International Civil Aviation Organization
South American Regional Office
Eleventh Workshop/Meeting of the SAM Implementation Group (SAM/IG/11) - Regional Project RLA/06/901
(Lima, Peru, 13 to17 May 2013)

Agenda Item 4: Implementation of air traffic flow management (ATFM) in the SAM Region

FOLLOW-UP ON ACTIVITIES OF PROJECTS UNDER THE ATFM PROGRAMME

(Presented by the Secretariat)

SUMMARY

This working paper presents the regional implementation activities of the *"Air traffic flow management"* programme and its associated projects, *"Improvement of the demand-capacity balance" and "Flexible use of airspace"*, approved by the GREPECAS/16 meeting.

REFERENCES

- Report of the Fifteenth Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/15), Río de Janeiro, Brazil, 13-17 October 2008;
- Report of the Sixteenth Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/16), Punta Cana, Dominican Republic, 28 March to 1st April 2011;
- SAM/IG/10 meeting

ICAO Strategic Objectives:	*A - Safety* *C - Environmental protection and sustainable development of air transport*

1. Introduction

1.1 Pursuant to GREPECAS mandate and based on CNS/ATM/SG experience, the Eighth Meeting of the ACG endorsed the proposal submitted at the GREPECAS/16 meeting concerning a new ICAO organization, involving several significant changes, such as the elimination of all subgroups and their replacement with Programmes and Projects.

1.2 GREPECAS/16 replaced the existing subgroups with project-based management, and the representatives pointed out that there were two projects associated to the ATFM Programme: Improvement of the demand-capacity balance and flexible use of airspace.

2. Discussion

2.1 With respect to the *"Air traffic flow management"* Programme, the SAM/IG meetings analysed Project B1, *Improvement of the demand-capacity balance* and Project B2, *Flexible use of airspace.*

2.2 One of the main issues identified in the SAM Region by SAM/IG meetings has been the lack of personnel specifically devoted to ATFM activities and that individuals responsible for ATFM management in their State are involved in other functions, preventing continuity of the tasks related to this matter.

2.3 Regarding ATFM training, several courses on Runway and ATC Sector Capacity were included and provided with the support of Regional Project RLA/06/901 to train both experts and instructors, with a view to starting activities in ATFM units as soon as possible.

2.4 On the other hand, with the support of Regional Project RLA/06/901, an expert was hired to prepare Guidance Material for the Application of the Flexible Use of Airspace Concept, as approved by the SAM/IG/10 meeting.

2.5 Progress made in the implementation of projects is directly related to the action plans of regional implementation groups, which are approved and implemented by the States. In this regard, the status of implementation of the projects should be reviewed and updated.

3. **Suggested action:**

3.1 The Meeting is invited to take note of the information provided in this working paper and create an *ad-hoc* group to review Project B1, shown in **Appendices A** and **B**, and Project B2, shown in **Appendices C** and **D**, to this working paper.

- - - - - -

APPENDIX A

PROJECT ON IMPROVING DEMAND-CAPACITY BALANCING

PROJECT DESCRIPTION (DP)		DP N° B1	
Programme	**Title of the Project**	**Start**	**End**
Air traffic flow management (ATFM) (Programme coordinator: Roberto Arca Jaurena)	Improve demand-capacity balancing *Project coordinator: Juarez Franklin Gouveia (Brazil)*	2012	2018
Objective	Avoid overloading the ATC and airport system, strengthening safety, taking into account the reduction of delays caused by weather and traffic conditions that leads to a reduction of fuel consumption and contaminating emissions. Likewise, it seeks to improve prediction and management of excess demand for services in ATC sectors and aerodromes.		
Scope	The scope of the project defines that the implementation of the ATFM service should start with a monitoring of airports and airspace in order to identify significant increments in ground delays and in-flight holding, as well as bottlenecks (ATC sector, runway, apron, and airport facilities). Furthermore, the determination of capacity and the analysis of air traffic demand are important elements for improving demand-capacity balancing.		
Metrics	- Percentage of delayed flights. - Air traffic demand. - Runway and ATC sector capacity.		

Strategy	The implementation of project activities will define ATFM implementation in the SAM Region through the analysis of airspace demand and capacity, taking into account that States in the phase of implementation shall coordinate with the ATM community the necessary actions for ATFM implementation. The infrastructure and the database, as well as the policy, standards and procedures are important components for the implementation of this project.
Rationale	GREPECAS considered that early implementation of ATFM shall ensure an optimum air traffic flow to or through certain areas during periods when demand exceeds or is expected to exceed available ATC system capacity. Therefore, the ATFM systems should reduce aircraft delays both in flight and on ground in order to avoid system overload.
Related projects	• Flexible use of airspace. • PBN operational implementation. • Implementation of the new ICAO flight plan format. • Automation.

Project deliverables	Relationship with the regional performance-based plan (PFF)	Responsible Party	Status of Implementation *	Date of Delivery	Comments
Assess the progress made in the ATFM implementation work programme	PFF SAM ATM 05	Juarez Franklin Gouveia		2012	-
Calculation of airspace capacity (ATC sector) of airspace regions of the States	PFF SAM ATM 05	Juarez Franklin Gouveia		SAM/IG/9	States shall submit their studies to the Secretariat before SAMIG/9. Brazil and Colombia already submitted their studies.
List of airspace sectors in which demand exceeds existing capacity during certain periods, including simulations conducted by States, if necessary.	PFF SAM ATM 05	Juarez Franklin Gouveia		SAM/IG/9 SAM/IG/10	States shall submit their studies to the Secretariat before SAM/IG/9. Brazil and Colombia have already submitted their studies.
List of operational factors affecting demand and airspace capacity, with a view to optimising existing capacity, including simulations, if necessary.	PFF SAM ATM 05	Juarez Franklin Gouveia		SAM/IG/9	States shall submit their studies to the Secretariat before SAM/IG/9. Brazil and Colombia already submitted their studies.

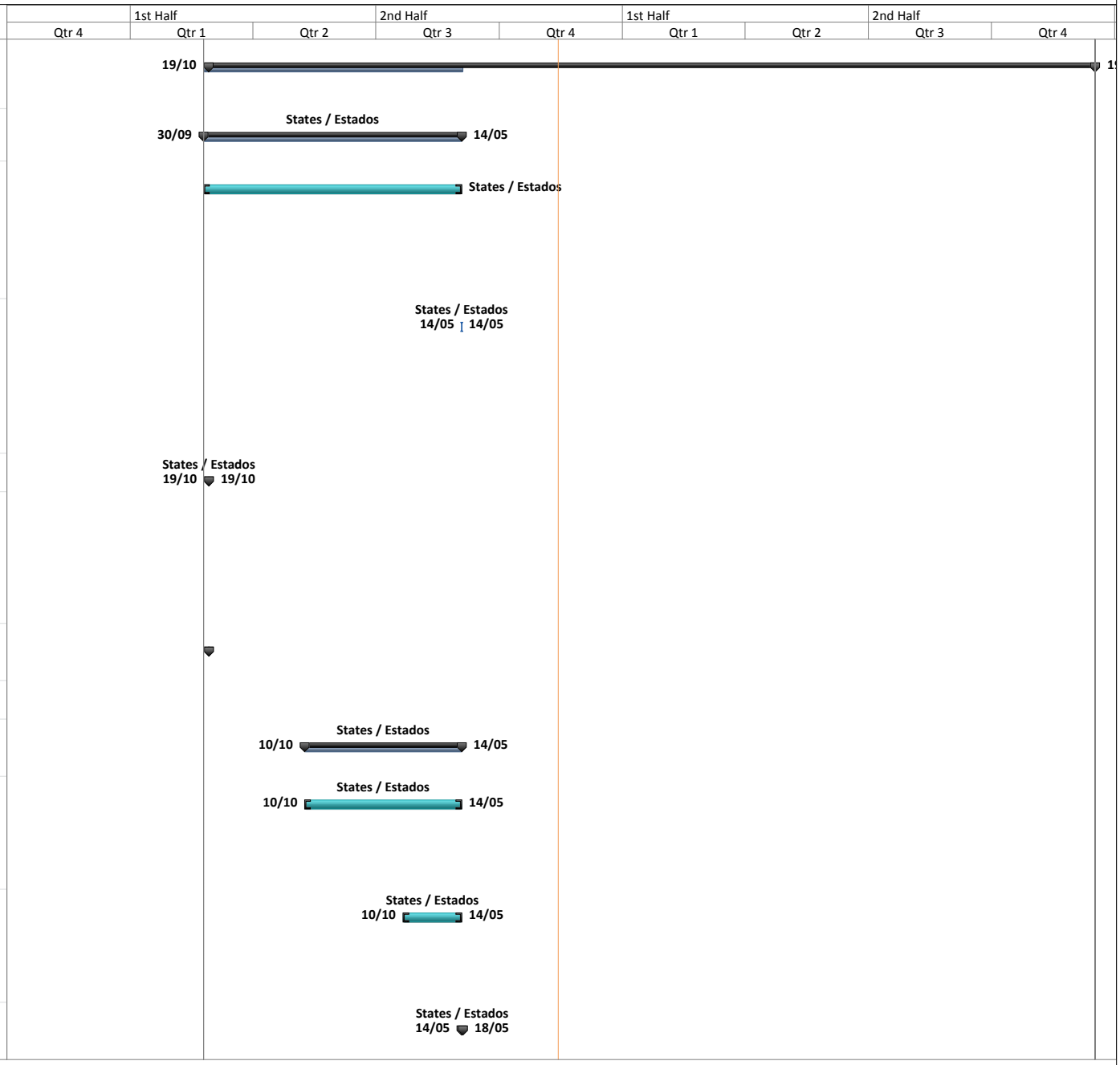
Policy, standards and procedures that define the frame of reference for the implementation of ATFM centralised units.	PFF SAM ATM 05	Juarez Franklin Gouveia		2014	-
Regional strategy for the implementation of the flexible use of airspace (FUA)	PFF SAM ATM 04	Marco Vidal		2015	-
Definition of common situational awareness elements	PFF SAM ATM 06	Paulo Vila		2012	States exchange information via web conferences. Paraguay, Colombia and Venezuela exchange information via web conferences. The States undertake to hold web conferences starting on 21 November 2011, in accordance with the implementation plan.
Personnel trained in strategic ATFM measures applicable to the airspace	PFF SAM ATM 05	Juarez Franklin Gouveia		TDB	Ongoing activity. An ATFM/CDM course was held in Brazil in 2010 with the participation of several States.
List of factors affecting the decision to implement.	PFF SAM ATM 05	Juarez Franklin Gouveia		SAM/IG/9	-

ATFM system performance oversight plan.	PFF SAM ATM 05	Juarez Franklin Gouveia		2013	-
ATFM post-implementation follow-up programme	PFF SAM ATM 05	Juarez Franklin Gouveia		August 2013	-
Resources needed	Designation of experts for the execution of some of the deliverables.				

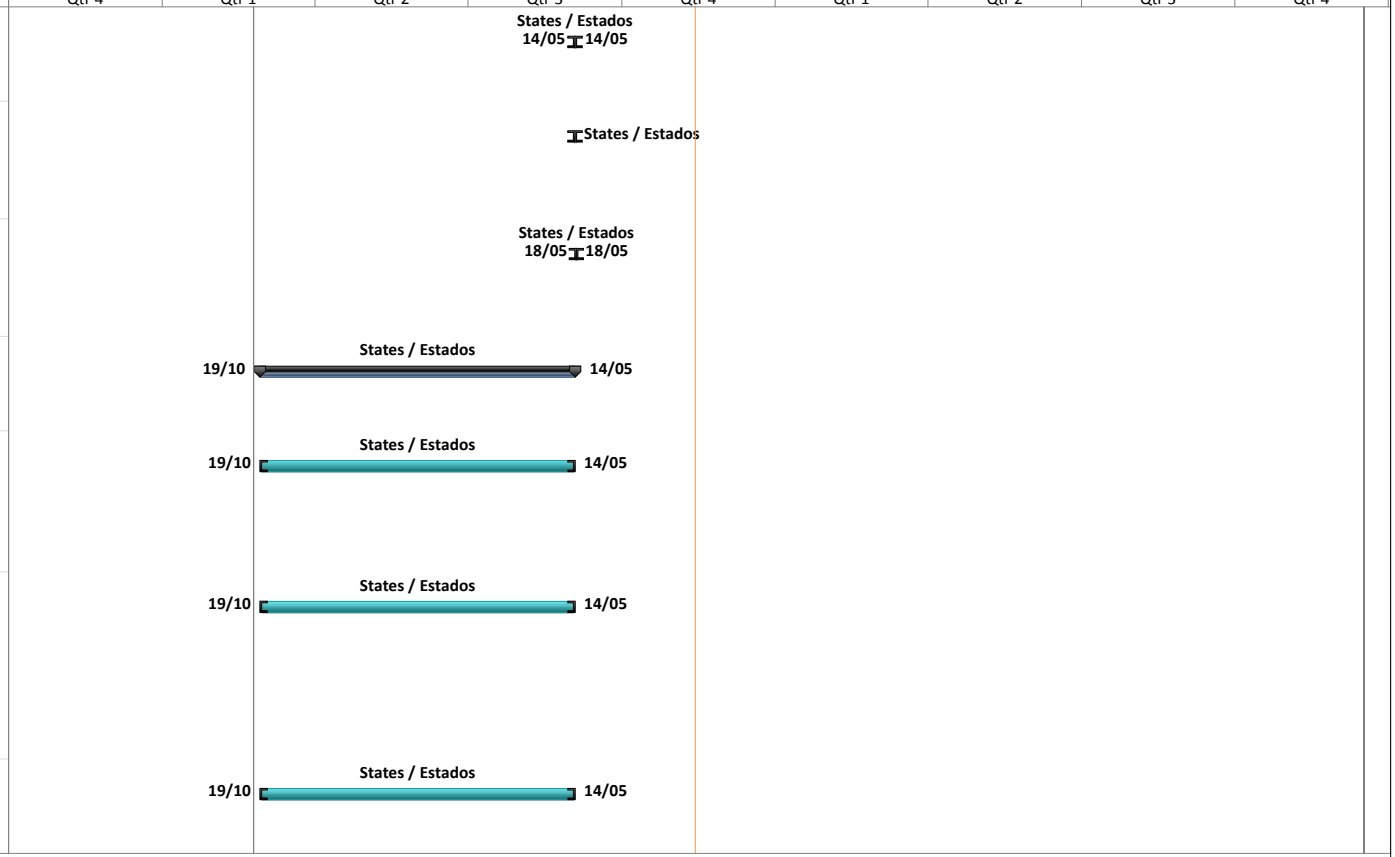
*

Grey	Task not started yet;
Green	Activity being implemented as scheduled;
Yellow	Activity started with some delay, but expected to be implemented on time;
Red	Activity not implemented on time; mitigation measures are required.

ID	Task Name	Duration
1	**B1 - IMPROVE THE BALANCE BETWEEN DEMAND AND CAPACITY/MEJORAR EL EQUILIBRIO ENTRE LA DEMANDA Y CAPACIDAD**	**2350 days**
2	**B1.1 Airport demand/capacity (runway capacity) analysis / Análisis de la Demanda y Capacidad**	**684 days**
3	Calculation of airport (runway capacity) and ATC sectors Capacity in the SAM Region as per the Course offered by Brazil/Cálculo de la Capacidad de Pista y Sectores ATC de acuerdo al método impartido en el Curso de Capacidad de Pista ofrecido por	684 days
4	Determine operational factors affecting airport demand/Determinar los factores operacionales que afectan la demanda y la capacidad del aeropuerto para optimizar la utilización de la capacidad existente, incluyendo simulaciones, de ser necesario	1 day
5	**B1.2 Infrastructure and data base /Infraestructura y Base de Datos**	**1 day**
6	Send to the Automation Group the data base information of Brazil, United States/Enviar al Grupo de Automatización los resultados de las bases de datos de dependencias ATFM de Brasil, Estados Unidos y	
7	**B1.3 Policy, standards and procedures / Política, Normas y Procedimientos**	**1 day**
8	Publish AIP Supplements/ Publicar suplementos AIP	
9	**B1.4 Monitor system performance/ Monitorear performance del sistema**	**417 days**
10	Implement the ATFM post-implementation follow-up programme at airports/Implantar programa de seguimiento pos-implantación de la ATFM en los aeropuertos	417 days
11	Execute the ATFM post-implementation follow-up programme at airports/Ejecutar programa de seguimiento pos-implantación de la ATFM en los aeropuertos	156 days
12	**B1.5 Final decision for implementation / Decisión final de implementación**	**5 days**



ID	Task Name	Duration
13	Review factors affecting decision to implement / Revisar factores que afectan decisión de implantación	1 day
14	Declare pre-operational implementation within area defined/ declare pre-operational implantación Pre-operacional dentro de área	1 day
15	Declare the final operational implementation in the defined area/ Declarar implantación operacional definitiva dentro de área definida	1 day
16	**B1.6 Demand and airspace capacity analysis / Análisis de la Demanda y Capacidad del Espacio Aéreo**	**671 days**
17	Identify airports where periods exist where demand exceeds existing capacity / Identificar aeropuertos donde existan períodos cuando la demanda es mayor a la capacidad existente	671 days
18	Determine operational factors affecting airport demand and capacity. / Determinar factores operacionales que afectan la demanda y la capacidad del aeropuerto para optimizar la utilización de la capacidad existente	671 days
19	Present the conclusions on existing airport capacity / Presentar las conclusiones de la capacidad aeroportuaria existente	671 days



APPENDIX C

PROJECT ON THE FLEXIBLE USE OF AIRSPACE

PROJECT DESCRIPTION (DP)		DP N° B2	
Programme	**Title of the Project**	**Start**	**End**
Airspace flow management (AFM) (Programme coordinator: Roberto Arca Jaurena)	Flexible use of airspace (FUA) *Project coordinator: Marco Vidal*	2012	2018
Objective	Optimisation, balance and equity in the use of airspace among the different users, and better civil/military coordination and cooperation, strengthening safety.		
Scope	The FUA concept will be applied harmoniously in the FIRs for which States are responsible, allowing for the short- and medium-term introduction of airspace improvements in accordance with the ATS route network optimisation programme.		
Metrics	• Percentage of civil/military coordination committees or similar bodies implemented. • Number of civil/military coordination and cooperation agreements implemented. • Reduction in the number of permanently reserved airspaces.		

Strategy	The project on the implementation of the flexible use of airspace will be implemented applying a phased approach, which starts with a more dynamic sharing of the reserved airspace, taking into account UASs. Likewise, SAR activities and military exercises and activities may require joint coordination and cooperation between two or more States at a given point in time, thus the importance of having civil/military coordination and cooperation committees in place. The systematic application of this concept will be taken into account for the optimisation of the route network, especially for the definition of scenarios for the implementation of non-permanent or conditional routes.
Rationale	The flexible use of airspace is an airspace management concept described by the International Civil Aviation Organization (ICAO), dealing with the optimisation, balancing and equity in the use of airspace amongst the different civil and military users. This is facilitated by strategic coordination and dynamic interaction, and is based on Appendix O to Assembly Resolution A 37-15, the GPI-1 initiative of the Global Air Navigation Plan (ICAO Doc 9750) and GREPECAS conclusions.
Related projects	PBN operational implementation; Improvement of demand-capacity balancing; Implementation of the new ICAO flight plan format; Automation.

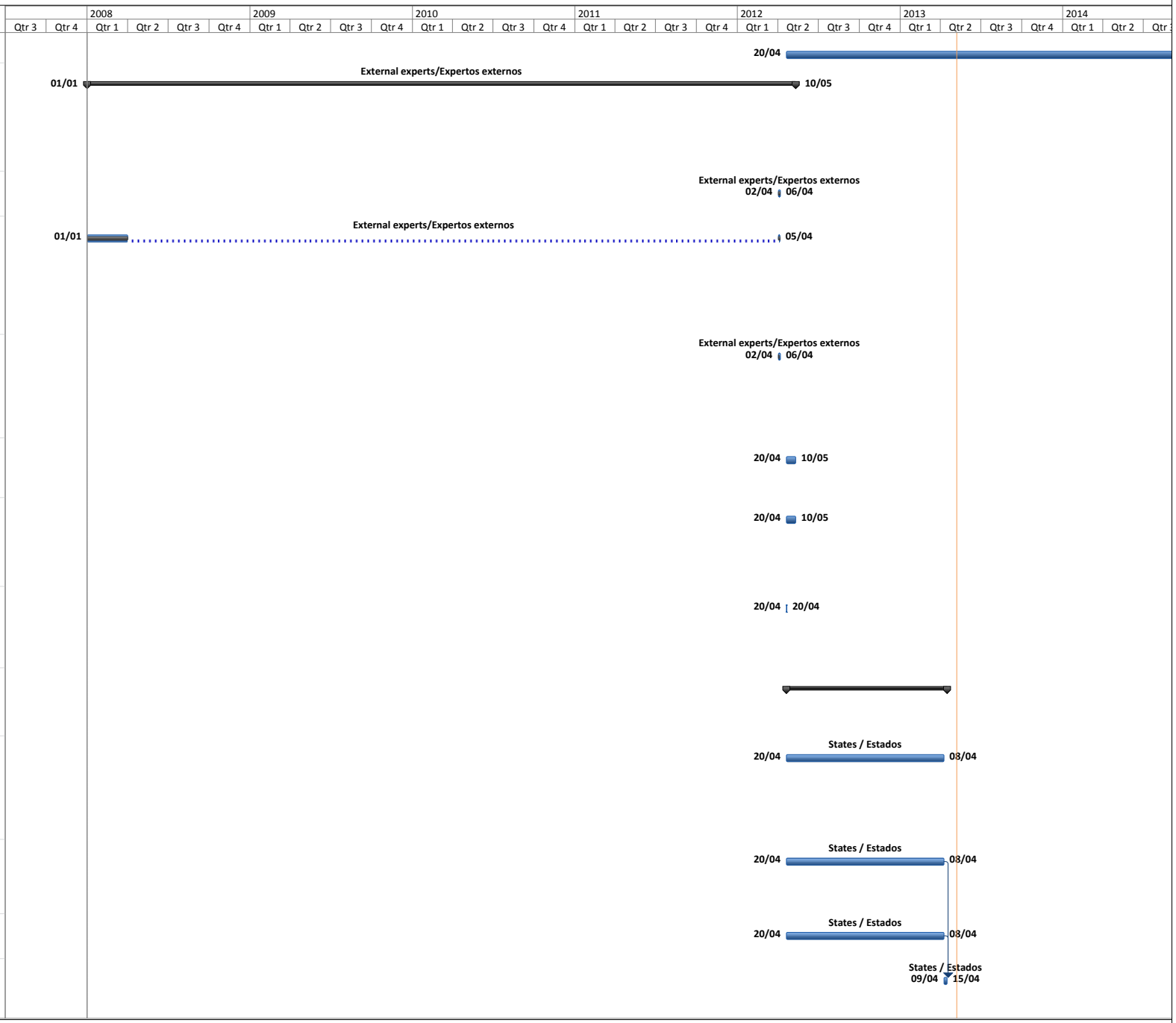
Project Deliverables	Relationship with the regional performance-based plan (PFF)	Responsible Party	Status of Implementation *	Date of Delivery	Comments
Guidance material on the flexible use of airspace concept	PFF SAM ATM 04	Marco Vidal		SAM/IG/9	Project RLA/06/901 is supporting the hiring of 2 experts for a period of 3 weeks to develop such material.
Proposals for route implementation and/or realignment based on the FUA	PFF SAM ATM 04	Marco Vidal		SAM/IG/9	-
Regional strategy and work programme for implementing the flexible use of airspace through a phased approach, starting with a more dynamic sharing of reserved airspace, taking into consideration UASs.	PFF SAM ATM 04	Marco Vidal		2018	-

Resources needed	Designation of experts in the execution of some of the deliverables.

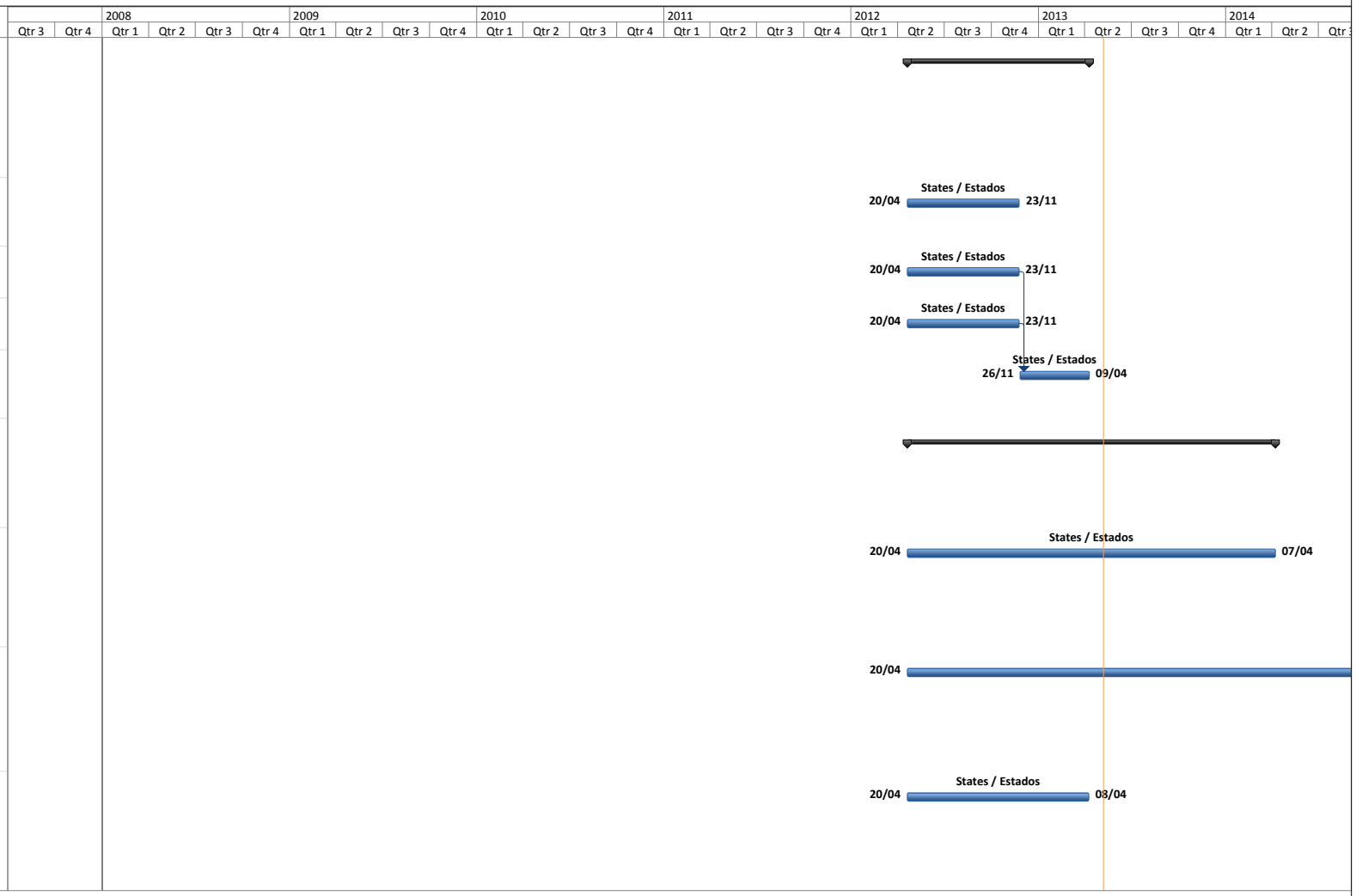
*

Grey	Tasks not started yet
Green	Activity being implemented as scheduled
Yellow	Activity started with some delay, but expected to be implemented on time
Red	Activity not implemented on time; mitigation measures are required.

ID	Task Name	Duration
1	**FLEXIBLE USE OF AIRSPACE / USO FLEXIBLE DEL ESPACIO AÉREO**	2713 days
2	**Develop guidance material on civil/military coordination and cooperation, for the definition of policies, pro / Elaborar material de orientación sobre coordinación y cooperación civil/militar para estipular políticas, procedimientos y normas nacionales**	**1138 days**
3	Model for FUA LOA / Desarrollar modelo de carta de acuerdo FUA	**4.5 days**
4	Present model for using non-permanent routes similar to that applied in EUROCONTROL (Conditional Routes – CDR) / Presentar modelo de empleo de rutas no permanentes, similares al aplicado en EUROCONTROL	68.6 days
5	Define criterion for defining scenarios in which non-permanent routes are applied / Definir criterio para definición de los escenarios en que son aplicadas rutas no permanentes	4.5 days
6	Define criterion for categorising non-permanent routes / Definir criterio para la categorización de rutas no	15 days
7	Representation of non-permanent routes in aeronautical charts / Representación de las rutas no permanentes en las Cartas Aeronáuticas	15 days
8	Carry out an assessment of the amount and extension of reserved airspaces / llevar a cabo una evaluación de la cantidad y extensión de espacios aéreos reservados	1 day
9	**Establish committees or similar civil/military coordination bodies / Establecer comités u órganos similares de coordinación civil/militar**	**257 days**
10	Select person or group of persons who will develop the task and Comm. Secretariat. / Seleccionar a la persona o grupo de personas que se harán cargo del desarrollo de la tarea y de la Secretaría del	252 days
11	Prepare terms of reference and objectives of the committee. / Elaborar los términos de referencia y objetivos del Comité	252 days
12	Develop work programme / Desarrollar un programa de trabajo	252 days
13	Approve terms of reference and work programme / Aprobar los términos de referencia y el programa de	5 days



ID	Task Name	Duration
14	**Make arrangements for a permanent relationship y cooperation between ATS civil units and military units/hacer arreglos para tener un enlace permanente y una estrecha cooperación entre dependencias civiles ATS y las dependencias militares y demás usuarios**	**253 days**
15	Assess regulations and existing procedures in the State / Evaluar las reglas y procedimientos existentes en	156 days
16	Establish communications means / Establecer los medios de comunicación	156 days
17	Develop applicable procedures / Desarrollar los procedimientos aplicables	156 days
18	Implement communication means and procedures / Implantar los medios de comunicación y	97 days
19	**Establish procedures for coordination of temporary reservation of airspace (TRA) / Establecer, cuando sea requerido para los ANSP, procedimientos para la coordinación de la reserva temporal de espacio aéreo (TRA)**	**512 days**
20	Analyse all restricted, prohibited and dangerous areas that have been implemented in each State/ Analizar la totalidad de las zonas restringidas, prohibidas y peligrosas que han sido	512 days
21	Develop a regional strategy and work programme for the FUA implementation, through a phased approach / Elaborar una estrategia y programa de trabajo regionales para la implantación del uso flexible del espacio aéreo a través de un enfoque por fases	1671 days
22	Develop proposals for route implementation and/or realignment, in keeping with the utilisation of FUA / Desarrollar propuestas de implantación y/o realineación de rutas, en función del empleo del FUA	252 days



	2015				2016				2017				2018				2019				2020				2021				2022				2023
Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1

13/09

	2015				2016				2017				2018				2019				2020				2021				2022				2023
Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1

Regional Project / Proyecto Regional,States / Estados

14/09