



# Seminar on Sustainable Aviation

## “Toward realizing low carbon aviation”

### Opening Remarks

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## Topics of Today's Seminar

- Present efforts of the stakeholders for environmentally sustainable aviation
- The future strategies of the stakeholders and tasks to solve the problems

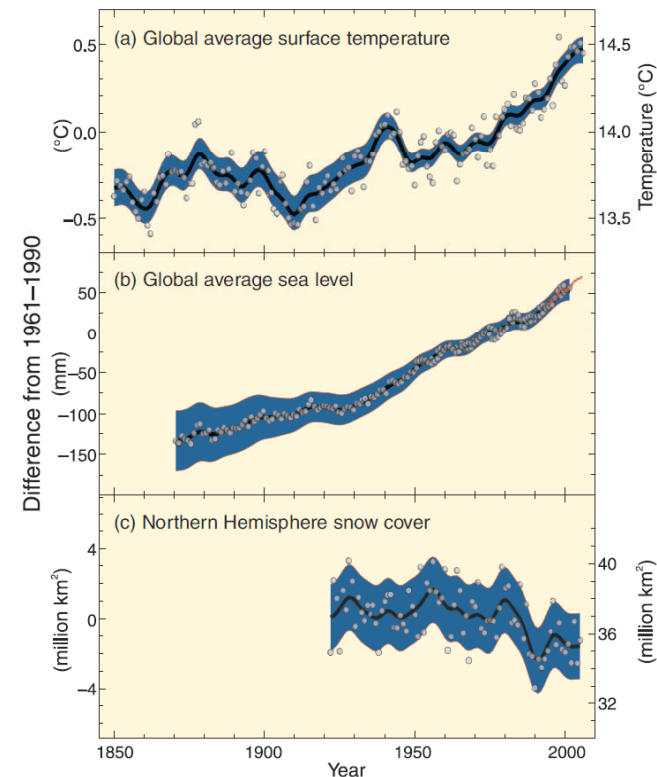
Before starting these speeches...

... brief overview of the present situation

# Climate Change

- According to the IPCC 4th assessment report, the temperature increase between 1906-2005 was  $0.74^{\circ}\text{C}$  and it is estimated that the increase in next 100 years will be  $1.8^{\circ}\text{C}$ - $4.0^{\circ}\text{C}$
- It is estimated that the climate change will cause many kinds of problems (e.g. inundation of small islands by sea level rise, increase of the areas affected by drought, frequency increase of heavy precipitation)

Changes in temperature, sea level and Northern Hemisphere snow cover



Source: IPCC 4<sup>th</sup> assessment synthesis report

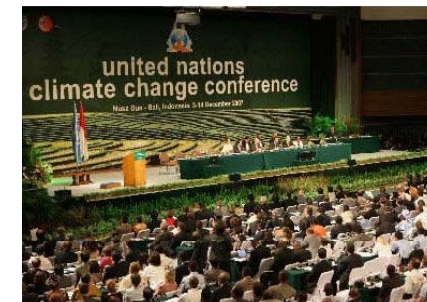
# Challenge for the Climate Change

- ***UN Framework Convention on Climate Change (UNFCCC)***

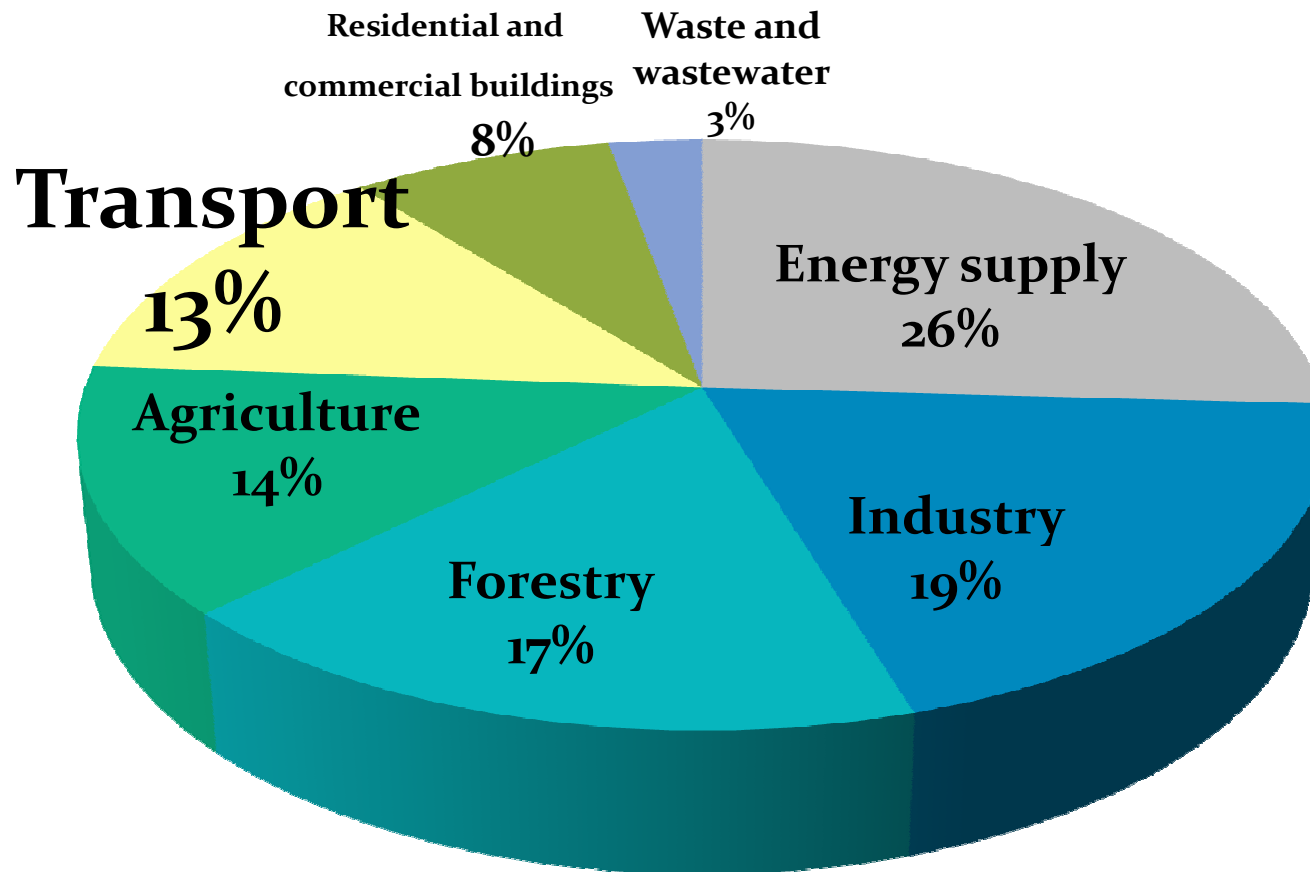
- 1992 Opened for signature at the Earth summit in Rio
  - 1994 Entered into force
  - 1997 Kyoto Protocol was adopted
- “Common but Differentiated Responsibility” (CBDR) principle

- ***The Kyoto Protocol***

- The developed countries commit themselves to binding targets (Japan committed to reduce the 2008-2012 emissions to 94% of 1990 emission levels)
- The discussion about the post-Kyoto Protocol framework is continuing



# Share of different sectors in total anthropogenic GHG emissions (in 2004 in terms of CO2-eq.)



Source: IPCC 4<sup>th</sup> assessment synthesis report

# Examples of the countermeasures by sector

- **Energy supply**
  - Development and promotion of renewable energy
- **Industry**
  - Introduction and enhancement of energy-efficient manufacturing equipment
- **Residential and commercial buildings**
  - Improvement of the energy-efficiency of residences and buildings
- **Cross sectoral measures**
  - Introduction of market based measures e.g. emission trading



# Examples of the countermeasures in transport sector

- ***Emission controls against each automobile***

- Introduction or reinforcement of fuel efficiency standards
- Promotion of the development and use of Electric Vehicles, Hybrid vehicles or Fuel Cell Vehicles etc.



- ***Traffic Control***

- Promotion of Intelligent Transport Systems (ITS)

- ***Public transport***

- Development of the urban rails or High Speed Rails



- ***Energy-efficient vessels***

- Promotion of Super-Eco-Ship

- ***Modal shift in freight transport***

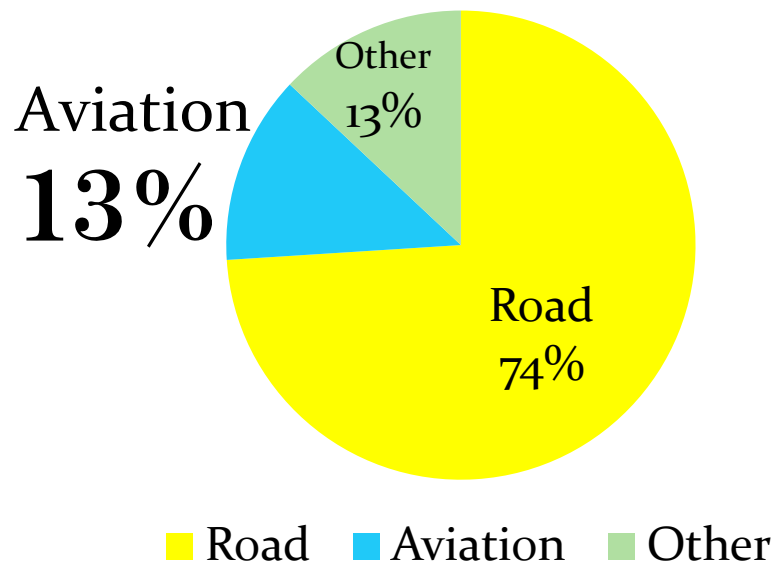
- Promotion of the use of freight rail or shipping



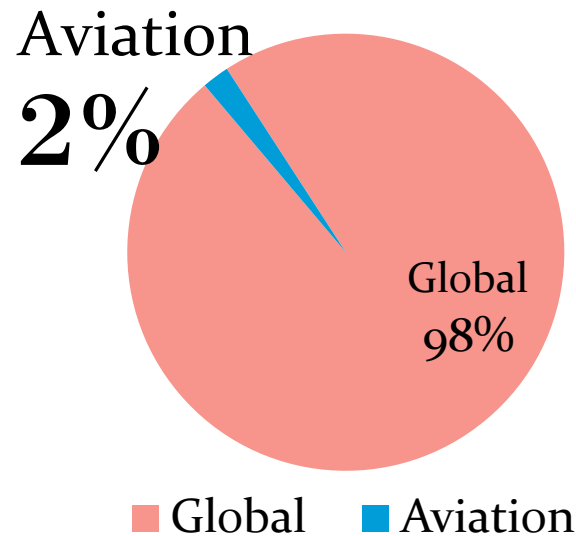
# CO2 emissions from aviation sector

Total aviation CO2 emissions (domestic and international ) are approximately 2% of the world's anthropogenic CO2 emissions.

Global CO2 Emissions per transport



Part of Aviation Global Emissions



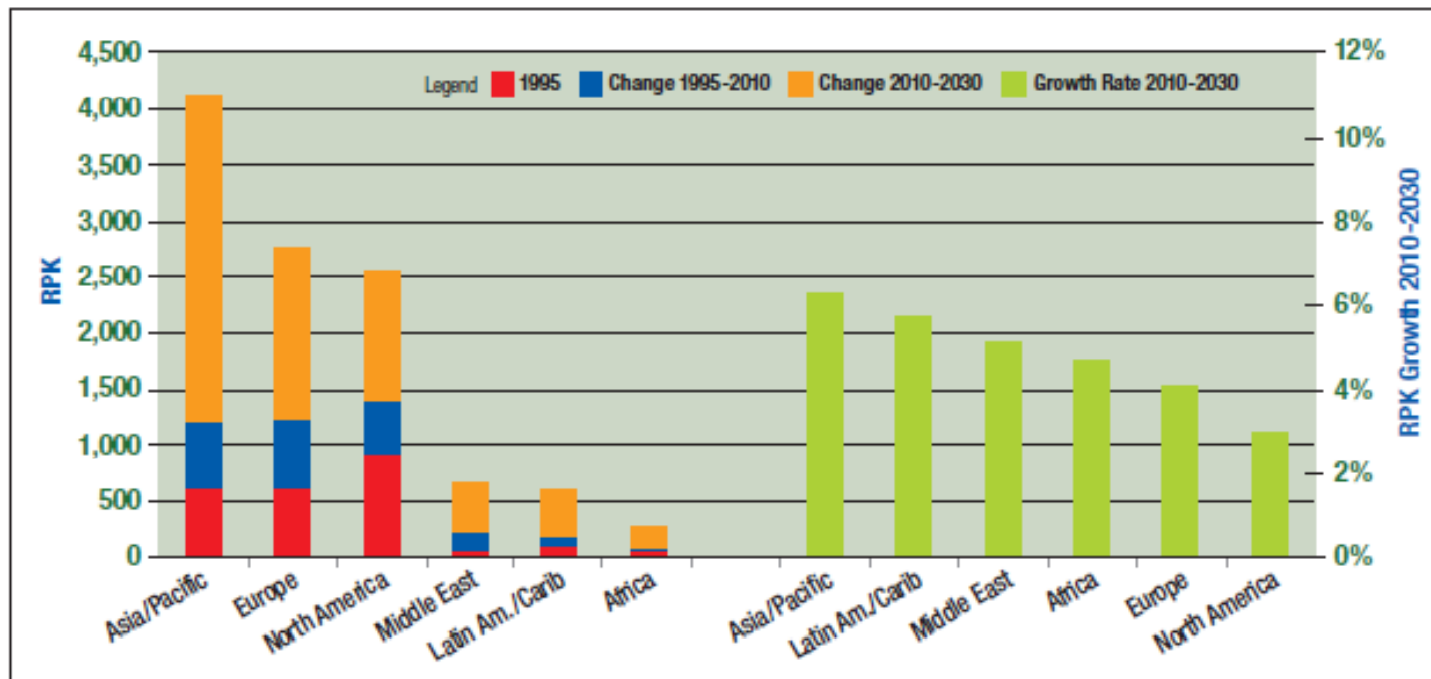
Source: ICAO Environmental Report 2010



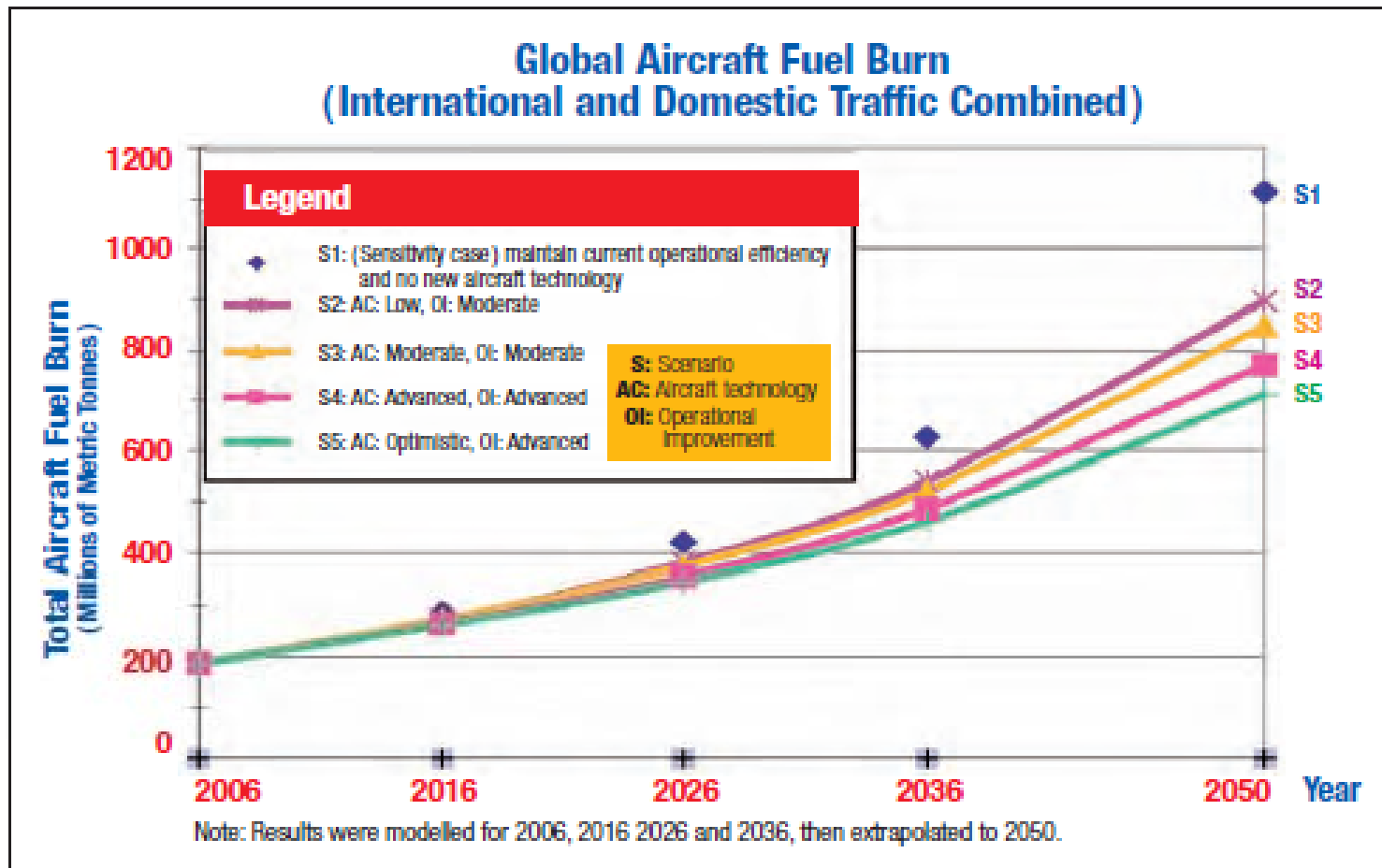
# The increase of air traffic volume

- The growth rate of air traffic volume is estimated to be high especially in Asia-Pacific regions and other emerging markets

ICAO Passenger Traffic Forecasts by ICAO Statistical Region



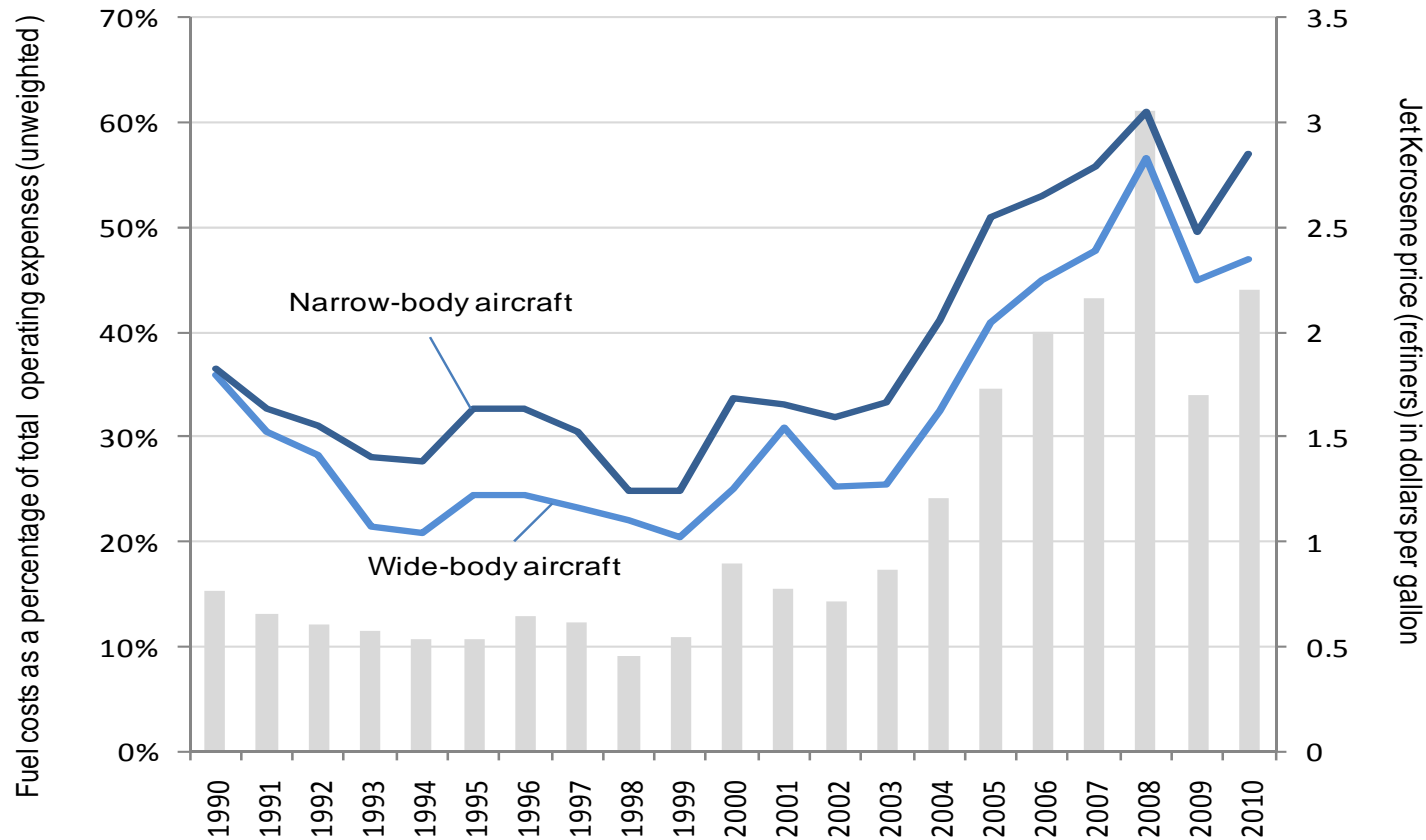
# The forecast of global aircraft fuel burn(ICAO)



Source: ICAO Environmental Report 2010

# Fuel costs

Fuel costs as a share of operating costs by aircraft family and kerosene prices: large US carriers 1990-2010



Source: Philippe Crist: ITF analysis based on US DOT Schedule P-5.2 and US Energy Information Administration data

# Market Based Measures(MBM)

- Types of MBM
  - Emissions Trading
  - Emissions-related Levies
  - Emissions Offsetting etc...
- The global scheme for the MBM for international aviation is being discussed at the ICAO.
- ***European Union Emissions Trading System(EU-ETS)***
  - 2006 *The proposal for a Directive including aviation in the EU-ETS*
  - 2008 *The legislation was adopted to include aviation in the EU-ETS as of 2012*
  - Non-EU countries and their airlines have been protesting against the inclusion of aviation in the EU-ETS.



# Today's Lecturers

- Paul Steele  
*Director, Aviation Environment, International Air Transport Association (IATA)*  
**“Aviation/Benefits Beyond Borders”**
- Billy M. Glover  
*Vice President, Global Business Development & Policy, Boeing Commercial Airplanes*  
**“Global Business & Environment Strategy”**
- Jim Rekoske  
*Vice President and General Manager, Renewable Energy and Chemicals, UOP Honeywell*  
**“Sustainable Aviation Fuels: Research, Developments and Deployment”**
- Julie Oettinger  
*Assistant Administrator for Policy, International Affairs and Environment, Federal Aviation Administration (FAA)*  
**“Sustainable Aviation in the United States”**



**Thank you very much for  
your attention.**

**The seminar starts NOW.**