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WORKING PAPER

THIRTEENTH AIR NAVIGATION CONFERENCE

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COMMITTEE A

Agenda Item 3: Enhancing the global air navigation system
3.3: Air traffic flow management (ATFM)

TECHNICAL COOPERATION BETWEEN BRAZIL AND ARGENTINA FOR ATFM IMPLEMENTATION

(Presented by Brazil)

EXECUTIVE SUMMARY

This working paper is intended to provide a summary of the performance results of a technical cooperation between Brazil and Argentina, supported by the ICAO-South American (SAM) Office, for the implementation of air traffic flow management (ATFM) in the Argentina air navigation services provider (ANSP); share the gains of this project; and encourage the multiplication of similar initiatives for the aviation community. Reference: GANP, ASBU-B0 NOPS; Capacity; Efficiency.

Action: The Conference is invited to agree to the recommendation in paragraph 5.3.

1. INTRODUCTION

1.1 In 2017, the Department of Airspace Control (DECEA) (Brazil) and Empresa Argentina de Navegación Aérea (EANA) (Argentina), encouraged and supported by the project of cooperation among ICAO States (South American (SAM) Regional Office), initiated a cooperation agreement to exchange knowledge to improve air navigation services, especially for the development in the specific areas of: the *Procedures for Air Navigation Services — Aircraft Operations* (PANS OPS, Doc 8168), performance-based navigation (PBN) and air traffic flow management (ATFM).

1.2 Other cooperation agreements for ATFM, PBN, PANS-OPS and air traffic control (ATC) are under negotiation process with Paraguay, Uruguay, Panama and Bolivia.

1.3 The lines of work proved beneficial for the parties and potentially for the whole SAM Region as well. However, for purposes of the aviation system in its entirety, it is necessary to highlight the benefits of a binational enterprise on the establishment of ATFM system in Argentina.

2. BRIEF HISTORY — ATFM IN BRAZIL

2.1 In 2007, faced with an important traffic growth and the challenges of hosting world events such as FIFA World Cup in 2014 and the Olympic Games in 2016, Brazil forecasted the need to develop an ATFM management unit, the Air Navigation Management Center (CGNA).

2.2 Great effort has been made during the early stages (operational concept, operating structures, human resources training, automated tools, etc.), in order to address regular challenges of such an undertaking, a scenario made more difficult by the fact that, by that time, only developed countries, usually located in the Northern hemisphere, had established the ATFM.

2.3 All possible exchange with North America and Europe was accomplished, despite the fact that financial, linguistic, cultural, and notorious geographical barriers posed difficulties for Brazil to implement off-the-shelf solutions and much of the Brazilian ATFM procedural framework and tooling was developed by institutions and national industries, as much as possible compliant with existing international documentation and practices, not as abundant as today.

Flow Management Tool – SIGMA

2.4 As mentioned above, as off-the-shelf solutions did not fit the technical and financial strategy of the country, a partnership with the national leading ATC company, Atech (Embraer Group nowadays), was established to develop a customized tool to centralize information related to flow management.

2.5 It was necessary to establish a whole network to gather input from five area control centres (ACCs), the main approach control (APP), and all flight plan information that had extensive branch entry points.

2.6 After a few years of development, the SIGMA system started its operation, with various features, among which demand graphics, Unified National Plot Viewer (VSP), and full flight plan information, among others.

2.7 The full development of the Brazilian ATFM was considered a success story in the country, with its tool already used by another ANSP: Airports Authority of India (AAI), SkyFlow[1]. However, it was a complex and laborious process. Like any system, SIGMA has an ongoing development program and many features are being tested.

3. IMPLEMENTATION OF ATFM IN ARGENTINA

3.1 Brazil, responsible for great part of air movement in SAM, exerts certain influence on the air navigation infrastructure and the aviation market as a whole within the region. As a consequence, Brazil is expected to play a central role to implement new technologies and processes and thereby encourage its neighbouring countries to innovate.

3.2 Encouraged by the cultural, linguistic, and geographic close proximity, Argentina requested support and started an innovative action with the cooperation of DECEA in order to establish a unified agenda to develop ATFM.

[1] Fonte: Source: https://www.atech.com.br/blog/project/skyflow/

3.3 From practically the very beginning, Brazilian ATFM experts led and/or advised the Argentine professionals in the development of the following activities:

— CONOPS (Concept of Operations) ATFM of Argentina

— Implementation Plan for FMP/FMU

— Theory, practical course and OJT in measuring ATC Sector Capacity

— ATC Capacity measurement of FIR Ezeiza and TMA Baires

— ATFM course focusing on the Tactical Phase

— Review of ATFM documentation

— Dissemination on the ATFM service to the aviation community

— Review of ATFM strategic and pre-tactical planning

— Assisted operation of the ATFM service.

3.4 The work was mostly developed with on-the-job support from Brazilian professionals, with funding provided by the United Nations Development Program (UNDP), via the ICAO SAM Office in Lima. This close monitoring of specialized professionals has optimized the learning curve, reducing implementation time and improving the quality of the project.

3.5 At the end, the ATFM service in Argentina had initiated its implementation of Ezeiza Flow Management Unit in June 2018, only 18 months after an agreement was reached, in January 2017.

4. DISCUSSION

4.1 From the Brazilian point of view, the ATFM implementation in Argentina was successful and it seems that it has become a regional benchmark, considering that Uruguay and Panama have asked similar support for ATFM after the disclosure of the Argentine project. Bolivia and Paraguay were also motivated by the initiative and requested support to implement PANS-OPS, PBN and other ATS.

4.2 Due to the favourable results demonstrated, the SIGMA system has been considered to support the implementation of ATFM in all the above-mentioned countries as well.

4.3 It is clear that a more consolidated international documentation on ATFM, especially the third edition of the *Manual on Collaborative Air Traffic Flow* Management (Doc 9971) from 2017 also contributed positively to the development of the project. But, owing to a joint force among Brazil, Argentina and ICAO, it was possible to establish an ATFM service within only an 18-month time period.

4.4 At the end, gains are expected in the future for the traffic flow within the SAM Region regarding capacity, interoperability, and standardization of data and processes, but results of the operational and strategic coordination are already noticeable.

4.5 Undoubtedly, there is still much to be improved in the new process, but the partnership established between the mentioned countries will enable better coordination channels and the possibility of ongoing knowledge building and experience exchange.

4.6 In that sense, technical cooperation agreements among countries should be strongly recommended for ATFM purposes, not only after implementation but even before starting its development.

5. CONCLUSION

5.1 Brazil believes that the development and implementation of ATFM, whenever possible, should be shared, integrated and joint, as in the example above, when times and costs were reduced and results were great.

5.2 Therefore, as stated in the Doc 9971, "…effective management must transcend national borders…", then it is impossible to think about ATFM without cooperation and sharing.

5.3 Considering the information above, the Conference is invited to agree to the following recommendation:

That the Conference:

a) recommend States and international organizations to support ICAO to continue the development of ATFM implementation;

b) request the ICAO Regional Offices to cooperate with the States at the regional level to develop technical cooperation agreements to support air traffic flow management (ATFM) implementations; and

c) request States and industry to share joint initiatives in the implementation of ATFM, offering more efficient options to prompt initiatives to best meet their needs.

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