International Civil Aviation Organization
CAR/SAM Regional Planning and Implementation Group (GREPECAS)
Seventeenth Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/17)
(Cochabamba, Bolivia (Plurinational State of), 21 to 25 July 2014)

Agenda Item 3: Air navigation activities at global, intra-regional, and inter-regional level

3.2 Intra-regional air navigation activities

Management of National ATM Implementation Plan

(Presented by Brazil)

SUMMARY

This information paper aims at providing knowledge to the Meeting on initiatives developed for the evolution of the National ATM System, contained in the SIRIUS Program, as well as the management process established for its implementation.

References:
- Global Air Navigation Plan, Doc. 9750, 4th edition, ICAO;
- Performance-Based Air Navigation System Implementation Plan for the SAM Region, version 1.4, ICAO; and
- National ATM Implementation Plan (PCA 351-3), DECEA.

ICAO Strategic Objectives:	*A - Safety* *B - Air Navigation Capacity and Efficiency*

1. Introduction

1.1 An Air Traffic Management (ATM) System which ensures global interoperability and harmonization and that meets the operational needs of each Region and Member States has been the subject of ICAO evolutionary planning process for several years. The first edition of the *Global Air Navigation Plan for CNS/ATM Systems* (Doc. 9750) was published in 1998 and a second edition was released in 2001. This plan was prepared as a strategic document to guide the implementation of the new CNS/ATM systems.

1.2 The 11th Air Navigation Conference in 2003 adopted the *Global Air Traffic Management Operational Concept* (Doc. 9854). To adapt the global planning to the Global ATM Operational Concept, ICAO developed the 3rd edition of Doc. 9750, known as the *Global Air Navigation Plan* (GANP), published in 2007, aiming at providing the necessary conditions for the implementation of operational improvements intended to generate benefits to the ATM Community by making use of *Global Plan Initiatives* (GPI).

1.3 As of 2010, ICAO has intensified its efforts to meet the global airspace interoperability needs, while maintaining the aspects related to safety. Thus, the 12th Air Navigation Conference endorsed in 2012 the 4th edition of the *Global Air Navigation Plan* (Doc. 9750), which introduces the *Aviation System Block Upgrade*s (ASBU) methodology, presents air navigation policies and establishes a technological roadmap to support the needed evolution.

1.4 At the regional level, the *Performance-Based Air Navigation System Implementation Plan for the SAM Region* (SAM PBIP) was developed in 2011. Subsequently, the Plan was aligned with the ASBU Methodology and approved at the meeting of Civil Aviation Authorities of the South American Region (RAAC/13) in 2013, which encouraged its adoption by the States of the SAM Region.

Planning the National ATM System

1.5 Since the end of the 1990s, the *Directorate of Electronic and Flight Protection* (DEPV), current *Department of Airspace Control* (DECEA), has been working on specific plans for implementing projects making use of new functionalities associated with CNS/ATM Systems. The results of these plans can be noted in the implementation of relevant projects for the ATM Community, such as the implementation of the *Air Navigation Management Center* (CGNA), the application of ATFM, *Caribbean and South American Monitoring Agency* (CARSAMMA) and the application of RVSM, ADS-C and CPDLC in the Atlântico FIR, SBAS Tests and Assessments (in partnership with FAA) which resulted in studies on the influence of the ionosphere in GNSS navigation in the SAM Region, among others.

1.6 Following the approval by ICAO of the *Global ATM Operational Concept* (Doc. 9854) and the 3rd edition of the *Global Air Navigation Plan* (Doc. 9750), DECEA updated its ATM planning, developed an operational concept document, designated as *National ATM Operational Concept* (DCA351-2) and later the *National ATM Implementation Plan* (PCA 351-3).

1.7 The *Operational Concept* shows the future vision of the National ATM System, with the aim of guiding the necessary actions to the evolution of existing capacity in an orderly, safe, timely, environmentally-sustainable manner and in line with the Global ATM Operational Concept. The *National ATM Implementation Plan* establishes the strategy for the evolution of the performance-based ATM System, in order to meet national needs and to ensure that this development is harmonious and integrated into ICAO planning, at the Regional and Global levels. Currently, this Plan is being updated to correlate its projects with the respective ASBU Methodology modules, to ensure the interoperability of the adopted solutions.

2 Analysis

The SIRIUS Program

2.1 The *National ATM Implementation Plan*, approved in 2012, was developed considering the performance-based approach (PBA) as necessary framework to enable the management of the ATM System evolution. PBA consists of defining performance levels to be achieved, deciding, planning, and implementing operational improvements to eliminate gaps between the measured and the planned performance. To this end, it is necessary to define the behavior of the ATM System by means of performance indicators that can support decisions, measure the results of actions and demonstrate whether the expected levels of performance were achieved.

2.2 This approach generates a continuous planning flow, making the Plan a living document that requires periodic evaluation of the benefits achieved and the emerging needs, obtained from the expectations of the ATM Community. An important component of analysis is the Regional Plan (SAM PBIP) that consolidates the interests and agreements made with the States having FIR adjacent to the Brazilian FIRs, in which the interoperability and harmonization criteria must be met.

2.3 The National ATM Implementation Plan sets out a number of developments or Performance Framework that seek achieving important benefits to the ATM Community. However, the development of these Performance Frameworks may face different levels of complexity, to the extent that they involve several other projects that contribute to implant the desired solution. In this way, DECEA identified the need to adopt the best project management practices suitable to the profile of the organization.

2.4 To support the demands of the National ATM Implementation Plan, DECEA established the SIRIUS Program, which consolidates the structure needed to turn the plans at the strategic level into reality. **Appendix A** to this information paper presents the Performace Frameworks being developed in the SIRIUS Program.

2.5 Although SIRIUS is still at an initial stage, considering the scope of the Program, some tasks already show significant benefits, including: restructuring of an important part of the ATS route network (Version 01), with the implementation of RNAV-5; application of PBN procedures at the RIO, SÃO PAULO, RECIFE, BRASÍLIA and BELO HORIZONTE terminals; implementation of the basic infrastructure for migrating AIS to AIM; application of Air Traffic Flow Management, supported by Collaborative Decision Making (CDM); and restructuring of the Brazilian FIRs to balance demand and capacity.

Management of the SIRIUS Program

2.6 To make the SIRIUS Program feasible, DECEA established a process of executive management, through a Working Group called “GT SIRIUS” coordinated directly by senior management of the Organization, which enables the development of Performance Frameworks and related projects using existing organizational structure, as well as oversee the evolution of the National ATM Implementation Plan and the National ATM Operational Concept according to new demands.

2.7 DECEA is subordinated to the Air Force Command (Ministry of Defense), consisting of the basic organizational structure presented in Appendix A to this information paper and composed of: Direction (DGCEA); Vice-Direction (VICEA); Administration Sub-Department (SDAD); Operations Sub-Department (SDOP); and Technical Sub-Department (SDTE).

2.8 In addition, DECEA counts on the "Airspace Control System Implementation Commission" (CISCEA) which is a subordinate unit specializing in the implementation of equipment and systems to upgrade the systems relating to airspace control, including those that support the Air Navigation Services. The Vice-Direction also has support of the "Advisory Office for Planning, Budget and Management" (APLOG).

2.9 The GT SIRIUS was created in October 2012 to manage the execution of the National ATM Implementation Plan, having representatives of the Vice-Direction, the Operations Sub-Department (SDOP), the Technical Sub-Department (SDTE), the Administration Sub-Department and the CISCEA.

2.10 The President of the GT SIRIUS is the Vice-Director of DECEA. The Executive Coordinator of the GT is the Head of the Operations Sub-Department (SDOP), which is responsible for directing, organizing and guiding the work of the Group. The Heads of the Sub-Departments provide the necessary resources for the implementation of the activities envisaged in the Plan. The APLOG provides support to the managers regarding the application of best program and project management practices, provides management tools used in the management of SIRIUS, performs strategic planning analyses that enable the status of understanding of the general implementation and of the new demands of the ATM Community, as well as supports secretarial activities linked to the GT.

2.11 The Performance Frameworks have complexities that require the participation of multidisciplinary groups to their development, so the teams are composed of experts that are functionally assigned to different Divisions which, in turn, are hierarchically subordinated to the Sub-Departments.

2.12 The Performance Frameworks manager and the experts that make up the project teams are assigned by the GT SIRIUS, as they represent the Organization resources allocated for specific activities, cumulatively with their functions in the Organization. Thus, the projects are developed in accordance with the Organization's capacity in terms of human resources and budgetary resources. The Performance Framework managers work with their teams following a matrix structure, as shown in Appendix A of this information paper, though all related administrative acts are conducted by means of the instruments available at the basic hierarchic structure of the Organization.

2.13 The Performance Frameworks can be broken down into different projects. In such cases, each project will have its own Project Manager and team, according to the scope considered for the project. Some tasks also include the participation of specialists from other organizations of the ATM Community, DECEA external stakeholders, by using a collaborative process.

2.14 The GT SIRIUS develops its activities in the form of regular meetings to assess progress and needs of the Performance Frameworks, making decisions and providing guidance according to the identified need. Additionally, aspects considered strategic for the continuity of the Plan are also analysed, including project prioritization needs, limited resources, reorganization of activities in light of new demands, among others.

2.15 The outcomes of the GT are consolidated in reports that record specific decisions and guidelines to Performance Frameworks and project managers, in order to ensure that the performance objectives of each Performance Framework are achieved within the agreed deadlines, tracking the decision processes, and generating transparency for all the interested parties.

2.16 Furthermore, project management tools provide support to the activities of project managers and makes available to the GT SIRIUS members a series of management information, allowing them to have a complete view of the entire Program, including critical paths that may threaten the fulfillment of the Organization’s goals. **Appendix B** shows an example of management information on the general status of the projects.

2.17 SIRIUS Program counts on a website, www.decea.gov.br/novo_sirius/, containing information about the Program, which can also be accessed through www.decea.gov.br. The SIRIUS website should evolve to contain more and more relevant information to the ATM Community, also serving as another means of communication with DECEA.

3 Conclusion

3.1 Programs involving complex projects require a management mechanism to obtain the commitment from the senior management of the organizations involved, and this can be achieved in different ways depending on the characteristics of each organization. In the case of DECEA, which is structured hierarchically, there was an understanding that a Working Group involving the top management of the Organization, which would facilitate project management in a matrix form, would be a suitable mechanism to make the needed resources available and promote the evolution of the National ATM System.

3.2 Finally, it should be highlighted that the creation of the SIRIUS Program, even though its activities are at an early stage, has already demonstrated its validity by allowing DECEA senior management to have greater visibility and control of all tasks and the respective benefits that will be provided to the ATM Community and the society in general.

4 Suggested action

4.1 The Meeting is invited to take note of the contents of this information paper and formulate comments judged relevant, taking into account that the application of an appropriate management mechanism, coupled with the best practices of project management, could be useful in helping the evolution of the ATM Systems in the States of the CAR/SAM Regions.

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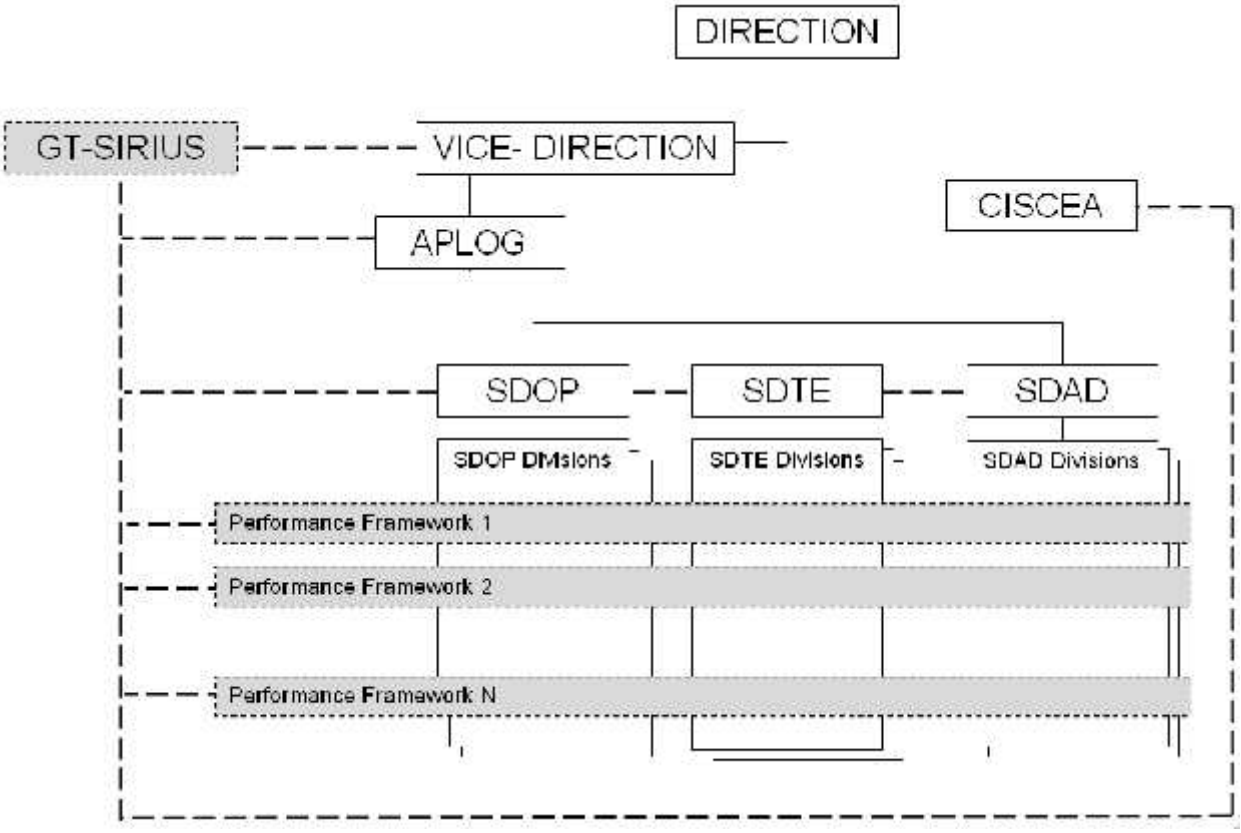
APPENDIX A

MANAGEMENT STRUCTURE OF THE SIRIUS PROGRAM



SDOP - Operations Sub-Department.
SDTE - Technical Sub-Department .
SDAD - Administration Sub-Department.
CISCEA - Airspace Control System Implementation Commission.
APLOG - Advisory Office for Planning, Budget and Management.

APPENDIX B

GENERAL SITUATION EXAMPLE OF THE SIRIUS PROGRAM DEVELOPMENTS

Situação	Código	Título	Início	Término	Real %	Plan %
Em Execução	PFF001	INCREMENTO DO GERENCIAMENTO DA SEGURANÇA OPERACIONAL NO SISCEAB	20/07/2012	31/06/2015	39,8	50,0
Em Execução	PFF002	OTIMIZAÇÃO DA REDE DE ROTAS ATS E REDIMENSIONAMENTO DAS ÁREAS SUPERIORES DE CONTROLE E REGIÕES DE INFORMAÇÃO DE VOO (UTA/FIR).	01/08/2012	31/12/2013	54,4	58,8
Em Execução	PFF003	IMPLEMENTAÇÃO OPERACIONAL PEN EM ÁREA DE CONTROLE TERMINAL	20/07/2012	15/12/2014	99,3	99,5
Em Execução	PFF005	USO FLEXÍVEL DO ESPAÇO AÉREO (FUA)	26/12/2013	27/12/2018	5,0	8,0
Em Execução	PFF006	IMPLEMENTAÇÃO DE GERENCIAMENTO DO FLUXO DE TRÁFEGO AÉREO (ATFM)	20/07/2012	15/06/2014	69,5	100,0
Em Execução	PFF007	MELHORIAS NOS SERVIÇOS DE INFORMAÇÃO DE VOO E DE ALERTA AO TRÁFEGO VFR	06/07/2011	30/06/2016	36,0	62,0
Em Execução	PFF008	MELHORIA DOS SERVIÇOS DE NAVEGAÇÃO AÉREA NAS BACIAS PETROLÍFERAS	20/07/2012	30/06/2016	35,1	30,5
Em Execução	PFF009	IMPLANTAÇÃO DO SERVIÇO DE GERENCIAMENTO TÉCNICO/OPERACIONAL DO SISCEAB (CGTEC)	01/03/2011	06/06/2016	42,0	43,9
Em Execução	PFF010	INFRAESTRUTURA DE COMUNICAÇÕES TERRA-TERRA E AR-TERRA	04/07/2011	04/02/2019	33,8	45,3
Em Execução	PFF011	MELHORIA DA CONSCIÊNCIA SITUACIONAL E DA AUTOMATIZAÇÃO ATM	01/01/2012	31/12/2018	36,5	52,1
Em Execução	PFF012	MELHORIA DOS SISTEMAS DE NAVEGAÇÃO	20/11/2008	31/12/2020	25,2	35,9
Em Execução	PFF013	MELHORIA DA GESTÃO DA QUALIDADE DA INFORMAÇÃO METEOROLÓGICA E AERONÁUTICA	01/01/2012	31/12/2015	41,9	44,9
Em Execução	PFF014	COLETA DE DADOS SOBRE O AMBIENTE METEOROLÓGICO	01/01/2012	31/12/2020	42,5	46,1
Em Execução	PFF015	TRATAMENTO DE DADOS METEOROLÓGICOS E INTEGRAÇÃO DE PRODUTOS METEOROLÓGICOS AO ATM NACIONAL	10/09/2012	31/12/2020	30,6	35,3
Em Execução	PFF017	MELHORIA DA QUALIDADE, INTEGRIDADE E DISPONIBILIDADE DA INFORMAÇÃO AERONÁUTICA.	16/08/2010	28/07/2017	60,2	68,5
Em Execução	PFF020	INCREMENTO DA EFICIÊNCIA DA PRESTAÇÃO DE SERVIÇO SAR	01/01/2012	31/12/2020	44,2	42,0
Em Execução	PFF021	PLANEJAMENTO DA CAPACITAÇÃO VISANDO O APRIMORAMENTO DOS RECURSOS HUMANOS PARA O SISTEMA DE NAVEGAÇÃO AÉREA	20/12/2012	31/12/2019	33,0	34,0
Em Planejamento	PFF022	APRIMORAMENTO DA GESTÃO DO DESEMPENHO DO SISTEMA ATM NACIONAL	01/01/2014	31/12/2019	N/A	N/A

Actual % - Physical execution percentage.
Plan % - Planned execution percentage.