



**INTERNATIONAL CIVIL AVIATION ORGANIZATION**

**AFI PLANNING AND IMPLEMENTATION REGIONAL GROUP  
EIGHTEENTH MEETING (APIRG/18)  
Kampala, Uganda (27 – 30 March 2012)**

**Agenda Item 3.7: Other Air Navigation Matters:**

**Twelfth Air Navigation Conference (AN-Conf/12) – Aviation System Block  
Upgrades**

**ICAO FUEL SAVING EVALUATION TOOL (IFSET)**

*(Presented by the Secretariat)*

**SUMMARY**

Different initiatives are in place in the Region to improve the efficiency of the ATM system. One of the results of the ongoing improvements is the reduction in fuel consumption by aircraft capable of using the new procedures, concepts of operations or technologies. This paper addresses the need to measure the benefits accrued from operational improvements, and proposes the creation of a group. The terms of reference to the group defined for this task according to the regional coordination process as well as a proposed form to report the benefits are included.

Action by the meeting is in paragraph 4.

**Related ICAO Strategic Objective(s):** Environmental Protection and Sustainable Development of Air transport

**1. BACKGROUND**

1.1 The *Global Air Traffic Management Operational Concept* (Doc 9854), endorsed by the 11th Air Navigation Conference (2003) describes the expectations of the ATM community in 11 key performance areas. One of them is environment, and the endorsed vision is that the ATM system should be environmentally sustainable.

1.2 At the 37th session of the Assembly (2010), resolution A37-19 called upon the States to develop and implement procedures to reduce aviation emissions.

1.3 The purpose of this paper is to propose a mechanism to estimate and report the environment benefits accrued from operational improvements aligned with the assembly resolutions in force and also to propose an annual environmental report outlining the operational improvement benefits as an indication of positive environmental stewardship.

## 2. INTRODUCTION

2.1 It is a generally accepted fact that climate change can pose threats to life on our planet. The aviation world has long recognized this reality as well as the benefits that air transportation brings to world development.

2.2 The aviation industry's wish to grow in a sustainable manner coupled with the global desire to reduce the impact of aviation on climate change has triggered several actions by the ATM community, such as investing in new technologies and applying new concepts to reduce emissions from aviation.

2.3 The experience of the ATM community in applying Standards and Recommended Practices as well as Procedures for Air Navigation Services has already set in motion several plans to address the aviation impact on climate change.

## 3. DISCUSSION

3.1 Against a background of increasing concern regarding the impact of aircraft engine emissions on the environment, ICAO has been considering what steps could be taken by the international aviation community to control and measure emissions.

3.2 Implementation of operational improvements will generally have benefits in areas such as improved airport and airspace capacity, shorter cruise, climb and descend times through the use of more optimized routes, and an increase of unimpeded taxi times. These improvements have the potential to reduce fuel burn and lower levels of pollutants.

3.3 Calculation of aviation emissions is dependent on several different factors including the number and type of aircraft operations, the type and efficiency of the aircraft engines, the type of fuel used, the length of flight, the power setting, the time spent at each stage of flight, and the location (altitude) at which exhaust gases are emitted.

3.4 Specifically for operational improvements benefit analyses, it is necessary to have data that can reflect the operational changes.

3.5 The main purpose of this paper is to request the estimation and reporting of fuel savings resulting from national or regional operational improvements through the use of a simple but globally endorsed tool (ICAO Fuel Savings Estimation Tool -IFSET) specifically designed for this purpose, which does not require any specific user skills.

3.6 The tool as well as its User's Guide can be downloaded free of charge at: <http://www.icao.int/environmental-protection/Pages/Tools.aspx>

3.7 The tool is not intended to replace the use of detailed measurement or modelling of fuel savings, where those capabilities exist. Rather, it is provided to assist those States or ANSPs without such facilities to estimate the benefits from operational improvements. Details on the tool will be provided further.

3.8 To estimate and report fuel savings from operational improvements at a regional level it is proposed the creation or identification of a group dedicated to the measurement process with proposed terms of reference detailed in the Appendix A to this working paper.

3.9 It is also proposed that all States/ANSPs in the region start reporting the benefits as they plan or implement any type of operational improvement at national or local level. After the estimation, it is proposed that the results are sent to ICAO as soon as the analysis are finalized but not later than quarterly using the tool or the form proposed in Appendix B to be compiled in a single document.

3.10 The data collected will be used to produce an annual global environmental report by the ICAO HQ outlining the operational improvement benefits as an indication of positive environmental stewardship.

3.11 Considering the need to have a clearly defined regional approach for estimating environment benefits accrued from operational improvements using IFSET or a more advanced tool, the meeting is invited to adopt the following conclusion:

**Conclusion 18 /x — Estimating environment benefits**

That:

- a) States are urged to use IFSET or a more advanced model/measurement capability available to estimate environment benefits accrued from operational improvements and the benefits should be reported on a quarterly basis to ICAO;
- b) States agree that all plans to implement operational improvements that may reduce fuel burn at a regional or State level shall encompass an environment benefits analysis.

**4. ACTION SUGGESTED**

4.1 The meeting is invited to:

- a) note the information provided in this paper;
- b) approve the draft conclusions at paragraph 3.11 above;
- c) agree with the creation of a measurement working group or the identification of a suitable existing group to carry out the measurement tasks;
- d) review and agree with the proposed terms of reference for a measurement working group in Appendix A to this paper; and
- e) review and agree with the proposed form in Appendix B to this paper for reporting benefits.

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## APPENDIX A

### AIR TRAFFIC MANAGEMENT MEASUREMENTS WORKING GROUP

#### 1. TERMS OF REFERENCE

- a) To follow-up the implementation of the ATM operational improvements in the Regional Air Navigation Plan (ANP) or in national plans and to place special emphasis on identifying and estimating the fuel savings accrued from the corresponding improvements.
- b) To carry out permanent coordination with various PIRGs contributory bodies in order to ensure appropriate integration of all tasks contributing to the estimation of environment benefits related to the implementation of the GANP or national operational improvements.
- c) To harmonize, at a regional level, the estimation of the environment benefits from operational improvements in order to reach consistent results.
- d) Taking into consideration the material prepared by ICAO, develop proposals to keep and upgrade the ICAO Fuel Savings Estimation Tool (IFSET) if deemed necessary.

#### 2. WORK PROGRAMME

TASK NUMBER	TASK DESCRIPTION	PRIORITY	DATE	
			START	END
M1	To identify operational improvements to be measured	A	TBD	TBD
M2	To establish the baseline for comparison	A	TBD	TBD
M3	To define the future scenario for environment benefits estimation	A	TBD	TBD
M4	To estimate the environment benefits accrued from the identified operational improvements	A	TBD	TBD
M5	To inform the estimated benefits to ICAO	A	TBD	TBD

#### 3. PRIORITY

**A** High priority tasks, on which work should be speeded up.

**B** Medium priority tasks, on which work should commence as soon as possible, but without detriment to priority **A** tasks.

**C** Tasks of lesser priority, on which work should commence as time and resources allow, but without detriment to Priority **A** and **B** tasks.

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