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ASSEMBLY — 36TH SESSION

EXECUTIVE COMMITTEE

Agenda Item 17: Environmental protection

FUEL SAVINGS AND ENVIRONMENTAL PROTECTION INITIATIVES BY INDIA

(Presented by India)

EXECUTIVE SUMMARY	
This paper provides an update on the recent initiatives taken by India to conserve fuel and on environmental protection. The Assembly is invited to take note of the initiatives taken by India.	
Strategic Objectives:	This working paper relates to Strategic Objectives C (*Environmental Protection – Minimize the adverse effect of global civil aviation on the environment*).
Financial implications:	Not applicable.
References:	

1. INTRODUCTION

1.1 India manages one of the biggest airspace, approx. 6 Million Square Kilometre, in the world which encompasses huge area of oceanic airspace in the Bay of Bengal, Arabian Sea Area and part of Indian Ocean. The extent of oceanic airspace is approx 3.8 Million Square Kilometre and the continental airspace is approx. 2.2 Million Square Kilometre.

1.2 Being situated at a very strategic geographical location at the confluence of ATS Routes, the Indian Airspace has become a vital link to the smooth flow of traffic between the major destinations in the Eastern and Western parts of the world. India has recorded, in the recent past, a phenomenal rate of traffic growth. The rate of growth, in terms of aircraft movements, which was 14.4% in the year 2003-04, has increased to 28.3 % in the year 2006-07.

Year	International		Domestic		Total	
	No. in (000's)	% Change	No. in (000's)	% Change	No. in (000's)	% Change
2003-04	136.19	17.0	505.20	13.7	641.39	14.4
2004-05	163.27	19.9	554.32	9.7	717.59	11.9
2005-06	190.87	16.9	647.51	16.8	838.38	16.8
2006-07	215.52	12.9	859.97	32.8	1075.49	28.3

2. OPTIMUM AIRSPACE UTILIZATION

2.1 Under the aegis of ICAO, the International ATS route structure between airports in South / South East Asia and Europe via India and Middle East was restructured in November 2002 under the EMARSSH (Europe, Middle East, Asia revised Route Structure South of Himalayas) project. Under this project ATS route structure through Indian FIRs were also realigned and multiple parallel ATS routes which provide most optimum and cost efficiency routes in terms of distance and fuel to the airlines.

2.2 Subsequently, RVSM has been implemented throughout Indian FIRs in November 2003, through which 6 additional Flight levels are made available for the flights. Implementation of multiple parallel routes followed by RVSM implementation has significantly enhanced the operational efficiency and huge savings in fuel and time.

2.3 Taking into consideration the unprecedented rate of growth in terms of aircraft movements and high density of traffic transiting through Indian Airspace and realizing the need to utilize the available airspace in an optimum way, India has taken pro-active steps to further improve the route structure by providing most efficient direct routings with shorter distance.

3. IMPLEMENTATION OF NEW ATS ROUTE SEGMENTS

3.1 As part of the above initiatives, following new ATS route segments were implemented in the year 2006.

Route Description	Savings per flight		
	Time	Fuel	CO_2 Emission
L509 : GGC – ASARI	40NM /5 mnts	650 Kg	2000Kg
M875: LAPAN- BUTOP	26NM/3.25mnts	422 Kg	1300Kg
M875: KAKID-LAPAN	18NM/2.25 mnts	292Kg	900 Kg
P761: MMV- PPB	77NM/10 mnts	1300Kg	4000 Kg
P628: ASOPO- RK L333: KKJ-TIGER	55NM/7 mnts 75NM/ 10 mnts	850 Kg 1300Kg	2600 Kg 4000 Kg

Source : ICAO Asia Pacific region ATS route Catalogue version 3 Dt.7.6.2006 in respect of L509, M875. AAI source in respect of P761, P628 and L333

3.2 On an average about 80-90 aircraft operate through these routes. The total distance saved is 291 NM and average fuel savings per day is US$62 800. The total reduction in CO_2 emission is calculated to be approx. 1.33 million Kg per day.

4. IMPROVEMENT OF LOCAL AIR QUALITY AT AIRPORT THROUGH IMPROVED AIRPORT OPERATIONS/ATC PROCEDURES

4.1 Cross runway operations at Mumbai has been implemented with improved ATC procedures since 27th March 2006, which has resulted in huge savings in terms of time and fuel and also reduction in CO_2 emission very significantly as mentioned below.

i) Mumbai : Departures from Domestic apron are accommodated from Runway 14 and the taxiing time is about one minute. During the cross runway operations all domestic departures are accommodated from runway 14 which is very near to the domestic apron saving the taxiing time to the extent of 5-6 minutes per flight as against the use of main runway 27. On an average about 100 domestic departures use runway 14 and the net savings per day in terms of fuel is accounted for about 65000 Kg and reduction in CO_2 emission is worked out to be 200000 Kg per day.

ii) Departures from Rwy intersection : In order to reduce on ground delays and to expedite departures, airlines are encouraged to depart from the nearest runway intersections avoiding extra distance of taxiing and backtracking. Procedures have been developed and notified to facilitate the airlines to plan the departures at the appropriate Runway intersections depending upon the type of aircraft. By adhering to these procedures, airlines will be saving about 2 to 3 minutes of ground taxiing and fuel savings per flight. Approximate savings in terms fuel per flight is worked out to be 290 Kg and reduction in CO_2 emission is about 900 Kg.

5. FUEL EFFICIENCY AND ENVIRONMENTAL PROTECTION / NOISE ABATEMENT THROUGH IMPLEMENTATION OF PBN PROCEDURES

5.1 In accordance with ICAO initiatives, India has taken pro-active steps to implement PBN procedures at Mumbai and Delhi airports on priority and subsequently at all other airports. Airports Authority has entered into an agreement with M/s MITRE Corp. USA for the implementation of this project through which an airspace analysis at Mumbai and Delhi airports will be carried out and PBN procedures will be designed and implemented. The procedure design will take into consideration the requirements of environmental protection and noise abatement. The procedures are likely to be implemented in June 2008 which will further improve the local air quality at the airport besides operational efficiency.

6. CONCLUSION

6.1 The assembly is invited to take note of the Indian initiatives to support fuel conservation efforts of the industry and also to support the environmental protection measures.

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