

REDEFINING THE FUTURE



A photograph of an air traffic control tower and a radar dish, overlaid with a blue tint. The tower is a multi-story structure with a glass-enclosed observation deck at the top. The radar dish is a large, white, parabolic antenna mounted on a metal stand. A tall communication tower is visible in the background to the right. The sky is blue with some clouds.

TTCAA VISION TO ENSURE THE HIGHEST LEVELS OF SAFETY, SECURITY AND EFFECTIVENESS IN THE TRINIDAD AND TOBAGO AVIATION INDUSTRY.

TTCAA MISSION PROVISION OF A REGULATORY FRAMEWORK TO FACILITATE A SAFE, SECURE AND EFFECTIVE AVIATION INDUSTRY.

SERVICES WITHIN THE PIARCO FLIGHT INFORMATION REGION.

**“ REDEFINING THE
FUTURE MEANS
IMPROVING SAFETY.”**



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THOMAS E. LAWRENCE, NIGEL WILSON, SHELDON BAPTISTE, SONIA FRANCIS-YEARWOOD

The TTCAA welcomes Mrs. Sonia Francis-Yearwood, who was appointed to the Board on September 12, 2019.

MESSAGE FROM THE CHAIRMAN



THERE IS NOTHING STATIC IN CIVIL AVIATION

and as the world turns and ushers the beginning of every new day, in its parallel, Civil Aviation awakens and witnesses a plethora of new, modern, advanced and complex technologies; those technologies that transcend the realm of: "Where No Man Has Gone Before".

Let's imagine the future - which, by the way, is now. ICAO and its Member States are tackling today's most pressing civil aviation challenges, with topics, which include, but are not limited, to the usage of Unmanned Commercial Aircraft (UCA), Unmanned aircraft system Traffic Management (UTM), and the ability to continuously track commercial aircraft over oceanic areas and, of great interest to all of us, the reduction of CO₂ emissions by international air transport.

In the apparent race for the development of these new modern technologies and the concept of operations within the aviation sector, there is still that underlying statement of when, how, who or what would utilize the technology.

The TTCAA, and by extension the Government of Trinidad and Tobago, are fully committed to working in close co-operation with like-minded States to advocate and encourage sustainable development of civil air transportation while ensuring and maintaining the concept of, "No Country Left Behind"

These technologies will REDEFINE THE FUTURE of the TTCAA's long term plan.

CAPTAIN THOMAS E. LAWRENCE
CHAIRMAN

MESSAGE FROM THE DGCA



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REDEFINING THE FUTURE.

Currently when one thinks about the future in aviation and or discusses the future in aviation the discussion inevitably turns to drones and autonomous flight. However, this vision of objects whizzing around transporting goods and people is fundamental to the many years that have passed wherein several persons would have decided that they wanted to do something differently while working in the now - seeing what was possible and making every effort to ensure that it happened.

This is no longer the future, this is now.

The transportation of life-saving drugs, donations of blood, a human heart and food by drones has been given regulatory approval though currently in limited circumstances. It has happened. This we did not think was possible not too long ago.

Within Trinidad and Tobago, we now have to take advantage of these initiatives and develop our human resource so that they can find the space to create products using the technologies that will become available over time as well as using our native talents to create our own useful systems.

No one person has a monopoly on ideas, it is ideas that rule the world, and what will be important in the future is how we embrace the changes that the digital age brings and use them to maximize benefits for ourselves and others.

We, the TTCAA, are here to serve the public and our efforts must be to embrace the technological changes so that they can bring greater benefits to the aviation industry.

Within the last ten years the International Civil Aviation Organization (ICAO) has placed special emphasis on the next generation of aviation professionals. The focus here is on raising awareness of the contribution of the aviation industry and on the performance of the economies of states, particularly small island developing states.

The TTCAA fully endorses ICAO's philosophy with respect to the development of the next generation of aviation professionals as they are the ones, it is expected, who will redefine the future of aviation.

MR. FRANCIS REGIS
DIRECTOR GENERAL



**“REDEFINING
THE FUTURE
MEANS STAYING
UPDATED.”**




GLOBAL AVIATION ECONOMIC REVIEW & OUTLOOK



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GLOBAL ECONOMY: FACTS & FORECASTS

ECONOMIC PERFORMANCE (GDP GROWTH), IMF WORLD ECONOMIC OUTLOOK-JULY 2019 UPDATE:

	2019	2020
 GLOBAL ECONOMY	3.2%	3.5%
 ADVANCED ECONOMIES	1.9%	1.7%
 EMERGING MARKETS AND DEVELOPING ECONOMIES	4.1%	4.7%

This year the world experienced escalating trade wars between the United States of America and China, greater uncertainty over Brexit and civil strife in multiple nations. These have combined to cause a rapid deterioration in global higher-risk investments and have caused market interest rates to further decline. In advanced and emerging market economies, firms and households continue to abide by self-imposed restrictions on long-term spending. This attitude has suppressed global investment and the demand for consumer durables. Consequently, global trade, which is intensive in both machinery and consumer durables, remains sluggish. This is evident in higher inventory levels for unsold goods in the first half of 2019 in most

advanced economies. Activity in various manufacturing sectors around the world has slowed due to the weakened investment climate.

The projected improvement in global growth in 2020 relies on several factors but, most notably, the stabilization of some stressed emerging market economies, such as Argentina and Turkey. It is also crucial to avoid even sharper collapses in others, such as Iran and Venezuela. Approximately 70% of the forecast global growth increase for 2020 is accounted for by projected stabilization or recovery in stressed economies.

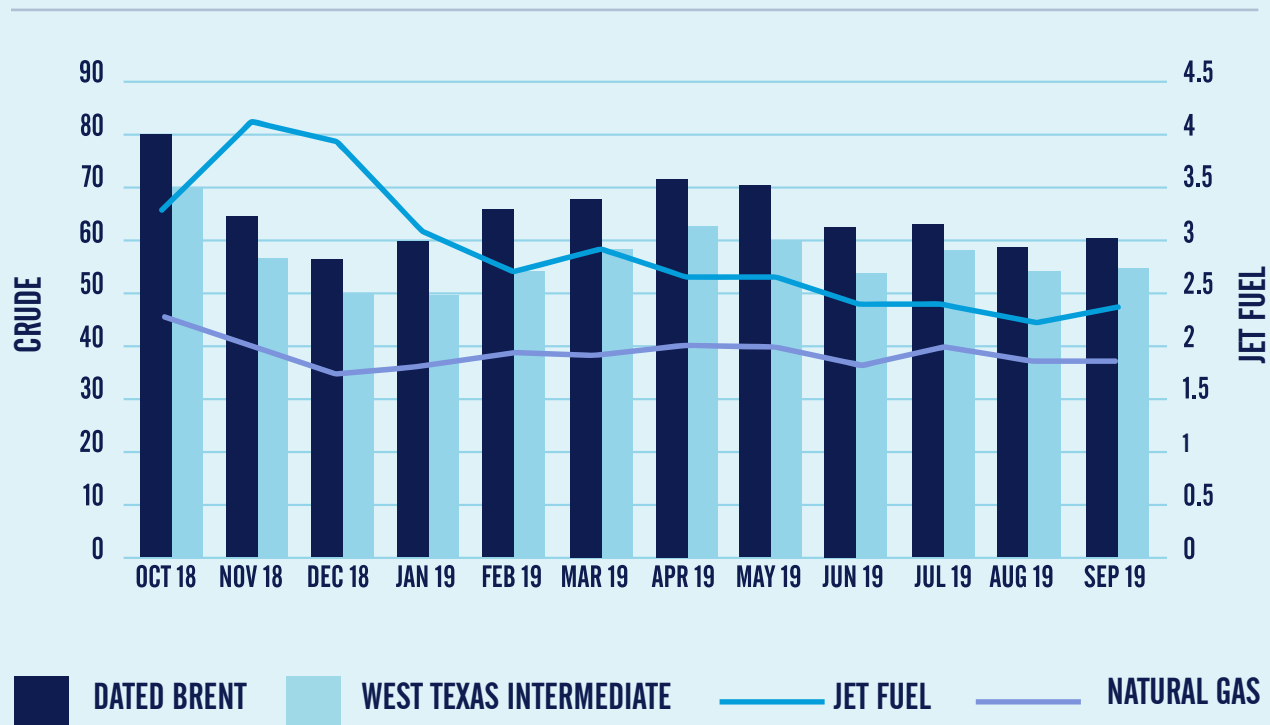
GLOBAL AVIATION ECONOMIC REVIEW & OUTLOOK (CONTINUED)

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OIL, JET FUEL, NATURAL GAS PRICES PER THE US EIA (OCTOBER 2018 — SEPTEMBER 2019):

	DATED BRENT CRUDE	WEST TEXAS INTERMEDIATE CRUDE	JET FUEL	NATURAL GAS
2019	 US\$ 65.03 PER BARREL	 US\$ 57.31 PER BARREL	 US\$01.90 PER GALLON	 US\$2.89 PER mmbtu
2020	 US\$ 65 PER BARREL	 US\$ 59 PER BARREL	 US\$1.87 PER GALLON	 US\$2.75 PER mmbtu

1 YEAR TREND OF CRUDE OIL/ JET FUEL / NATURAL GAS PRICES





The sluggish economic growth forecast for 2020, especially in the advanced economies, has translated to a forecast of contracted demand for oil in 2020. This is compounded by the ongoing US-China trade disputes and the emanating risk of economic slowdown which will be the key factors affecting prices for the rest of this year and in 2020. With China being the largest importer of crude oil, any productivity changes can have a ripple effect on oil demand. The US has also issued sanctions on countries doing business with Iran and Venezuela, two

major oil exporters, although OPEC members should cover any shortfall in supply. With supply remaining fairly stable but demand contracting, oil prices may drop next year.

Natural gas prices had a steady decline starting in June as a result of warmer than normal temperatures globally. This reduced the use of gas for room heating and contributed to above-average inventory injections during these months.

AVIATION INDUSTRY: FACTS & FORECASTS

AIRLINE PERFORMANCE ACCORDING TO IATA AND ICAO

FUEL BILL: 14%

[US \$180 bn in 2018 to \$206 bn in 2019]. Accounted for 25% of total operating costs in 2019; up from 23.5% in 2018. This may decrease in 2020 with geo-political tensions driving the demand for crude downwards triggering an oversupply in the market.

WAGE BILL: 5.3%

[US \$181 bn in 2018 to \$190 bn in 2019]. Wage bill accounted for 23.5% of operating costs in 2018 but moved to 22% this year. Wages may form a larger part of operating costs in 2020 if reduced fuel prices are realized.

FARES: 3.05%

[US \$327 in 2018 to \$317 in 2019]. Despite having higher operating costs, IATA still expects that by the close of this calendar year, the cost of the average return fare would have decreased by US \$10.

DEMAND FOR AIR TRAVEL: 4.7%

The relatively cheaper average fare is a result of the steadily growing demand for air travel. The growth has somewhat slowed in 2019 however and was off-pace with ICAO's long-term forecast of 7% per year. Demand is expected to increase to 5% in 2020.

FLIGHTS: 3.5%

[38.1 million scheduled flights in 2018 to 39.4 million in 2019]. This increase in flights was in response to the increased demand for air travel. ICAO expects that in 2020 history would be made with 40 million scheduled flights operated.

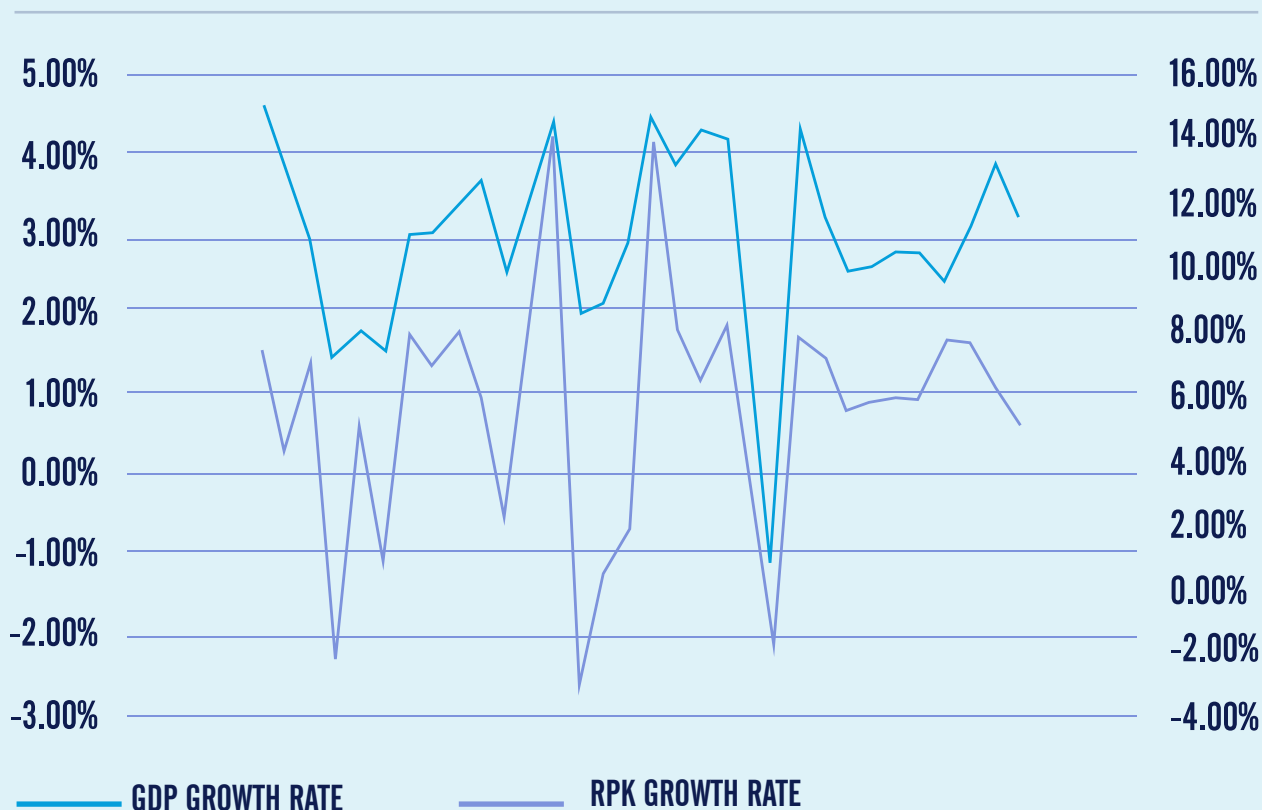
PASSENGER STATISTICS: 5%

[8.33 trillion RPK's in 2018 to 8.75 trillion RPK's in 2019]. Revenue Passenger Kilometres are forecast to increase by 4.5% in 2020. RPK growth has historically resembled GDP growth.

GLOBAL AVIATION ECONOMIC REVIEW & OUTLOOK (CONTINUED)

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ANNUAL GLOBAL RPK GROWTH RATE VS GLOBAL GDP GROWTH RATE



LOAD FACTORS 0.24%

[81.9% in 2018 to 82.1% in 2019].

The average airline load factor increased by 0.2 percentage points because there were 2 million available seats added to accommodate 200 million more passengers. There were 4.38 billion passenger departures in 2018 to 4.58 billion in 2019 and there were 4.4 million available seats in 2018 to 4.6 million in 2019. 2020 should see a minimal increase in percentage points to the average airline load factor as the load factor of the aviation industry remains the highest of all other forms of commercial transportation.

AIR CARGO SIGNIFICANTLY IMPACTED BY TRADE TENSIONS.

Air Freight decreased in all areas over the past year. There was a minor decrease of 0.08% in Freight Tonne Kilometres (FTK's) in 2019. Cargo carriers experienced a decrease in already low load factors from 49.3% last year to 48.2% this year with an average breakeven load factor of 66%. These decreases are expected to continue unless there is a curb in the current trade wars. Notwithstanding the decreases in the air cargo industry, the value of the goods transported by air accounted for 34% of the value of global trade (US\$ 6.74 trillion) whilst transporting less than 1% of the volume of global trade.

**FUEL EFFICIENCY & ENVIRONMENTAL IMPACT 1.75%**

[22.8 litres/100ATK in 2018 - 22.4 litres/100ATK in 2019]. Airlines are achieving greater levels of fuel efficiency. IATA estimates that the 1.75% of fuel saved would have cost US \$3.5 billion. However, due to increased operations, the amount of CO₂ emissions have increased Y-o-Y by 2.5% from 905 million tonnes to 927 million tonnes. This is still just over 2% of global CO₂ emissions. Fuel efficiency is expected to increase by the same rate in 2020 due to newer, more efficient aircraft being put into service.

CONTRIBUTION TO WIDER ECONOMY

The aviation industry contributes 3.6% of global GDP; US \$2.7 trillion.

78 million jobs supported directly and indirectly; a 2.4% Y-o-Y increase.

57% of all tourists travelled by air. That is 756 million tourists.

68% of tourists' expenditure was derived from tourists travelling via air transport: US \$909 billion, a 7.8% increase.

LOCAL AVIATION INDUSTRY: FACTS & FORECASTS**Y-O-Y COMPARISON –
INTERNATIONAL COMMERCIAL FLIGHTS**

	TTPP	TTCP
Total Flights	▲ 7.64%	▼ 7.64%
Inbound Flights	▲ 7.64%	▼ 7.64%
Outbound Flights	▲ 7.64%	▼ 7.64%
Passenger Movement	▲ 7.64%	▲ 7.64%
Inbound Passengers	▲ 7.64%	▲ 7.64%
Outbound Passengers	▲ 7.64%	▲ 7.64%

Passenger movement to/from both islands experienced growth compared to the same period last year. Of all passengers departing Trinidad, 57% were destined to North America. Of passengers departing Tobago, 75% were destined to Europe, namely London. With the political and potential civil disturbances facing both countries next year - Brexit and US election campaigning, coupled with the IMF's projected economic decline in both economies - there may be a negative effect on travel from Trinidad

and Tobago. Growth in passenger movement is expected to be lower than the growth rates experienced this year.

With the decline in the global air cargo markets due to trade wars, it is no surprise that the local air cargo industry has declined in 2019 over 2018. This year, there was an 8% decrease in the amount of cargo transported to/from Trinidad and Tobago. Whilst the outbound cargo sector declined only by 1%, the inbound cargo sector declined by 12%. The data submitted by air cargo operators show that over the past 4 years, the amount of cargo transported has declined at an average rate of 13% per year. A further decline in cargo movement is expected in 2020 as the international trade wars continue and local access to foreign exchange becomes more restrictive and affects local imports.

The humanitarian, economic and political stresses plaguing Venezuela have intensified political tensions, especially with NATO Member States. Since its rapid escalation in October 2018, the TCAA has noted that more air

GLOBAL AVIATION ECONOMIC REVIEW & OUTLOOK (CONTINUED)

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107,133 FLIGHTS

▲ 6.4% (Y-O-Y)

Types of Aircraft in the FIR

Wide Body	35%
Narrow Body	36%
Turboprop	14%
Business Jet	07%
All Freighter	08%
Military	01%

8.26% INCREASE IN REVENUE GENERATING CAPACITY

Y-o-Y % Departing change from

▲ 01	Africa
▲ 01	Caribbean
▲ 90	Central America
▲ 06	Europe
▲ 12	North America
▲ 11	South America

TOP 5 IN THE PIARCO FIR:

Aircraft	Users <i>(based on distance travelled)</i>
1) B738	American Airlines
2) B763	Caribbean Airlines
3) ATR72	TAM Linhas Aerea S.A.
4) B772	Delta Airlines
5) A332	Groupe Air France

operators seem to be using the Piarco FIR rather than the neighbouring Venezuelan airspace, especially on flights between North and South America as this is where the major increases have occurred.

This year there were 107,133 flights - 6.4% more than the previous year. This is the largest number of flights ever recorded to have transited the Piarco FIR during a fiscal year. This reflects the effect that the crisis in Venezuela has had on the Piarco FIR. The flights traversing the airspace that originate in North and South America have experienced growth rates over the past year that far exceed their 10-year averages. The 10-year average growth rate for flights originating in South America is 03% whereas the growth over the past year was 12%. For flights originating in North America, the 10-year average was 07%

and the past year realized 09% growth. With no foreseeable end to the Venezuelan crisis, the TTCAA expects that the number of flights within the airspace in 2020 will continue to exceed all previous forecasts.

Most macroeconomic indicators point towards growth, albeit slower growth, in the aviation sector in 2020. This growth however, is dependent on the abatement of global trade wars and other political tensions as well as economic recovery in some of the world's most stressed economies. The aviation sector could be shocked by sudden changes to its present reality or worsening of these macroeconomic factors. The TTCAA must therefore continue to closely monitor such factors as these factors influence policy formulation and short-term planning.

“ REDEFINING THE FUTURE
MEANS DEVELOPING A
LEGISLATIVE FRAMEWORK
TO ENABLE CHANGES
NEEDED FOR AVIATION.”



CORPORATE SECRETARY / LEGAL OFFICER



The TTCAA continues to forge ahead into the future under its visionary leadership, increasing its focus on enhancing processes, procedures and systems. This shift in direction will serve to further complement the passion, drive and dedication that already exist among its employees, and produce a dynamic and flexible work environment that can more effectively respond to the needs of stakeholders.

The office of the Corporate Secretary/Legal Officer (CSLO) functions as a central nervous system in this regard and plays a key and supporting role in every function undertaken by the TTCAA.

Adherence to best practice in good governance is a critical aspect of any transformative venture and ensuring such adherence continues to be a major function of the office of the CSLO. This is evident by the role of the CSLO in the procurement process. Over the course of the financial year, the CSLO's office coordinated six (6) Tenders and Requests for Proposal exercises.

Another critical function is the coordination of meetings, attendance and advice at meetings and the preparation of clear, concise and accurate minutes. In this regard, the CSLO provides support to all committees of the Board, the Pension Plan Management Committee and the Health and Safety Committee. The maintenance of records and interaction with auditors is another of the unit's critical activities.

The office of the CSLO continues to lend its expertise to all operational divisions of the TTCAA in the provision of legal advice and drafting of legal documentation. Specifically, support is provided to the Safety Regulation Division in enforcement actions, to the Air Navigation Services Division in ensuring the required performance of contractual obligations by suppliers of the state of the art equipment purchased by the TTCAA, and to the Human Resources Department in industrial relations matters.

The office of the CSLO has also sought to strengthen its in-house capacity by participating in various training programmes covering diverse areas, including mediation, industrial relations, corporate governance, risk management and public procurement.

Finally, the CSLO successfully maintained the TTCAA's participation in and exposure to the international aviation law arena by active attendance at the International Air Transport Association's Legal Symposium and the Latin American and Caribbean Air Transport Association's Aviation Law Americas Conference, both held in 2019.

The above functions and activities ensure that the TTCAA remains au courant of innovations in the industry so as to be well prepared as it moves towards **"REDEFINING THE FUTURE"**.

A woman with dark hair pulled back, wearing a dark blazer over a patterned top, sits at a wooden desk. She is smiling at the camera. Her hands are clasped on a stack of papers. A laptop is visible on the left, and a pen lies on the papers. The background shows a modern office with large windows.

**“ REDEFINING
THE FUTURE
MEANS BEING
PROACTIVE
RATHER THAN
REACTIVE.”**

INTERNAL AUDIT DEPARTMENT



The Internal Audit Department (IAD) serves the TTCAA through the provision of independent assurance reviews as outlined in the Board approved Internal Audit charter which defines the purpose, authority and responsibility of the internal audit function.

The independence of the IAD is strengthened by the direct functional reporting line to the Finance and Audit Committee of the TTCAA Board.

For the fiscal year 2018 – 2019 the IAD strategic initiatives focused on specific business process reviews, Enterprise Risk Management (ERM) and Corporate Governance.

AUDIT ENGAGEMENTS

For the fiscal year 2018 – 2019 the IAD conducted the following audit engagements, the findings and recommendations of which were presented at FAC and Board meetings.

1. Review of the Tender Evaluation Process
2. Review of the Corporate Governance Framework
3. Review of the Vacation Leave Process
4. Salary Review Exercise and Pension Cards
5. Review of Human Resources policies and procedures
6. Review of monthly Automated Clearing House transactions
7. Review of Pension card reviews for retirees
8. Review of the Finance and Accounting document management system



ENTERPRISE RISK MANAGEMENT

The TTCAA engaged the services of an Enterprise Risk Management (ERM) subject matter expert to edify the Management of TTCAA on the critical factors and policy documents required for the development of a structured risk management framework. The IAD was actively involved in these discussions and in the development of pertinent risk management policy documents.

The ERM framework is fundamental to inculcating a risk and internal control culture within the TTCAA. The development of a risk register, risk tolerance matrix and risk response plan is mandatory to the ERM process and by extension the streamlining of the IAD Audit Plan into a Risk-based Audit Plan.

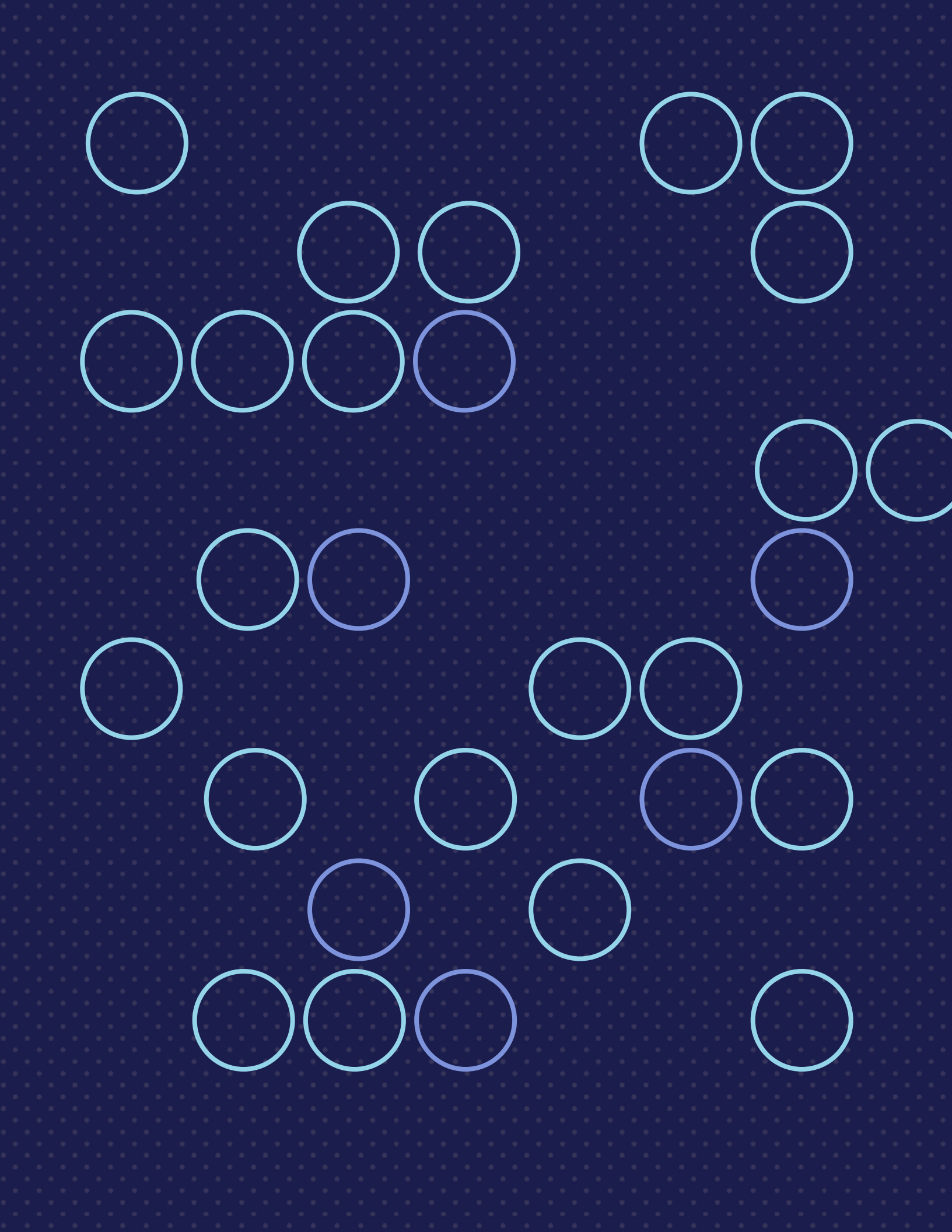
It is expected that the new ERM framework would significantly change the corporate approach and response to risk within the TTCAA.

It is imperative that the IAD continuously provides the TTCAA with sound independent professional advice. The IAD is committed to the adherence of the guidance and standards of the internal audit profession and would continue to guide the TTCAA on matters relating to governance, risk management and best practices in internal controls.

CORPORATE GOVERNANCE

In redefining the strategic focus towards the strengthening of the Corporate Governance framework within the TTCAA, the IAD conducted a detailed Corporate Governance review on the TTCAA policies and practices. The report that was presented to the FAC provided recommendations for areas within the TTCAA that the Corporate Governance framework can be enhanced and strengthened.

Based on the recommendations provided by the IAD, the TTCAA has pledged its commitment to critically review its policies and practices to augment its corporate governance structure.





AIR NAVIGATION SERVICES

AIR NAVIGATION SERVICES

For the Air Navigation Services Division (ANS), redefining the future involves a renewed commitment to the provision of an excellent air navigation service within the Piarco Flight Information Region.

Looking ahead, the focus of the Division would be to capitalize on the proficiency and expertise of its people whilst leveraging on the developments in air navigation technology to continuously improve the standard and quality of the service provided to its stakeholders.



ATS AND ANS SAFETY



As the operating year closes, ICAO will convene the 40th Triennial Assembly, where its 193 contracting States and many international organisations would establish the worldwide aviation policy for the next three years. The Assembly is expected to further develop on the technical work that was executed at the following conferences:

- ICAO Global Air Navigation Industry Symposium (GANIS) and Safety and Air Navigation Implementation Symposium (SANIS) that was held in Montréal, Canada (2017).
- ICAO Thirteenth Air Navigation Conference that was held in Montréal, Canada (2018). (Trinidad and Tobago chaired the Technical Committee at this meeting)

It is expected that the 40th Triennial Assembly would focus on the comprehensive strategies for Air Navigation inclusive of but limited to The Global Air Navigation Plan and The Global Air Safety Plan. These pertinent documents would consider the evolution of the air navigation system up to 2040 and beyond.

ICAO has aligned its strategic objectives with the United Nations Sustainable development goals and as a contracting State of ICAO, Trinidad and Tobago is cognizant of the value of aligning its goals and operations to the global strategies and objectives. Notwithstanding the aforementioned, Trinidad and Tobago as a state is fully aware of the challenges and constraints involved in balancing the requirements of numerous stakeholders and the local constraints in realizing the objective of the provision of an effective and efficient air traffic management, which requires harmonization of the key elements within the aviation system.

The services provided by the ATS and ANS Safety Department are central to the operations of the TTCAA and to the stakeholders that are directly impacted by the air navigation services provided by the air traffic controllers.

The upgrade to the CNS/ATM system has commenced and is scheduled to be completed in the second quarter of 2019-2020. The CNS/ATM upgrade involves a complete change-out of all hardware and software. The application of change management principles was critical for the transitional process to be effective and seamless for both the air traffic controllers and the operators. The TTCAA has invested heavily in ensuring that the air traffic controllers are appropriately trained in the new technologies.

In a rapidly changing and increasingly complex aviation environment, it is critical that air navigation service providers upgrade their systems to align with modern technology. However, the management of the human resource asset is the most critical aspect of aviation safety and air traffic services proficiency. Through the hard work and commitment of the ATS and ANS Safety Department, a sustainable training and development system was implemented which focused on business continuity initiatives for the human resources complement of the department. It is envisaged that the program would effectively treat with potential loss of trained air traffic controllers as a result of attrition and retirement. To date, this training and development system has been effective as a result of staff commitment. The ATS and ANS Safety Department is committed to working in tandem with the Human Resources Department in recruitment and selection, performance management and succession planning initiatives to ensure the highest standard of excellence is maintained. Greater collaboration is expected between the ATS and ANS Safety Department

ATS AND ANS SAFETY (CONTINUED)

and the Civil Aviation Training Centre with respect to the training and development of air traffic controllers.

The implementation of risk mitigation strategies is crucial to the provision of an uninterrupted air traffic service. Synergies must exist between the systems and process to ensure the inherent risk factors are identified and managed. For the fiscal period 2018 – 2019 the TTCAA was able to effectively manage the unforeseen circumstances that posed a challenge to the provision of air navigation services.

Concerted efforts were made by the ATS and ANS Safety Department in incrementally evolving the safety management processes. The Department has progressed on the development of documentation necessary for ANS certification and on implementing a Hazard Identification database in addition to other data collection processes.

The analysis of safety incidents has further developed as a result of greater collaboration, data sharing and data exchange with key stakeholders. This has resulted in an overall improvement in the services provided. The work executed by the ANS Safety Management Unit within the past year is well aligned to the strategic priority of the TTCAA with respect to risk.

The TTCAA remains committed to the implementation of an Enterprise Risk Management framework to effectively manage the risk factors that can affect the aviation industry.

In redefining the future it is important that the TTCAA continues to align its strategies to national plans that are aligned with the global air navigation and safety plans.



A photograph of two men working at a control console, likely in an aircraft cockpit or a maritime control room. The man in the foreground is wearing a blue polo shirt with a logo and glasses, pointing at a screen. The man in the background is wearing a teal polo shirt and a black cap. The console has various controls, including a keyboard and a joystick. The background shows a view of the sky and some structures.

“REDEFINING
THE FUTURE
MEANS
INCREASED
EFFICIENCY
& BETTER
SYSTEMS.”

TOBAGO HIGHLIGHTS

REPLACEMENT OF THE TOBAGO LOCALIZER

Performance Based Navigation (PBN) is a vital component of the International Civil Aviation Organization (ICAO) Aviation System Block Upgrade (ASBU). However, until there is full Performance Based Navigation (PBN) fleet capabilities within the Piarco airspace, conventional navigational aids such as the Doppler Very High Frequency Omni range (DVOR), Distance Measuring Equipment (DME) and Instrument Landing System (ILS) would continue to service the air traffic within Trinidad and Tobago.

The DME is used by aircraft to determine their distance from a known reference point. When co-located with a DVOR, an aircraft can determine its bearing and distance relative to the known position. A DME that is paired with an ILS provides the distance from the runway threshold. The Localizer is one component of the ILS which provides lateral guidance.

In the fiscal year 2018 – 2019, TTCAA commenced the upgrade of three (3) DMEs and the Localizer at the ANR Robinson Airport, Tobago.

The upgrades are expected to be completed within this fiscal year, after which the new equipment will be commissioned by flight inspections.



NEW EQUIPMENT ROOM

The TTCAA commenced the upgrade of the air navigation equipment for both Trinidad and Tobago. Through the collaborative efforts of the Communication and Navigation Surveillance (CNS) Department and the Property Maintenance and Engineering Department (PME), a space in the Tobago Tower was re-purposed to house the new air navigation equipment.

REPLACEMENT OF SPECIALIZED SHADES

Specialized transparent plastic roller shades are utilized to reduce the direct and reflective glare from the sun in addition to temperature control in the ATC towers in Trinidad and Tobago.

The shades assist in reducing the discomfort associated with glare and reflection caused by the sun on radar screens and other display equipment. Additionally, the glare can negatively impact the air traffic controller resulting in eye strain, stress and fatigue.

In the fiscal year 2018 – 2019, the specialized shades were procured and installed in both Towers to reduce the negative impact of the glare and reflection on the air traffic controller and the specialized equipment. The specialized shades procured were in compliance with the specifications adopted from the Federal Aviation Administration which uses primary and secondary shades for glare control.

AERONAUTICAL INFORMATION MANAGEMENT (AIM)



In the global environment of air traffic management (ATM) system, aeronautical information services (AIS) has become one of the most valuable and important enabling services. Computer-based navigation systems, area navigation, required navigation performance (RNP) and ATM requirements created a need for new consequential AIS requirements relating to quality and timeliness of the provision of information. It was critical that the AIS evolved into an information service, comprising changing duties, responsibilities and scope to satisfy these new requirements and to manage the provision of information.

Better aeronautical information is essential for the implementation of an integrated, harmonized and inter-operable ATM system that enables air navigation service providers to safely handle greater levels of traffic in the same amount of airspace during the same amount of time. It is also essential for the establishment of a flexible ATM system that reduces costs and environmental impacts while improving access to congested airspace and remote airports. Due to the safety-critical nature of aeronautical information and in order to prevent diverging developments, ICAO developed a strategy for global application. This strategy, which is contained in the Roadmap for the Transition from AIS to AIM, is designed to guide the evolution from the traditional, product-focused AIS to the enlarged scope of the data-centric aeronautical information management (AIM).

The Roadmap is intended to expand on and provide additional guidance as stated in ICAO's Global Air Navigation Plan (GANP) with regard to the future development of aeronautical information, as necessitated to support the Global Air Traffic Management Operational Concept. It supports the strategic objectives of ICAO as detailed in the GANP, in particular global plan initiatives (GPIs) 18 – Aeronautical Information

and GPI 20 – WGS-84. It serves as a strategic positioning initiative to drive the continuing improvement of aeronautical information services and sets a baseline for the establishment of strategies to advance AIM objectives globally. It specifies the major milestones required for a uniform evolution across all regions of the world and specific steps to be followed, including timelines for implementation. It provides for the introduction of new products and services in a data-centric environment and an increased emphasis on better data distribution in terms of quality and timeliness in order to satisfy the evolving information requirements of airspace users and the ATM community.

ICAO's Roadmap for its contracting States to transition from Aeronautical Information Services (AIS) to Aeronautical Information Management (AIM), is shaping the future in which aeronautical data is managed as digital technologies evolve to cater to the needs of the global aviation community.

The quality and integrity of aeronautical data and its management is a key driver to achieving and maintaining safety objectives. The Units of AIM Department are currently working with the guidelines contained in the Roadmap to implement the phases of transition.

QUALITY MANAGEMENT SYSTEM (QMS) & ISO 9001 CERTIFICATION

The AIM Quality Assurance Unit maintains a Quality Management System (QMS) that is certified in accordance with the ISO 9001 Standard. This satisfies the ICAO requirement for the establishment and maintenance of an effective QMS in the AIM Department and provides assurance that the stringent data quality requirements are met in tandem with the developments in global air navigation.

AERONAUTICAL INFORMATION MANAGEMENT (AIM) [CONTINUED]

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Improvements of the AIM QMS and the reduction of deficiencies are incorporated into the activities of the AIM staff. Annual surveillance audits are conducted by the contracted Certification Body to ensure that the system is being maintained and more importantly, improved. The next external audit is scheduled to be conducted in February 2020 by the ISO 9001 Certification Body.

The ISO certified QMS results in increased effectiveness and efficiency in AIM processes and improves customer satisfaction amongst its stakeholders.

TRAINING

The management of flight plans, NOTAM and Meteorological messages are controlled by a software platform. A new software platform (CRONOS) will be introduced which will facilitate Digital NOTAM and improvements in the processing of flight plans and meteorological messages. A simulation of the CRONOS software was received from the software provider. In preparation for training to be conducted by the software provider in September-October 2019, the Operations Unit staff is currently familiarizing themselves with the simulated CRONOS software.



To facilitate the AIM QMS, the application of procedures that guide work processes are continually monitored to track any occurrences which may affect safety. Consequently, training programs have been developed to address and mitigate recurrences.

GEOMATICS UNIT DEVELOPMENT

The phase on the Roadmap for the management of obstacle and terrain data in tandem with the production of electronic aeronautical charts, resides within the Geomatics Unit.

The Unit is relatively new in its development and a Geomatics Officer I was appointed in 2019. The TTCAA continues to train and develop this subject matter expert to fulfil the needs of Trinidad and Tobago as an ICAO Contracting State and custodian of the Piarco FIR.

The requirements for the use of advanced spatial data sets in the aviation industry, in particular for development of Electronic Terrain and Obstacle Data (eTOD) and Aeronautical Charts, are stated in the ICAO Global Air Navigation Plan (GANP) and in revised Annex 4 and Annex 15 documentation to include products that require these specialist datasets.

The AIM Geomatics Unit fulfils these spatial data requirements through the implementation of new digital Aeronautical Products from the use of Geographical Information Systems (GIS). The Unit implements the newest technology for data collection and uses associated software to fulfil the TTCAA's charting responsibility. Equipment and software necessary for the Unit to fulfil these functions are currently being procured.

The expertise and capability within the Geomatics Unit form a bridge for collaboration with stakeholders for the development of eTOD for the benefit of Trinidad and Tobago.

AIM DEPARTMENT STAFFING

The AIM Human Resource Developmental Plan was developed for the period 2019 to 2021 to address the minimum staffing requirements. The transition from AIS to AIM will require a new skill set for personnel to function in the department.

To adequately address the needs of the AIM Department within the period 2019-2021, a proposal for changes to the AIM Organizational Structure together with justifications were submitted for the consideration and approval of the Director General of Civil Aviation (DGCA) and the Board.

ANS CERTIFICATION

The Safety Regulation Division (SRD) has the responsibility to ensure that the Air Navigation Services Provider is evaluated and certified in accordance with the local regulations. This includes the evaluation of all documentation regarding the administration and operations of respective Departments.

In keeping with the objective of ANS Certification, the AIM Department submitted the Manuals which guide its functions to the SRD for approval. The Department is in the demonstration phase with the SRD.

AERONAUTICAL MESSAGE HANDLING SYSTEM /AERONAUTICAL INFORMATION SERVICES SYSTEM (AMHS / AISS) CONTINGENCY PLAN

A contract was awarded to IDS-NA for an AMHS/ AISS contingency in collaboration with the Dutch Caribbean Air Navigation Service Provider (DC-ANSP) (Curaçao) on 21 December 2019. This contract is the realization of the Fourth Meeting of the Piarco FIR Policy Group which took place in January 2011. Both ANSPs are ensuring no service interruption through this cooperative and collaborative agreement to share aeronautical data and to provide disaster recovery capabilities to each other, in the event of failure or interruption of service at either TTCAA or DC-ANSP. This contingency will be the first of its kind in the region.

The TTCAA is responsible for the management, dissemination, and distribution of Aeronautical Information Services (AIS) on behalf of the Eastern Caribbean states while DC-ANSP is responsible for Aruba, Bonaire, Saba, Saint Eustatius, Saint Martin, and Curacao. This would ensure continued operations regarding the processing and transmission of flight plans, NOTAM and Meteorological messages should a natural disaster or equipment outage occur that would result in TTCAA AIM systems becoming inoperable.



COMMUNICATION NAVIGATION SURVEILLANCE (CNS)



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The CNS Department provides services within the Piarco FIR/CTA/UTA including Trinidad and Tobago. The continental airspace is that area West of 57° W along the Eastern Caribbean States and bordering the FIRs of New York to the North, San Juan to the North-West, Maiquetia to the South-West and Georgetown to the South. The strategic objectives of the CNS Department are aligned with the global air navigation priorities and agreed regional performance-based metrics established in the North American/Caribbean (NAM/CAR) Regional Performance Based Air Navigation Implementation Plan (RPBANIP).

AUTOMATIC DEPENDENT SURVEILLANCE – BROADCAST/WIDE AREA MULTILATERATION (ADS-B/WAM) – CONTINENTAL AIRSPACE

The Twelfth International Civil Aviation Organization (ICAO) Air Navigation Conference endorsed the Aviation System Block Upgrades (ASBU) to provide a framework for global harmonization and interoperability of seamless Air Traffic Management (ATM) systems. Among the Block Upgrades, the Block 0 module “Initial Capability for Ground Surveillance” recommended States to implement ADS-B, which provides an economical alternative to acquiring surveillance capabilities, especially for areas where it is technically or commercially not feasible to install radars.

COMMUNICATION NAVIGATION SURVEILLANCE (CNS) (CONTINUED)

30

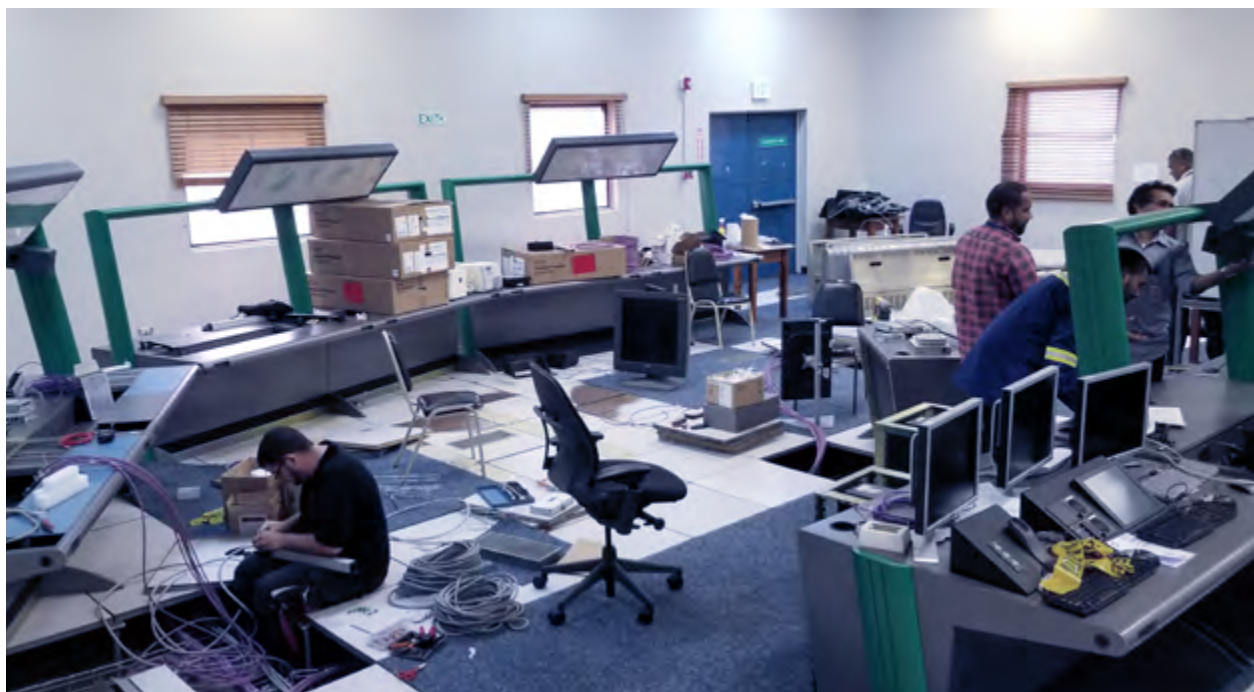
The TTCAA Board approved the open tendering process for the procurement and implementation of Automatic Dependent Surveillance – Broadcast (ADS-B) within the continental airspace, and Wide Area Multilateration (WAM) in the South Sector of the Piarco Flight Information Region (FIR). ADS-B is a surveillance technique that uses on-board avionics subsystems, which incorporate Global Navigation Satellite Systems (GNSS) positioning systems, interface to flight management systems and a transponder to broadcast aircraft position and supplementary information on a regular basis. WAM is an independent ground-based surveillance technique that uses aircraft transponder transmissions (Mode A/C, Mode S or ADS-B). Multilateration which relies on signals from an aircraft's transponder being detected at a number of receiving stations to locate the aircraft.

The International Civil Aviation Organization (ICAO) Technical Co-operation Bureau (TCB) was contracted to provide the following services:

- Preparation and finalization of the technical specifications
- Preparation and issuance of the tender documents
- Conducting the tender
- Attending the technical bidders meeting
- Evaluating the bids
- Recommending the contract award

The implementation of ADS-B/WAM will provide a second source of surveillance in keeping with the surveillance concept for the Piarco FIR which recommends at least two (2) sources of surveillance within the same coverage area.

The final report from the ICAO TCB is expected by the end of the fiscal year. The project has a forecasted implementation time-frame of eighteen (18) months from award of contract.





CNS/ATM SYSTEM UPGRADE

Subsequent to the award of contract to Leonardo S.p.A in May 2018 for the upgrade of the CNS/ATM System a technical team from the TTCAA met with Leonardo's software designers and engineers to agree on the human machine interface (HMI) customization requirements. The final sign off on the customization took place in Trinidad during the period 20-23 November 2018.

During the Critical Design Review phase of the project it was agreed to include additional items to the scope of supply, specifically equipment and installation materials, in order to not compromise the operation of the system during the update. This additional scope of supply generated a great benefit for the system's performance. This also resulted in an inevitable extension of the project timeline.

The equipment installation commenced in June 2019. The upgrade and customization of the

Piarco CNS/ATM system is in alignment with the Regional e-ANP and ICAO's ASBU methodology and will provide an enhanced level of safety and proficiency in the FIR.

UPGRADE OF THE EASTERN CARIBBEAN (E/CAR) AERONAUTICAL FIXED SERVICES (AFS) NETWORK

The E/CAR AFS Network is a closed network in accordance with ICAO's standards. It is used to transport Air Navigation Services voice and data among the States of the Eastern Caribbean and United States of America. The Network comprises equipment and circuits. The equipment is owned by the TTCAA and managed by Telecommunications Services of Trinidad and Tobago (TSTT) under a Labor and Maintenance Agreement, which includes proactive monitoring of the Network as well as fault reporting and resolution services. The network was last upgraded in 2009. Upgrades are necessary to keep current with user requirements and technological advancements.

COMMUNICATION NAVIGATION SURVEILLANCE (CNS) [CONTINUED]

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In October 2018, the TTCAA Board approved an upgrade of the E/CAR/AFS Network. The upgrade will address recommendations for improvement made by:

- States at the E/CAR Network Technical Group (NTG) meetings;
- Security protocols to manage internet access for fallback web based application for the AMHS and AISS;
- Network management diagnostics;
- Technology advancements of the voice and surveillance data applications for new user requirements.

The upgrade is expected to be completed within the 2nd quarter of 2020.

UPGRADE OF NAVIGATIONAL AIDS

Notwithstanding that Performance Based Navigation (PBN) is a vital part of the ICAO ASBU, until there is full PBN fleet capabilities within the Piarco airspace there will be need for a mixed-mode capability environment to service the traffic within Trinidad and Tobago. Analysis of Global Navigation Satellite System (GNSS) vulnerabilities in relation to GNSS elements requires commensurate mitigation/contingency procedures. Conventional navigational aids like the Doppler Very High Frequency Omnidirectional Range (DVOR), Distance Measuring Equipment (DME) and Instrument Landing System (ILS) will continue to be available as ground based contingency for many years to come.



A man and a woman are in a control room. The man, wearing a white shirt and glasses, is seated and looking at a large screen. The woman, wearing a blue blazer over an orange top, is standing and leaning over his shoulder, also looking at the screen. The screen displays a complex network diagram with various nodes and connections. In the foreground, there is a desk with a computer mouse and a telephone. The background shows more screens and equipment, suggesting a professional environment like a data center or a network operations center.

**“ REDEFINING THE FUTURE
MEANS DATA COMMUNICATION
INSTEAD OF VOICE COMMUNICATION.”**

AIR NAVIGATION SERVICES PLANNING AND DEVELOPMENT (ANS P&D)

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The Air Navigation Services Planning and Development (ANSPD) Department is responsible for planning, developing and coordinating the implementation of the various Air Navigation Services (ANS) strategies contained within the TTCAA's corporate plan. These modernization initiatives are aligned with the Regional Performance Objectives (RPOs) specified within the International Civil Aviation Organization (ICAO) North American, Central American and Caribbean Region (NAM/CAR) Regional Performance Based Air Navigation Implementation Plan (RPBANIP), and are aimed at ensuring that the TTCAA ANSP continues to provide the highest levels of air navigation services to the global aviation community.

The main objectives of the ANSPD for fiscal year 2018-2019 were Safety, Capacity, Efficiency and Environmental. These objectives were achieved through:

- Coordinating the implementation of the Piarco Flight Information Region (FIR) PBN Airspace Concept.
- Development of RNAV Standard Instrument Departures (SIDs) and Standard Instrument Arrivals (STARs) for the Piarco and ANR Robinson International Airports.
- Coordinating the implementation of a basic ATFM Service within the Piarco FIR and contributing to the global collaborative Air Traffic Management system.
- Development of an overarching Air Navigation Plan for both the Trinidad and Tobago National Airspace and the Piarco FIR.

ANS CERTIFICATION

The ANSPD Department has successfully completed all stages in the ANS Certification project and is currently under general surveillance by the TTCAA Safety Regulation Division. This process required the development of

Administrative and Operational Manuals as well as Standard Operating Procedures (SOPs) documentation which were completed by ANSPD personnel.

COORDINATING THE IMPLEMENTATION OF THE PIARCO FLIGHT INFORMATION REGION (FIR) PBN AIRSPACE CONCEPT.

Performance-Based Navigation, or PBN, is a concept that is redefining flight navigation within the Piarco FIR, utilizing Global Navigation Satellite Systems (GNSS) and computerized on-board systems. This is in contrast to traditional sensor-specific navigation based largely on fixed ground-based beacons guiding aircraft along published routes via waypoints defined by these beacons.

PBN is the highest air navigation priority of the International Civil Aviation Organization (ICAO) and is an important element of the ICAO Aviation System Block Upgrades (ASBUs). The implementation of PBN is equally of high priority for the TTCAA. PBN enhances safety, improves efficiency and reduces the negative impact of aviation on the environment.

In addition to the four (4) new upper level PBN routes (UL452, UL776, UL462, and UL576) implemented on August 17th 2017, three (3) new upper level PBN routes (UT349, UL329, and UL454), were implemented in the Piarco Continental airspace on 31 January, 2019. The implementation of these upper level RNAV routes has already provided significant improvements to airline operators flying from North America to South America and back. These straighter direct routes to destinations resulted in a reduction of fuel, flight time and carbon emissions for the airlines. The implementation of these routes also assisted in the reduction of air traffic congestion at the Piarco/Georgetown FIR Boundaries. Since the implementation of



the three (3) new RNAV routes, approximately one thousand four hundred (1,400) aircraft have used them.

Based on data collected between the period 1 May, 2019 and 30 June, 2019, airlines saved approximately four hundred thousand (400,000) pounds of fuel with a reduction of approximately one million three hundred and twenty thousand (1,320,000) pounds of harmful carbon emissions by flying on the major RNAV routes UL452 and UL776.

Collaboration with the Terminal Areas (TMAs) within the Piarco FIR to connect the developments in the upper airspace with the lower airspace continued during the year.

DEVELOPMENT OF RNAV STANDARD INSTRUMENT DEPARTURES (SIDS) AND STANDARD INSTRUMENT ARRIVALS (STARS) FOR THE PIARCO AND ANR ROBINSON INTERNATIONAL AIRPORTS.

The development of Standard Instrument Departures (SIDs) and Standard Instrument Arrivals (STARs) for both the Piarco and ANR Robinson International Aerodromes is currently being undertaken by the Airspace and Procedure Design Unit (APDU). Changes were made to the ICAO regulations for the design process and the APDU staff successfully completed the necessary flight procedure design training in the relevant technical areas in July 2019.

The initial designs of the proposed SIDs and STARs are expected to be finalized by December 2019, pending the acquisition of the necessary obstacle and terrain data required for conducting evaluations to ensure that the applicable safety standards are met. These procedures are aimed at reducing pilot/controller workload, improving both the safety and efficiency

of the Approach Control Service provided at both airports as well as reducing the impact on the environment of aviation operations. Collaboration between the relevant stakeholders, including Flight Procedure Designers, ATS operations and Airline operators, will continue on these initiatives.

IMPROVING EFFICIENCY AND EFFECTIVENESS OF AIR TRAFFIC MANAGEMENT USING ATFM.

Whilst efforts continue towards full implementation of the concept of operations document for ATFM at the Air Navigation Services Division, the daily functions are provided by members of the ANSPD from Monday to Friday.

When fully implemented, ATFM services will be available through an air traffic control officer on shift, seven days of the week. The efforts in ATFM are aimed at satisfying ICAO ASBU Performance Improvement Area Three (3) – Optimum capacity and flexible flights – through global collective Air Traffic Management, and improved air traffic movement through a planning process, based on a network wide view.

The network consists of all the regional airspaces transitioned daily between departure airports and destinations. CANSO ATFM Data Exchange Network for the Americas (CADENA) provides information on key elements that affect Air Navigation. Therefore information such as volume of aircraft, CNS infrastructure, staffing and weather conditions and other constraints, are provided daily to all stakeholders. This is further supplemented by weekly teleconferences that address the conduct of flights over the weekend period, typically the busiest across the CADENA FIRs. Airlines are prominent players in the CADENA Operational Information System and they assist in redefining the way all the data is presented.



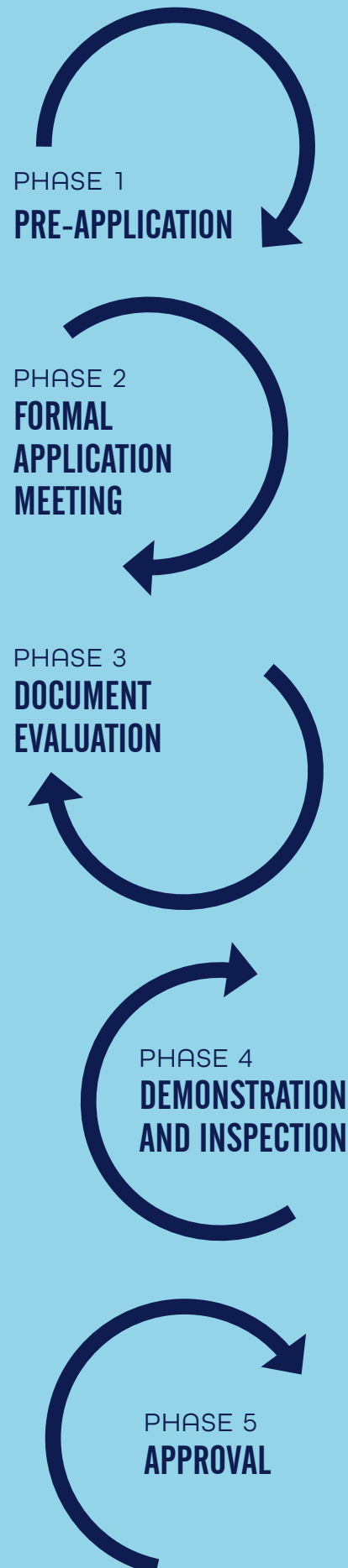
In November 2018 Trinidad and Tobago submitted its national Air Navigation Plan (ANP) to the ICAO North American, Central American and Caribbean (NACC) office. The ANP defines the Air Navigation objectives of the TTTCAA ANSP for the next three (3) to five (5) years. This facilitates alignment with both global and regional objectives to ensure the greatest degree of coordination and interoperability with other States.

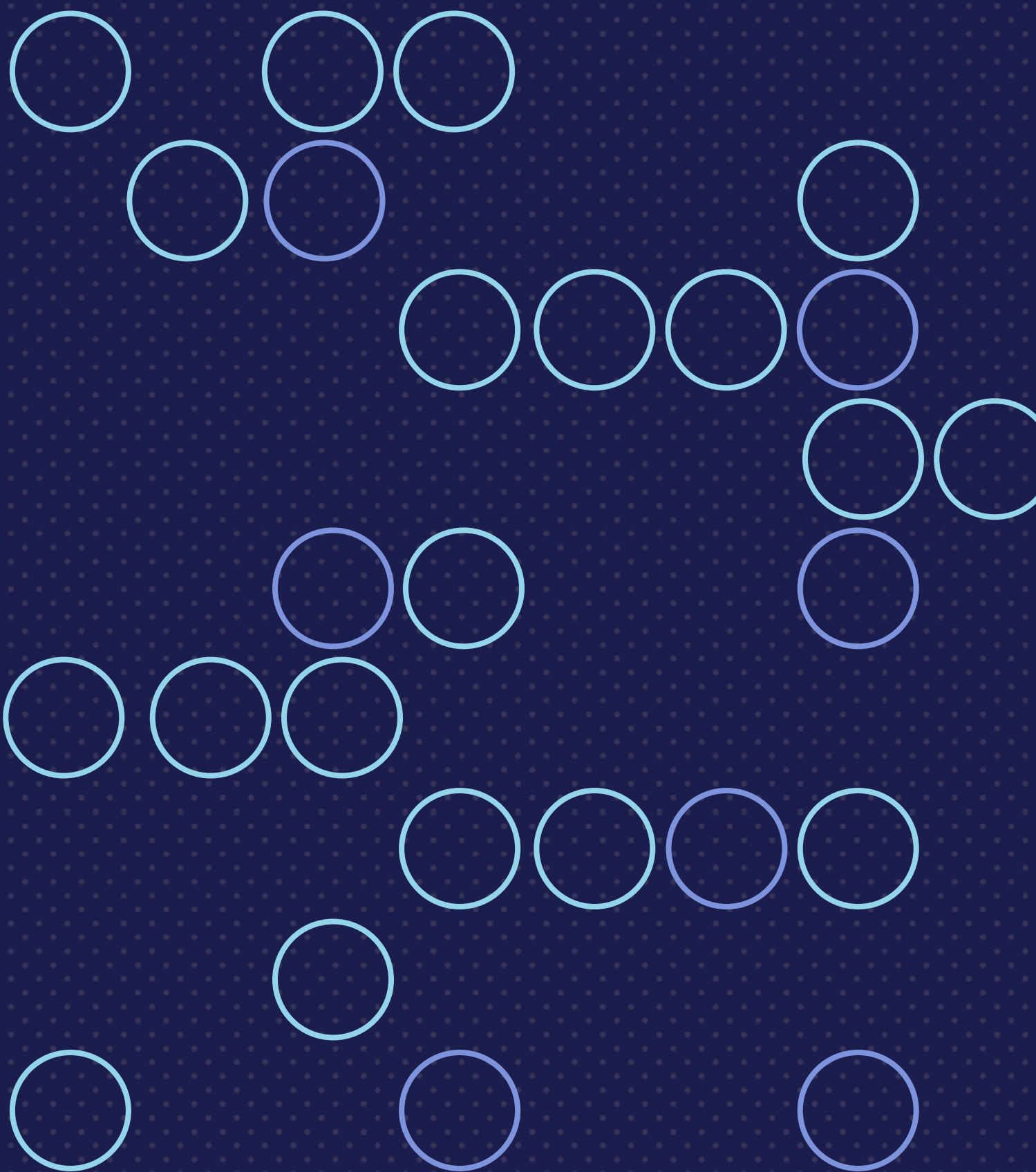
REDEFINING THE FUTURE SRD PURSUIT OF ANSP CERTIFICATION

The primary element which drives TTCAA's approach to safety is diligent and rigorous enhancement of the regulatory oversight system of the aviation industry in Trinidad and Tobago.

In 2018 to 2019, as part of this commitment, the SRD continued its efforts towards the attainment of certification of the Air Navigation Services (ANS) Division as an ANSP provider.

Legal Notice No. 181 of 2016 outlines the regulations that prescribe the requirements and standards for the certification and supervision of an Air Navigation Services provider in Trinidad and Tobago. The Safety Regulations Division has developed a five-phase approach to the certification process of Air Navigation Services.







SAFETY REGULATION DIVISION

A man in a high-visibility yellow vest and dark shirt stands next to a large jet engine on an aircraft. The vest has 'TTCA' on the back. The aircraft has a red and white livery. The background is a clear blue sky.

SAFETY REGULATION DIVISION

For the Safety Regulation Division (SRD) redefining the future involves embarking on initiatives geared towards improving the safety culture of the aviation industry within Trinidad and Tobago.

Looking ahead, the focus of the Division would be to continuously align the strategies of the regulatory services in accordance with the eight (8) critical elements of a State Safety Oversight System as outlined by the International Civil Aviation Organization (ICAO) to ensure the highest level of safety, security and effectiveness in the aviation industry.

SAFETY REGULATION DIVISION (SRD)



The SRD provides technical expertise in the areas of Regulations and Compliance, Flight Standards, Licensing and Aviation Security and Facilitation.

The Safety Regulation Division is responsible for the certification and surveillance of airmen, aircraft operators, aviation maintenance and aviation training in accordance with the eight (8) critical elements of State Safety Oversight System. It provides these functions through the following channels:

- Regulations and Compliance Department
- Flight Standards Department, which consists of:
 - Flight Operations
 - Air worthiness
 - Cabin Safety & Dangerous Goods
 - Licensing Department, which consists of:
 - Personnel Licensing
 - Aerodromes
 - Unmanned Aircraft Systems
 - Air Navigation Services
 - Aviation Security and Facilitation

REGULATIONS AND COMPLIANCE

In order to ensure that the Advisory Aviation Documents are current, various amendments to these documents are made. This enhances the regulatory framework in order to meet with current and future requirements. Discussions are currently being held with the relevant government ministries to develop and implement effective regulations and other regulatory tools to enhance civil aviation safety in Trinidad and Tobago. It is envisaged that these discussions will assist in expediting the approval of legislative frameworks that are applicable to the TTCAA.

In the fiscal year 2018 – 2019, the following Regulations were completed and are being laid in Parliament.

- No. 1 - General Application & Personnel Licensing
- No. 2 - Operations
- No. 3 - Air Operator Certification & Administration
- No. 5 - Airworthiness
- No. 6 - Approved Maintenance Organization
- No. 7 - Instruments and Equipment

The Manager Regulations and Compliance (Ag.) is in the process of reviewing the following Regulations:

- No. 8 - Security
- No. 9 - Aviation Training Organization
- No. 12 - Aerodrome Certification
- No. 14 - Accident and Incident Investigation
- No. 15 - Air Navigation Services

It is anticipated that in the upcoming year, revisions to the Advisory Circulars and the Inspector Guidance Manual System (IGMS) forms would be completed.

FLIGHT STANDARDS

The supervision of aircraft operations is conducted in accordance with the requirements outlined in the Civil Aviation Act 11 of 2001 and the Trinidad and Tobago Civil Aviation Regulations (TTCARs). Monitoring activities on aircraft operators are regularly conducted in order to ensure that safety within the airspace is maintained.

In executing its functions, the Flight Standards Department must be equipped with the necessary human resources as the duties of the job specifically require a high level of competency. Continuous training initiatives are critical as the Flight Operations Inspectors are mandated to be current on the aircraft type in which they are specialized. These include but are not limited to AW139, S92, B737 and ATR Recurrent Training.

SAFETY REGULATION DIVISION (SRD) (CONTINUED)



The process for recruiting competent personnel to fill positions within the Inspectorate has been challenging. The TTCAA must develop strategies to attract suitably qualified personnel to fill available vacant positions. In light of this and to ensure business continuity, the establishment of a Succession Planning and Management System is being developed.

LICENSING

Each year, the Licensing Department issues, renews and validates aviation documents for airmen such as pilots, as well as aerodrome operators, air traffic controllers and aircraft. Approximately sixty-two (62) aerodromes inclusive of helipads, helidecks, shipboards and airports were inspected based on the regulatory requirements established to satisfy the State's obligation to the adoption and implementation of standards set out in Annex 12 and Annex 14

Volume 2 to the Convention. For airmen such as Air Traffic Controllers, renewals were issued based on classes of medical.

The Unmanned Aircraft Systems (UAS) Industry has grown exponentially. To date, the SRD has registered seven hundred and thirty (730) UAS, collaborated with over eleven (11) government agencies and private enterprises, on the safe use of UAS within Trinidad and Tobago. This year, approvals were given for a number of operations in over five (5) different fields including disasters, sporting, construction and agriculture.

The certification of the Air Navigation Services Provider (ANSP) is ongoing. It is currently in Phase 3 – Document Evaluation Phase – of the five phase certification process.



AVIATION SECURITY AND FACILITATION (AVSEC-FAL)

44

The primary objective of Trinidad and Tobago with regard to international civil aviation security is to ensure the protection and safety of passengers, crew, ground personnel, the general public, aircraft and facilities of an airport serving civil aviation, against acts of unlawful interference perpetrated on the ground or in flight. This is carried out through a combination of measures and the marshalling of various human and material resources at international, national and airport levels. To achieve this primary objective, defined responsibilities and methods of implementation were executed through the establishment of processes to ensure our legal framework and aviation related policies and procedures comply with international requirements.

The Aviation Security and Facilitation (AVSEC-FAL) Department of the TTCAA has the statutory responsibility and function for the regulation and oversight of all civil aviation security-related entities and activities in Trinidad and Tobago. In this regard, the TTCAA has established a comprehensive national aviation security policy framework, supported by primary and secondary legislation.

The International Civil Aviation Organization (ICAO) Universal Security Audit Programme (USAP) Continuous Monitoring Approach (CMA) audited the aviation security mechanisms implemented in Trinidad and Tobago. The analysis of the results indicates that the Average Effective Implementation of the Critical Elements was 84%, while the Average Compliance with the requirements of Annex 17 was 87%.

The AVSEC-FAL Department has also expanded its expertise and now makes available three (3) Aviation Security (AVSEC) Subject Matter Experts (SMEs) to support the ICAO AVSEC Auditing and Training initiatives. The TTCAA AVSEC SMEs served in the ICAO USAP CMA Audit of Antigua and Barbuda, Grenada and Guyana, and also participated as Instructors in ICAO AVSEC Training for Cargo and Mail Security and Supervisors. The AVSEC-FAL Department was also successful in hosting the ICAO USAP CMA AVSEC Auditor Certification and the ICAO/Concordia AVSEC Professional Management Course at the Civil Aviation Training Centre (CATC) in Trinidad and Tobago.

During the fiscal period 2018-2019 Trinidad and Tobago was awarded the Council President Certificate in Aviation Security by the International Civil Aviation Organization (ICAO). The TTCAA received world class recognition in which the AVSEC-FAL Department was highly commended for having made significant progress in resolving security oversight deficiencies and improving the effective implementation of ICAO Standards and Recommended Practices.

To this end, the AVSEC-FAL Department will continue to ensure its roles and responsibilities are sustained so as to contribute to the provision of a regulatory framework to facilitate a safe, secure and effective aviation industry within Trinidad and Tobago.

WORLD CLASS RECOGNITION

TRINIDAD AND TOBAGO WAS AWARDED THE COUNCIL PRESIDENT'S CERTIFICATE IN AVIATION SECURITY BY THE INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) DURING A SPECIAL CEREMONY OF THE 40TH SESSION OF THE ICAO ASSEMBLY IN MONTREAL, CANADA ON 24 SEPTEMBER, 2019.

The Presidential Certificate is awarded to ICAO Contracting States which have made significant progress in resolving their security oversight deficiencies and improving the effective implementation of ICAO Standards and Recommended Practices (SARPs).

Trinidad and Tobago supports the "No Country Left Behind Initiative" of ICAO and continues to improve our aviation safety and security by actively implementing our Corrective Action Plans (CAPs) to ensure a safe and secure civil aviation system in Trinidad and Tobago.

Present at the Assembly and receiving the award on behalf of Trinidad and Tobago were Ms. Sonia Francis-Yearwood, Permanent Secretary of the Ministry of Works and Transport; Capt. Thomas



Trinidad and Tobago received the Council President's Certificate of Excellence in aviation security at the 40th Session of the General Assembly of the International Civil Aviation Organisation on 24 September, 2019. The award was received by (from L to R) the Chairman, Trinidad & Tobago Civil Aviation Authority, Capt. Thomas E. Lawrence, Permanent Secretary of the Ministry of Works and Transport, Ms. Sonia Francis-Yearwood and the Director General of Civil Aviation, Mr. Francis Regis.

E. Lawrence, Chairman of the Board of Directors and Mr. Francis Regis, Director General, of the Trinidad and Tobago Civil Aviation Authority.

TTCAA congratulates its staff and in particular the Aviation Security Team for their dedication to meeting international standards and their commitment towards compliance with the evolving SARPs of ICAO Annex 17 to the Convention on International Civil Aviation.

QUALITY ASSURANCE & INVESTIGATION (QAI)

46

The primary function of Quality Assurance and Investigation (QAI) Department is to carry out investigation of accidents/incidents of all aircraft that are registered in the Republic of Trinidad and Tobago (State of Registry) and also to investigate any accident/incident that occurred in the state of Trinidad and Tobago (State of Occurrence). This requirement is consistent with the International Civil Aviation Organization (ICAO) Annex 13 (Aircraft Accident and Incident Investigation) Standard and Recommended Practices.

The sole objective of the investigation is to establish the facts relevant to the most probable cause and to make safety recommendations towards the prevention of accidents/incidents in the future.

There were two significant incidents for the period October 2018 to August 2019.

- The investigation into Caribbean Airlines Limited (CAL's) aircraft incident. This investigation is completed and the final report was submitted.
- The investigation into National Helicopter Services Limited (NHSL's) helicopter incident is in progress.

The second function is to perform Quality Audits of other departments within the TTCAA i.e. the Safety Regulation Division, the Civil Aviation Training Centre and the Air Navigation Services Division to ensure compliance with the Regulatory requirements and Standard Operating Procedures as mandated by the Trinidad and Tobago Civil Aviation Regulations. Data is extracted from these reports and subsequently analyzed to determine the impact on Air Safety. These audits identify key areas of deficiencies and the feedback is relayed to the various Divisions so that the desired level of safety can be maintained.

The third function is to review and analyze all Mandatory Occurrence Reports (MOR's) that are submitted by the Operators, as required by the Trinidad and Tobago Civil Aviation Regulations (TTCARs) No.5 and to ensure that safety and security are not compromised.

There were one hundred and five (105) Mandatory Occurrence Reports submitted for the period October 2018 to August 2019. They are as follows:

- Caribbean Airlines Limited: Thirty eight (38)
- National Helicopters Services Limited: Twenty two (22)
- Bristow Caribbean Limited: Thirty seven (37)
- PHI Americas Limited: Two (2)
- Briko Air Services Limited: Five (5)
- Foreign Operator – American Airlines: (1)

The total number of bird strikes reported by all Operators for the period October 2018 to August 2019 was thirty three (33). There was no significant damage to aircraft.

These bird strikes occurred at the following Aerodromes:

- Twelve (12) at the Piarco International Airport.
- Eight (8) at the ANR Robinson International Airport.
- Three (3) at the John F. Kennedy International Airport.
- Three (3) at the Cheddi Jagan International Airport.
- One (1) at the Lester Pearson International Airport.
- One (1) at the V.C. Bird International Airport.
- Three (3) at the Maurice Bishop International Airport.
- One (1) at the Norman Manley International Airport.
- One (1) at the Sangster International Airport.

STRATEGIC PLANNING IN THE TTCAA

1. INFORMATION GATHERING & ANALYSIS

2. IDENTIFICATION OF CRITICAL ISSUES FACING THE AUTHORITY

3. REVIEW OF STRATEGIC VISION STATEMENT THAT SETS FUTURE DIRECTION

4. MISSION STATEMENT REVIEW/REVISION

5. DEVELOPMENT OF STRATEGIC GOALS & OBJECTIVES

6. FORMULATION OF STRATEGIES FOR EACH GOAL

7. CORPORATE PLAN DEVELOPED & ROLLED OUT

8. PREPARATION OF OPERATIONAL ACTION PLAN & ANNUAL BUDGETS BASED ON THE CORPORATE PLAN

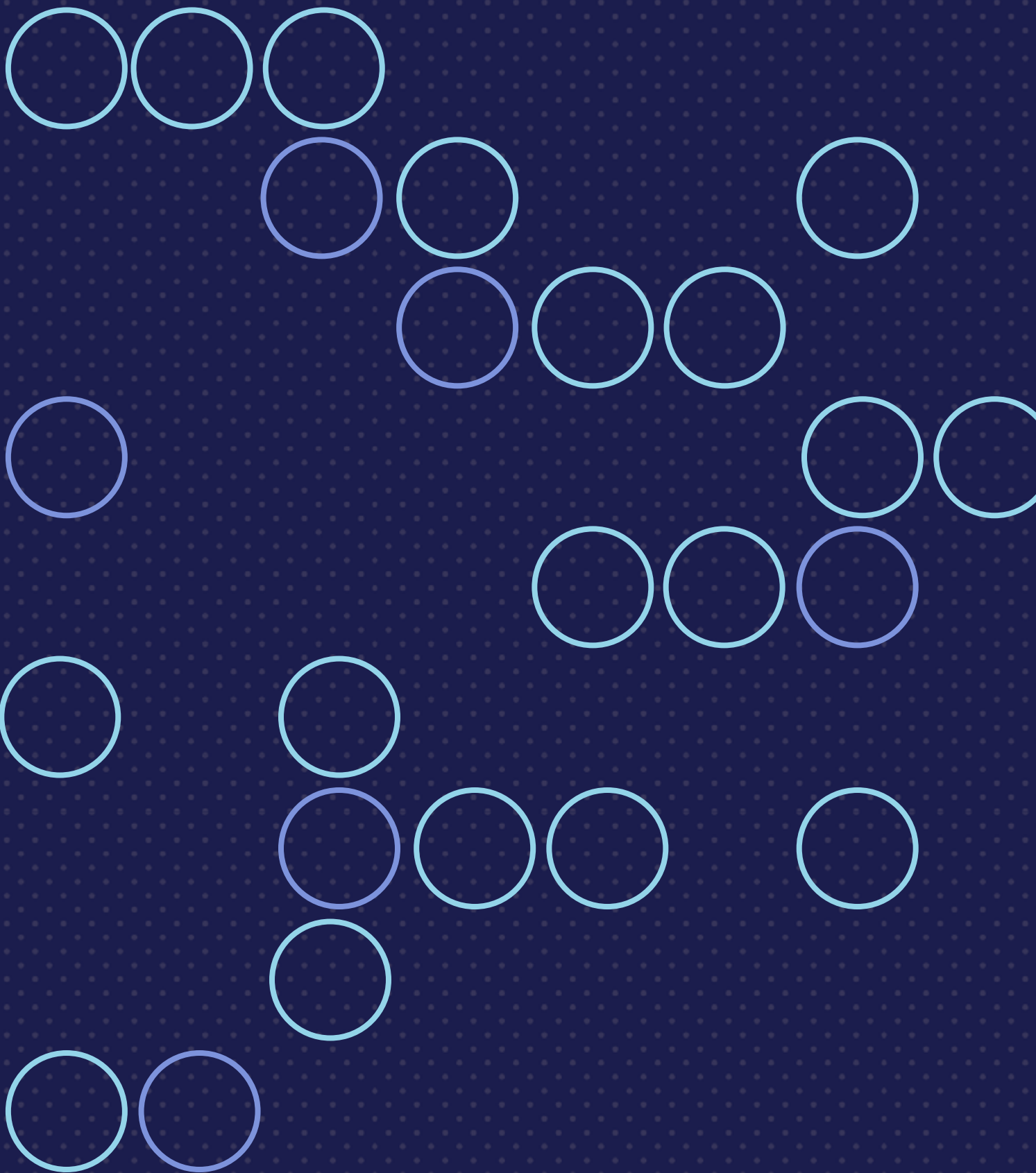
9. EXECUTION & IMPLEMENTATION OF ACTION PLANS

10. MONITORING & EVALUATION

Rapid and intense change in the aviation environment provides consistent motivation to the TTCAA to revisit its fundamental approach to strategic planning and decision-making. New thinking on techniques to treat with the two vital strategy issues – (1) where will the TTCAA be in the future and (2) how to get there – must emerge to enable a modern TTCAA to maximize its positioning and capitalize on existing as well as emerging opportunities.

In September 2019, a Strategic Planning Committee was established to develop a three-year Corporate Plan for the period 2020 - 2023 to ensure that the TTCAA fulfils its mandate as prescribed by Act No. 11 of 2001. The Committee will focus on assessment and monitoring of the aviation industry with a view to identifying emerging trends, risks and opportunities that may affect the strategic direction of the TTCAA, and developing strategies for fulfilling the goals and objectives of the TTCAA for the stated planning period. The Committee will collaborate with internal as well as external stakeholders of the TTCAA for their input in the development of the Corporate Plan.

As strategic partners in the collaboration process, it is envisaged that the contributions of the stakeholders will be pivotal to the strategic focus areas and the long term success of the TTCAA. The planning process will incorporate a step by step approach which will take into account where we are, where we want to be and how we are going to get there.





CORPORATE SERVICES DIVISION

CORPORATE SERVICES DIVISION (CSD)

For the Corporate Services Division, redefining the future involves critically reviewing the support services provided by the Division and reengineering processes to improve productivity, business cycle times and quality. Looking ahead, the focus of the Division would be to strengthen the support functions by implementing strategies to enhance the standard of services proffered to its internal and external stakeholders. In September 2019, a new Executive Manager Corporate Services was appointed by the Board to lead the strategic initiatives for the Division.





MR. FELIX FRANCIS PEARSON
EXECUTIVE MANAGER CORPORATE SERVICES

Mr. Felix Francis Pearson is the newly appointed Executive Manager Corporate Services of the Trinidad and Tobago Civil Aviation Authority. Mr. Pearson brings to the position a wealth of knowledge and experience in business administration, strategic planning and process improvement.

Mr. Pearson has held executive and senior management positions in both the public and private sectors for more than twenty years. Mr. Pearson holds a Bachelor of Science in Industrial Engineering from the University of the West Indies, Trinidad, a Master's Degree in Business Administration from the Andrews University, Berrien Springs, Michigan, a Bachelor of Law, LLB (Hons) from the University of London, a Legal Education Certificate from the Sir Hugh Wooding Law School and was admitted to the Bar as an Attorney at Law.

Mr. Pearson possesses a keen understanding of critical business drivers in multiple sectors and is highly successful in cultivating key stakeholder relationships. His motivational and transformational management style has been formidable in building, guiding and retaining high performance teams to develop and implement innovative strategies for accelerated growth.

CORPORATE PLANNING DEPARTMENT (CPD)

The planning function is central for setting the organisation in a position to thrive. From the establishment of the Corporate Planning Department (CPD) in 2015, the department has been actively involved in activities that continue to promote the sustainable growth and development of the TTCAA. From a statutory perspective the activities of the planning function are guided by Part V of Act No. 11 of 2001, (Planning and Management), which outlines the responsibilities of the TTCAA in the development of the three year Corporate Plan and the tenets of the Plan. In addition to the aforementioned which is facilitated by the CPD, the department is also responsible for the preparation and monitoring of the statutory budgetary reports, the production of the annual report and the management of the insurance portfolio.

In September 2019, a Strategic Planning Committee was constituted to develop the three year Corporate Plan for the period 2020 - 2023 to ensure that the TTCAA fulfils its mandate as prescribed by Act No. 11 of 2001. The Committee will focus on assessing and monitoring the aviation industry with a view to identifying emerging trends, risks and opportunities that may affect the strategic direction of the TTCAA and to develop strategies for fulfilling the goals and objectives of the TTCAA for the prescribed planning period. It is the intention of the Committee to collaborate with both internal and external stakeholders for their input in the development of the Corporate Plan. As strategic partners in the collaboration process it is envisaged that the contributions of the stakeholders would be vital to the strategic focus areas and the long term success of the TTCAA.

In the fiscal year 2018-2019 following the development and submission of the Draft Estimates of Recurrent and Expenditure to the Ministry of Works and Transport (MOWT) on April 1, 2019, the department rolled out departmental budgets in the continued initiative to improve

the financial performance management system. By the commencement of fiscal 2019-2020, it is the intention of the department to enhance its budgetary monitoring and variance reporting. The CPD continues to complete and forward the Monthly Actual Statement of Expenditure and Quarterly Projections to the MOWT, within the specified deadlines.

As part of its drive towards the development of a robust monitoring system, the CPD also developed a Standard Operating Procedures (SOP) for the Budgeting and Requisition Process in the TTCAA. The intention of the SOP is to guide the departments' generation of requisitions for both budgeted and non-budgeted items. The SOP was signed by the DGCA in November 2018, and subsequently circulated to all departments, with an effective start date of January 1, 2019. For the upcoming fiscal period it is the intention of the CPD to work on refining its policies and procedures documents to enhance the planning and budget management functions within the TTCAA.

In the fiscal year 2018-2019 there was a strategic focus on reviewing the existing rates for the services provided by the TTCAA. The CPD significantly contributed to the review committee through the provision of historical and forecast data for the successful completion of the first phase of the review exercise.

Within the last year, the TTCAA has actively commenced initiatives geared to the establishment of an enterprise risk management framework. As part of the preparatory activities, the TTCAA invested resources in the training of its personnel to understand, articulate and proactively respond to the rapidly evolving risk environment. Through consultations with the insurance brokers, two TTCAA representatives attended an International Aviation Insurance Course in London in June 2019. The course provided extensive insight into the dynamic aviation insurance



industry and the importance of inculcating a robust risk management system and the need to continuously review and update the TTCAA's risk mitigation strategies.

The CPD has worked closely with the insurance brokers to review and manage the insurance portfolio of the TTCAA to ensure that there is adequate liability coverage for its physical assets, infrastructure, operations and staff during the course of undertaking business. The CPD recognizes the benefit of continuously improving the internal customer service and as such, in tandem with the insurance broker information sessions were conducted with employees who travel overseas on behalf of the TTCAA and are covered under the Group Personal Accident (GPA) Policy. The GPA covers the employee in the event of accident or illness, as well as other emergency medical expenses, through the use of a third party medical solutions provider. The CPD developed a SOP for the GPA coverage to guide the employees on the procedures to be taken in the event of an emergency on overseas duty travel. The CPD also rolled out to members on the GPA policy individualized International

Incident / Accident Emergency GPA Card that contains access numbers to TTCAA contacts and the third party medical solutions provider, in the event of an incident. The TTCAA's insurance portfolio is renewed annually by September 30, in conjunction with the commencement of each fiscal year.

For the CPD redefining future is ensuring that the department continues to partner with our internal and external stakeholders to develop and enhance the planning and budgeting structures to achieve continued success. The CPD is committed to investing our time and resources for the provision of excellent service and to establish planning and facilitation programs for the upcoming fiscal year which would be focused on the needs and expectations of our stakeholders with the end objective being a more collaborative strategic planning and budgetary framework for the TTCAA.

HUMAN RESOURCE DEPARTMENT (HR)

In redefining the strategic focus for the continuous development and enhancement of the human resource capital, the TTCAA is committed to implementing HR programs that foster an environment that would enable its employees to deliver the highest quality of service and excellence to its stakeholders.

For the fiscal year 2018 – 2019, the strategic human resource initiatives used by the TTCAA focused on strengthening the human resource policy and procedures framework to align same to the strategic direction of the TTCAA. Amendments were made to the human resource policy and procedures in the following areas:

- Higher Duty Allowance
- Compensatory Time-Off
- Contract Employment
- Corporate Social Responsibility
- Sick Leave Management

For the TTCAA, redefining the future means investing heavily in the training and development of its aviation professionals. In a rapidly changing and increasingly complex aviation environment, it is absolutely vital that the TTCAA is equipped with a well-trained human resource complement, tailored to deliver the highest quality of service and excellence to its stakeholders.

In the fiscal year 2018 – 2019 approximately 126 employees received planned training (both in-house and external) to acquire and strengthen skills in a range of technical and non-technical areas including:

- Managing Communications during an Aircraft Accident or Incident
- ICAO Training Instructor Course - Part 1 & 2

- Tropical Helicopter Underwater Escape Training
- Recurrent Helicopter Pilot Training
- PANS-OPS Performance Based Navigation (PBN) Refresher Training
- EASA Part 147 Maintenance Training
- Full flight simulator ATR training
- Mediation Skills
- Procurement Law
- Pension & Retirement Administration
- Enterprise Risk Management (ERM)
- Freedom of Information Masterclass

The TTCAA is dedicated to increasing employee engagement and the overall productivity of the organization by creating opportunities to enhance knowledge, improve skills and providing opportunities for upward mobility.

In alignment with the thrust by ICAO for the development of the next generation of aviation professionals, the TTCAA in redefining the future from a strategic human resource perspective would focus on ensuring that a cadre of well-trained and competent personnel are continuously developed. For the upcoming fiscal year the TTCAA intends to conduct a comprehensive review of its employee performance and development programs in tandem with enhancing its succession planning initiatives and to invest the critical time and resources to nurture the future leadership talent of the TTCAA.

HEALTH SAFETY SECURITY AND ENVIRONMENT (HSSE)

The TTCAA is committed to the health, safety and welfare of its employees and its stakeholders. The HSSE Department promotes a proactive health and safety management system based on effective communication and consultation with employees on critical HSSE issues while inculcating risk management strategies with the HSSE work program. The HSSE activities executed for the past year included:

A woman with dark braided hair and red lipstick is smiling at the camera. She is wearing a dark blazer over a dark collared shirt. On her left lapel, there are two pins: a circular blue and white pin and a small black pin with a pink heart and the letters 'HR'. The background is a blurred office environment with other people working at desks.

**“ REDEFINING
THE FUTURE
MEANS MOVING
FROM PAPER
TO DIGITAL
PROCESSING
SYSTEMS.”**

HUMAN RESOURCE DEPARTMENT (HR) [CONTINUED]

1. Standardizing and enforcing HSSE policies and procedures

An Emergency Response Document and policies for Access Control and Indoor Air Quality Assessment were developed and implemented.

2. Inspections and Audits

HSSE audits and inspections were routinely conducted at all TTCAA facilities to ensure compliance with best practice standards.

3. Health and Wellness initiatives

Specific programs were launched to enhance the health and wellness of the TTCAA employees. Employees can now benefit from an established on-site fitness program and quarterly dietician consultations. These initiatives, in tandem with the annual Health and Safety Fair, highlight the support and commitment of the TTCAA to enhance the health and wellness of its employees.

4. Risk Management strategies

Risk management approaches were employed to identify, assess and prioritize HSSE related risks. Controls were implemented and continuously reviewed to mitigate inherent risk factors. These ensured that the TTCAA recorded zero fatalities and minimal loss time due to injury or harm.

5. HSSE-driven culture through training and development

Special focus was placed on recurrent training for employees in areas such as First Aid and CPR, and HSSE employee orientation programs for new recruits. The training initiatives were supported by the launching of safety awareness training facilitated by the HSSE Specialist.

An HSSE e-newsletter re-launching a Safety training series was circulated to employees. This training is facilitated once per week and seeks to continuously promote health and safety initiatives within the TTCAA.

The HSSE Specialist is in collaboration with the Civil Aviation Training Centre (CATC) to develop an OSH 30 Hour General Industry training program which would be delivered at the CATC. This program will assist with capacity building internally as well as generate revenue for the TTCAA.

The TTCAA intends to continuously invest in training initiatives inclusive of Emergency Evacuation Response to enhance the HSSE driven culture.

6. Emergency Response and Crisis Management

In response to the devastating floods and earthquakes experienced in 2018, the HSSE unit collaborated with the various internal stakeholders to develop an efficient response plan. In 2019, the plan was reassessed to ensure its relevance and efficacy.

7. Management of Plant Security Services

The contracted security service personnel were closely monitored by the HSSE Specialist to ensure that the duties executed were in alignment with established terms and conditions. Quality assurance meetings and training and development programs were implemented to ensure seamless operations at the all facilities.

8. Environmental Management

Green management of the following waste continued:

- Plastic bottles
- Ink/toner cartridge
- Paper
- Fluorescent bulbs

The TTCAA is expected to launch a new environment initiative in the upcoming fiscal year.



9. Aviation Environment

In January, 2019 the TTCAA, in conjunction with the ICAO-EU team and the German Aerospace Centre hosted the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) Buddy Partnership program at the CATC. The training was attended by local stakeholders and regional partners from Guyana and Jamaica. The TTCAA contributed to CASSOS's working paper on CORSIA for the ICAO Assembly in September 2019.

The TTCAA remains committed to managing its operations and business activities in a responsible manner with due consideration to the health, safety and security of its employees, stakeholders and the environment in which its business operations are conducted.



TTCAA INTERNSHIP 2018-2019



“REDEFINING
THE FUTURE
MEANS EVOLVING
& USING
MILLENNIAL
MINDSETS.”

The TTCAA conducted its annual Vacation Internship program during the period July to September 2019. The program targeted students between the ages of 18 and 25, with the aim of providing these young adults with the opportunity of gaining exposure in the work environment. Twelve (12) participants were hired for this year's program

The interns welcomed the experience and training in the TTCAA's environment and appreciated the weekly sessions that specifically targeted workplace safety. At the end of the internship, all participants expressed their sincere gratitude to the Board and Management of the TTCAA for the invaluable experience.



FINANCE AND ACCOUNTING DEPARTMENT (FAD)



A strong financial management system that incorporates elements of good corporate governance practices is essential for the survival of an organisation. Strategically, the TTCAA focused on strengthening the people, systems and processes that manage and support its financial structure to ensure the continuity and sustainability of its business operations.

For the long term strategic goals and objectives of the TTCAA to be realized, it is imperative that the financial information is accurate to support effective decision making. Concerted efforts were made to enhance the internal control systems within the finance function to improve the reliability and integrity of the financial information submitted to the Management and Board of the TTCAA. To ensure the highest level of transparency and accountability of the financial reporting and internal control systems were maintained, the financial systems are continuously audited by both internal and external independent auditors.

For the future, it is critical that the finance function within the TTCAA continues to collaborate with both the Regulatory and Air Navigation Divisions to ensure that the key business processes that are directly under the purview of the Finance and Accounting Department are executed timely and efficiently. Collaboration and information sharing are essential elements in providing excellent service to stakeholders. The

finance function has made significant strides in enhancing the service levels proffered to its internal stakeholders by conducting a critical review of its financial business processes and enhancing value through process improvements. The TTCAA invested extensive time and resources in collections and recoveries initiatives to ensure that long outstanding receivable balances were closely monitored and managed.

The Finance and Accounting Department was involved in strategic initiatives and projects in the fiscal year 2018-2019 which closely monitored the economic and funding environment in which the TTCAA operates. These strategic initiatives enabled the TTCAA to incorporate trending and other predictive analytical models to effectively forecast and plan to achieve the strategic priorities of the TTCAA.

The TTCAA continues to closely monitor the aviation landscape to ensure that our strategies and initiatives are aligned to the standards and recommended practices as set out by the International Civil Aviation Organization (ICAO). The TTCAA is committed to ensuring that the strong financial framework that has been set in motion today would secure the sustainability and viability of the TTCAA for the future.

“REDEFINING THE FUTURE MEANS COMMUNICATING, TRAINING AND INTERNAL COLLABORATION.”



DEPARTMENT OF AIR TRANSPORT ECONOMIC REGULATION (DATER)



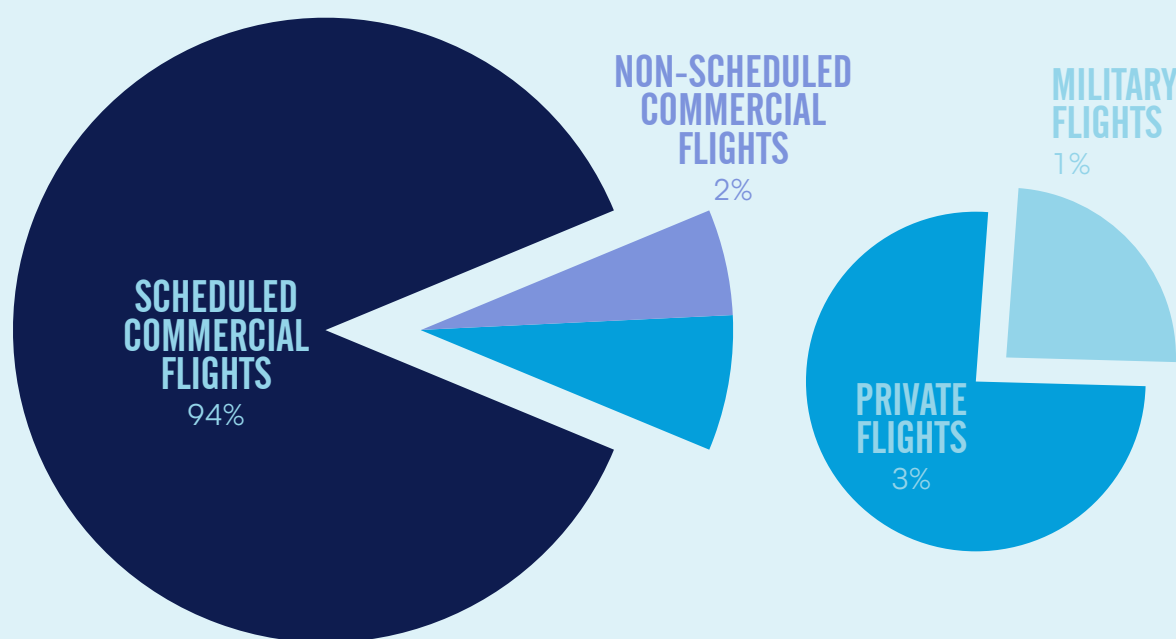
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The DATER issues Commercial Air Transport Licences to operators conducting scheduled flights to/from Trinidad and Tobago and Commercial Air Transport Permits to those conducting non-scheduled flights.

- There are 15 licenced air operators performing scheduled flights. These operators have 40 valid licences for various routes and on average perform 94% of all flights to/from Trinidad and Tobago.
- Between 1 October, 2018 and 31 July, 2019, the DATER issued 643 Commercial Air Transport Permits. In comparison to the same period in the previous year, there was an increase of 11% of Permits issued.

The DATER has articulated its policy that there should be no subjectivity and minimal discretion used in the issuance of Licences and Permits. As per a published notice signed by the Director General, authorization can only be given in accordance with the Air Service Agreement (ASA) between Trinidad and Tobago and the Home State of the air operator. An operator from a State with which Trinidad and Tobago has no ASA can still be granted a Permit with traffic rights up to the Fourth Freedom of the Air for passenger operations. For air ambulance flights and ad-hoc cargo flights, the policy is even less restrictive as these operators can be granted Permits with traffic rights up to the Seventh Freedom of the Air. The DATER noted that these particular operations critically impact other

COMPOSITION OF THE LOCAL AVIATION INDUSTRY - FLIGHTS OPERATED



DEPARTMENT OF AIR TRANSPORT ECONOMIC REGULATION (DATER) [CONTINUED]

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local industries such as when oil and gas equipment is needed urgently from another country and there is no ASA to govern the operation. The DATER therefore decided to create a policy framework upon which such operations can be sustained. Stakeholders now benefit from knowing what rights will be approved when planning their operations to Trinidad and Tobago.

Technology Adoption

The DATER is constantly exploring ways in which technology can be used to augment its processes to be more efficient and effective. The DATER maintains online dockets and databases for airlines to ensure the validity of necessary documents and reduce the need for printed documents and re-submissions. This has significantly reduced the processing time for documents which is critical at times when air operators require expedited approvals. The DATER also uses its Microsoft Sharepoint Page as an intranet for hosting shared documents and databases which affords the department the ability to perform its operations off-site for emergency cases.

Customer Service

Along with having an appropriate legal and policy framework and using technology, the DATER provides a high standard of customer service to its stakeholders. This is often displayed when its services are requested beyond usual business hours. This standard of service is especially relevant for air ambulance operators who frequently submit Permit applications on weekends for ad-hoc medical evacuations. During the period 1 October, 2018 – 31 July, 2019, there were 43 weekends, 30% (13) of which the DATER received and processed applications for Permits that were issued to 6 different air ambulance operators.

The DATER continues to foster an environment in which it is increasingly easier for air operators

to do business and to provide a high standard of customer service to its stakeholders. Today, the DATER issues Permits at a rate of 54 Permits per month.

Rates Review Committee

The Manager of DATER chairs the Committee on Costing the Air Navigation Services Provider (ANSP). This Committee was initially established to determine how the cost of services should be recovered for the ANSP. The scope of the Committee was expanded in June 2019 by the Director General to examine the costs of other areas of the TTCAA and evaluate methods for increasing revenue to cover cost in these areas.

In June 2019, the Committee presented to the Director General calculated Unit Rates to recover the cost of providing En-Route air navigation services. Currently the Committee is engaged in calculating a Unit Rate to recover the cost of providing Aerodrome and Approach services as well as an appropriate Fee Structure that will allow the Safety Regulation Division to better recover its costs.

The work of the Committee thus far has resulted in numerous changes within the TTCAA that will redefine the way the Authority does business in the future. Over the past year, the Committee has revolutionized the budgeting process so that the management team focuses not only on their costs, but also on how they recover those costs. This is all in an effort to ensure that TTCAA can sustain its operations that are vital to the aviation industry. The methodologies developed by the Committee also ensure that TTCAA adheres to various ICAO policies and standards.

Regulation Enforcement

The DATER continues to enforce regulation 39 (3) of the Trinidad and Tobago Civil Aviation [(No. 17) Economic] Regulations which allows the TTCAA to withhold the issuance of Permits and



Licences to air operators who owe monies to the Authority. This assists the TTCAA in its general debt recovery measures and improves its financial position. During the period 1 October to 31 July, as a result of this enforcement, the DATER has assisted in the recovery of TT\$1,289,588.78.

DATA DRIVEN...INFORMED DECISION MAKING

The Department uses data collected and compiled in order to make informed decisions. The DATER collects statistics on commercial air transport from the air operators that have been granted licences and permits. The data is collated, analyzed and published. These statistics are related to passenger, cargo and aircraft movement in and out of Trinidad and Tobago's airports. The DATER summarizes its statistical

and economic data via graphical displays and provides detailed analysis of such data through the following reports:

- The TTCAA's Global Economic Review and Outlook
- DATER's Quarterly Newsletter
- DATER's Annual Statistical Report on International Commercial Air Transport

The DATER's Annual Statistical Report in particular provides insight into the current landscape of the commercial aviation industry. These reports assist the DATER and other departments within the TTCAA in managing their respective operations. For example, based on traffic data between Trinidad and Venezuela and the number of Permit applications received from

DEPARTMENT OF AIR TRANSPORT ECONOMIC REGULATION (DATER) (CONTINUED)

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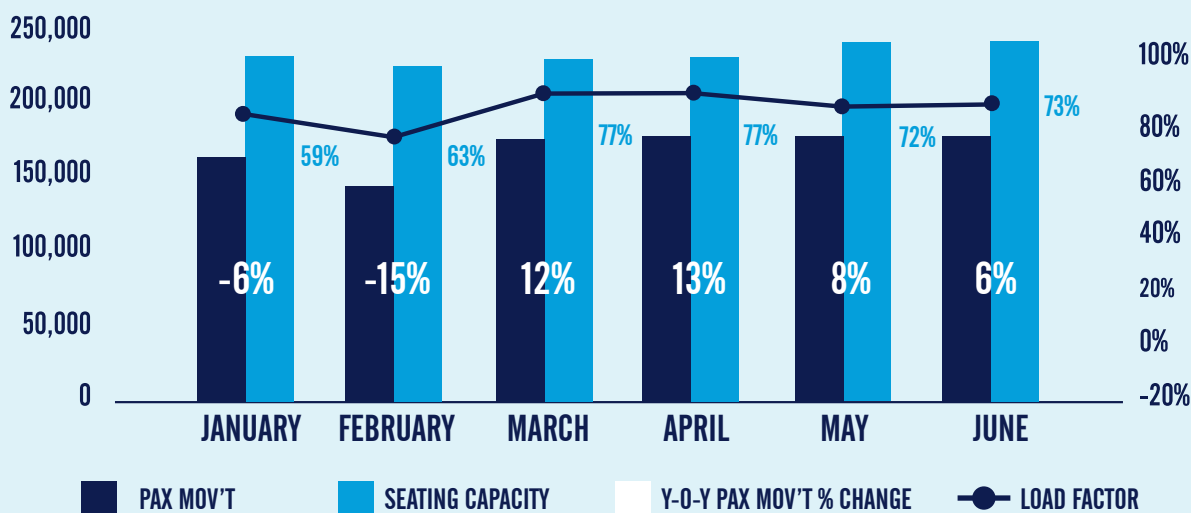
Venezuelan air operators, the TTCAA wrote to the Ministry of Works and Transport in January 2019 to highlight the need for an Air Services Agreement between both States.

The DATER is also required to coordinate and submit all Air Transport Reporting Forms to ICAO. In the past fiscal year, a member of the DATER attended ICAO's Aviation Data and Analysis Workshop & Seminar.

Statistical data on flight operations within the Piarco FIR is also collected and tabulated. This data is used for flight forecasting, which is part of the process to calculate the rates and charges of the ANSP. The flight forecasts, which are done in accordance with ICAO DOC 8991, are also used by the TTCAA for securing its aviation liability insurance.

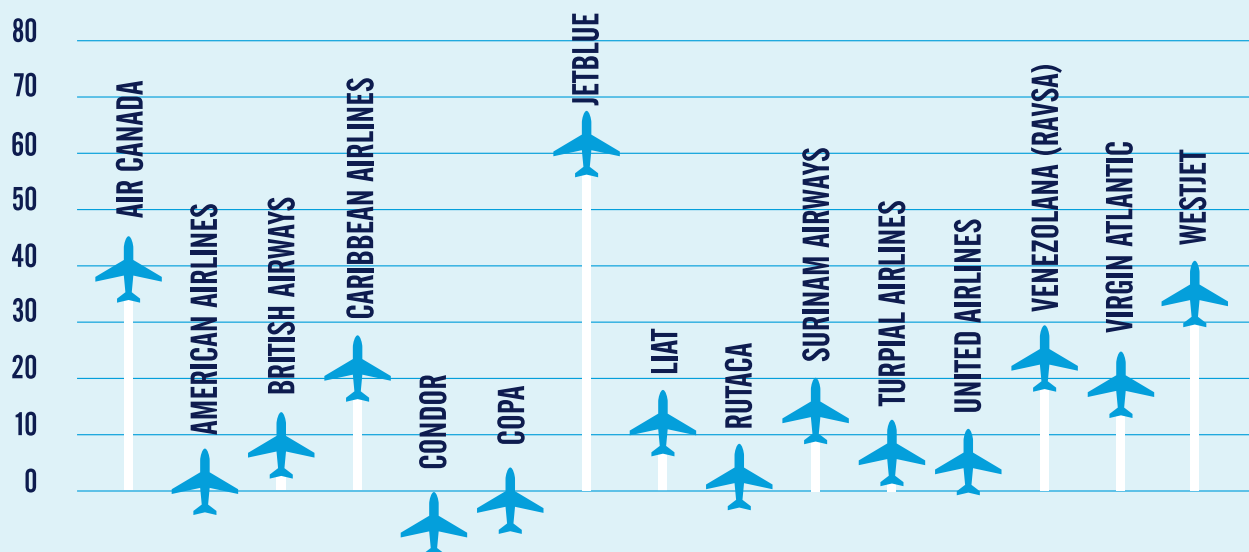
Some examples of the statistics compiled by the DATER are provided below.

1ST HALF 2019 SEATING CAPACITY VS PASSENGER MOVEMENT ON ALL COMMERCIAL FLIGHTS TO/FROM TRINIDAD AND TOBAGO

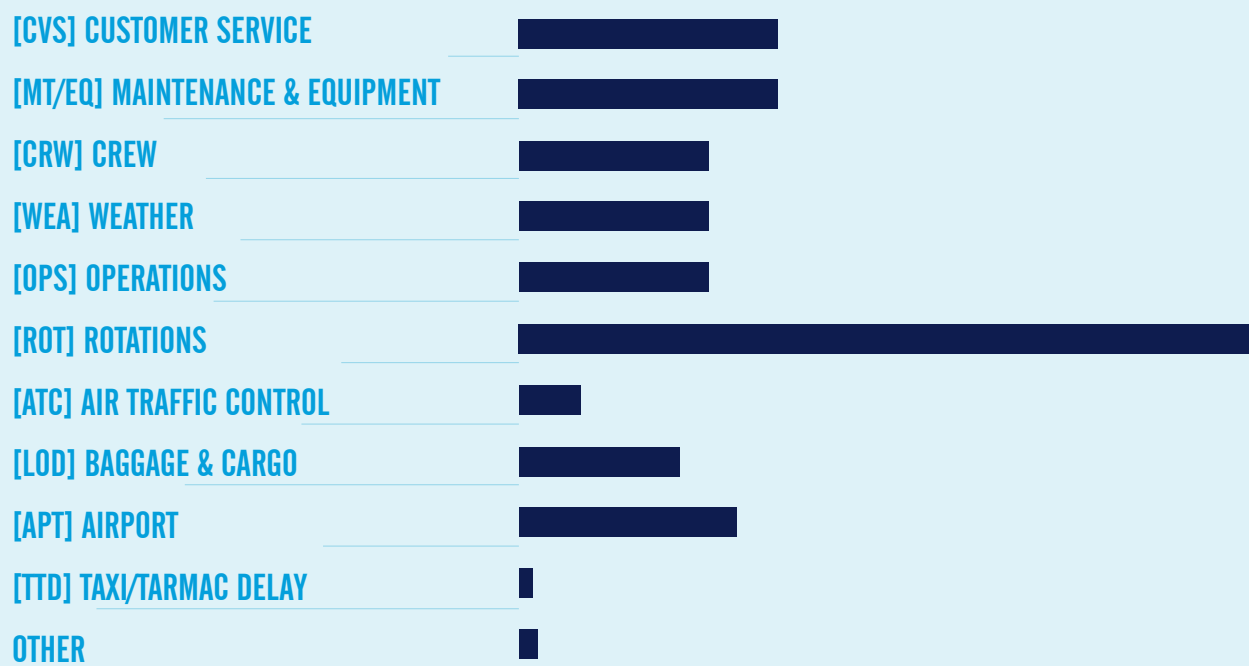




1ST HALF 2019 DELAYED FLIGHT RATIO



REASONS FOR DELAYS OF FLIGHTS TO/FROM TRINIDAD AND TOBAGO



DEPARTMENT OF AIR TRANSPORT ECONOMIC REGULATION (DATER) [CONTINUED]

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1ST HALF 2019 AVERAGE MINUTES PER DELAY

17MINS

AIR CANADA

44MINS

COPA

27MINS

TURPIAL AIRLINES

68MINS

AMERICAN AIRLINES

30MINS

JETBLUE

57MINS

UNITED AIRLINES

34MINS

BRITISH AIRWAYS

24MINS

LIAT

217MINS

VENEZOLANA (RAVSA)

38MINS

CARIBBEAN AIRLINES

54MINS

RUTACA

22MINS

VIRGIN ATLANTIC

0MINS

CONDOR

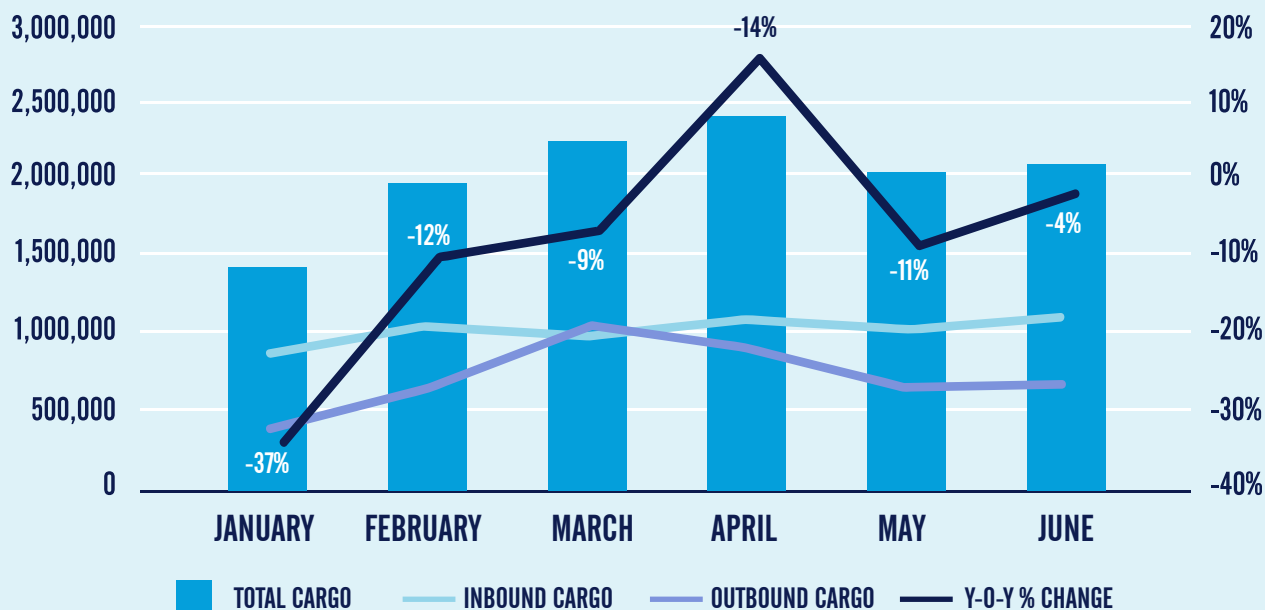
206MINS

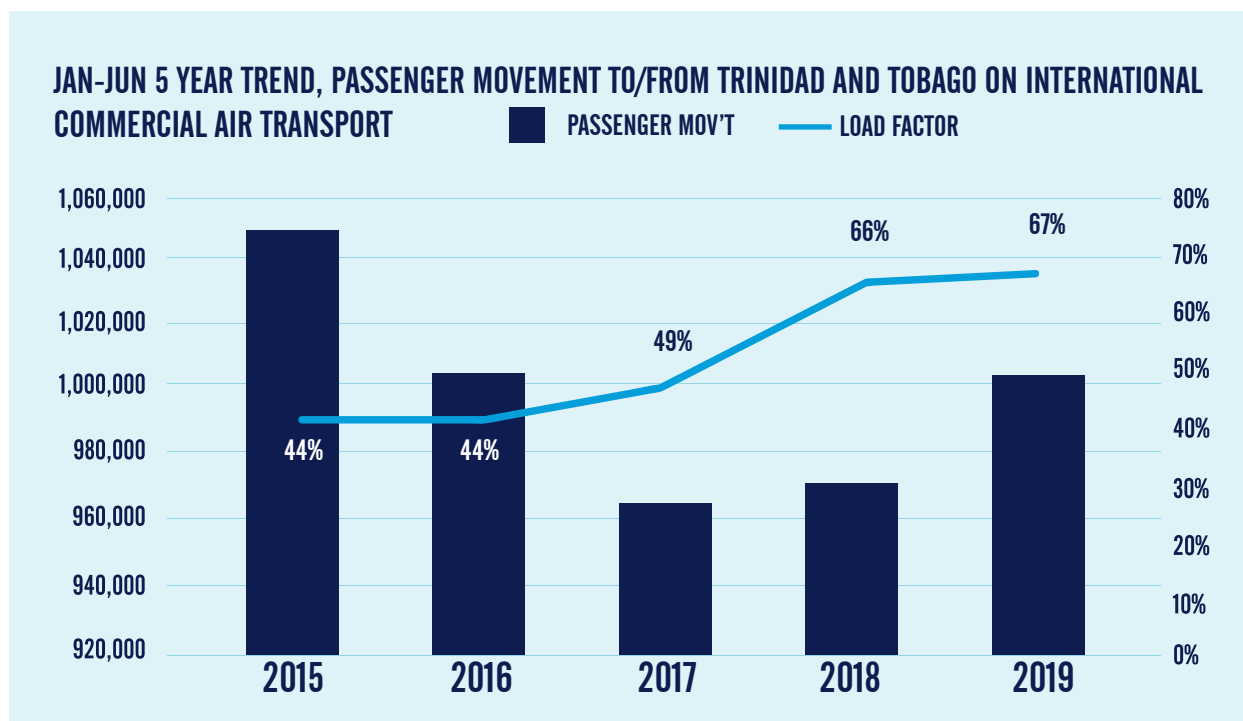
SURNAM AIRWAYS

25MINS

WESTJET

1ST HALF 2019 AVERAGE MONTHLY CARGO MOVEMENT





PREPARING FOR THE FUTURE

The future can only be redefined to a desired state if a strategic approach is taken and proper plans are developed to achieve those desired results. As such, the department has examined its current operations to identify strategies that will achieve its goals.

The members of the DATER developed a training plan purposed for the enhanced performance of the DATER team in the conduct of the department's functions. For the past fiscal year, one of the courses identified as being directly related to the functions of the Department was completed: Aviation Law for Non-Lawyers. Other training courses planned are Air Transport Economics, Air Transport Management, Senior Civil Aviation Management and Managing Aviation Policy and Regulation.

The legal framework supporting the DATER (TTCAR 17) has been reviewed with extensive amendments drafted. These amendments are in line with ICAO's standards, recommended practices and policies as well as international

standards. This should improve the efficiency of various processes and is expected to attract a greater amount of commercial air operators as the amendments are being drafted with the ease of doing business in mind. The amendments also allow the TTCAA to better protect the rights of passengers.

The DATER has evaluated its projected expenditure for a five-year period ending 2022-2023 using different scenarios and has begun testing different formulae to recalculate the fees charged for services provided. This is to ensure that the department remains sustainable by managing and recovering its expenditure.

The DATER is seeking to enhance the skills of its members through focused training, strengthen the legal framework within which it operates and ensure its long-term financial viability. In order to redefine the future within the DATER, action must be taken now. The DATER is committed to focus on recommending amendments to the legal framework and continuous training and development initiatives.



PROPERTY MAINTENANCE & ENGINEERING DEPARTMENT (PM&E)



The strategic priority for the maintenance of the physical infrastructure of the TTCAA is to attain the optimum output from all property and equipment through the continuous implementation of modern maintenance best practices and standards.

It is imperative that the TTCAA maintains its facilities at a high standard and condition to maintain the brand and image of the organisation. For the fiscal year 2018-2019, the PME Department succeeded in delivering on a number of property maintenance projects that supported increased productivity levels and safety within the TTCAA. Three of the major projects conducted during the year were:

THE INSTALLATION OF A FIRE SUPPRESSION SYSTEM IN THE TOBAGO TOWER

The PME Department conducted a critical review of the adequacy, effectiveness and suitability of the existing fire safety measures for all the equipment rooms located in both the TTCAA Administrative complex and Tobago ANR Airport Tower. Based on the assessment of the fire prevention system in the Tobago Tower, the PME Department recommended that a fire suppression system be installed to safeguard the sensitive air navigation system in the event of a fire emergency. In January 2019, a fire suppression system was installed in all equipment rooms and in the Main Cabin in the Tobago Tower.

NEW EQUIPMENT ROOM IN THE TOBAGO TOWER

The TTCAA has commenced initiatives to upgrade the air navigation equipment in both Trinidad and Tobago. Through collaboration with the CNS Department, the Tobago Tower was successfully refurbished to accommodate the new air navigation equipment. The PME Department effectively coordinated the installation of the

new flooring, electrical and air conditioning units by external contractors.

INCREASE IN THE ELECTRICAL CAPACITY FOR THE ATM UPGRADE

An assessment of the electrical distribution system was executed to ensure the adequacy of the distribution for the new air navigation equipment. For the fiscal year 2018-2019, the PME Department expanded the electrical distribution system serving the Area Control Centre in the Air Navigation Services building in Trinidad.

Risk management concepts are incorporated within the preventive maintenance program. Included in this program are initiatives that support the continuous review and assessment of areas that are vulnerable from a risk perspective. Through interdepartmental collaboration, which was spearheaded by the PME Department, approval was granted for the construction of a turnstile pedestrian entrance for the TTCAA Complex. The project is expected to commence in the fiscal year 2019 – 2020.

Looking ahead the PME Department is committed to:

- Maintaining an exceptionally high standard of the capability of the TTCAA's assets to perform its designed function thereby increasing the internal stakeholder value and the TTCAA's return on its asset investments.
- Proactively coordinate, manage and monitor internal and external risks associated with facilities management of the TTCAA Complex and offsite locations.
- Critically examining operating and maintenance expenses and implementing measures to reduce cost, increase efficiency and optimize resources.

**“ REDEFINING THE
FUTURE MEANS
FOCUSING ON
UNTOUCHED AREAS.”**



INFORMATION TECHNOLOGY DEPARTMENT(IT)



The Information Technology Department continues to achieve results-driven performance by customizing appropriate IT resources to emerging technologies. Some of the major achievements are:

- Upgrade of CISCO Communication Infrastructure
- Enhancement of TTCAA's Cyber Security responses
- Procurement of new Electronic mail services provider

COMMUNICATION INFRASTRUCTURE

IT's core objective is to improve TTCAA business productivity through enhancing the delivery of applications and services, enabling real-time collaboration tools, and more efficient implementation of business processes.

TTCAA utilized CISCO for its communication infrastructure during the transition to the new Administrative Complex in 2012, which started with the convergence of data, voice, and video and then moved into simplifying the collaboration infrastructure. Subsequently, the system was expanded to allow accessibility to high quality video, web conferencing and video conferencing beyond the Administrative Complex to mobile devices. This has contributed toward simplifying and improving the way we share information, revolutionize work styles, and improve productivity at the TTCAA.

These systems are continuously being tested and reviewed, and we are currently in the process of upgrading and integrating new systems into the TTCAA's overall communication infrastructure.

CYBER SECURITY

The IT Department recognizes that all systems are steadily becoming digital and required to be accessed virtually everywhere. The IT

Department's approach to cybersecurity is the implementation of multiple layers of protection spread across the TTCAA's networks, programs, and data.

The major driving force behind security in the TTCAA are the people, processes, and technology. They must all complement one another to create an effective defense from cyber-attacks.

CISCO has been contracted to provide a unified threat management system which is integrated across the TTCAA to accelerate key security operation functions which are detection, investigation and remediation.

Because of the critical nature of the TTCAA's 24 / 7 ATC operations, all IT threats are taken seriously and investigated. TTCAA's security measures are implemented at the edge, network and application level. The network is armed with network edge firewalls inclusive of intrusion prevention. The IT Department also recently implemented web and internal traffic filtering to allow and disallow suspicious traffic. This device also manages and administers website and users' interactions.

MAIL SERVICES

The TTCAA has become a robust organisation where technology and communication are its biggest drivers. In an effort to militate against communication anomalies, the IT Department implemented Google, which is one of the world's leading providers in electronic communication, equipped with the latest security features.

In addition to the excellent service and uptime, Google provided a list of beneficial services that includes Google Suites. The TTCAA benefits from these critical applications which have all been integrated into the TTCAA Intranet site SharePoint.

CIVIL AVIATION TRAINING CENTER (CATC)

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The aim of the Civil Aviation Training Center (CATC) is to be the premier air navigation services training provider for the region, with state of the art, modern facilities and advanced technological capabilities, and to expand its courseware to include more broad based aviation and academic training.

For the fiscal year 2018-2019, the CATC strategy focused on restructuring and modernization of the ATC Diploma Program through the implementation of the online delivery of courses. The ATC Diploma Program is now a blended course of which 80% of the theoretical aspects are delivered through an online portal. This venture has reduced the time participants are required to attend classes at the CATC from seven months to five months.

In alignment with the strategic initiative of the CATC to develop curricula for the provision of tailored programs to meet the evolving requirements of the aviation industry, the

CATC has successfully negotiated the right to deliver International Air Transport Association (IATA) and the University of Geneva – Advanced Diploma in Aviation Studies. It is estimated that the program would be delivered in February 2020. The CATC is in the process of conducting negotiations for the implementation of a locally conducted MSc in Safety Management in conjunction with ICAO and Ecole Nationale de l'Aviation Civile (ENAC). The program is expected to be delivered in 2020 – 2021 if the negotiations are successful.

To be competitive and thrive in the tertiary education market it is imperative for the CATC to employ aggressive marketing strategies to enhance its market share and profitability. For the fiscal year 2018-2019, the CATC has developed a detailed business plan for the consideration and approval of the Board. The plan considers:



- Revisions to the organisational structure
- Enhanced training requirements for the human resource capital
- Augmentation of the courseware to include a broader spectrum of academic and general aviation training and learning
- Marketing strategies for growth and development
- Maximization of international affiliations and associations.
- Proposals for courseware targeted at the Next Generation of Aviation Professionals.

The TTCAA is committed to ensuring that the strategies for the profitability and sustainability of the CATC are focused on the provision of courseware that enhances the aviation industry both locally and regionally.



ICAO NACC DCA MEETING

Trinidad and Tobago hosted the Ninth North American, Central American and Caribbean Directors of Civil Aviation Meeting (NACC/DCA/09) at the Hyatt Regency Hotel, Port of Spain during the period June 25 – 27, 2019.

The Meeting was attended by 19 States/Territories from the North American/Caribbean (NAM/CAR) Regions, 1 State of the Middle East (MID) Region and 11 International Organizations/industry, totaling 94 delegates. Mr. Francis Regis, Director-General of Civil Aviation, Trinidad and Tobago chaired the meeting plenary.

Mr. Regis welcomed the participants and emphasized the importance of this meeting for the effective compliance with ICAO Standards and Recommended Practices (SARPs). Capt. Thomas E. Lawrence, Chairman of the Trinidad and Tobago Civil Aviation Authority provided opening remarks, giving a historical overview of the NACC No Country Left Behind (NCLB) Strategy and its goals. Dr. Fang Liu, Secretary General of the International Civil Aviation Organization (ICAO) provided opening remarks on the importance of Aviation in States' socio-economic development, thanked the States' Directors for their commitment to the ICAO NACC Systemic Assistance Programme (SAP), informed the Meeting of the different relevant ICAO 2019 events, and thanked Trinidad and Tobago for hosting the meeting.

The Honourable Rohan Sinanan, Minister of Works and Transport, Trinidad and Tobago, welcomed the participants to the country and officially opened the meeting.

The Meeting discussed a myriad of agenda items affecting civil aviation and arrived at various conclusions and decisions requiring further actions by participants.





STAFF EVENTS

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SEA STUDENTS 2019 GRANT FUNCTION



EMANCIPATION DAY



INDIAN ARRIVAL DAY



