



## INTERNATIONAL CIVIL AVIATION ORGANIZATION

**TWENTY-SECOND MEETING OF THE  
ASIA/PACIFIC AIR NAVIGATION PLANNING AND  
IMPLEMENTATION REGIONAL GROUP (APANPIRG/22)**

Bangkok, Thailand, 5-9 September 2011

**Agenda Item 3: Performance Framework for Regional Air Navigation Planning  
and Implementation**
**3.5 Other Air Navigation Matters**
**INDIAN OCEAN STRATEGIC PARTNERSHIP TO  
REDUCE EMISSIONS (INSPIRE)**

(Presented by India)

**SUMMARY**

INSPIRE is an informal partnership of ANSPs in Indian Ocean and Arabian Sea area dedicated to reduce the environmental footprints of aviation by utilizing technological advances and adopting best practices. The partners have developed a systematic approach to achieve, demonstrate and report short term, medium term and long term goals. Airports Authority of India is one of the founder members of this partnership.

*Strategic Objectives:*

- A: **Safety** – Enhance global civil aviation safety
- C: **Environmental Protection and Sustainable Development of Air Transport**

**1. INTRODUCTION**

1.1. **Indian Ocean Strategic Partnership to Reduce Emissions (INSPIRE)** is a collaborative network of partners and peer organizations across the Arabian Sea and Indian Ocean region dedicated to improve the efficiency and sustainability of aviation. INSPIRE is aimed at supporting operations in three distinct regions:

- Arabian Gulf – Australia
- Southern Africa – Australia / South East Asia
- South-West Indian Ocean – Arabian Gulf

At present the INSPIRE partners are:

- Airports Authority of India (AAI)
- Air Services Australia
- Air Traffic and Navigation Services South Africa (ATNS)

1.2. The INSPIRE partners are committed to work closely with airlines and other stakeholders in the region in order to:

- accelerate the development and implementation of operational procedures to reduce the environmental footprint for all phases of flight on an operation by operation basis, from gate to gate;
- facilitate world-wide interoperability of environmentally friendly procedures and standards;
- capitalise on existing technology and best practices;
- develop shared performance metrics to measure improvements in the environmental performance of the air transport system;
- provide a systematic approach to ensure appropriate mitigation actions with short, medium and long-term results; and
- communicate and publicise INSPIRE environmental initiatives, goals, progress and performance to the global aviation community, the press and the general public.

1.3. The INSPIRE partners will ensure that INSPIRE is in support of the **ICAO Strategic Objectives 2011 – 2012 – 2013**, and is consistent with environmental planning under Civil Air Navigation Services Organization (CANSO) Environmental Work Group.

## 2. DISCUSSION

### 2.1 INSPIRE Strategic Plan

The INSPIRE partners have developed a strategic plan in collaboration with peer organizations. The INSPIRE Strategic Plan outlines recommended procedures, applications and technologies that support the stated goals of the INSPIRE partnership. The INSPIRE Strategic Plan activities will aim to reduce fuel burn and greenhouse gas emissions, thus reducing aviation's impact on the environment. The INSPIRE partners have compiled a series of recommended procedures, practices and services that have been demonstrated or have shown the potential to provide efficiencies in fuel and emissions reduction management. Some of these are;

- **Departure phase;** Surface Movement Optimisation and Departure Optimisation including Continuous Climb Departures;
- **Oceanic flight phase;** User Preferred Routes (UPR), Dynamic Airborne Reroute Procedures (DARP), Flexible Track Systems, Oceanic Separation Minima (50/50 & 30/30), Reduced Vertical Separation Minima (RVSM) and Cruise Climb (Block levels);
- **Arrival phase;** Time Based Arrivals Management; Optimum Profile Descents via RNAV and RNP-AR Approaches; Optimum Profile Descents via Tailored Arrivals; and
- **Performance Based Navigation (PBN) Implementation;** PBN provides a basis for the numerous Air Traffic Services enhancements such as oceanic RNP separation reductions, Optimum Profile Descents, and the development of aircraft and the development of future concepts for trajectory based operations. These PBN enabled enhancements are a cornerstone of ANSP efforts to improve fuel and emission efficiencies.

2.2. The INSPIRE partnership recognizes that the measurement of success through the credible tracking of the reduction of emissions as a result of initiatives in the INSPIRE program is essential to establishing and maintaining the credibility of the partnership. For each initiative in the work program the partners with the direct support of the Airline partners will establish the current fuel

burn/emissions for the part of trajectory that will be affected by the initiative. At the completion of the initiative or at the end of specific stages of the related works the airline partner will report the new fuel burn/emissions. The savings associated with the success of each initiative will be reported.

2.3 Progress, performance and program updates will be reported by the INSPIRE partners on an annual basis via the publication of the INSPIRE Annual Report. The Annual Report will be developed by the INSPIRE coordinators in the second quarter of each calendar year to provide status updates on work program initiatives and demonstrations, performance measurements and future plans for the INSPIRE partnership.

2.4 The INSPIRE activities are being documented in the **INSPIRE Strategic Plan**.

2.5 **INSPIRE Work Program**

2.5.1 The work program consists of a series of initiatives which, as they are completed, will allow the INSPIRE partnership to progress towards their goal of improving the efficiency and sustainability of aviation. For each initiative one INSPIRE partner is identified as the lead. It is the lead’s responsibility to track the progress of the initiative and coordinate and facilitate the other stakeholders to encourage success of the initiative.

2.5.2 Inspire demonstration flights: One of the important initiative that INSPIRE partners had planned was the four demonstration flights in the month of July 2011. The best practices for reduction in fuel consumption and carbon emissions were employed for these flights by the INSPIRE partners, the partner airlines and peer organizations to demonstrate the benefits of these practices.

The details of the four flights (one west bound and three east bound) are as follows:

Date	Carrier	A/C Ident.	Type	City Pair	Date/ETD UTC	Date/ETA UTC
Sat 16 Jul 2011	Emirates	UAE425	B777	PERTH - DUBAI	15/ 2200	16/ 0900
Sat 16 Jul 2011	Etihad	ETD450	A340	ABUDHABI – SYDNEY	16/ 0615	16/ 2025
Sat 16 Jul 2011	Emirates	UAE434	B777	DUBAI – BRISBANE	16/ 0625	16/ 2040
Fri 22 Jul 2011	Virgin Australia	VAU30	B777	ABUDHABI – SYDNEY	22/ 0655	22/ 2055

2.5.3 Before conducting these flights, the partner airlines, concerned ANSPs conducted Paper Trials to examine the possible impacts of these flights on the flow of other air traffic in FIRs. In Mumbai and Chennai FIRs, all the requested routes and flight levels were ensured through continuous coordination among ATC Sectors and neighbouring Area control Centres. The progress of flights through the Indian FIRs is detailed below;

- I. UAE425 (Perth - Dubai), 16/07/2011: The flight operated along ATS route R461 –MDI – M300 in Chennai and Mumbai FIRs. The flight was cleared on a direct

routing from entry into Chennai FIR to waypoint LOTAV on Mumbai/Muscat FIR boundary. The initial report of Emirates Airline estimated total savings of 16 minutes for this flight.

- II. ETD450 (Abu Dhabi – Sydney), 16/07/2011: The flight operated along a User Preferred Route (UPR) in Mumbai FIR and joined the Flex Track in Male FIR. The UPR in the Mumbai FIR was KITAL 18N062E 12N065E 08N068E OMLEV.
- III. UAE434 (Dubai – Brisbane), 16/07/2011: The flight operated along a User Preferred Route (UPR) in Mumbai FIR and joined the Flex Track in Male FIR. The UPR in the Mumbai FIR was KITAL 18N062E 14N065E 10N068E ESLAV. The initial estimates of Emirates airlines have reported a saving of 51 minutes for this flight.
- IV. VAU30 (Abu Dhabi – Sydney), 22/07/2011: The flight operated on ATS route L894 in Mumbai FIR.

2.5.4 The User Preferred routes to take advantage of wind conditions were employed for the first time in Indian FIRs for the flights on 16<sup>th</sup> July 2011. A careful planning in coordination with Emirates airlines and IATA and Paper Trials conducted for two weeks prior to 16<sup>th</sup> July 2011 resulted in successful provision of UPRs for Demonstration Flights in Indian FIRs.

2.5.5. The results from these two flights alone resulted in a combined total saving of over 6,250 litres of fuel and more than 16,000 kilograms of carbon dioxide emissions. Since 2003 Emirates has worked with the Air Traffic Service providers for flights to Australia and the emission savings of such operations over a five year period equate to potential savings of 9.6 million litres of fuel and 24,268 tonnes of carbon dioxide emissions. In 2011, based on an estimated 63 flights per week, approximate savings for the year would be in the order of 2.47 million litres of fuel and 6,850 tonnes of carbon dioxide.

## 2.6 Environment Friendly Initiatives by India

2.6.1 The Airports Authority of India has taken initiatives to ensure optimum utilization of airspace and shorter flight paths that will form part of the INSPIRE work programme. The participation in INSPIRE is an effort towards achieving these objectives and provide a sustainable ecofriendly aviation system.

## 3. ACTION BY THE MEETING

3.0 The meeting is invited to note:

- i) initiatives taken by India as INSPIRE Partner ANSP in coordination with Partner Airlines and Peer organizations for reducing carbon emissions in Indian Ocean and Arabian Sea region; and
- ii) India's commitment to implement ICAO Strategic Objective on Environmental Protection and Sustainable Development of Air Transport in the interest of harmonized and economically viable development of international civil aviation in this region.