Organización de Aviación Civil Internacional
Grupo Regional de Planificación y Ejecución CAR/SAM (GREPECAS)
Decimoctava Reunión del Grupo Regional de Planificación y Ejecución CAR/SAM (GREPECAS/18)
(Punta Cana, República Dminicana, del 9 al 14 de abril del 2018)

Cuestión 4 del Orden del Día: **Marco de desempeño para la planificación e implantación de la navegación aérea a nivel regional: Revisión de los programas y proyectos**

4.5 Proyectos del Programa de Aeródromos

Propuestas de Proyectos de GREPECAS en Planificación Aeroportuaria y ACDM para la Región SAM

(Presentada por la Secretaría)

RESUMEN

Esta nota informativa presenta a la Reunión el trabajo en curso para dos nuevas propuestas de Proyectos bajo el Programa de Aeródromo F, que propone analizar y validar la (s) causa (s) raíz (s) probable (s) de las limitaciones de capacidad del aeródromo en la Región SAM, como resultado de aumentar la capacidad del espacio aéreo, el crecimiento del tráfico y la falta de despliegue de infraestructura puntual y proponer un plan con recomendaciones a los Estados sobre cómo establecer mecanismos para evaluar y monitorear la capacidad / demanda en base a datos y enfoque colaborativo con todos los actores involucrados mientras se instala la capacidad necesaria.

Una propuesta de caso de negocio para el proyecto se presenta en el **Apéndice A y B (solo ingles).**

Referencias

- Plan Global de Navegación Aérea, OACI
- Documento 9184, Manual de Planificación de Aeródromos – Parte 1 Planificación General 2da Ed. 1987
- OACI Anexo 14, Vol. I Diseño y Operación de Aeródromos, 7ma Edición
- Trabajo en progreso del Panel de Diseño y Operación de Aeródromos (ADOP) de la sede de la OACI en Montreal
- Reporte del Industry High Level Group (2017)
- Plan de Implantación del sistema de navegación aérea basado en rendimiento para la Región SAM - PBIB
- Documento 9854 *Concepto Global Operacional ATM*
- Documento 9971 *Manual de gestión colaborativa de la afluencia del tránsito aéreo*

1. Antecedentes

1.1 En septiembre de 2013, se creó el Grupo de Alto Nivel de la Industria (IHLG) como iniciativa del Secretario General de la Organización de Aviación Civil Internacional (OACI), que reúne a los jefes de cuatro organizaciones de la industria: el Consejo Internacional de Aeropuertos (ACI), la Civil

Air Navigation Services Organisation (CANSO), la Asociación Internacional de Transporte Aéreo (IATA) y el Consejo Internacional de Coordinación de Asociaciones de Industrias Aeroespaciales (ICCAIA). El grupo tenía la tarea de considerar cuestiones de importancia mundial para la aviación civil internacional que pueden abordarse mejor en un acuerdo de colaboración entre los Estados y la industria en lugar de trabajar individualmente en dichas cuestiones.

1.2 En 2017, el IHLG publicó el informe de beneficios de aviación que aborda el desarrollo y la expansión del aeropuerto como un habilitador clave para el desarrollo. Los aeropuertos son negocios intensivos en inversión de capital. Si las mejoras de la infraestructura aeroportuaria no pueden seguir el crecimiento previsto de la demanda, en 2030, la congestión en los 100 aeropuertos más grandes del mundo provocará la pérdida o redirección de al menos 1,200 millones de pasajeros a otros aeropuertos menos atractivos (es decir, alrededor del 20% de la demanda). Este mismo escenario está sucediendo hoy en algunos aeropuertos de la Región SAM.

1.3 La Planificación de Aeropuertos ha sido un tema importante en la Región SAM durante décadas. Como mencionó el Secretario General de la OACI al inaugurar la conferencia IATA-FIDAE Wings of Change en 2014, el tema también plantea algunas preguntas importantes sobre cuán preparada está América Latina para gestionar el crecimiento del tráfico aéreo, conduciendo a una de las prioridades de la región: cuellos de botella de infraestructura relacionadas a la capacidad del aeropuerto. Además, la Asociación Internacional de Transporte Aéreo (IATA) ha abordado activamente la necesidad de que los Estados garanticen una infraestructura óptima para permitir el crecimiento.

1.4 Pero mientras se instala la capacidad necesaria, hoy en día los Estados aún enfrentan desafíos. En la Región Sudamericana, el incremento del tráfico en los principales centros de conexión y las limitaciones de desarrollo de nueva infraestructura aeroportuaria para satisfacer dicha demanda, hace necesaria la aplicación de nuevos conceptos, procesos y tecnologías que permitan mantener la operatividad en los horarios de mayor demanda, además de proveer, con la infraestructura existente, las condiciones para acomodar el tráfico hasta que se pueda proveer la infraestructura necesaria y luego de ella.

2. Justificación

2.1 En la Región SAM hay una falta de capacidad de infraestructura aeroportuaria en muchos centros de conexión importantes que ha llevado a un aumento de los costos, saturación, demoras, ineficiencias y pérdida de oportunidades debido a la falta de espacio para operar, actuando así en contra del interés nacional y regional común a largo plazo de obtener los beneficios de una conectividad aérea creciente. Esto se vuelve especialmente importante con el aumento de la capacidad del espacio aéreo, debido a las múltiples mejoras realizadas en la Región SAM.

2.2 Con una hoja de ruta clara, mejor material de orientación regional, mayor conocimiento y competencias en planificación aeroportuaria, los Estados estarán en una mejor posición para planificar y analizar los datos a fin de ejecutar a tiempo los proyectos de infraestructura aeroportuaria necesarios. Esto permitirá la capacidad necesaria para hacer frente a la demanda, aumentando así la conectividad con el Estado y la red internacional de una manera segura y eficiente. Esta mayor conectividad dará más acceso al transporte aéreo al público en general y fomentará el desarrollo de la Región. El desarrollo de este concepto de manera colaborativa con los principales usuarios del sistema, es fundamental para el éxito y sostenibilidad del proyecto, alineado con la documentación y guías de la OACI.

2.3 Mientras se crea esta capacidad de planificación en los Estados, la Secretaría ha identificado la Toma de Decisiones en Colaboración a nivel de Aeropuerto (ACDM) como una de las herramientas que aumentan la predictibilidad y conciencia situacional de los principales actores del proceso aeroportuario a nivel superficie, en especial en la fase de rotación de la aeronave (*turn-around process*) a

través de una plataforma de intercambio de información, que se traduce en una mejor gestión de flujo de aeronaves en tierra.

2.4 Bajo esta premisa, la OACI ha actualizado el Documento 9971 sobre Gestión Colaborativa de la Afluencia del Transito Aéreo, incluyendo una sección exclusiva al tema ACDM. En adición, la Oficina Regional SAM ha realizado 3 eventos relacionados con el A-CDM, dos en Lima, Perú y uno en Sao Paulo, Brasil, donde participaron tanto los Estados como operadores de aeródromos, proveedores de servicios de navegación aérea y la industria, junto con expertos internacionales de organizaciones como EUROCONTROL, EASA, CANSO, IATA, ACI World, entre otros.

3. Propuesta

3.1 La propuesta se basa en dos proyectos. El primero propone analizar y validar la (s) causa (s) raíz (s) probable (s) de las limitaciones de capacidad de los aeródromos en la Región SAM. Entregará un plan con recomendaciones a los Estados sobre cómo establecer mecanismos para evaluar y monitorear la capacidad / demanda en base a datos y preparar sus Planes Nacionales de Aeropuertos con el fin de establecer un enfoque de alto nivel que apoye y oriente el desarrollo y la actualización del plan maestro aeroportuario local teniendo en cuenta las necesidades del Estado y la Región. Finalmente, el Proyecto también propone desarrollar capacidades y competencias en las AAC estatales con respecto a la planificación aeroportuaria al tener al menos un (1) personal capacitado en cada AAC sobre planificación aeroportuaria para 2020. Este personal, asignado por el Estado Miembro como punto focal, será responsable de llevar a cabo el proyecto por Estado junto con la Oficina Regional SAM de la OACI. Para ello, se propone desarrollar una serie de capacitaciones personalizadas sobre planificación aeroportuaria. Este entrenamiento será determinado por el análisis y puede ser entregado por terceros.

3.2 Un caso de estudio con mayores detalles se adjunta como **Apéndice A** de esta Nota Informativa (solo disponible en inglés).

3.3 El segundo proyecto propone trabajar junto con especialistas de los Estados y organizaciones internacionales en la documentación del proyecto, incluyendo el establecimiento de una línea base e identificación de necesidades de cuales aeropuertos podrían verse beneficiados en primera instancia en la aplicación de este proyecto Piloto. También, la generación de un Concepto de Operaciones (ConOps) regional sobre este tema. Usualmente los aeropuertos con mayor tráfico internacional y centros de conexiones, que tengan problemas de capacidad de facilidades en tierra, son los identificados en los diferentes talleres realizados como los principales potenciales beneficiarios del proyecto.

3.4 Un caso de estudio con mayores detalles se adjunta como **Apéndice B** de esta Nota Informativa (solo disponible en inglés).

4. Acciones Sugeridas

5.1 Se invita a la Reunión a:

a) Tomar nota de la información proporcionada en esta nota;

b) brindar a la Secretaría retroalimentación sobre mejores maneras para desarrollar el proyecto propuesto; y

c) acordar otras acciones que se consideren necesarias.

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APPENDIX/APÉNDICE A

Airport Planning in the SAM Region - Business Case

Project Name:	Airport Planning in the SAM Region		
Date:	13/10/2017	**Release:** 16/11/2017	Draft
Author:	Salvatierra, Fabio		
Executive:	Quesada, Oscar		
Senior User:	Salvatierra, Fabio		
Client:	SAM States		
Document ID:	CAP-AGA-17-001		
Document link:			

Note: This document is only valid on the day it was printed

Revision History

Date of next revision:

Revision Date	Previous Revision Date	Summary of Changes	Changes Marked
13/10/2017		First edition of Business case in PRINCE2 format	
16/11/2017	13/10/2017	Review of projects benefits for clarity and other changes	no
16/03/2018		Change in the Document ID, small details exec sum, added some new identified risks and small changes in other areas	No (version w/track available)

Approvals

This document requires the following approvals. A signed copy should be placed in the project files.

Name	Signature	Title	Date of Issue	Version

Distribution

This document has been distributed to:

Name	Title	Date of Issue	Version

Overview

Purpose

A Business Case is used to document the justification for the undertaking of a project, based on the estimated costs (of development, implementation and incremental ongoing operations and maintenance costs) against the anticipated benefits to be gained and offset by any associated risks.

Contents

Executive Summary

The Project proposes to analyze and validate the probable root-cause(s) for aerodrome capacity constraints in the SAM Region. It will deliver a plan with recommendations to States on how to establish mechanisms to evaluate and monitor capacity/demand based on data and prepare their National Airport Plans in order to establish a high level approach that supports and guides the development and updating of local airport master planning considering the needs of the State and Region. Finally, the Project also proposes to also build capacity and competences in State CAA's regarding airport planning by having at least one (1) trained staff in each CAA on airport planning by 2020. This Staff, assigned by the Member State as focal point for the project with ICAO RO, will be responsible to carry out the project per State in conjunction with ICAO's SAM Regional Office. To do this, it is proposed to develop a series of tailored training on airport planning to the Staff. This training will be determined by the analysis and may be delivered by third parties.

Reasons

In the SAM Region there is a lack of airport infrastructure capacity in many important hubs that had led to increased costs, saturation, delays, inefficiencies, and loss of opportunity due to the lack of space to operate, thus acting against the common long-term national and regional interest of realizing the benefits of growing air connectivity.

With a clear roadmap, better regional guidance material, increased knowledge and competencies on airport planning, States will be on a better position to plan ahead and analyse data in order to execute the needed airport infrastructure projects on time. This will enable the needed capacity to cope with the demand, thus increasing connectivity to the State and to the network in a safe and efficient matter. This increased connectivity will give more access to air travel to the general public and foster the Region´s development.

This solution is aligned with SAM Plan's Connectivity and Institutional Strengthening axis, and with ICAO's Capacity and Efficiency Strategic Objective.

Business Options

1. Do nothing

This option leaves the Region at the status quo: infrastructure deficiencies will continue to be the major capacity issue in the Region, and although some projects will be put in place to cope with air traffic demand, usually airport development projects are very large in scope and have a long time horizon from planning to completion, thus not delivering the needed capacity on-time. Also, the airport development projects may not respond to the State's or other stakeholders needs.

2. Deliver seminars on airport planning

In this scenario, the Regional Office may deliver seminars and other type of training on airport planning to increase competences in States; however, as the gap analysis is not made and no framework or mechanism is established within the State and aligned with Regional realities, the results of the training may not be seen, as the staff participating in this type of activities are not usually full time working on airport planning matters.

3. Project on airport planning (Analysis-plan-training)

This is the recommended option. By having Regional guidelines in coordination with international organizations and/or consultants on how to develop national airport plans and at the same time capacity building in States thru well prepared and trained Staff, States will be on a better position to establish mechanisms and frameworks to develop quality aviation infrastructure commensurate with

the level of predicted traffic growth and based on Regional and Global Plans. These frameworks will be aligned with the Regional Airport Planning initiatives and will facilitate the ICAO SAM Regional Office to follow up with States in order to predict and avoid capacity constraints in the system.

Expected Benefits

- States will have the tools to implement a mechanism to evaluate capacity/demand based on available data in order to make better decisions to trigger airport infrastructure needs.
- States will have the capabilities to prepare by themselves or thru third parties (using guidance material as baseline for the study terms of reference) National Airport Plans that establishes a high level approach and mechanisms that ensures that Airport Master Planning considers all stakeholders and that are commensurate with the level of predicted traffic growth and based on Regional and Global Plans
- States will have access to high quality training at lower cost.
- Capacity building in States to actively participate in the airport planning process, review airport operator's master plans, engage on national airport master plans and facilitate interaction between stakeholders in the State.
- Each Member State will have a trained, local airport planning point of contact, in order to work in better coordination with ICAO's SAM Regional Office.
- In the long term, each State will have a national airport plan that will allow local airport master plans to be aligned to the country they serve.
- Regional network of airport planners

Expected Dis-benefits

- The time for staff to be trained may avoid this staff to be doing their regular activities within the CAA.
- More workload to States and RO.

Timescale

The implementation of the Project will be defined by phases.

- Phase 1: Gap Analysis and high level recommendations (draft framework document) for implementation mechanisms (5 months).
- Phase 2: Creating State regional network of airport planners: will begin with a Project's Kick Off meeting and continue with on-going mechanism (teleconferences, meetings, etc.) to validate the document and publish it (7 months).
- Phase 3: Training and implementation in States: depending on determined training needs, carry out training plan and implementation on each State (24 months).

Costs

Initial costs to be determined based on experts' missions, kickoff meeting and framework document. Training costs will vary and be determined depending on the required level of training and recommendations by specialists.

Major Risks

- Staff assigned by State may not be with the required initial competencies
  Mitigation: survey States and put initial requirements for the focal point
- Lack of interest from States
  Mitigation: due diligence and explain properly the project's benefits. Relate to SAM PLAN pillars/objectives

- The implementation of final solutions (such as the inclusion of a more robust State and other Stakeholders view on the review of airport master plans) may be seen as a threat for current concession agreements and/or may not be possible to implement because of contractual matters.
  Mitigation: actively involve organizations such as ACI to gather the stakeholder concerns and include them on the plan. Also, get advice from a legal perspective on how to deal with these scenarios.
- Not getting the support (funding) for the project.
  Mitigation: involve international organizations that may be interest in the development of the region´s aviation in order to explain the benefits of better planning of airport infrastructure.
- Staff assigned by State will abandon the CAA after training
  Mitigation: align with SAM PLAN Institutional Strengthening.

APPENDIX/APÉNDICE B

A-CDM in the SAM Region - Business Case

Project Name:	A-CDM in the SAM Region		
Date:	13/10/2017	**Release:** 13/10/2017	Draft
Author:	Salvatierra, Fabio		
Executive:	Quesada, Oscar		
Senior User:	Salvatierra, Fabio		
Client:	SAM States		
Document ID:	AGA - A-CDM in the SAM Region-17-002		
Document link:			

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Revision History

Date of next revision:

Revision Date	Previous Revision Date	Summary of Changes	Changes Marked
13/10/2017		First edition of Business case in PRINCE2 format	

Approvals

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Name	Signature	Title	Date of Issue	Version

Distribution

This document has been distributed to:

Name	Title	Date of Issue	Version

Overview

Purpose

A Business Case is used to document the justification for the undertaking of a project, based on the estimated costs (of development, implementation and incremental ongoing operations and maintenance costs) against the anticipated benefits to be gained and offset by any associated risks.

Contents

Executive Summary

The Project proposes to increase airport capacity in congested aerodromes by establishing a plan to implement B0-ACDM and subsequently B1-ACDM on the SAM Region by setting a baseline scenario on airport capacity constraints, gather best practices and guidance material, adjust them to local/regional conditions, define requirements or levels for implementation in order to establish a roadmap, and following pilot projects in designated aerodromes.

Reasons

In the SAM Region there is a lack of airport infrastructure capacity that had lead to increased costs, saturation, delays, inefficiencies, and loss of opportunity due to the lack of space to operate, thus acting against the common long-term national and regional interest of realizing the benefits of growing air connectivity.

As airport development projects are very large in scope and have a long time horizon from planning to completion (along with high costs and space requirements), in the meantime States and Airport Operators may need to find ways to increase the efficient use of installed infrastructure in order to generate more capacity to accommodate demand. ACDM has globally being identified as a way to increase capacity in the airport by means of increasing situation awareness to all the involved stakeholders thru sharing of information that lead to better collaborative decision making process, especially during the turnaround process in the airport.

This solution is aligned with SAM Plan's Connectivity axis, and with ICAO's Capacity and Efficiency Strategic Objective.

Business Options

1. Do nothing

States will still implement air navigation related solutions (such as ATFM) that will put more pressure to the network nodes (aerodromes). Surface operations, especially the turnaround process in the airport, will continue to be handled by operational stakeholders that rely on separate systems not sharing all relevant information, so not performing as efficient as they could.

2. Continue delivering seminar/workshops on ACDM

Currently, the RO has been delivering workshops and increasing awareness on the ACDM matter, having great assistance and results in the workshop; however, in order to support States on a harmonized implementation, there is a need to follow up on the measures taken by airports and States to begin collaboration mechanisms.

3. Project on ACDM

This is the recommended option. By carrying out an ACDM implementation project, the Region has the opportunity to implement ACDM on a scalable, consistent and harmonized way. Experience from other Regions has determined the lack of harmonization as one of the main challenges in ACDM implementation.

Expected Benefits

- Enhanced used of existing infrastructure of gate and stands (unlock latent capacity)
- Reduced workload
- Enhanced predictability
- Harmonized, consistent implementation of ACDM concept in the SAM region
- Benefits to the network (information sharing to network and other networks).
- Safety due to increased awareness
- IRROPS faster recovery
- Fuel savings

Expected Dis-benefits

- Systems (software) integration costs (at some locations).
- Change in current procedures

Timescale

The project is expected to last 18 months, considering activities to gather information, adjust to regional conditions, and validate with stakeholders the conditions/requirements for consistent implementation. Implementation at designated airports and pilot programs make take longer (based on other regions experience). Shortest ACDM program in an airport may take about 36 months.

Costs

Initial costs are to be determined by the project, but most likely to fall in the consultancy services (expert missions) and document preparation. A meeting or event to review and approve the project may also drive costs regarding the event organization, fellowships and other costs.

Major Risks

- States may not participate on the project
  Mitigation: include the project as part of already accepted mechanisms by States (such as GREPECAS Projects?)
- Lack of competent staff in airport operations (AOP) in the State to follow the project
  Mitigation: generate competencies thru training/awareness
- Low involvement of other Stakeholders (airport operator, airlines, ATC).
  Mitigation: foster collaboration with partners (ACI, IATA, CANSO).