International Civil Aviation Organization
CAR/SAM Regional Planning and Implementation Group (GREPECAS)
Third Meeting of the Programmes and Projects Review Committee (PPRC/3)
(Mexico City, Mexico, 21 to 23 July 2015)

Agenda Item 3: Review of the GREPECAS Programmes and Projects

3.6 Projects of the AIM Programme (B0-DATM)

REVIEW OF THE AIM PROGRAMME(B0-DATM) PROJECTS

(Presented by Secretariat)

SUMMARY

This paper makes reference to the GREPECAS Programmes and Projects under the AIS to AIM transition context, presenting the progress made by States, Territories and International Organizations in CAR and SAM Regions, regarding the electronic process and the digital management of aeronautical information and data with AIXM implementation, the Quality Management System (QMS) implementation and the availability of the Electronic Terrain and Obstacle Data (e-TOD) set by users.

References:

- Annex 15 – Aeronautical Information Services
- ICAO Roadmap for AIS to AIM transition
- Seventeenth Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/17) (Cochabamba, Bolivia (Plurinational State of), 21 to 25 July 2014)

Strategic Objectives:	• Safety • Environmental Protection

1. Introduction

1.1 The Secretariat reported on the implementation status of the activities under Project G concerning Aeronautical Information Management (AIM) in the CAR and SAM Regions, with its variants G1 *Developments for the supply of electronic terrain and obstacle data (e-TOD) in the States*, and G2 *Development of quality specifications applicable to the digital AIM environment*, for the CAR Region, and projects G1 *Implementation of the provision of electronic terrain and obstacle data (e-TOD)*, G2 *Implementation of aeronautical information exchange systems (AIXM)*, and G3 *Implementation of the quality management system in AIM units*, for the SAM Region, the details of which appear in **Appendices A and B** to this paper.

1.2 The project activities were aligned with the regional air navigation priorities and objectives defined for the CAR and SAM Regions, as reflected in the Port-of-Spain and Bogota Declarations, respectively. Additionally, a consistent approach based on the priorities established in the ASBU methodology, was considered in the AIM Project activities.

1.3 It is also important to emphasize that eTOD data represent a PBN project implementation requirement for the States, regarding the PANS-OPS and aeronautical charts.

2. Analysis

CAR Region

2.1 As a related aspect, reference is made to the AIM objectives showed in the RLA/09/801 project work, 3 technical assistances were held to Costa Rica, Guatemala and Mexico, and a AIM Go-Team assistance to Haiti. In each case Projects G1 and G2 were addressed.

2.2 In support to the Project G1 *Developments for the supply of electronic terrain and obstacle data (e-TOD)* in the States, the document "Understanding ICAO ETOD requirements" developed by Mr. Gilbert Lasnier, ICAO Headquarters specialist in geographic information and responsible of the ICAO Geographical Information System (GIS) website development, maintenance and evolution. Such distribution is made in support to States for the National Action Plans elaboration, complementing what is indicated in Annex 15 and Doc 9881. The establishment of Letter of Agreement (LoAs) with other States/International Organizations is also promoted, in order to collaborate in the eTOD implementation in subregional levels (E/CAR, C/CAR, Central America). It is important to note that some States and international organizations reported having Action Plans for eTOD implementation, according to the following table:

State (UN Code)	States eTOD Action Plan progress %
ATG (PIARCO)	0
BHS	0
BRB	25
BLZ (COCESNA)	0
CRI	33
CUB	40
DOM	33
SLV (COCESNA/CEPA)	0
GRD (PIARCO)	0
GTM (COCESNA)	15
HTI	0
HND (COCESNA)	0
JAM	15
MEX	33
NIC	20
KNA (PIARCO)	0
LCA (PIARCO)	0
VCT (PIARCO)	0
TTO (PIARCO)	33

2.3 Regarding implementation targets for AIM transition Phase 1, which includes Project G2 *Development of quality specifications applicable to the digital AIM environment* those who have implemented or started the QMS implementation process, had a 80% progress of the CAR States and International Organizations, has established in the Port-of-Spain Declaration (Trinidad and Tobago, April 2014). Taking into consideration that in some CAR States, the QMS implementation would not apply taking into account their basic AIS/AIM organizational structures with just one person in charge of the

area or one temporary person of other area to perform AIS/AIM functions (in accordance with local requirements: one aerodrome and one air space simple structure, etc.): Antigua and Barbuda, Bahamas, Belize, Grenada, Saint Kitts and Nevis, Saint Lucia and Saint Vincent and the Grenadines.

2.4 In some CAR States there is only one AIS/AIM operator in charge or one temporary expert of other area to perform AIS/AIM functions in accordance with local requirements: one aerodrome and one air space simple structure, etc.: Antigua and Barbuda, Bahamas, Belize, Grenada, Saint Kitts and Nevis, Saint Lucia and Saint Vincent and the Grenadines.

2.5 To mitigate the effect of the aforementioned condition in the previous paragraph, the necessary coordination to establish Letters of Agreement with the aforementioned States and integrate them to Trinidad and Tobago, is being conducted with Trinidad and Tobago and COCESNA (in process of certification by 2015) and COCESNA as part of their corresponding QMS that are already implemented, for States to be information and validated data providers, using the procedures and processes, as well as the required formats for the QMS in each case. In these cases the Integrated Aeronautical Information Package (IAIP) is already produced by both, Trinidad and Tobago and COCESNA.

2.6 Additional, it can be indicated that more States in the Region have implemented or have started the QMS implementation process. See the following table:

State	% Implementation June 2015
ATG (PIARCO)	NA
BHS	NA
BRB	30
BLZ (COCESNA)	NA
CAN	CERTIFIED
CRI	CERTIFIED
CUB	CERTIFIED
DOM	CERTIFIED
SLV (CEPA)	25
USA	CERTIFIED
GRD (PIARCO)	NA
GTM	25
HTI	0
HND (COCESNA)	40
JAM	25
MEX	CERTIFIED
NIC	100
KNA (PIARCO)	NA
LCA (PIARCO)	NA
VCT (PIARCO)	NA
TTO (PIARCO)	40

(*) NA - Not Applicable

2.7 Based on the information provided by the ICAO NACC Regional Office, and as a result of the surveys sent to the States, the following generalized difficulties reported were highlighted, and where the information related with Project G1 and G2 is also emphasized.

Id.	Main Difficulties Identified for the Transition from AIS to AIM
1	Implementation of Phase 1 (consolidation); in some States the implementation of Step 17 (QMS) is not applicable (N/A), for having a very basic AIS (AIM) structure, with only one Officer
2	Tight timelines for Phase 2 and Phase 3 implementation , will be between 2016 and 2020, respectively
3	Financial constraints
4	Resources availability (humans and materials) and knowledge (required expertise) Training and development of required competencies foe the experts and to assess the most relevant aspects for the AIM tasks.
5	Lack of detailed ICAO guidance material; AIM documentation with detailed descriptions of steps to assist States with the implementation processes and the requirement to amend ICAO Annexes 15 and 4, documents and manuals to include AIM requirements
6	Commitment through Letters of Agreement in accordance with the data originators and the adoption of appropriate arrangements with all data originators (National Regulations)
7	Lack of Aeronautical Information Exchange Model (AIXM) training
8	Lack of guides for the elaboration of Implementation Plans of eTOD Areas 1, 2, 3 and 4 as needed

Conclusion

2.8 Important progress mainly on the QMS implementation and less in the eTOD has been observed within the CAR Region, however, in order to improve the programmes, it is suggested the need to increase the number of States qualified human resources, to review and improve their own AIM Implementation programmes with continuous assistance of the NACC and SAM ICAO Regional Offices from the respective projects created for this purpose.

2.9 The Meeting should note that SWIM has emerged as a fundamental requirement and has become a priority with respect to the evolution of the Global ATM System and the development of a Global SWIM concept that incorporates the basic requirements of SESAR, Next-Gen, CARATS, and other national and regional programmes, for which the AIM is a fundamental part in support of all the existent and emerging systems dependent on data in electronic formats. As a consequence the development of an AIM Operational Concept will move beyond the present AIS-AIM Roadmap target of "digital and/or electronic AIM products" to a more integrated and related with the AIM domain that is becoming an urgent task, in direct support to ATM and other SWIM users.

SAM Region

Project G1: Implementation of the provision of electronic terrain and obstacle data (e-TOD)

SAM States Progress son e-TOD Implementation

AREA 1 - Terrain

2.10 Information regarding Area 1 requirements compliance on terrain survey was collected, with the following results:

a) **Argentina, Brazil, Chile, Colombia, French Guyana, Peru and Venezuela** have a Digital Elevation Model for the development of Area 1. The progress registered was from 28% to 49%, the amount of States within the Region with Digital Models **Increase 21%. Remaining 51% to be completed in 2016.**

b) Regarding the compliance of Table 8-1 of Annex 15 for the terrain requirements of Area 1, the following States are complying with the requirement: **Argentina, Chile, French Guyana and Venezuela.** The compliance progress registered in the Region is from 14% to 28%. As Peru has partial compliance, it has not been computed until it fully meets the requirement. **Increase 14%. Remaining 72% to be completed in 2016.**

c) Regading the compliane of Standard ISO 19119 for the Digital Model, the following States **Argentina, Chile, Colombia, French Guyana, Peru and Venezuela** report the compliance in the Region from 21% to 42%. **Increase 21 %. Remaining 58% to be completed in 2016.**

AREA 1 - Obstacles

2.11 Information regarding Area 1 requirements compliance on obstacles survey was collected, with the following results:

a) Regarding the obstacle database disposition that encompasses Area 1, the following States **Argentina, Brazil, Colombia, French Guyana and Uruguay** comply with the requirement, having a compliance percentage in the Region from 28% to 35%. **Increase 7%. Remaining 65% to be completed in 2016.**

b) **Brazil, Uruguay and Venezuela** comply with the obstacle requirements establised in Table 8-1 for Area 1, the implementation level in the Region goes from 14% to 21%. **Increase 7%. Remaining 79% to be completed in 2016.**

AREA 2 - Terrain

2.12 Regarding Action Plans to obtain electronic terrain data in Area 2a, **Argentina, Bolivia, Brazil, Chile, Panama, Peru and Uruguay** reported progress, moving the Region from a 28% to a 49% of compliance. **21% increase. Remaining 51% to be completed in 2016.**

2.13 When analysing the compliance in the provision of terrain data corresponding to take-off trajectory, States that reported to have developed an Action Plan are **Argentina, Brazil, Chile, Panama, Peru and Uruguay**, moving the Region from a 21% to a 42% of compliance. **21% increase. Remaining 68% to be completed in 2016.**

2.14 Furthermore, there has been little progress in the Region regarding the provision of electronic terrain data corresponding to the area demarcated by the lateral extensions of the aerodrome obstacle limitation surfaces. Bolivia, Brazil, Chile, Panama and Peru showed some implementation progress moving from 28% to 35%. **7% increase. Remaining 65% to be completed in 2016.**

AREA 2 - Obstacles

2.15 **Argentina, Bolivia, Brazil, Chile, Panama, Paraguay and Peru** developed Action Plans for the compilation of data in Area 2a, referring to obstacles that penetrate obstacle limitation surfaces in accordance with Appendix 8 of Annex 15, which indicates a progress from 35% to 49% in the Region. **14% increase. Remaining 51% to be completed in 2016.**

2.16 Likewise, Argentina, Brazil, Chile, Panama, Paraguay and Peru reported progress in their Action Plans for the provision of electronic data on objects protruding flat slopes of 1,2% in respect of the take-off trajectory, thus making a progress in the Region's implementation from 28% to 42%. **14% increase. Remaining 58% to be completed in 2016.**

2.17 Regarding the provision of electronic data in aerodrome obstacle limitation surfaces, Argentina, Bolivia, Brazil, Chile, Panama and Peru developed Action Plans for the compliance of the requirement; the progress in the Region has been from 28% to 42%. **14% increase. Remaining 68% to be completed in 2016.**

2.18 Equally in the Region, **Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, French Guiana, Panama, Paraguay, Peru, Suriname and Uruguay** have defined an e-TOD Implementation Technical Specifications Manual. **84% increase. Remaining 16% to be completed in 2016.**

e-TOD Training in the SAM Region

2.19 Regarding the e-TOD training programme, Argentina, Chile and Uruguay informed of their respective training programmes; this results in a progress from 21% to 42% in the Region. **21% increase. Remaining 58% to be completed in 2016.**

2.20 Regarding the inclusion of training operational concepts, a progress from 14% to 49% was confirmed in the Region. **35% increase. Remaining 51% to be completed in 2015.**

2.21 Regarding the equipment and necessary programmes to manage e-TOD information, the Region has moved from 42% to 49% in the compliance of this requirement. **7% increase. Remaining 51% to be completed in 2015.**

2.22 Regarding the Service Level Agreements (SLA), there have been difficulties to capture the progress since data providers have been reluctant to sign agreements with AIM Offices. The main reason are the requirements demanded from the AIM, which are necessary to comply with SARPs related to data quality, precision and integrity. In this matter, the Region made a less than expected progress as it can be appreciated in the table below. **The current implementation is of 21% only.**

2.23 Other progress related to this Project is the implementation of **Geographic Information Systems (GIS), with an execution percentage of 56%** in States in the Region.

2015 State	% of States with Automated Systems or GIS = 56%	% of States with Guidance Document and approved Action Plan = 100%	% of States that have established SLA Agreements = 21%
ARG	YES	YES	YES
BOL		YES	
BRA	YES	YES	
CHI	YES	YES	
COL	YES	YES	
ECU		YES	
FGY	YES	YES	

2015 State	% of States with Automated Systems or GIS = 56%	% of States with Guidance Document and approved Action Plan = 100%	% of States that have established SLA Agreements = 21%
GUY		YES	
PAN	YES	YES	
PAR		YES	
PER	YES	YES	YES
SUR		YES	
URU	YES	YES	YES
VEN		YES	

Conclusions on the SAM Region Implementation of Project G1 – Provision of electronic terrain and obstacle data (e-TOD)

2.24 Efforts must be strengthened to increase Service Level Agreements (SLA) in States that have not commenced and they should be completed in those States that have begun their development. This is a critical component for traceability and data quality which has a direct impact in quality processes. In this regard, it is necessary to demand from the different data providers to comply with the AIM requirements supported by SARPs or national regulations in order to forward this information and data to users complying with ICAO requirements.

2.25 In reference with the e-TOD implementation, the proposed date for States, when circulated the Proposal for amendment to Annex 15, on ground leverage and obstacles for Area 2 is 12 November 2015, and considering these data provision, it constitutes critical information for PBN procedures design that requires high precision from a database that guarantee PBN operational security, it is concluded that is necessary to double efforts in order to comply with the implementation in the requested date.

2.26 SAM Region equipment and training progress have been held and it is necessary to keep e-TOD evolution following implementation, and in this regard States are encouraged to send their experts to held workshops and/or meetings in order to train regional experts. Project G1 description is shown in **Appendix B1** to this Working Paper.

Aeronautical Information Exchange Model (AIXM) Project G2 systems implementation

2.27 In this regard, AIXM has started to show certain progress based on great human resources contribution on behalf of Peru and Uruguay, whose had helped the Secretariat with these project deliverables.

2.28 Also, Region States had greeted Peru's offering to provide Project coordinator, due to lack of coordinator. The current Project G2 and Project G1 coordinators have been working coordinated in order to address AIM transmission data formats and models.

2.29 During SAM/AIM/7 AIXM Action plan was defined and it has been expressed in the Project G2 description, which figures in **Appendix B2** to this Working Paper.

SAM Region Project G2 implementation – Aeronautical Information Exchange Model (AIXM) Conclusions

2.30 The Project progress conclusion is that States reaction to start working on this implementation has been positive and encouraging. The new Project stimulus and Peru's and Uruguay's contribution on training human resources, has been fundamental for relaunching.

2.31 These actions should be shared by the other States in order to create a regional strongest structure on AIM information exchange and ease AIM digital surrounding traffic, as part of the AIS to AIM transition approved by States in the ICAO Assembly.

Project G3: Assessment and development of QMS applied to AIM in SAM States

2.32 This Assessment and development of QMS Project for processes that manage AIM dependencies have had progress in needed activities before certification; nevertheless, no concrete progress on certification has been made, which is the established required objective.

2.33 First roadmap phase on AIS to AIM transition has achieved 84% progress; nevertheless, States that have delayed on Quality AIM certification are delayed to pass to the second digital phase. **Remaining 16% to be completed in 2016.**

2.34 The Secretariat estimates that before finalizing 2015, Argentina, Peru and Uruguay could be certified on AIM Quality processes due to their progress. Colombia and Venezuela continue without certifying their AIM systems, and the more concerning delay in the quality implementation is identified on Bolivia, Guyana and Suriname systems.

Conclusions on the G3 Project Implementation in the SAM Region: Quality Management System Implementation in the AIM offices in the SAM Region

2.34 The main component identified as articulator in the progress of Quality Management System Certification in the States is the senior management. When the high-level management is involved in obtaining the systems quality Certification and its processes, helps to detach the barriers in the management delaying the implementation.

2.36 At regional level, the *Bogota Declaration* obtains a commitment of the high-level management to certify quality in the AIM processes. This commitment needs to be replicated at a national level to obtain a Certification in the committed term.

3. Suggested Actions

3.1 The Meeting is invited to:

a) take action on the information provided in this working paper;

b) analyze the document and **Appendix A for the CAR Region** and **Appendix B for the SAM Region** respectively, with the purpose to approve the progress and the implementation of the previous mentioned documents;

c) consider the obtained progress in the AIM projects,

d) provide the necessary human resources for the efficient development of the projects in the CAR Region; and

e) agree other actions as deemed necessary.

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APPENDIX A1

CAR Region	**PROJECT DESCRIPTION (DP)**	DP N° G1	
Programme	**Title of the Project**	**Start**	**End**
AIM (ICAO Programme Coordinator: Raúl Martínez)	Developments for the provision of electronic terrain and obstacle data (e-TOD) (CAR) Project coordinator: Alfredo Mondragón (COCESNA) Experts contributing to the project: None	26/09/11	31/12/15
Objective	Support the implementation of the provision of e-TOD datasets by CAR States and provide States with guidance on e-TOD implementation Areas 1, 2, 3 and 4.		
Scope	The scope of the project contemplates the assessment and identification of implementation levels associated to the provision of electronic terrain and obstacle data. It contemplates guidance for the drafting of an action plan and guidance for e-TOD implementation to support the development of digital terrain models (DTMs) to support the production of electronic aeronautical charts and other products required by the users.		
Metrics	Indicator: % os States with eTOD data sets implemented Support to Metric: Number of States with eTOD implemented		
Strategy	The conduction of project activities will be coordinated among project members, the Project Coordinator, and the Programme Coordinator, mainly through teleconferences (and other electronic media). The Project Coordinator will coordinate with the Programme Coordinator for the inclusion of additional experts, if warranted by the tasks and work to be performed. The results of the work done will be submitted to the consideration and review of State experts in the form of a final consolidated document for analysis, review and approval, and for presentation to the GREPECAS PPRC by the programme coordinator.		
Goals	Develop a survey to determine the status of implementation of the e-TOD. ICAO NACC Regional Office to elaborate a survey to CAR States/Territories in accordance to e TOD implementation process compatible with ICAO NCLB strategy.		

Rationale	Compliance of SARPS Annex 15 and Annex 4 and ICAO Document 9881, availability of information of eTOD process development of the States in order to facilitate the implementation in those States where it is necessary to count with guidance material or some specific support
Related projects	This project is related to projects G2 “Assessment and development of QMS applied to AIM in CAR States”

Project deliverables	**Relationship with the performance - based regional plan (PFF)**	**Responsible party**	**Status of Implemen-tation***	**Delivery date**	**Comments**
Develop Regional survey in accordance with the objectives of the eTOD project	PFF CAR AIM	Alfredo Mondragon COCESNA		August 2014	Survey has been sent to the States - in process-
Prepare analysis of survey data and present an Action Plan in accordance with the objectives of the eTOD project. Taking into account the ICAO NCLB strategies		Raul Martinez ICAO NACC		December 2015	Activity in progress

Resources required	Designation of experts in the execution of deliverables. Commitment by States to support the designated Coordinators and experts. (No expert of the States has been appointed in this project to date)

Grey *Task not started*
Green *Activity underway as scheduled*
Yellow *Activity started with some delay but expected to be completed on time*
Red *It has not been possible to implement this activity as scheduled; mitigating measures are required*

APPENDIX A2

CAR Region	**PROJECT DESCRIPTION (DP)**	DP N° G2	
Programme	**Title of the Project**	**Start**	**End**
AIM (ICAO Programme Coordinator: Raul Martinez)	Development of support material on QMS applied to AIM in CAR States Project coordinator: Enrique Echarri (Cuba) Experts contributing to the project: None	September 2012	December 2016
Objective	Support the implementation of the provision of QMS by CAR States and provide States with guidance on QMS implementation.		
Scope	The scope of the project contemplates the assessment and identification of implementation levels associated to quality management in AIM services of the Region. Drafting of an action plan and guides for the implementation of QMS in the digital/ electronic environment of AIM.		
Metrics	Indicator: % of STtaes with QMS implemented Support to Metric: Number of States with QMS implemented		
Goals	Develop a survey to determine the status of implementation of the QMS. Preparing the document with the results of the survey and prepare a training Plan aimed at the support of the States with more requirements and difficulties in the implementation of the QMS.		
Strategy	Project activities will be coordinated among project members, the Project Coordinator, and the Programme Coordinator, mainly through teleconferences (and other available electronic media). The Project Coordinator will coordinate with the Programme Coordinator for the inclusion of additional experts, if warranted by the tasks and works to be executed. The results of the work done will be submitted to the consideration and review of State experts in the form of a final consolidated document for analysis, review, and approval, and for presentation to the GREPECAS PPRC by the Programme Coordinator.		
Rationale	The quality management system in AIM services must give users the necessary assurance and confidence that the aeronautical information/data being distributed meets quality requirements in terms of accuracy, resolution and integrity. It is necessary for ICAO to have up-to-date information to assist States in the implementation process of the QMS.		
Related projects	This project is related to projects G1 “Developments for the provision of terrain and obstacle data eTOD”		

Project deliverables	Relationship with the performance-based regional plan (PFF)	Responsible party	Status of implementation*	Delivery date	Comments
Develop Regional survey in accordance with the objectives of the QMS project	PFF: CAR AIM	Enrique Echarri Cuba		August 2014	Completada en fecha. Documento 9839 de la OACI (versión final borrador) Se distribuyó a los Estados en diferentes Reuniones Regionales CAR, vía email a los Oficiales AIS (AIM) y se distribuyó durante diferentes misiones a los Estados visitados.
Prepare analysis of survey data and present an Action Plan in accordance with the objectives of the QMS project In continuity to the AIM goals of the Declaration of port Spain and the strategies proposed by the ICAO NCLB		Enrique Echarri Cuba Raúl Martínez ICAO NACC		December 2016	La encuesta considera también la realización de los análisis estadísticos y las propuestas de acción resultantes.
Resources required	Designation of experts in the execution of some deliverables. Commitment by States to support the Coordinators and experts. (No expert of the States has been appointed in this project to date)				

Grey *Task not started*
Green *Activity underway as scheduled*
Yellow *Activity started with some delay but expected to be completed on time*
Red *It has not been possible to implement this activity as scheduled; mitigating measures are required*

APPENDIX B1

SAM Region	**PROJECT DESCRIPTION (DP)**	DP N° G1	
Programme	**Title of the Project**	**Start**	**End**
AIM (ICAO Programme Coordinator: Roberto Arca Jaurena)	Implementation of the provision of electronic terrain and obstacle data (e-TOD) (SAM) Project coordinator: Juan González (Uruguay) Experts contributing to the project: SAM/AIM IG	26/09/11	31/12/15
Objective	Support the implementation of the provision of e-TOD by SAM States, and provide guidance to States on GIS acquisition and management.		
Scope	The scope of the project contemplates the assessment and identification of implementation levels associated to the provision of electronic terrain and obstacle data. It contemplates the drafting of an Action plan and guides for the implementation of e-TOD to support developments in the provision of electronic terrain and obstacle data for the evolution of digital terrain models (DTM) to gradually improve electronic aeronautical charts and other similar products, with the support of tools such as the geographical information systems (GIS).		
Metrics	• Number of States that have implemented GIS or automated systems. • Guide-document with action plan approved. • Number of States that establish SLAs. • Main Airports with Area 2 (eTOD) Surveyed		

Strategy	The conduction of project activities will be coordinated among project members, the project coordinator, and the programme coordinator, mainly through teleconferences (GoToMeeting application) and meetings that may be held within other scheduled events, based on the activities of the work programme. The project coordinator will coordinate with the programme coordinator for the inclusion of additional experts, if warranted by the tasks and works to be executed. The results of the work done will be submitted to the consideration and review of State experts in the form of a final consolidated document for analysis, review, and approval, and for presentation to the GREPECAS PPRC by the programme coordinator.
Goals	Draft the Guide-document containing the objectives of the e-TOD project. 2012. Define the technical and e-TOD project specifications. 2012. Prepare the document containing the e-TOD technical specifications. 2012. Guide on the acquisition of a geographical information system (GIS). 2012. GIS implementation Manual. 2012. Available Methodology and tools for surveying Area 2. 2013 Main International Airports with Area 2 surveyed. 2016
Rationale	Compliance with the SARPs of Annexes 15 and 4 to facilitate the execution of performance-based air operations and to advance with the AIS-AIM Transition Roadmap. A close relationship with other projects is needed in order to obtain the operational requirements of the aforementioned applications and their respective tentative dates of implementation.
Related projects	This project is related to Project G3 “Implementation of the Quality Management System in the AIM units” in the CAR/SAM States.

Project deliverables	**Relationship with the performance-based regional plan (PFF)**	**Responsible party**	**Status of implementation***	**Delivery date**	**Comments**
Survey on the status of eTOD implementation.	PFF: SAM AIM/02	Juan González Uruguay		30/11/2011	Finalised on schedule.

Generate follow-up report.	PFF: SAM AIM/02	Juan González Uruguay		30/04/2012	Finalised on schedule.
Develop Guide-Document with the objectives of the eTOD project.	PFF: SAM AIM/02	Juan González Uruguay		30/09/2012	Finalised on schedule. Delivered 30/09/2012
Define the technical specification of the eTOD project.	PFF: SAM AIM/02	Juan González Uruguay		30/09/2012	Finalised on schedule. Delivered 30/09/2012
Develop the document with the eTOD technical specifications.	PFF: SAM AIM/02	Juan González Uruguay		30/09/2012	Finalised on schedule. Delivered 30/09/2012
Guide for the acquisition of a geographical information system (GIS).	PFF: SAM AIM/01	Juan González Uruguay		09/03/2012	Finalised on schedule.
GIS implementation manual.	PFF: SAM AIM/01	Juan González Uruguay		09/03/2012	Finalised on schedule.
Present to States the different options available for surveying Area 2	ASBU:BO30 DATM	ICAO Coordinator		26/07/2013	Finalised on schedule.
Guía para desarrollar un Modelo Digital de Terreno (MDT) o Modelo Digital de Elevación (MDE)	PFF: SAM AIM/02 ASBU:BO30 DATM	Grupo Ad Hoc Reunión SAM/AIM/7		30/03/2015	Completada en fecha
Completar 50% de los estados implantación de MDT y/o MDE antes de la Reunión SAM/AIM/7	PFF: SAM AIM/02 ASBU:BO30 DATM	Estados		12/11/2015	Completado el 49% en fecha.
Disponibilidad de programas para gestionar la información e-TOD.	PFF: SAM AIM/02 ASBU:BO30 DATM	Estados		12/11/2015	Completado el 49% de los Estados en fecha.

Plan de Acción para datos electrónicos sobre **terreno** en Area 2	PFF: SAM AIM/02 ASBU:BO30 DATM	Estados		12/11/2015	Completado el 49% de los Estados en fecha.
Plan de Acción para datos electrónicos sobre **obstáculos** en Area 2	PFF: SAM AIM/02 ASBU:BO30 DATM	Estados		12/11/2015	Completado el 42% de los Estados en fecha.
Resources required	Designation of experts in the execution of some of the deliverables. More commitment by States to support the designated Coordinators and experts.				

**Grey* *Task not started*
Green *Activity underway as scheduled*
Yellow *Activity started with some delay but expected to be completed on time*
Red *It has not been possible to implement this activity as scheduled; mitigating measures are required*

APPENDIX B2

SAM Region	**PROJECT DESCRIPTION (DP)**	DP N° G2	
Programme	**Title of the Project**	**Start**	**End**
AIM (ICAO Programme Coordinator: Roberto Arca Jaurena)	G2: Implementation of Aeronautical Information Exchange Systems (AIXM) (SAM) Project coordinator: Eng. Karina Calderón Experts contributing to the project: SAM/AIM/IG	01/03/12	01/12/15
Objective	Prepare an action plan to be implemented by States for the application of the aeronautical information/data exchange model.		
Scope	The scope of the project contemplates the evaluation and identification of automation levels associated to the integration of the aeronautical information and data exchange model in the Region, through surveys, the identification of database providers, and the follow-up on the development of SARPs on this matter.		
Metrics	Number of States that have implemented an Action Plan for data exchange systems.		
Goals	Complete all the documentation needed by States before 31/12/15.		

Strategy	Project activities will be coordinated among project members, the Project Coordinator, and the Programme Coordinator, mainly through teleconferences (GoToMeeting application). Seminars/meetings are scheduled in accordance with work programme activities. The Project Coordinator will coordinate with the Programme Coordinator for the inclusion of additional experts, if warranted by the tasks and work to be performed. Coordination will take place between the CAR and SAM Regions. The results of the work done will be submitted to the consideration and review of State experts in the form of a final consolidated document for analysis, review, and approval, and for presentation to the GREPECAS PPRC by the Programme Coordinator.
Rationale	Integrate aeronautical information so as to permit the interoperability of ATM systems while preserving safety, applying the information exchange models.
Related projects	This project is related to Project G3 "*Implementation of the Quality Management Systems in the AIM units in SAM States*".

Project deliverables	**Relationship with the performance-based regional plan (PFF)**	**Responsible party**	***Status of Implementation**	**Delivery date**	**Comments**
Survey of the provision of IAIP, using a table.	D-ATM	ICAO coordinator		16/03/12	Finalised on schedule at the SAM/AIM meeting.
Circulation of IAIP survey to States	D-ATM	ICAO coordinator		16/03/12	Finalised on schedule at the SAM/AIM meeting.
Collection and updating	D-ATM	ICAO coordinator		16/03/12	Finalised on schedule at the SAM/AIM meeting.
Collection of experiences in SAM States with the electronic AIP	D-ATM	ICAO coordinator		16/03/12	Finalised on schedule at the SAM/AIM meeting.

Develop AIXM action plan	D-ATM	ICAO coordinator		24/04/15	Finalised on schedule.
AIXM documentation collection	D-ATM	ICAO coordinator		22/05/15	Finalised on schedule.
AIXM documentation translation	D-ATM	ICAO		10/07/15	Finalised on schedule.
AIXM documentation revision	D-ATM	ICAO coordinator		21/08/15	
Documentation validation	D-ATM	ICAO coordinator		18/09/15	
Develop document describing AIXM tests steps	D-ATM	ICAO coordinator		09/10/15	
AIXM tests	D-ATM	ICAO coordinator		30/10/15	
Transmission and reception of tests results data	D-ATM	ICAO coordinator		13/11/15	
AIXM seminar	D-ATM	ICAO coordinator		02/10/15	
AIXM management concept guidance material	D-ATM	ICAO coordinator		27/11/15	
Resources required	Designation of experts in the execution of some of the deliverables. Commitment by States to support the coordinators and experts.				

**Grey* *Task not started*
Green *Activity underway as scheduled*
Yellow *Activity started with some delay but expected to be completed on time*
Red *It has not been possible to implement this activity as scheduled; mitigating measures are required*

APPENDIX B3

SAM Region	**PROJECT DESCRIPTION (DP)**	DP N° G3	
Programme	**Title of the Project**	**Start**	**End**
AIM (ICAO Programme Coordinator: Roberto Arca Jáurena)	Assessment and development of QMS applied to AIM in SAM States Project coordinator: Oscar Dioses (Peru) Experts contributing to the Project: SAM/AIM IG David Díaz (Peru)	03/10/11	01/09/14
Objective	Implement guides applicable to the quality management system in a digital/electronic AIM environment in the SAM Region, based on the regional performance objectives of the SAM performance-based implementation plan.		
Scope	The scope of the project contemplates the assessment and identification of implementation levels associated to quality management in AIM services in the Region. Drafting of an action plan and guides for the implementation of QMS in a digital/electronic AIM environment.		
Metrics	Percentage of States with ISO 9001:2008 QMS certification.		
Goals	50% of States with the ISO standard 9001:2008 implemented by 2013, and certified by 2014.		
Strategy	Project activities will be coordinated among project members, the project coordinator, and the programme coordinator, mainly through teleconferences (GoToMeeting application) and meetings that may be held within other scheduled events, based on the activities of the work programme. The project coordinator will coordinate with the programme coordinator for the inclusion of additional experts, if warranted by the tasks and work to be performed. The results of the work done will be submitted to the consideration and review of State experts in the form of a final consolidated document for analysis, review, and approval, and for presentation to the GREPECAS PPRC by the programme coordinator.		

Rationale	The quality management system in AIM services must provide users the required guarantee and assurance that the aeronautical information/data distributed meets quality requirements in terms of accuracy, resolution and integrity. There needs to be a close relationship with other projects in order to collect the operational requirements of the aforementioned applications and their respective tentative dates of implementation.
Related projects	This project is related to Projects G1 "Implementation of the provision of electronic terrain and obstacle data e-TOD" and G2 "Implementation of Aeronautical Information Exchange Systems (AIXM)".

Project deliverables	**Relationship with the performance-based regional plan (PFF)**	**Responsible party**	**Status of imple-mentation***	**Delivery date**	**Comments**
Prepare surveys to establish the levels of compliance and implementation of AIM-QMS based on ICAO guides	PFF: SAM AIM/01	ICAO coordinator		25/11/11	Finalised as scheduled.
Circulate surveys to the States	PFF: SAM AIM/01	ICAO coordinator		17/02/12	Finalised as scheduled.
Collect and tabulate the information of the States	PFF: SAM AIM/01	ICAO coordinator		13/04/12	Finalised on 30/03/12.
Description of steps for QMS implementation.	PFF: SAM AIM/01	SAM/AIM/WG		30/03/12	Finalised as scheduled.

QMS self-assessment questionnaire	PFF: SAM AIM/01	David Diaz RLA/06/901		30/03/12	Finalised as scheduled.
Template with QMS assessment results	PFF: SAM AIM/01	David Diaz RLA/06/901		30/03/12	Finalised as scheduled.
QMS implementation plan	PFF: SAM AIM/01	David Diaz RLA/06/901		19/10/12	Finalised as scheduled.
QMS procedures and preventive actions.	PFF: SAM AIM/01	Oscar Dioses Peru		19/10/12	Finalised as scheduled.
QMS internal audit procedure.	PFF: SAM AIM/01	Oscar Dioses Peru		19/10/12	Finalised as scheduled.
Procedure for controlling AIS service management system records	PFF: SAM AIM/01	Oscar Dioses Peru		19/10/12	Finalised as scheduled.
Procedure for drafting QMS documents.	PFF: SAM AIM/01	Oscar Dioses Peru		19/10/12	Finalised as scheduled.
Service control procedure – QMS non-conforming products.	PFF: SAM AIM/01	Oscar Dioses Peru		19/10/12	Finalised as scheduled.
Procedures for controlling the documents of the AIS service management system.	PFF: SAM AIM/01	Oscar Dioses Peru		19/10/12	Finalised as scheduled.
Model SLA with service providers to ensure the quality of the information and data exchange.	PFF: SAM AIM/01	Juan J. González Uruguay		19/10/12	Finalised as scheduled.

CRC Cyclic Redundancy Check Set of 32 bit.	B0 DATM	Juan J. González Uruguay		30/03/2015	Finalised as scheduled.
AIM Training Programmes	B0 DATM	Juan J. González Uruguay		30/03/2015	Finalised as scheduled.
Collect certifications and produce report on the status of ISO 9001:2008 certifications in the SAM Region	PFF: SAM AIM/01	ICAO coordinator		31/11/16	Brasil, Chile, Ecuador, French Guyana, Paraguay Certified ISO 9001:2008
Resources required	Designation of experts in the execution of some of the deliverables. More commitment by States to support the designated coordinators and experts.				

**Grey* *Task not started*
Green *Activity underway as scheduled*
Yellow *Activity started with some delay but expected to be completed on time*
Red *It has not been possible to implement this activity as scheduled; mitigating measures are required*