

Various Approaches and Measures to address emissions from Aviation

Civil Aviation Bureau, Japan

New Delhi, India

08-12 October 2012



1. Airline Emission Reduction Measures

- Fleet renewal, Engine Washing (Japan)
- Proper maintenance/route planning procedure (India)



2. Air Traffic Management Measures

- ATM improvement(Japan)
- Continuous Decent Approach (Malaysia)



3. Measures at Airport

- Eco-Airport (Japan)
- Airport Environmental Committee (Malaysia)

➔ The Focal Point on Voluntary Measures (FPVM)
(Sharing good practices among States and industries)

Overview of Japan's Experiences on Aviation and Climate Change

→ Japan has been seriously taking measures to address emissions from aviation

- Airline Emission Reduction Measures
- Air Traffic Management Improvements
- Airport Initiatives



→ 14% fuel efficiency improvement
(in FY2005 compared to FY1995 levels, domestic aviation sector)

Airline Emission Reduction Measures in Japan

(Examples)

- Fleet renewal
- Weight reduction measures
- Selection of optimum altitude, speed and route
- Engine Washing



Source: All Nippon Airways



Source: The Scheduled Airlines Association of Japan



Source: Mitsubishi Aircraft Cooperation

Regular water washing of engines could reduce 4,300 tonnes of CO2 emissions per year, an airline estimated.

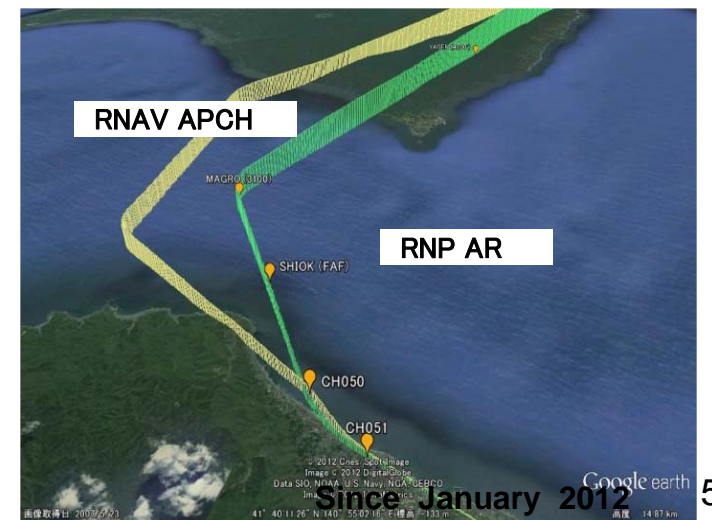
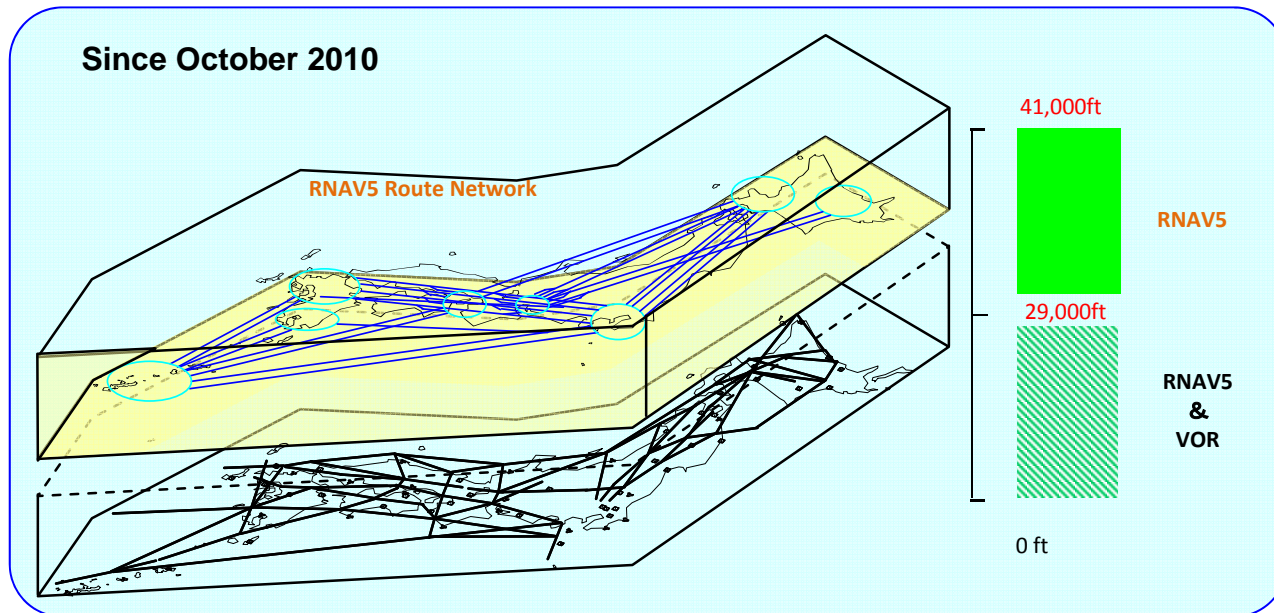
Fleet renewal will contribute to an over 20% reduction in fuel consumption compared with other jets to be replaced.

Air Traffic Management Improvement in Japan

(Examples)

➔ Ongoing ATM procedures to improve aircraft operational efficiency

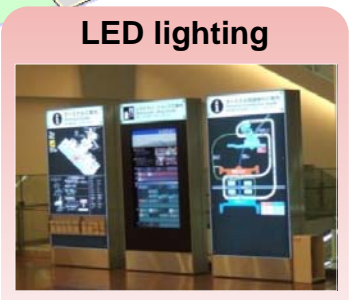
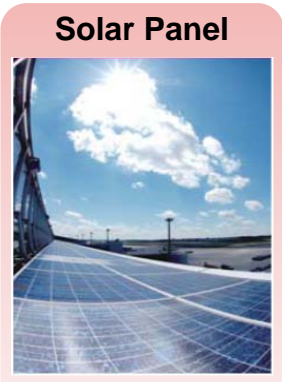
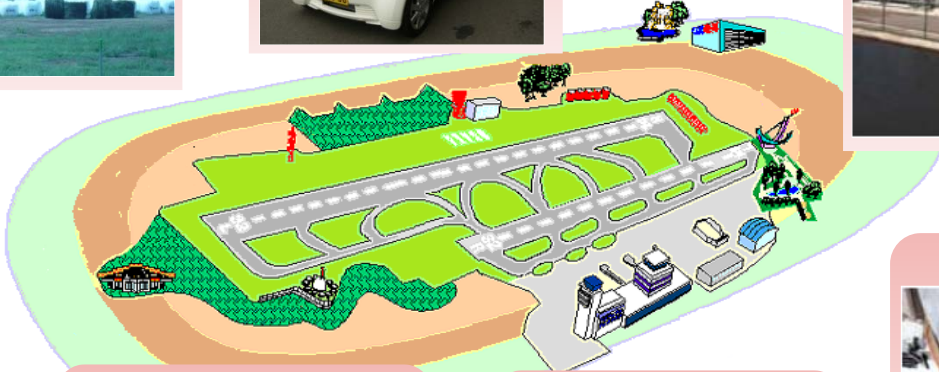
- User Preferred Routes (UPR)
- Dynamic Airborne Reroute Procedures (DARP)
- **RNAV5** Preferential Operation (Enroute)
- RNP AR approach
- Continuous Descent Arrival (CDA)



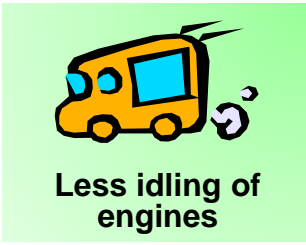
Measures at Airport(Japan)

(Examples)

Measures which need initial costs



Measures we can start NOW!



Actually they are most effective!

(Information from India)

→ Reduction in Fuel Consumption to improve Fuel Efficiency

- Directorate General of Civil Aviation, INDIA took an initiative and advised the best practices to all stakeholders
 - ✓ Fleet modernization
 - ✓ Proper maintenance
 - ✓ Flight operational procedures to minimize fuel consumption
 - ✓ To adopt proper route planning procedures
 - ✓ Efficient ATM process



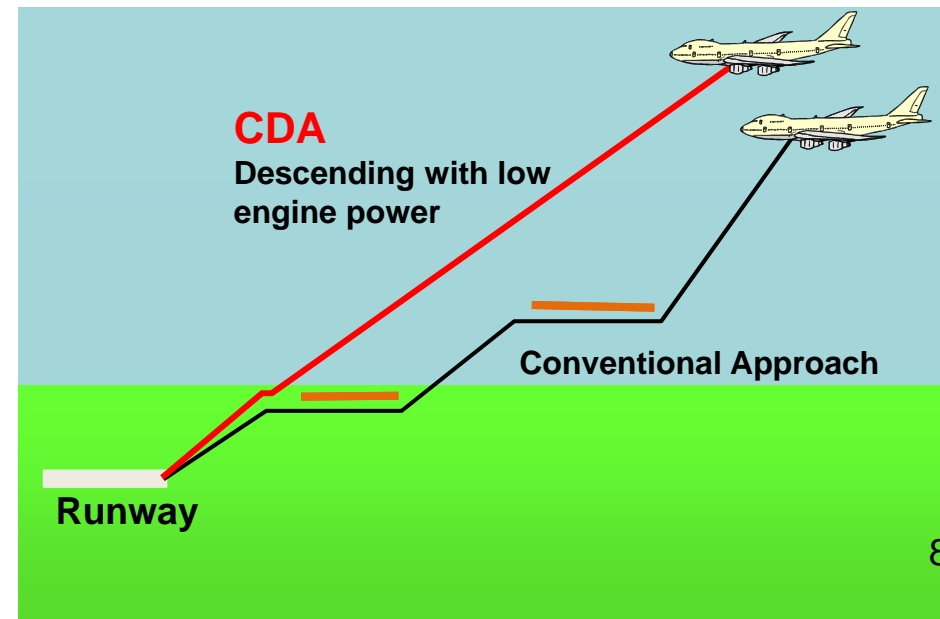
Source: Reuters

Air Traffic Management Measures

(Information from Malaysia)

→ Continuous Decent Approach (CDA)

- Participants: Airline, Airline Association and Air Traffic Control
 - ✓ Department of Civil Aviation Malaysia examined the effect of this activity and considered opinions from airline pilots and air traffic controllers.
 - ✓ It was estimated that 10,220 tonnes of CO₂ per year is reduced at the Kuala Lumpur Int'l Airport.



(Information from Malaysia)

→ Certified ISO14001:2004 and Green Globe

- Malaysia Airports Sepang

- ✓ certified ISO14001:2004 in 2009,
- ✓ has been certified for Green Globe in 5 continuous years since 2004,
- ✓ established the Kuala Lumpur Int'l Airport Environmental Management Committee, and
- ✓ reduce in use of electricity, water recycling and paper resource management.



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http://www.icao.int/environmental-protection/Pages/VM_Results-2010_EN.aspx

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Voluntary Measures

List of Voluntary Measures Received

[en - English](#) |
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#	Name of the Organization	Country	Dated Received	Language			
1.	The Scheduled Airlines of Japan	Japan	08/12/2009	en			
2.	Livingstone Spa	Italy	11/12/2009	en			
3.	Airport Munich	Germany	16/12/2009	en			
4.	TUNISAIR	Tunisia	16/12/2009	en	fr		
5.	Condor	Germany	17/12/2009	en			
6.	Bologna Airport	Italy	17/12/2009	en			
7.	Berlin Airport	Germany	18/12/2009	en			
8.	Japan Airline Corporation	Japan	18/12/2009	en			
9.	Narita International Airport	Japan	18/12/2009	en			
10.	Kansai International Airport	Japan	21/12/2009	en			

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The Focal Point on Voluntary Measures (FPVM) collects and provides information on various voluntary measures to address greenhouse gas emissions from aviation, as one of the activities of ICAO Committee on Aviation Environmental Protection (CAEP), to encourage aviation community to implement such activities.

- ICAO State Letter AN 1/17-09/093 dated 2 December 2009
- An electronic notice before every ICAO CAEP-SG meeting
- 57 responses from 28 States (as of end of August 2012)

- Providing information on your voluntary measures is appreciated!
- How to contribute to aviation community?



- Email to the following address
- Japan facilitates upload your information toward FPVM web-site

fpvm@mlit.go.jp

*Focal Point on Voluntary Measures
@ Ministry of Land Infrastructure, Transport, Government of Japan

Thank you for your attention

- Any comments
- Information sharing on your voluntary measures in your country

