



INTERNATIONAL CIVIL AVIATION ORGANIZATION

**TWENTY SIXTH MEETING OF THE ASIA/PACIFIC AIR NAVIGATION
PLANNING AND IMPLEMENTATION REGIONAL GROUP
(APANPIRG/26)**

Bangkok, Thailand, 7 – 10 September 2015

Agenda Item 3: Performance Framework for Regional Air Navigation Planning and Implementation

3.2: ATM

MEASURING ANSP PERFORMANCE

(Presented by CANSO)

SUMMARY

The subject of ATM performance measurement was raised at the last APANPIRG meeting and DGCA Conference and more recently at the ATM/SG Meeting. This paper highlights some of the work done by CANSO in this area at the global level which may be of interest and relevance to the region in its deliberations on ATM performance measurement.

Strategic Objectives:

- A: **Safety** – *Enhance global civil aviation safety*
- B: **Air Navigation Capacity and Efficiency**—*Increase the capacity and improve the efficiency of the global aviation system*
- E: **Environmental Protection** — *minimize the adverse environment effects of civil aviation activities.*

1. INTRODUCTION

1.1 As the Asia Pacific Region pushes ahead with the implementation of its Seamless ATM Plan the need for ATM performance measurement has become more apparent. This paper presents some of the recent work published by CANSO relating to ANS performance and KPIs for measuring ANSP operational performance for the information of the meeting. The CANSO documents are:

- (a) Global ANS Performance Report 2014; and
- (b) Recommended KPIs for measuring ANSP Operational Performance

2. DISCUSSION

2.1 Measuring the performance of its ANSP membership is an important core activity for CANSO and over the years it has been regularly publishing a report based on the contributions of its participating Members. So far however, the CANSO Global ANS Performance Report has focused on cost efficiency and productivity KPIs (e.g. cost per IFR Flight hour) which is a key part of the performance equation and an important measure for the ANSPs.

2.2 What the analysis was not able to show in this Report however is the influence of investments and activities in areas such as safety, flight efficiency or quality of service, which were outside of the data capture. This would be needed eventually to build a more complete picture of ANS performance and the drivers for improvement.

2.3 The second document from CANSO entitled Recommended KPIs for measuring ANSP Operational Performance is specific to flight efficiency, capacity and quality of service and therefore a step in this direction. It provides a set of recommended KPIs for measuring ANSP operational performance that will enable ANSPs to identify areas for improvement and take action to improve performance as well as to communicate to stakeholders how actions can affect the performance of the system. The KPIs will also help ANSPs measure the actual benefits of implementing the various Aviation System Block Upgrade (ASBU) modules.

2.4 This document spells out a full complement of KPIs (at Appendix 1) that may be used across the spectrum of Key Performance Areas (KPAs) of capacity, flight efficiency and predictability. It recommends that ANSPs select those measures and KPIs that are most appropriate for their level of maturity and the resources they can devote to managing and tracking the selected KPIs.

2.5 This means that in practice most ANSPs will not implement all the measures and it is not necessary to track all KPIs to be effective. It therefore recommends that ANSPs limit the use of KPIs to those that provide the best indication of what an ANSP can influence as well as the best indication of how flight efficiency can be improved for the operators. ANSPs should focus on assessing two primary goals: first, managing demand and capacity to maximise the use of available capacity; and second, providing the most efficient trajectories possible while meeting safety and capacity utilisation objectives.

2.6 The two CANSO publications *Global ANS Performance Report 2014* and *Recommended KPIs for measuring ANSP Operational Performance* can be downloaded from the CANSO website at www.canso.org.

3. ACTION BY THE MEETING

3.1 The Meeting is invited to:

- (a) Note the information contained in the paper;
- (b) Encourage States and ANSPs to avail themselves of the following two CANSO publications in their deliberation of ANS performance measurement: *Global ANS Performance Report 2014* and *Recommended KPIs for measuring ANSP Operational Performance*;
- (c) Discuss any relevant matter as appropriate.

Appendix 1

CANSO Operational Performance KPIs

KPAs	Key Performance Indicators (KPIs)	Example KPI Form Definitions
Capacity	Declared Capacity	Target acceptance rate for a facility or sector
	Capacity Efficiency	Percentage of Demand Accommodated by Facility's Capacity and Actual Demand
	Delay Attributed to Capacity Limits	Total or Average Delay by Airport
Total or Average Facility Attributable Delay		
Efficiency	Gate Departure Delay	Number of Gate Departure Delayed Aircraft
		Average Gate Departure Delay per Flight
		Average Gate Departure Delay per Delayed Flight
	Taxi Out Delay	Number of Taxi-Out Delayed Aircraft
		Average Taxi-Out Delay per Flight
		Average Taxi-Out Delay per Delayed Flight
	Calculated Take-Off Time Compliance	Calculated Take-Off Time Compliance
		Number of Early Departures
		Number of Late Departures
	Terminal Departure Flight Distance/ Time Efficiency	Number of Departing Aircraft Delayed in the Terminal Airspace
		Average Departure Delay per Flight
		Average Departure Delay per Delayed Flight
	Terminal Departure Level Flight Efficiency	Actual level flight time/distance from take-off to 40/100 NM circle.
	En Route Direct Route Extension	Average or Total Actual Flight Distance/Time above that obtained from a great circle benchmark.
	Filed Flight Plan En Route Extension	Average of Total Filed Distance/Time above that obtained from a great circle benchmark
	Arrival Flight Distance/Time Efficiency	Total or Average Excess Minutes or Miles by Aircraft Group, Operating Configuration, or Arrival Airport
	Arrival Level Flight Efficiency	Actual level flight time/distance from 100/40 NM circle landing.
	Arrival Runway Occupancy Time	Average Runway Occupancy Time per Aircraft Category
	Taxi In Delay	Number of Taxi-In Aircraft Delayed
		Average Taxi-In Delay per Flight
Average Taxi-In Delay per Delayed Flight		
Gate Arrival Delay	Number of Gate Arrival Delayed Aircraft	
	Average Gate Arrival Delay per Flight	
	Average Gate Arrival Delay per Delayed Flight	
ATM Attributable Delay	Delay against a schedule or a filed time that can be attributed to ATM.	
Average Flight Time Between City Pairs	Average Travel Time Between City Pairs.	
Capacity and Efficiency	Operational Availability	(Maximum facility service hours minus outage time) divided by maximum facility service hours.
Predictability	Capacity Variation	Difference between the 85 th and 15 th percentile declared capacity for a facility.
	Travel Time Variation	Difference between the 85 th and 15 th percentile travel time for a phase of flight for a city pair.
	Flight Plan Variation	Difference between the 85 th and 15 th percentile flight plan distance or time for a city pair.