 markets in North America (Miami/Orlando and Atlanta) and the remaining market in Central America (Panama City).

In addition, Brasilia International Airport offers Guyana and Suriname the possibility to connect with over 40 domestic destinations throughout Brazil, with regular services operated by Passaredo, Azul Airlines, Gol, TAM and Avianca Brazil.

However, and despite being an interesting opportunity to further develop Guyana's and Suriname's connectivity, Brasilia International Airport does not represent an

important hub to connect with South America, at least to the same extent as Bogota and Panama City, which are large hubs for regional airlines. In this sense, BSB only offers 2 international routes to South America, a number that is considerably lower than that of Panama City through Copa Airlines (31 destinations in this region) and than that of Bogota through Avianca (9 markets in this region).

Another situation that should be considered relies on the recent announcement from TAM, who is projecting an investment of USD 1.2 billion for the establishment of an operations hub in the northeast of Brazil. No official announcement has been made with regards to which city will be selected for the establishment of this hub, and there are currently 3 states (Ceara, Pernambuco and Rio Grande) involved in negotiations with TAM regarding this subject matter.

Natal, Recife and Fortaleza airports are the ones that have more probability of being selected, as they already have a large infrastructure capable of receiving an important bulk of the airline's operations. The geographical proximity of these airports to Europe and Africa is one of the main attractive points for TAM, who would re schedule a proportion of its services to arrange departing flights to destinations in those continents, taking advantage of operational efficiencies.

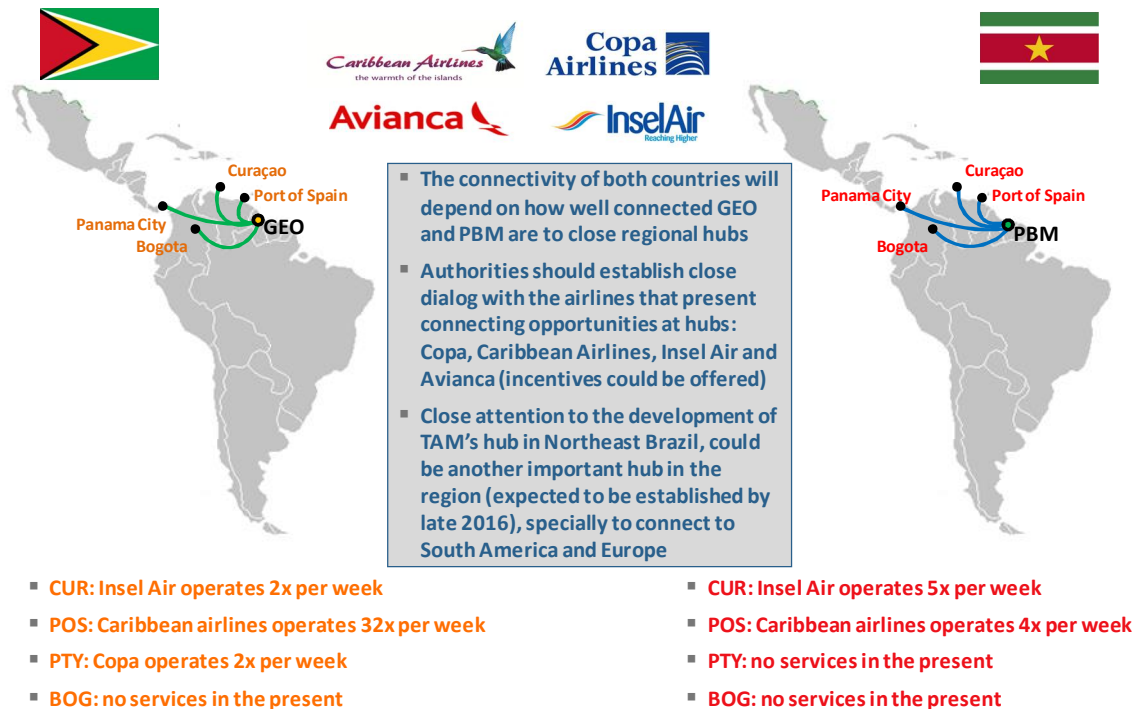
Taking this into consideration, the establishment of non-stop services departing in Georgetown and Paramaribo to the airport to be selected by TAM as its Northeast Brazil hub (construction works and migration of services would finalize by late 2016) would also increase the connectivity of Guyana and Suriname.

## 7.8. Main conclusions of the Market Outlook

As it has been explained in this section, given the limited options for Guyana and Suriname to develop non-stop services to most destinations in South America and Europe, the connectivity of both countries will depend on how well connected GEO and PBM are to close regional hubs.

Through the establishment of additional services to regional hubs, both countries would increase their connectivity, allowing departing passengers from GEO and PBM to reach multiple destinations in South America using these hubs as gateways to the rest of the continent.

**Exhibit 7.37 - Recommendations to increase connectivity**



Source: Consultant.

Developing a connection through Avianca with Bogota El Dorado International Airport would bolster the connectivity of Guyana and Suriname, as this airline has direct non-stop services to 29 international destinations in North America, Central America, South America, the Caribbean and Europe. In addition, Avianca is the largest carrier in the Colombian air transport market, offering non-stop services to 23 cities across its domestic network.

In addition, increasing existing operations to Port of Spain (through Caribbean Airlines), Panama City (Copa Airlines) and Curaçao (Insel Air) would also contribute to the expansion of the available opportunities for passengers that need to travel to or from Guyana, using these hubs as connecting points.

It is recommended to the authorities of both Guyana and Suriname to have a close dialog with the airlines that present opportunities to increase their regional connectivity: Copa Airlines, Avianca, Caribbean Airlines, Insel Air and TAM, following very closely the development of its soon to be established Northeast Brazilian hub. All

policies aimed towards the establishment of additional frequencies from these airlines to GEO and PBM will definitely have a positive impact in Guyana's and Suriname's connectivity.

Ideally, market forces should be able to provide for the development of these services to regional hubs. However, if existing demand for these services were to prove not to be large enough so as to be financially feasible, the governments of Guyana and Suriname could study the implementation of financial or other type of incentives for the development and sustainability of these services.



## 8. Next steps

The following table states the proposed next steps for both Guyanese and Surinamese authorities, based on the conclusions of the previous sections of this report, and with the objective of increasing the connectivity levels of both countries.

**Exhibit 8.1 - Proposed next steps for Guyanese and Surinamese authorities**

Objective	Proposed actions	Time-frame	Probability of success
Increase/Establish Copa Airlines services to GEO and PBM	<ul style="list-style-type: none"> <li>✓ Establish dialog with Copa Airlines to investigate the airline requirements with respect to the development of services to Paramaribo</li> <li>✓ Different options could be analyzed:                             <ul style="list-style-type: none"> <li>○ Individual point to point flights to PBM and GEO from Panama City (PTY)</li> <li>○ Rotating flights from Panama to GEO and PBM (PTY-GEO-PBM-PTY on certain days of the week and on the opposite direction PTY-PBM-GEO-PTY on other days). This option will require traffic rights (fifth freedom) between PBM and GEO in both directions</li> <li>○ Round-trip flights from PTY with a connection at either PBM or GEO</li> </ul> </li> </ul>	Short-term	Mid to High
Establish new Avianca services to GEO and PBM	<ul style="list-style-type: none"> <li>✓ Investigate interest of Avianca to develop new services to GEO and PBM</li> <li>✓ Avianca might prefer not to compete with its Star Alliance partner. Another option could be the cooperation of flights with Copa in code share operations or combining both services at alternative days of the week</li> <li>✓ This alternative will require from Suriname and Colombia to initiate negotiations to liberalize the existing ASA (currently highly restricted to only 2 services per week per side)</li> </ul>	Short- to mid term	Mid

Objective	Proposed actions	Time-frame	Probability of success
Increase Caribbean Airlines services to GEO and PBM	<ul style="list-style-type: none"> <li>✓ Investigate what the airline would need to increase its current frequencies to GEO and PBM</li> <li>✓ The development of Caribbean hub at POS will require efficiency improvements at border control facilities (immigration and security)</li> </ul>	Short-term	Mid
Increase Insel Air services to GEO and PBM	<ul style="list-style-type: none"> <li>✓ Investigate what the airline would need to increase its current frequencies to GEO and PBM</li> </ul>	Short-term	Mid
Increase/Establish Gol services to PBM and GEO	<ul style="list-style-type: none"> <li>✓ Investigate potential interest from the airline to develop a non-stop services to GEO</li> <li>✓ Investigate interest from GOL to develop connections at Belem to points beyond, in South America</li> </ul>	Short-term	Low
Explore evolution of declared intention of TAM to develop a Northeast hub	<ul style="list-style-type: none"> <li>✓ Engage in talks with TAM to explore interests (eventually Brasilia could be a potential hub from where TAM could be interested)</li> </ul>	Medium Term	Quite low
Liberalize restrictive ASAs	<ul style="list-style-type: none"> <li>✓ For Guyana, engage in talks with Brazilian authorities to flexibilize the existing capacity constraint in the bilateral agreement (currently at 3 weekly services)</li> <li>✓ For Suriname, engage in talks with Colombia to increase current capacity constraints in the ASA (currently set at a maximum of 2 frequencies per side)</li> </ul>	Short - to Mid term	Mid

Source: Consultant.

The establishment of talks with Copa Airlines and Avianca appear as the two most relevant actions to be executed in the short term, given that these two airlines operate the two largest regional hubs closest to Guyana and Suriname. The importance of establishing talks with these airlines is related with the potential increase in the available opportunities to connect with South American nations, as Bogota and Panama City offer numerous non-stop services to South American countries.

The initiation of talks with Insel Air and Caribbean Airlines to establish new services to Curaçao and Port Of Spain appear as second tier actions to be developed, as they would be aimed to increase the connectivity levels to destinations in the Caribbean and North America.

The talks with TAM are related to the establishment of an operations hub in the Northeast of Brazil, considering the geographical proximity of this region to Europe and Africa. However, the establishment of talks with TAM has a low urgency, given that the current economic slowdown of Brazil will probably delay the settlement of the hub, which was initially planned for late 2016.