



**Twenty-first Meeting of the CAR/SAM Regional Planning and Implementation Group
 (GREPECAS/21)**

Santo Domingo, Dominican Republic, 15 to 17 November 2023

**Agenda Item 3: Global and Regional Developments
 3.3 CAR/SAM Air Navigation Services (ANS) Implementation Level**

CAPACITY ENHANCEMENT FOR AERODROMES

(Presented by Airports Council International Latin America and Caribbean)

EXECUTIVE SUMMARY

With the expected growth in demand forecasted to approximately 19 billion passengers passing through the world’s airports in 2040, the aviation ecosystem is going to have to significantly improve and develop the capacity available globally. Aerodromes are key nodes in the transport system that cater to this demand but need collaboration from all stakeholders to ensure best use of available capacity. Operation improvements, as well as appropriate capital development projects, are going to be the foundation upon which this future oriented capacity will need to be built.

Action:	Under paragraph 3.2
<i>Strategic Objectives:</i>	<ul style="list-style-type: none"> • Air Navigation Capacity and Efficiency • Economic Development of Air Transport

1. Introduction

1.1. Following the reduction in aircraft and passenger traffic that occurred during the pandemic, the aviation industry is again facing significant growth across many global regions with air traffic and passenger figures reaching, or even surpassing, the 2019 benchmark. This growth is expected to continue year over year to reach a total of approximately 19 Billion passengers passing through aerodromes by 2040. In order to cater to this significant volume of traffic, the industry as a whole is going to have to make a concerted effort to provide sufficient capacity to accommodate the expected demand.

1.2. Capacity development across the aviation ecosystem will take form in part through a multitude of gradual step improvements but will equally require significant investments by States and industry to accommodate the forecasted demand. On a global level following the Global Air Navigation Plan, with the intent to achieve the system wide developments and improvements that are laid out in a logical sequence will be essential to attaining the capacity enhancements that are necessary.

1.3. As a general principle, capacity is a finite resource available within a system. In the case of the airport ecosystem, there are a range of stakeholders that have to collaborate efficiently and effectively to manage the available system capacity. In many cases, there still remain inefficiencies, often due to lack of alignment and coordination between actors across the airport ecosystem, where capacity is lost or underutilised.

2. Discussion

2.1. Developing sufficient capacity to meet future demand is going to be a critical factor to allow for the continued development of the industry. The economic and social benefits of aviation are immense, in particular for regions of the world that have limited access due to topography or distance from other centres of population. Ensuring continued connectivity, as well as its future growth and development, are fundamental to sustaining the economic growth of certain regions as well as societal benefits that aviation brings to people worldwide.

2.2. At aerodromes, capacity development can come from a range of actions that can be taken by the aerodrome operator in conjunction with ecosystem stakeholders, such as the Air Navigation Service Provider (ANSP) or air operators and may equally need some form of support or endorsement from the State. One such enhancement is the deployment of A-CDM, that will allow for data sharing, improved planning, situational awareness building and predictability in the operations at an aerodrome.

2.3. The deployment of A-CDM does however require a consolidated effort and commitment to engage and share information by not just the aerodrome operator, but equally the ANSP, the Ground Handling Service Provider(s) and air operators using the aerodrome. However, once all stakeholders establish the appropriate level of collaboration and data sharing, the benefits are rapid allowing for immediate optimisations to the use of available capacity at aerodromes. There are also environmental benefits to these deployments through reduction of in-flight and on-ground fuel burn by aircraft.

2.4. Even following the deployment of A-CDM at an aerodrome or across a network managed by an ANSP, there can still be losses of efficiency and capacity misused due to the lack of alignment between air and ground capacity. Working collaboratively between the aerodrome operator and the ANSP to identify optimisations is critical to releasing residual capacity. In some cases the operational procedures applied by the ANSP, such as distance spacing between aircraft, use or non-use of mixed mode operations on runway systems, wake turbulence separations, traffic segregation and others can lead to capacity losses. At the same time, aerodromes often have capacity limitations on the ground, such as insufficient parking stand capacity, lack of or inappropriately placed rapid exit taxiways, terminal and passenger processing limitations, or others.

2.5. Creating synergies between the ANSP and the aerodrome operator when it comes to the management and use of available capacity is critical. The minimum requirement in this context is to identify where the losses or lack of alignment can be identified and where improvements can be made. To support Aerodrome Operators and ANSPs in the enhancement of the available capacity at aerodromes, ACI and CASO have developed a new collaborative programme based on the APEX in Safety concept whereby peers from aerodromes and ANSPs collaborate to identify these challenges and propose solutions or potential improvements. The Airport System Capacity Enhancement (ASCE) Programme relies on close collaboration between these two key stakeholders to further enhance the use of capacity across the airport ecosystem.

2.6. The State also has a key role to play at ensuring that airspace and ground capacity is being used in the most effective way. In some cases, this will equally require alignment with the Military or Airforce who are also airspace users sometimes holding on to vast areas of underutilised airspace. Implementing flexible use of airspace concepts, whereby the military airspace block is only activated when in use, can resolve some of these capacity constraints. The State can also facilitate coordination between the Aerodrome Operator and ANSP where this type of collaboration is not already part of the operating model, or potentially leverage the ASCE Programme as a pathway for improvements.

2.7. When residual capacity has been teased out of the system, there is the capital investment into new systems and infrastructure that will of course provide additional capabilities for growth and development of capacity across the ecosystem. However, the capital expenditure required can be costly and impact the financial sustainability of the organisations having to make these disbursements. Addressing the capacity challenge through operational optimisation is a critical first step to take.

3. Conclusion

3.1. The forecasted growth in demand that will take place across the aviation industry in the medium term will require significant capacity enhancements to deliver the needed capacity to meet this demand over time. Before investing heavily in infrastructure and costly systems, collaborative approaches to capacity development should be taken, such as the deployment of collaborative models across airport systems or improvements in alignment across the critical stakeholders. When these operational measures are exhausted, investments into new capacity should then take place to support the projected growth.

3.2. The Conference is invited to:

- a) take note of the importance of collaboration amongst aviation system stakeholders to effectively manage available capacity and release residual capacity;
- b) encourage States to support industry in the deployment of collaborative models, such as A-CDM or the ACI-CANSO ACSE Programme to optimise the use of available system capacity; and
- c) invite States to consider the capacity challenges the industry as a whole is facing to meet future demand and, where applicable, create opportunities to discuss and analyse these challenges across the aviation ecosystem.