

How can we ever keep emissions from flying too high for solutions?

- Study Group Report on Issues concerning the Reduction of CO2 in International Aviation -

Shigenori Hiraoka

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Japan International Transport Institute

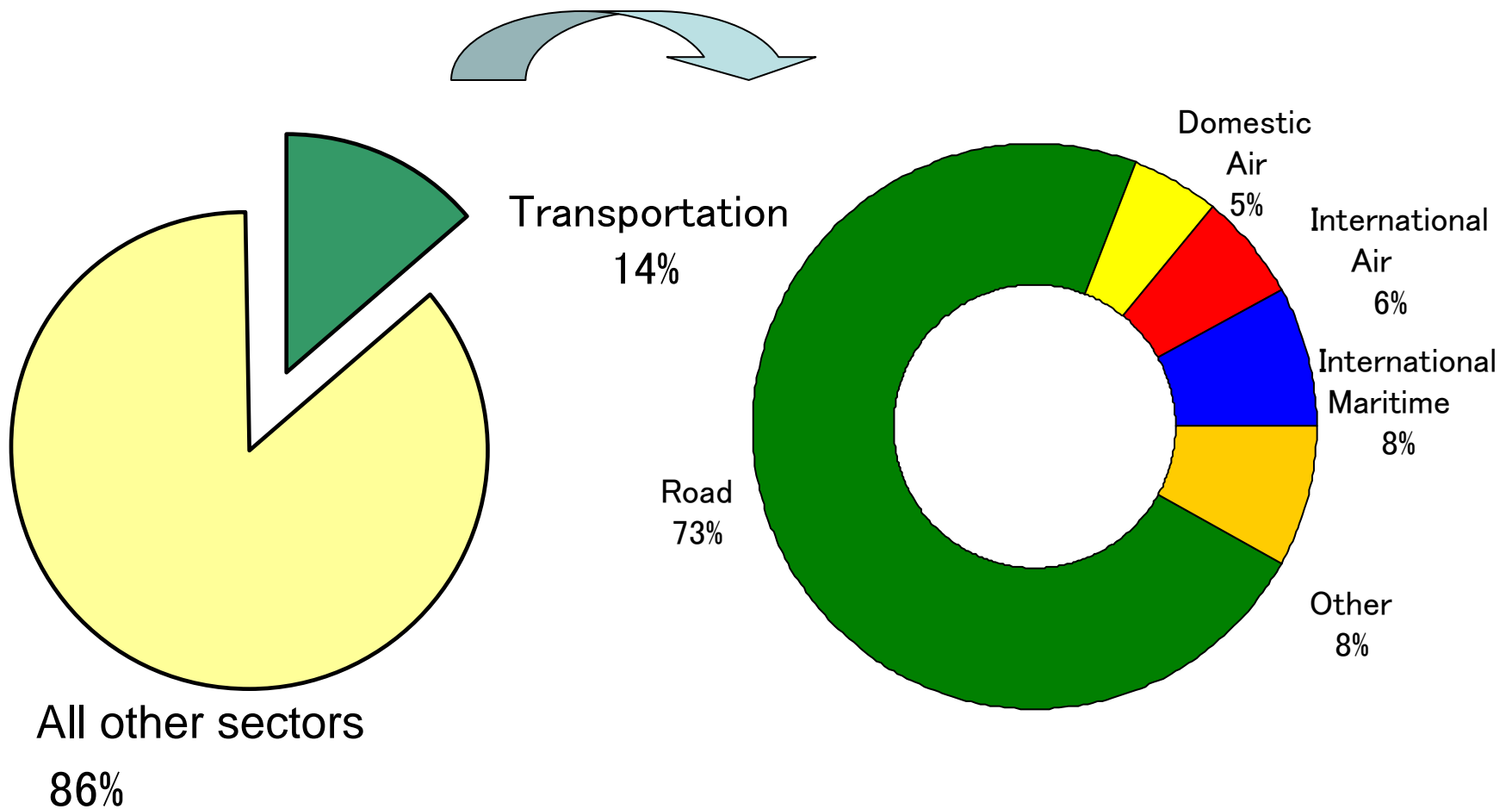


Airport Environment Improvement Foundation

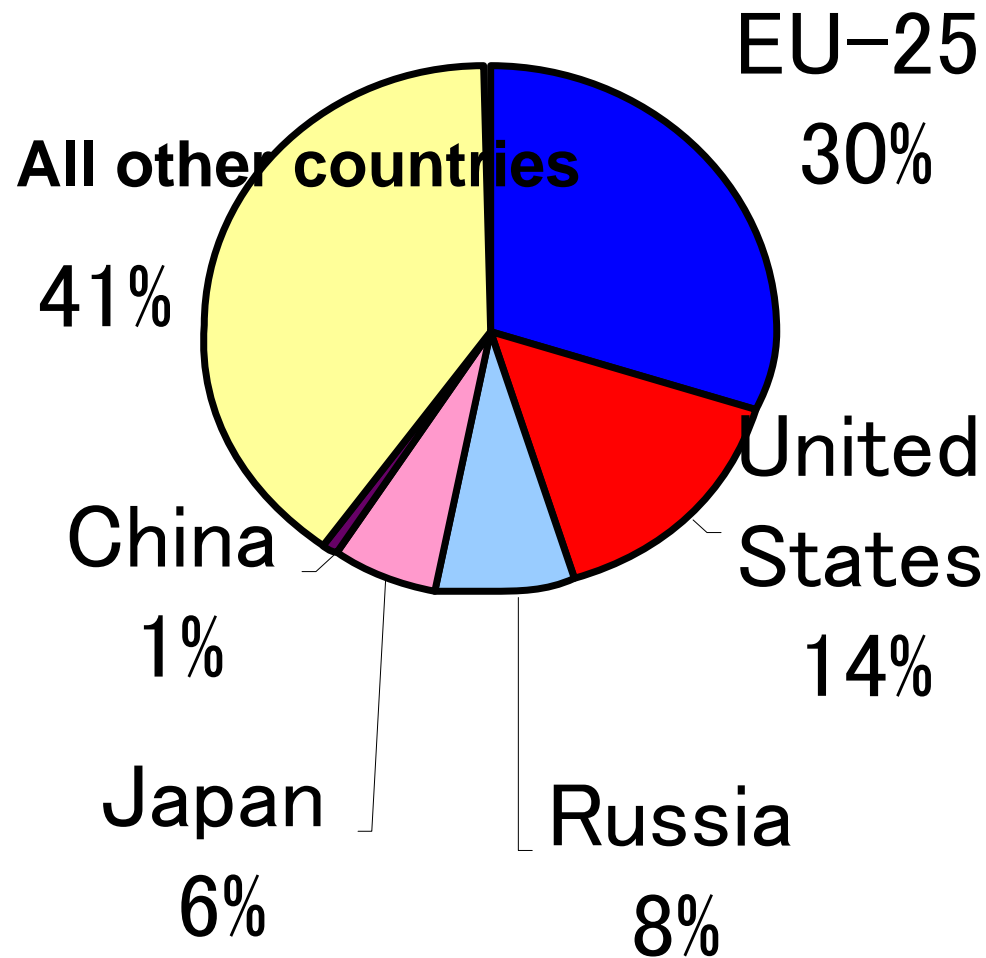
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GHG Emissions Distribution by Sectors (2004)



GHG Emissions in International Air Transportation (2004)



Future Growth (1)

- IPCC, “Aviation and the Global Atmosphere”

“Global passenger air travel, as measured in revenue passenger-km, is projected to grow by about 5% per year between 1990 and 2015, whereas total aviation fuel use—including passenger, freight, and military is projected to increase by 3% per year, over the same period.”

- ICAO, “Air Traffic Forecasts to the Year 2025”

“Total world airline scheduled passenger traffic in terms of passenger-kilometers is expected to grow at an average annual rate of 4.6 % up to the year 2025.”

- Airbus, “Global Market Forecast 2006-2025”

Aviation traffic will grow in the world by 5.3% between 2006 and 2015 and by 4.4% between 2016 and 2025.

- McKinsey Global Institute, “Curbing Global Energy Demand Growth: The Energy Productivity Opportunity”

“[W]e expect strong growth (of energy demand) to continue through 2020, averaging 3.6% annually.”

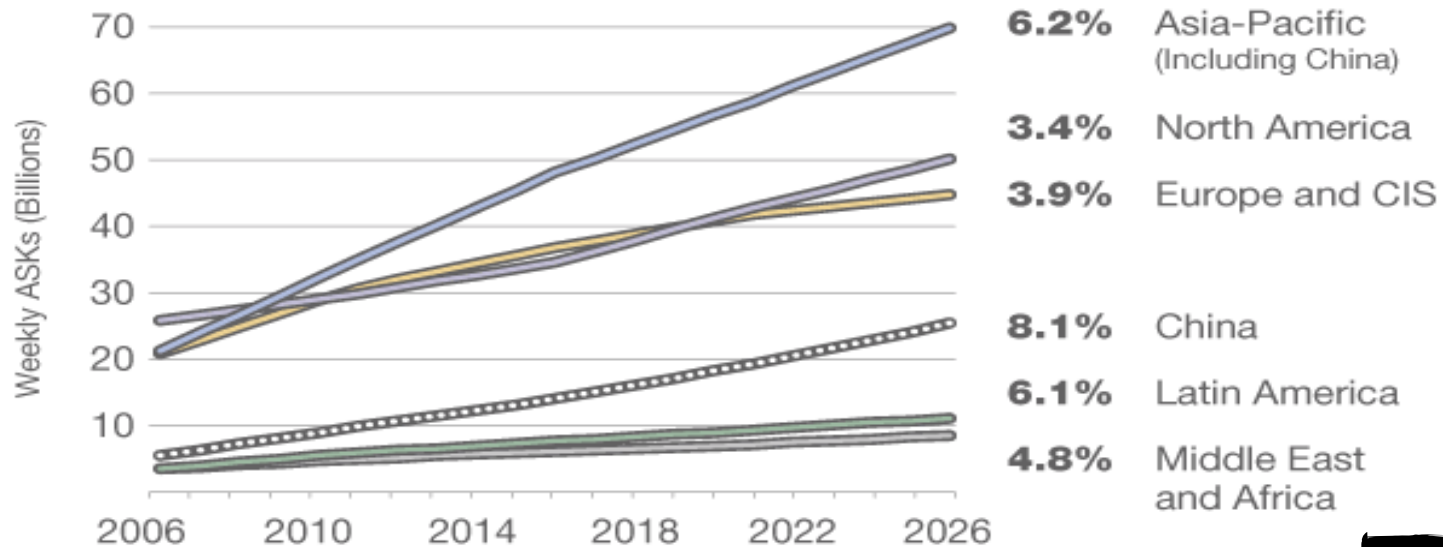
| |
|---------------------------------|
| 3% growth – 24 yrs. to double |
| 5% growth – 15 yrs. to double |
| 6.5% growth – 12 yrs. to double |

Future Growth (2)

Capacity Growth Within Regions

Current Market Outlook **2007**
How Will You Travel Through Life?

Average Annual Growth Rates



Includes scheduled and nonscheduled service.

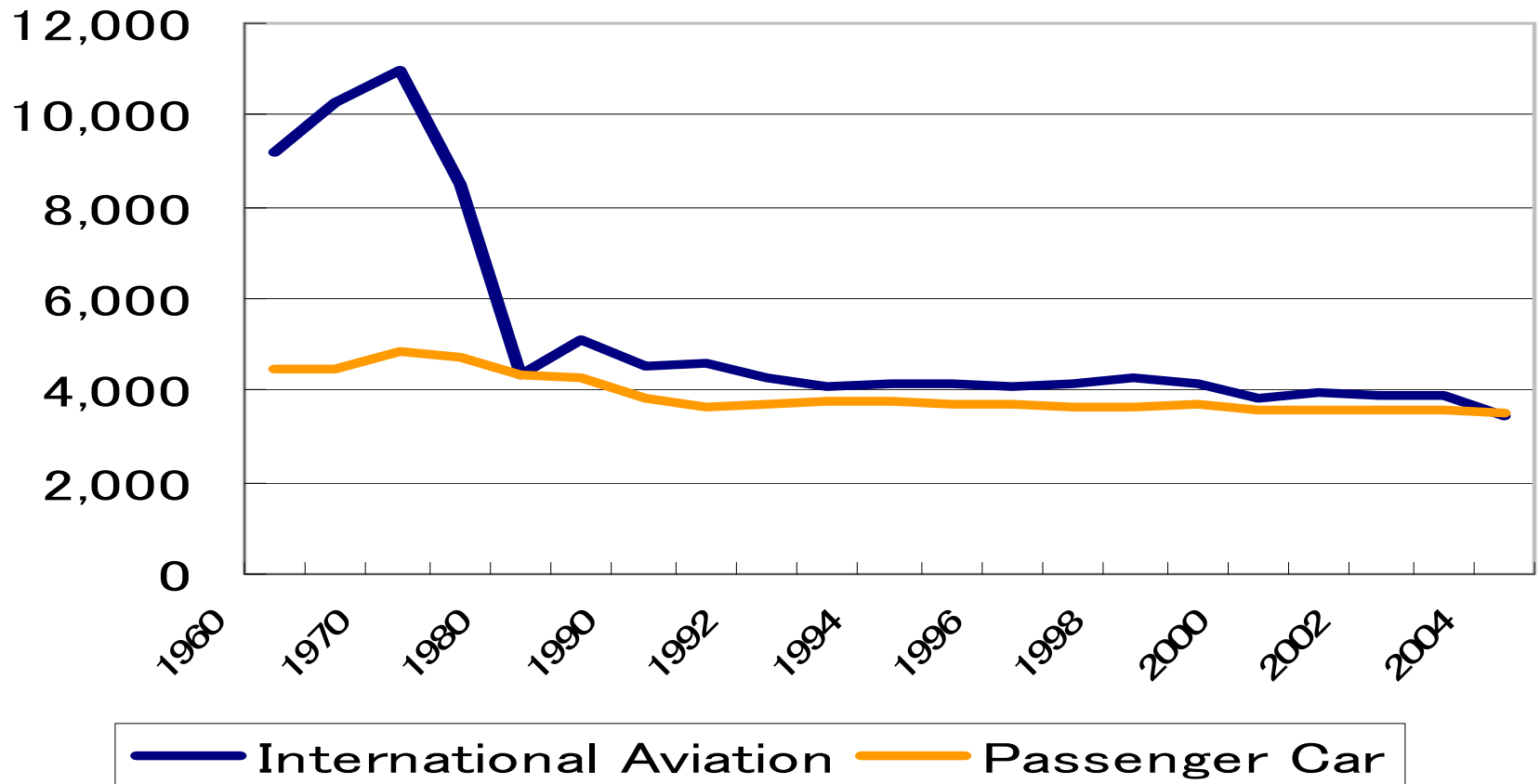
Source: Boeing Current Market Outlook 2007.

China – Doubles in 10 yrs.



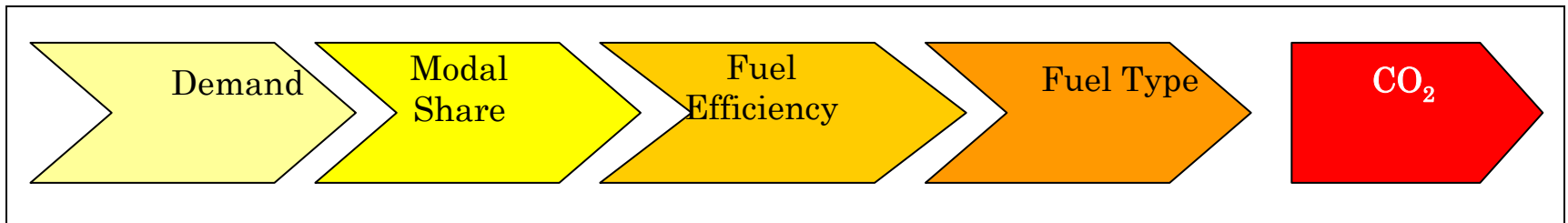
Energy Intensity Comparison

Energy Intensity of Passenger Modes (BTU/passenger-mile)

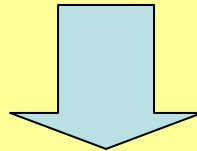


Source: U.S. Department of Transportation

Constraints on measures to reduce GHG emissions in aviation

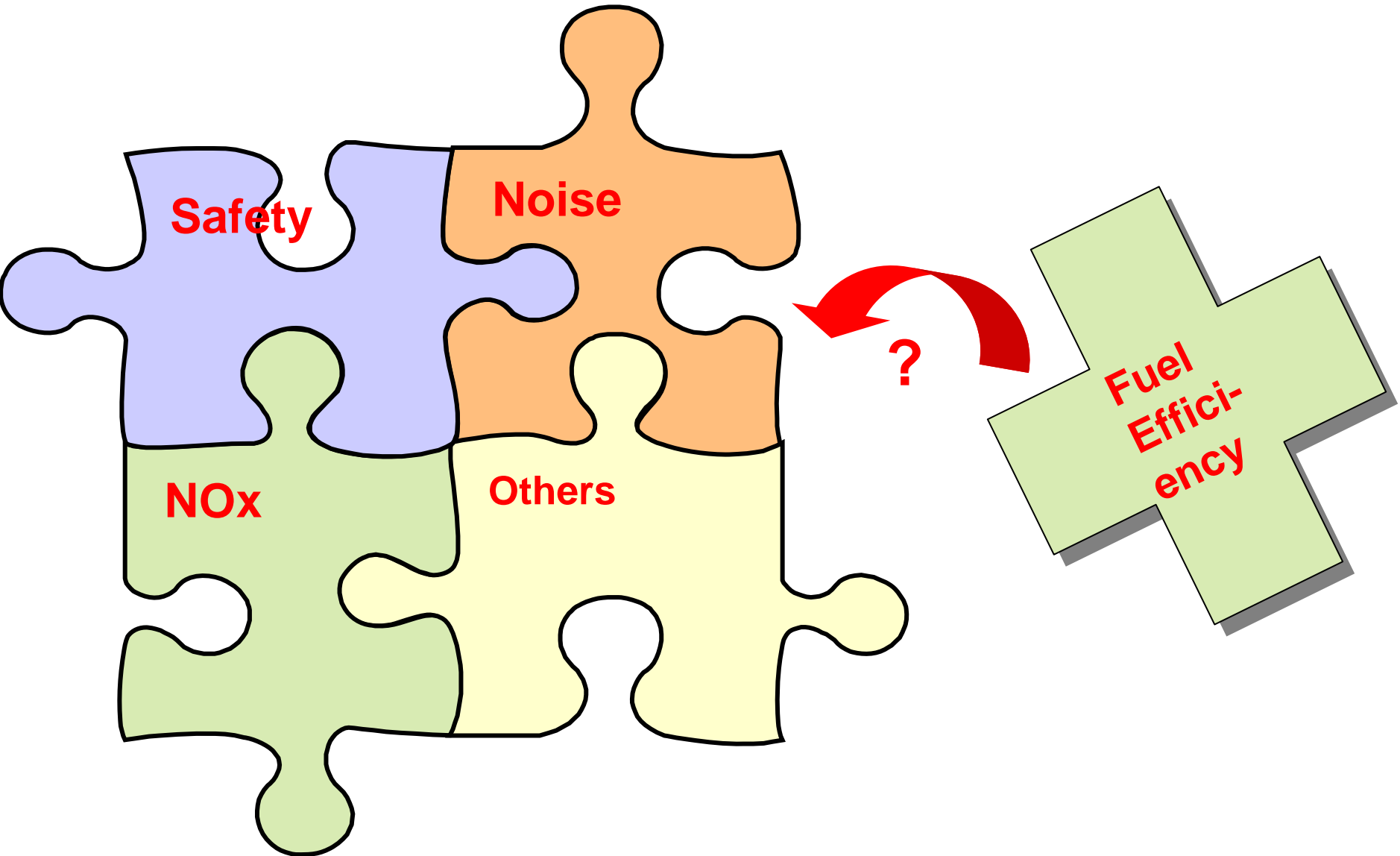


- Demand is expected to grow significantly. (Fast-growth)
- There is no viable alternative available for long-haul flights. (Imagine a flight from Japan to the U.S.)
- There are no commercially available alternative fuels with less emissions to jet fuels yet.

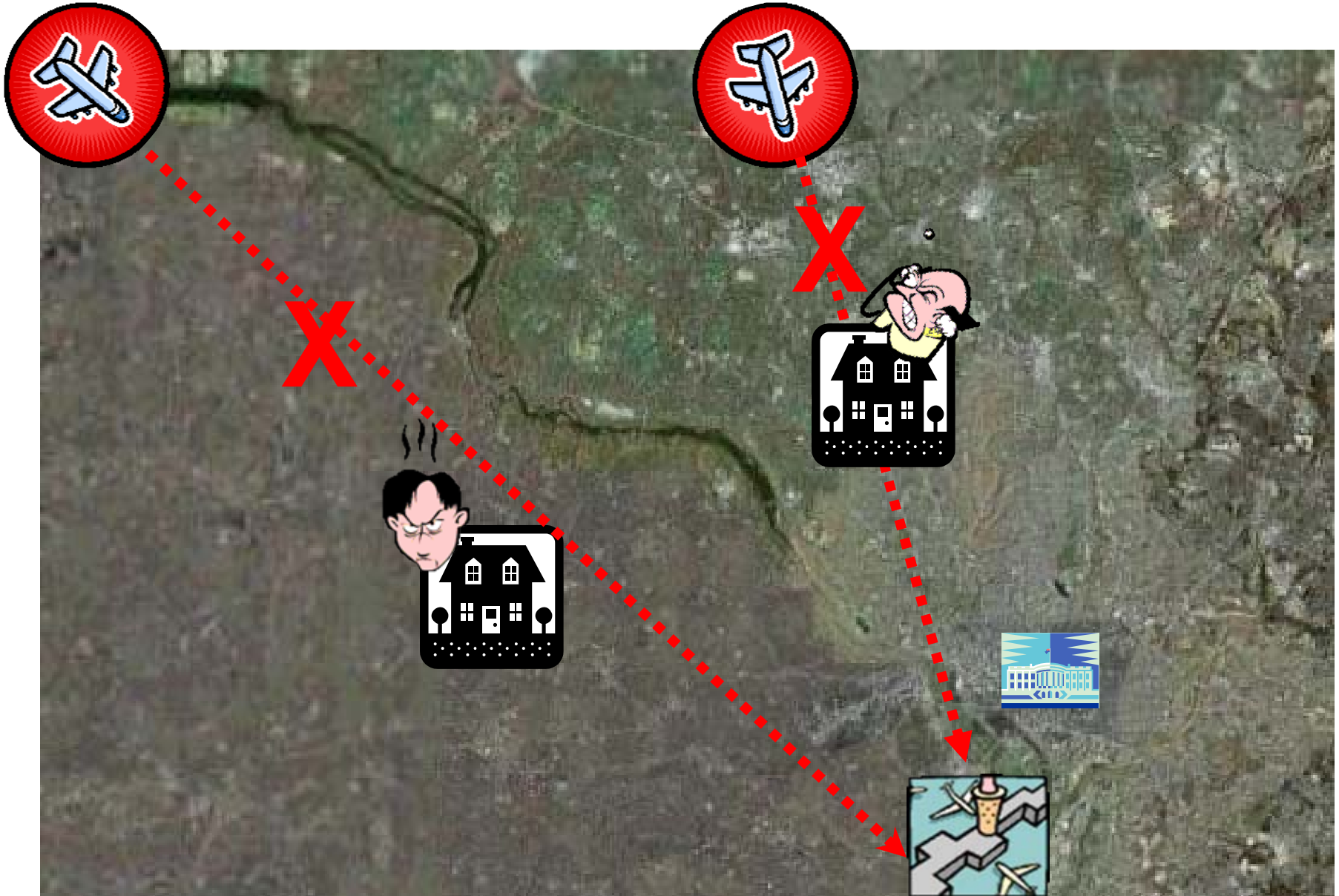


- Most of the measures currently available are limited to fuel efficiency improvements.

Limits to energy efficiency improvements



For example.....

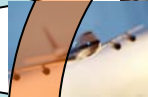


How energy efficiency can be improved

Economic measures ?

Incentives ?

Development and purchase of more energy efficient aircraft and engines



Air traffic management improvement

▲12% (IATA)



Operational improvements

▲6% (IATA)

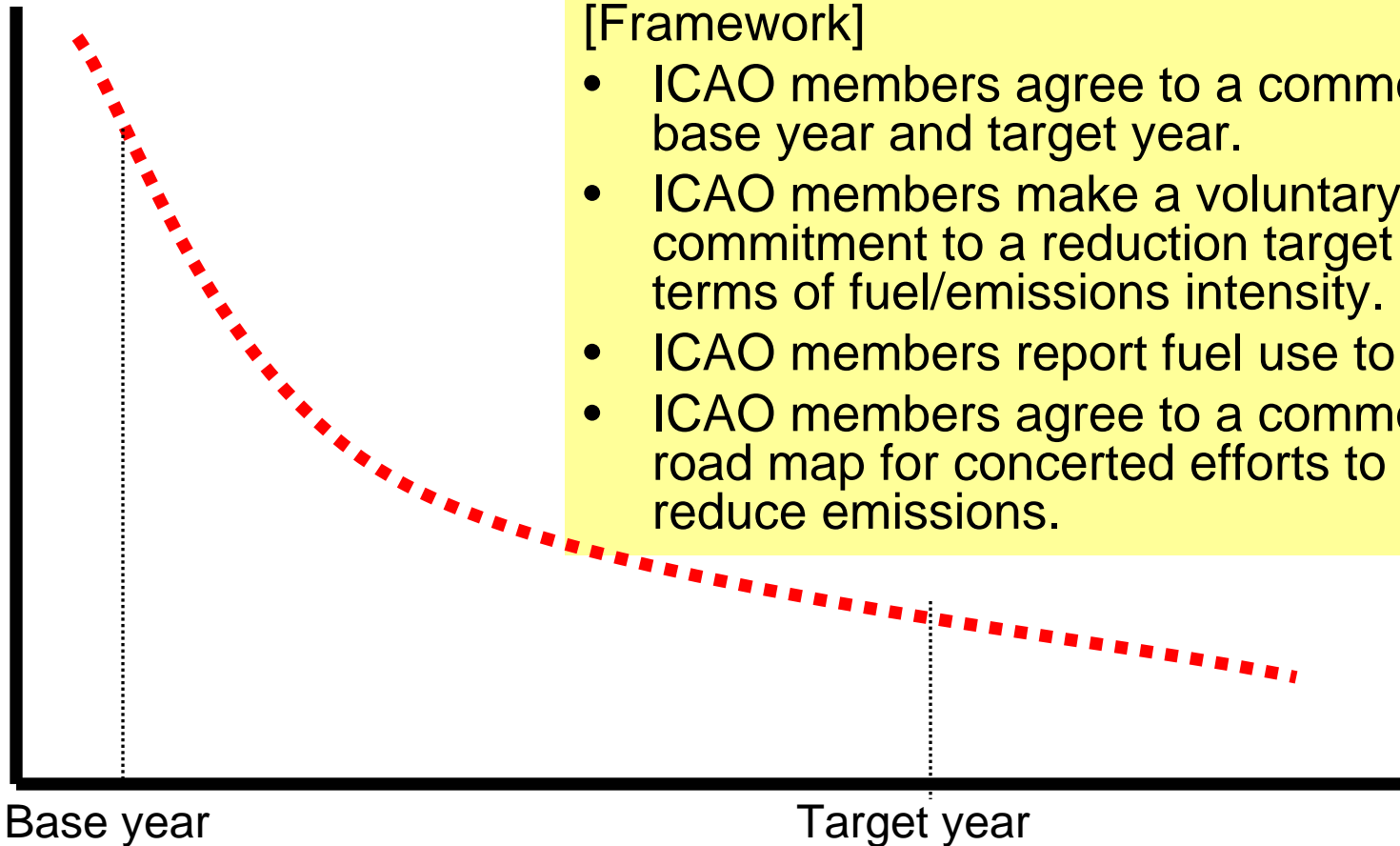
Airport side measures

Comprehensive, concerted effort is needed.

Need for a Framework

ICAO should play a central role to coordinate efforts by members and stakeholders.

Fuel/
emissions
intensity



[Framework]

- ICAO members agree to a common base year and target year.
- ICAO members make a voluntary commitment to a reduction target in terms of fuel/emissions intensity.
- ICAO members report fuel use to ICAO.
- ICAO members agree to a common road map for concerted efforts to reduce emissions.

Comprehensive Approach

Development and purchase of more energy efficient aircraft and engines

- A group of professional experts set a fuel efficiency target.
- ICAO members take appropriate measures to encourage airlines to update their fleet to more efficient aircraft.

Air Traffic Management Improvement

- ICAO and IATA put together a list of air traffic management snags to be improved. Technical assistance to developing countries be expanded.

Operational Improvements

- ICAO develops a check-list that draws on best practices in the industry and encourages airlines to check their practices.

Transparency

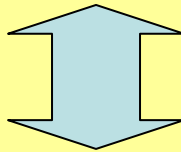
- Emission-related information be disclosed based on a common guideline.

Alternative Fuels

- ICAO collects and shares information on the development of alternative fuels.

Emission Trading Scheme

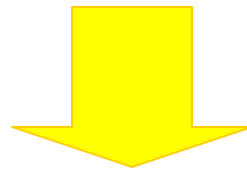
- A potentially efficient measure to balance growth and emissions mitigation.
- Effective in curbing emissions with reasonable costs.



- How to allocate allowances – A big challenge in light of fairness and practicality.
- Strong resistance to the European proposal.

Our proposal

- As wide coverage as possible, accession by consent.
- Design on the ICAO guideline.



1st Step: Common intensity target

2nd Step: Intensity-cap-based ETS

* Further study is needed on its impact on emissions, design issues, links with other ETS markets, etc.

Conclusions

- Needs for a framework and comprehensive approaches
- Wide participation in efforts
Common but differentiated responsibility vs. Universal standards
- Set an intensity target and explore the potential of an ETS with the intensity target