



Agenda Item 6: Other business

**CONTINUATION OF TECHNICAL COOPERATION BETWEEN
COUNTRIES OF THE SAM REGION**

(Prepared by Brazil)

SUMMARY

This working paper aims to analyze the various technical cooperation agreements signed by States of the Region in order to increase the efficiency of the air service providers of the SAM Region.

1. Introduction

1.1 This note aims to inform the continuity of the work related to technical cooperation between Brazil and other countries of South America.

2. Examples of collaboration

2.1 ARGENTINA

2.1.1 The cooperation between Brazil and Argentina, through its air navigation organizations, DECEA and EANA, was based on the concepts of Doc 9750 and was developed in three phases. In the first phase, among other projects, a plan for the implementation of an FMP was prepared and the ATC capacity measurements were carried out in the sectors of ACC Ezeiza and ACC Baires.

2.1.2 The second phase was implemented through an ATFM course for seven EANA professionals. The instruction was carried out in two stages, one in the CGNA and the other in the CINDACTA II.

2.1.3 The third phase consisted in the actual implementation of the ATFM service in Argentina. However, in order to be successful in the implementation of the ATFM Service, it is necessary that the airspace has a design compatible with the newest techniques of air traffic management. For this reason, the DECEA carried out the redesign of the Argentine airspace, with the preparation of more than 120 PBN procedures, as well as training the process developers with the courses in the PANS-OPS area.

2.1.4 Finally, as a consequence of the aforementioned phases, it was possible to form an FMP cell in Ezeiza for flow management. Cell is working directly under the management of the CGNA, where a specific position was created for the South American ATFM, on the date of November 26, 2018.

2.2 BOLIVIA

2.2.1 The bilateral technical cooperation agreements between Brazil and Bolivia aim to increase the efficiency of airspace control. This culminated in the creation of the Brazilian Aeronautical Technical Mission, on March 25, 2019, based in the city of Cochabamba.

2.2.2 The mission has three offices dedicated full time to the control of Bolivian airspace, formulating technical guidelines that will develop the ATM and ATMF services of the country, and consequently of the region.

2.3 PARAGUAY

2.3.1 Brazil's cooperation with DINAC is being developed in the following areas: training, implementation of the Guaraní APP, development of the ATFM service, Flight Inspection, SARPAS and Portal AGA.

2.3.1.2 **Training**

2.3.1.3 The training project developed by the DECEA in cooperation with the DINAC, made possible the training of innumerable human resources, both in the operational part and in the technical part. In the operational area, the following courses were carried out:

2.3.2 In the operational area, the following courses were carried out:

2.3.2.1 PRACTICAL INSTRUCTION TRAINING COURSE (CTP006)

Objective: To qualify the instructor for the teaching-learning process, as well as to train him / her to use, in a correct way, a practical instruction either in the specific course of the area or in the supervised stage.

Date: 10/29/18 to 11/16/18;

Number of graduate students: 15;

Location: Asunción.

2.3.2.2 BASIC ATS SURVEILLANCE (ATM002)

Objective: To train the students to carry out the Course "Techniques of the ATS Surveillance Service in Route and Terminal Area".

Date: 11/26/18 to 12/21/18 - 07/01/19 to 1/25/19;

Number of graduate students: 16;

Location: Asunción.

2.3.2.3 TECHNIQUES OF THE ATS SURVEILLANCE SERVICE IN ROUTE AND TERMINAL AREA (ATM015)

Objective: To train the ATCO to carry out the operational stage in order to obtain the Technical Qualification Certificate necessary for the provision of the ATS Surveillance Service in Route and Terminal Area.

Date: 02/11/19 to 04/05/19;

Number of graduate students: 12;

Location: Asunción.

2.3.2.4 COURSE CAPACITY OF THE RUNWAY SYSTEM

Objective: To provide the student with theoretical and practical support that enables him to use the procedures for measuring the capacity of the aerodrome track system.
Date: 10/15/18 to 10/26/18;
Number of graduate students: 12;
Location: Foz do Iguaçu.

2.3.2.5 AERIAL SPACE CAPACITY COURSE

Objective: To provide the student with theoretical and practical support that enables him to use the procedures for measuring the capacity of ATC sectors of a TMA or FIR.
Date: 11/19/18 to 11/23/18 - 11/26/18 to 11/30/18;
Number of students trained: 06;
Location: Foz do Iguaçu and Asunción.

2.3.2.6 TACTICAL ATFM COURSE

Objective: To provide students with learning experiences that enable them to act as Air Traffic Flow Manager of the SISCEAB operative bodies.
Date: 28/01/19 to 01/02/19 - 04/02/19 to 06/02/19;
Number of students trained: 04;
Location: Rio de Janeiro and Curitiba.

2.3.2.7 TEAM RESOURCE MANAGEMENT - TRM (ASE001)

Objective: To provide the student with theoretical and practical support that enables him or her to use appropriate skills and techniques for a safe and efficient teamwork.
Date: 07/11/18 to 11/9/18;
Number of students trained: 08;
Location: Foz do Iguaçu.

2.3.2.8 RISK MANAGEMENT OF OPERATIONAL SECURITY (ASE009)

Objective: To provide the student with the necessary learning to participate and / or coordinate the Operational Safety Risk Management (GRSO) team in the provision of Air Navigation Services (ANS).
Date: 11/12/18 to 11/16/18;
Number of graduate students: 21;
Location: Foz do Iguaçu.

2.3.2.9 OPERATIONAL SECURITY MANAGEMENT SYSTEM IN ANS PROVIDING ORGANIZATIONS AND ORGANIZATIONS (ASE010)

Objective: To prepare the professionals responsible for the management of safety in the Organizations and Entities and Suppliers of the Air Navigation Services in the SISCEAB, with a view to the implementation and maintenance of an SGSO.
Date: 11/12/18 to 11/16/18;
Number of students trained: 04;
Location: Foz do Iguaçu.

2.3.2.10 PRACTICE OF FLIGHT PROCEDURE DESIGN: CONVENTIONAL AND RNAV / RNP / BARO VNAV (ATM037, ATM034 AND ATM 036) - PREVISION

Objective: To provide the necessary knowledge to obtain the Certificate of Technical Qualification (CHT) of Process Developer (EP).
Date: 05/08/19 to 11/14/19;
Number of students trained: 04;
Location: Foz do Iguaçu.

In the technical area, the following courses were carried out:

2.3.2.11 NAV 029 - MAINTENANCE OF THE ILS SYSTEM MK10 / 20

Date: 03/12/18 to 12/14/18;
Number of graduate students: 03;
Location: Natal.

2.3.2.12 NAV 009 - LUMINOUS APPROACH ASSISTANCE MAINTENANCE (expected)

Date: 03/06/2019 to 06/28/2019;
Number of students trained: 02;
Location: Manaus.

2.3.2.13 NAV 033 - MAINTENANCE OF ILS THALES 420 (forecast)

Date: 09/09/19 to 09/27/19;
Number of graduate students: 03;
Location: San José de los Campos.

2.3.2.14 NAV 028 - MAINTENANCE OF DME THALES 415/435 (forecast)

Date: 05/27/19 to 05/06/19;
Number of graduate students: 03;
Location: San José de los Campos.

2.3.2.15 NAV 015 - MAINTENANCE OF BASIC NDB (forecast)

Date: 04/15/19 to 03/05/19;
Number of students trained: 04;
Location: Rio de Janeiro.

2.3.2.16 COURSE NAV001 - MAINTENANCE OF ILS

Date: 10/28/18 to 11/16/18;
Number of students trained: 02;
Location: San José de los Campos.

2.3.2.17 COURSE TEL 025 - BASIC BASE OF NETWORK AND CISCO EQUIPMENT

Date: 05/11/18 to 11/23/18;
Number of graduate students: 03;
Location: Curitiba.

2.3.2.18 COURSE TEL 017 - MAINTENANCE OF VHF AM - PARK AIR

Date: 05/11/18 to 11/23/18;
Number of graduate students: 03;
Location: Rio Branco.

2.3.2.19 **APP Guarani**

2.3.2.19.1 Brazil's cooperation with Paraguay also resulted in the transformation of the conventional operation of the Guarani APP for radar operation. The DECEA donated the consoles for radar operation, well with its installation. In order for the controllers to take over the radar operation, 06 ATCO of Guarani will do an operational stage in the Foz do Iguacu APP. The aforementioned stage is divided into a theoretical phase and a practical phase. In addition to the operational training, it was necessary to carry out the technical training of Paraguayan maintainers. Therefore, the following courses, among others, will be carried out:

- Audiosoft Audio Recording System Course: from 04/04/19 to 04/19/19;
- SITTI Audio Center System Course: from 04/22/19 to 03/05/19;
- Course of the X-4000 system and database course.

2.3.2.20 **ATFM**

The development of the ATFM service will be promoted by the implementation of a flow management cell (FMP) in the Asunción Area Control Center (ACC). The operation of this cell can only be made viable with the foundation of three pillars: ATCO training, measurement of ATC sector and track systems capabilities and, finally, with ATFM management software. To contemplate the last requirement mentioned above, the FMP will have the same operating system used by Brazil currently, the Integrated System of Management of Air Movements (SIGMA).

2.3.2.21 **Flight Inspection**

The agreement signed between DECEA and DINAC was also extended to the flight inspection of Paraguayan air navigation aids. The flights were carried out both as a type approval inspection and as a periodic inspection.

The aforementioned inspections took place in the following aid:

- 1) ILS IPST (11/03/2019);
- 2) VOR / DME VAS (12/03/2019);
- 3) ILS ICES (13/03/2019);
- 4) VOR / DME VEN (13 and 14/03/2019);
- 5) VOR / DME VME (15/03/2019);
- 6) ILS IMCL (15/03/2019);
- 7) VOR / DME VES (16/03/2019);
- 8) PAPI RWY 20 SGAS (18/03/2019);
- 9) PAPI RWY 02 SGAS (18/03/2019);
- 10) NDB CDE (19/03/2019);
- 11) VOR / DME VES (19 and 20/03/2019);
- 12) PAPI RWY 02 SGEN (19/03/2019);
- 13) PAPI RWY 20 SGEN (19/03/2019);
- 14) PAPI RWY 05 SGES (20/03/2019);
- 15) PAPI RWY 23 SGES (20/03/2019);
- 16) ILS ICES (20 and 21/03/2019); and
- 17) VOR / DME VME (22/03/2019).

2.3.2.22 SARPAS and Portal AGA

DECEA will also provide all the necessary structure for the provision of services related to RPAS and AGA. The aforementioned structure consists of regulatory support for the regulation and IT support necessary to meet the most diverse requests of users.

2.4 URUGUAY

2.4.1 The cooperation between DECEA and DINACIA is being carried out in four areas: Aeronautical Information Service, training, restructuring of the air space (PBN) and implementation of the ATFM service.

2.4.2 The first integrated action between the DECEA and the DINACIA took place in August 2018 in the city of Montevideo, in which a Brazilian delegation carried out the update of the SISNOTAM of Uruguay.

2.4.3 In the training part, the DECEA carried out the ATC Supervision Course, in the city of Montevideo, in the period from 10/29/2018 to 11/16/2018, which enabled the formation of ten new Uruguayan supervisors.

2.4.4 Analogous to what happened in Argentina, the DECEA integrated the Montevideo FMP cell into the CGNA, into South America's own management. What enabled an integrated ATMF between Argentina, Brazil and Uruguay.

2.4.5 And in addition, Brazil is supporting the restructuring of Uruguayan airspace. Therefore, in the current semester, the DECEA will prepare more than 30 PBN procedures for the country's main aerodromes.

2.5 VENEZUELA

2.5.1 On the occasion of the visit of the Venezuelan delegation to DECEA, it was agreed that Brazil will provide recurrent training for about 30 Venezuelan ATCO. Instruction is planned for the second semester of 2019.

3. Conclusion

3.1 Air navigation service providers should always seek to increase efficiency and ensure airspace safety. To achieve this, ATC Systems need to be constantly improved in all its components: ATS, ASM and ATFM.

3.2 Therefore, when regionally integrated, efficiency in ATM management systems grows with the synergy and rationalization of the use of air space between adjacent FIRs.

3.3 Due to this, Brazil wants to cooperate with all the nations of the SAM Region, seeking to increase and develop air navigation, which is becoming increasingly integrated. This cooperation consists in promoting training for professionals; implementing the ATFM with the entire structure for the installation of an FMP; automating the RPA and AGA services and, finally, redesigning the airspace.

4. Suggested action:

4.1 The Meeting is invited to follow the following recommendations:

- a) Take note of the implementation described in this document;
- b) That the ICAO SAM Regional Office encourage and coordinate the development of technical cooperation agreements among the countries of the Region in order to increase the efficiency of ATM services in South America.

-END-