



International Civil Aviation Organization

CAR/SAM Regional Planning and Implementation Group (GREPECAS)

Eighteenth Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/18)

Punta Cana, Dominican Republic, 9 to 14 April 2018

GREPECAS/18 - IP/14r

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Agenda Item 4: Regional air navigation planning and implementation performance framework: Review of programmes and projects

4.5 Projects of the AGA programme

GREPECAS Projects proposals on Airport Planning and ACDM Projects for the SAM Region

(Presented by the Secretariat)

SUMMARY

This information paper presents to the Meeting the on-going work for two new Project proposals under the Aerodrome Programme F, which proposes to analyze and validate the probable root-cause(s) for aerodrome capacity constraints in the SAM Region, as a result of increasing airspace capacity, traffic growth and lack of on-time infrastructure deployment and propose a plan with recommendations to States on how to establish mechanisms to evaluate and monitor capacity/demand based on data and collaborative approach with all involved stakeholders.

A business case proposal for the project is attached as **Appendix A and B**.

References:

- ICAO's Global Air Navigation Plan
- ICAO Doc. 9184, Airport Planning Manual – Part 1 Master Planning 2nd Edition 1987
- ICAO Annex 14, Vol. I, Aerodrome Design and Operations, 7th Edition
- On-going work by Aerodromes Design and Operations Panel (ADOP)
- The Industry High Level Group report (2017)
- Performance based Air Navigation implementation plan for the SAM Region – PBIB
- Document 9854 Global ATM Operational Concept
- Document 9971 Manual on Collaborative Air Traffic Flow Management

1. Background

1.1 In September 2013, The Industry High Level Group (IHLG) was established as an initiative of the International Civil Aviation Organization (ICAO) Secretary General, bringing together the Heads of four industry organizations: The Airports Council International (ACI), the Civil Air Navigation Services Organisation (CANSO), the International Air Transport Association (IATA) and the International Coordinating Council of Aerospace Industries Associations (ICCAIA). The group had the task to consider matters of global significance to international civil aviation that can be better addressed in a collaborative arrangement between States and the industry rather than working individually on such matters.

1.2 In 2017, the IHLG published the Aviation Benefits Report that addresses *Airport Development and Expansion* as a key enabler to development. Airports are capital intensive businesses. If airport infrastructure improvements cannot keep pace with the projected demand growth, then in 2030, congestion at the 100 largest airports in the world will result in as much as 1,200 million passengers (i.e. around 20 per cent of the demand) lost or redirected to less attractive airports. This same scenario is happening today at some airports in the SAM Region.

1.3 Airport Master Planning have been an important topic in the SAM Region for decades. As mentioned by ICAO Secretary General opening remarks of IATA-FIDAE Wings of Change Conference in 2014, the topic also rises some important questions regarding how prepared Latin America is to manage the air traffic growth, driving to one of the region's priorities: infrastructure bottlenecks relating to airport capacity. Also, the International Air Transport Association (IATA) has been actively addressing the need for States to ensure optimal infrastructure to enable growth.

1.4 But while the necessary capacity is installed, today the States still face challenges. In the South American Region, the increase of traffic in the main connection centers (hubs) and the limitations of development of on-time new airport infrastructure to meet the demand, makes it necessary to apply new concepts, processes and technologies that allow maintaining the operation in the hours of greatest demand, in addition to providing, with the existing infrastructure, the conditions to accommodate the traffic until the necessary infrastructure can be provided and then after it.

2. Rationale

2.1 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. This turns especially important with the increase of airspace capacity, due to the multiple improvements made in the SAM Region.

2.2 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 analyze 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 international 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. The development of this concept in a collaborative way with the main users of the system is fundamental for the success and sustainability of the project, aligned with the documentation and guides of ICAO.

2.3 While this planning capacity is created in the States, the Secretariat has identified the Airport Collaborative Decision Making (ACDM) as one of the tools within the ASBUs that increase the predictability and situational awareness of the main actors of the airport process at the surface level, especially in the phase of aircraft rotation (turn-around process) through an information exchange platform, which translates into better flow management of aircraft on land.

2.4 Under this premise, ICAO has updated Document 9971 Collaborative Air Traffic Flow Management, including an exclusive section on the ACDM subject. In addition, the SAM Regional Office has held 3 events related to the ACDM, two in Lima, Peru and one in Sao Paulo, Brazil, where States and aerodrome operators, air navigation service providers and industry participated, together with international experts from organizations such as EUROCONTROL, EASA, CANSO, IATA, ACI World, among others.

3. Proposal

3.1 The proposal is based on two new projects. The first 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.

3.2 A business case document with more details is attached as **Appendix A** of this paper.

3.3 The second project proposes to work together with specialists of the States and international organizations in the documentation of the project, including the establishment of a baseline and identification of needs of which airports could be benefited in the first instance in the application of this Pilot project. Also, the generation of a Regional Concept of Operations (ConOps) on this topic. Usually, congested international airports hubs, which have capacity problems on ground, are those identified in the different workshops carried out as the main potential beneficiaries of the project.

3.4 A business case document with more details is attached as **Appendix B** of this paper.

4. Suggested actions

4.1 The Meeting is invited to:

- a) take note of the information provided in this paper;
- b) give feedback to Secretariat on better ways to deliver the proposed project; and
- c) agree on other actions that are deemed appropriate.

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

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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.

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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		
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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

B4

- 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).