FUEL EFFICIENCY AND ICAO ROLE DURING PREVIOUS CRISIS

Presentation to the
GIACC / 4

Narjess Teyssier
Chief Economic Analyses & Databases Section

25 May 2009

Content

Background

Study Results

Next Steps

ICAO role and actions in previous crisis time

Background

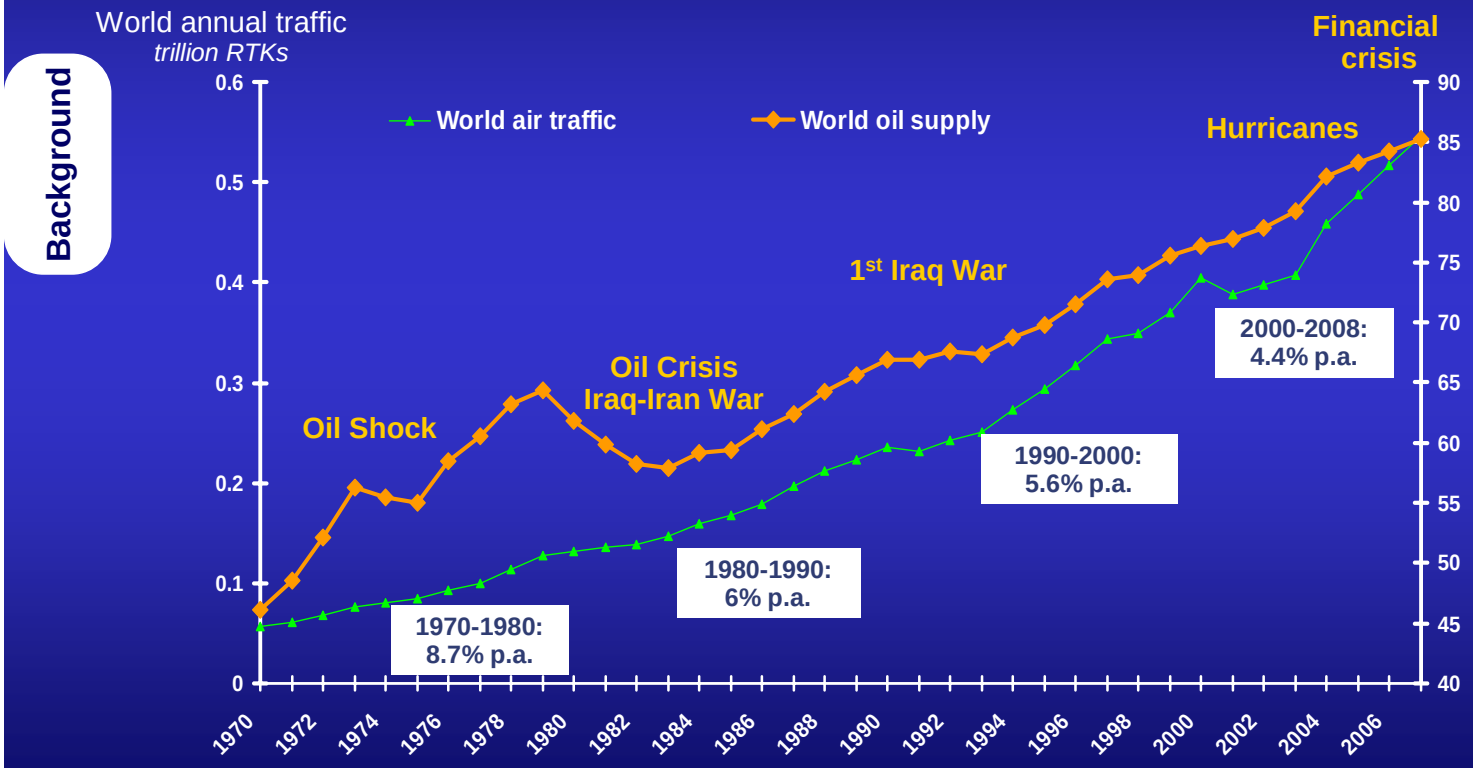
- October 1973 oil crisis: oil price increased by 400% and oil production decreased by 240%

- Early 1974: ICAO Council approved a Recommendation to States to take the following actions
  - ✓ Examine the air navigation and air traffic control procedures over their territories so as to reduce as much as possible flying distances and air traffic delays, according to identified 6 measures
  - ✓ Achieve maximum coordination on fuel supply so as to ensure that the operation of air services be maintained at the level required in the public interest
  - ✓Where restrictions on aviation fuel supply have to be imposed, give priority to commercial air transport;
  - ✓Refrain, on a basis of reciprocity, from discrimination against airlines of other countries in the distribution of available fuel at their own airports; and
  - ✓Consider favourably proposals by airlines of special measures requiring government approval such as amendments to schedules, limitation of frequencies or consolidation of routes, where motivated by the fuel crisis.

- 1977: ICAO Assembly adopted a resolution (A22-27) calling on the Council to collect and make available to Contracting States relevant information on the subject

Air travel demand and oil supply in crisis times

Background



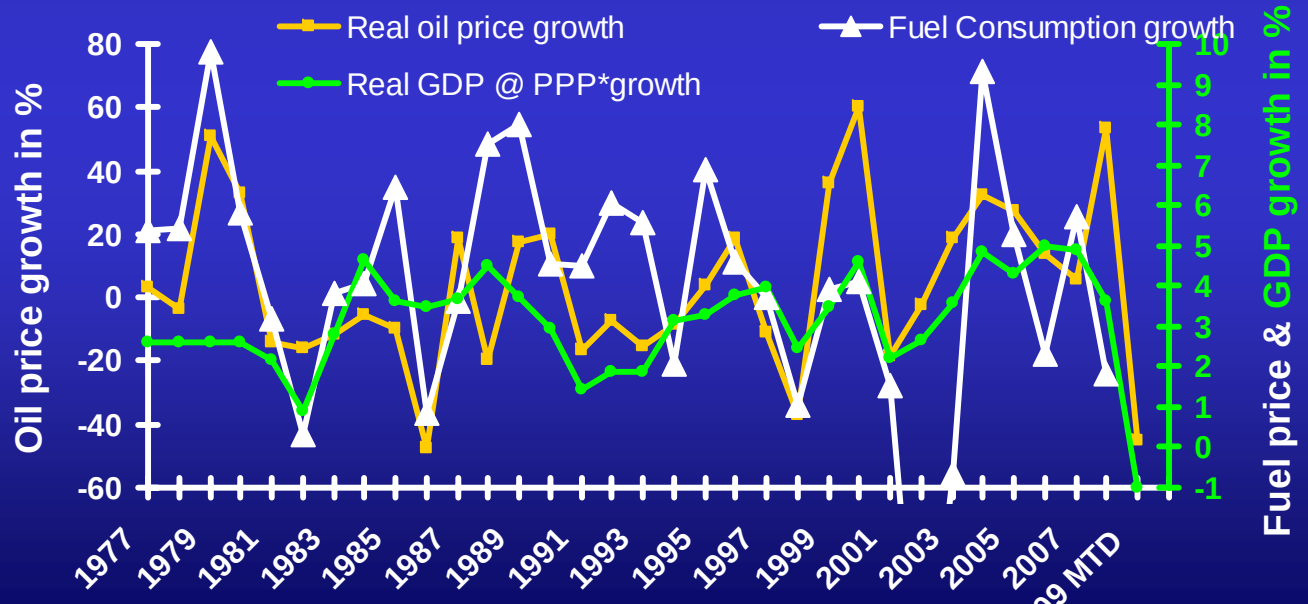
Source: ICAO, BP

Fuel consumption and economic growth

Background

Air travel fuel consumption growth

- Until now not inversely correlated with oil price
- Correlated with state of global economy (GDP growth)



Source: ICAO, EIA and HIS/Global Insight

*PPP: Purchasing Power Parity is an economic theory linking currency exchange rates to prices paid for goods and services in any two countries.

Study results published in 1979 in Circular 149-AT/52.

Study Results

Based on multiple sources available, the study looked into :

- ❑ **The patterns of global energy consumption**
- ❑ **Projections for oil demand until end of the 20th century**
- ❑ **Oil reserves**
- ❑ **World oil trade and supply**
- ❑ **Alternative energy resources**
- ❑ **Aviation fuel supply**
- ❑ **Trends and prospects in oil prices**
- ❑ **Aspects that would impact the civil aviation fuel requirements in the following decade and in a longer term**

Impact of oil price

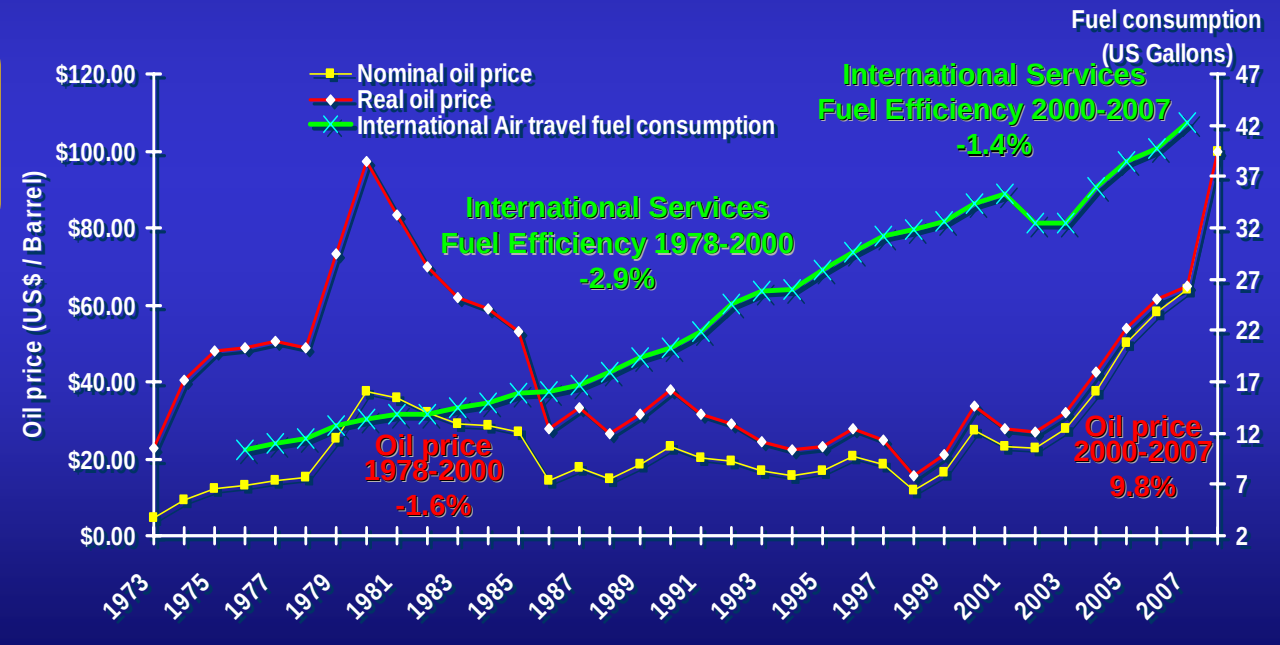
Study Results

ASSUMPTIONS

- Despite fluctuations in oil price a long-term price trend was defined
- Reflects gradual adjustment of demand resulting from conservation measures and the development of other energy sources.
- Future aviation fuel price trends uncertain
- Competing needs for fuel from other transport modes.?
- That could change the price relationships between aviation fuel, gasoline and distillate fuel dependant upon demand developments.

Oil price evolution and air travel fuel efficiency

Study Results

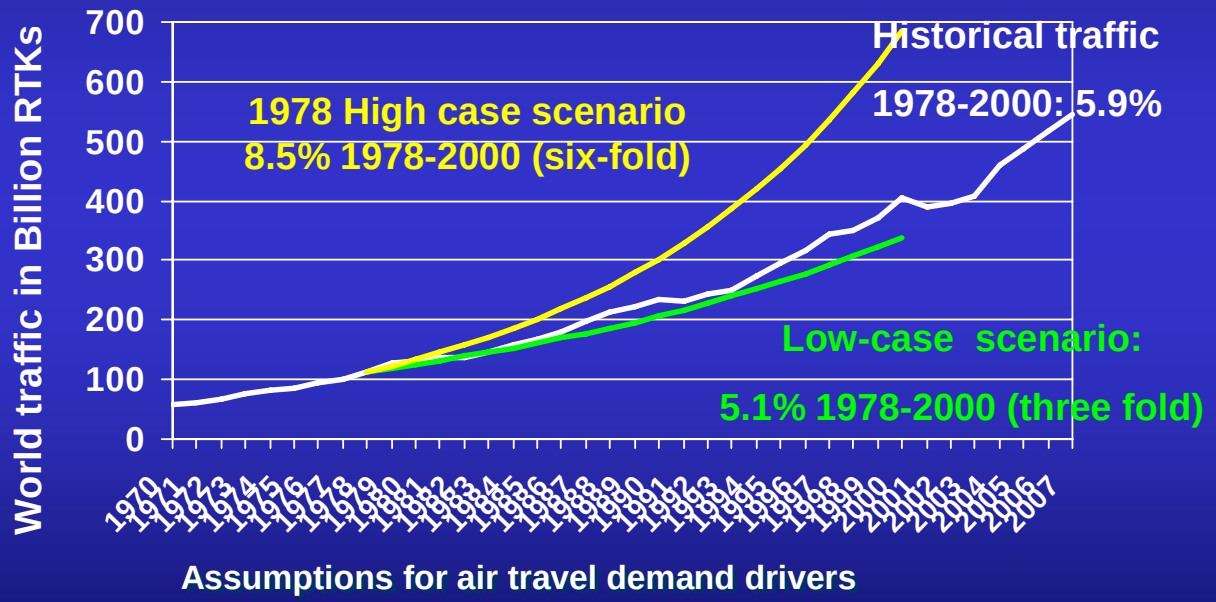


Source: ICAO based on OAG timetable, EIA

Air traffic forecasts scenarios predicted in 1978

Study Results

1978 traffic forecasts scenarios vs historical traffic evolution



Assumptions for air travel demand drivers

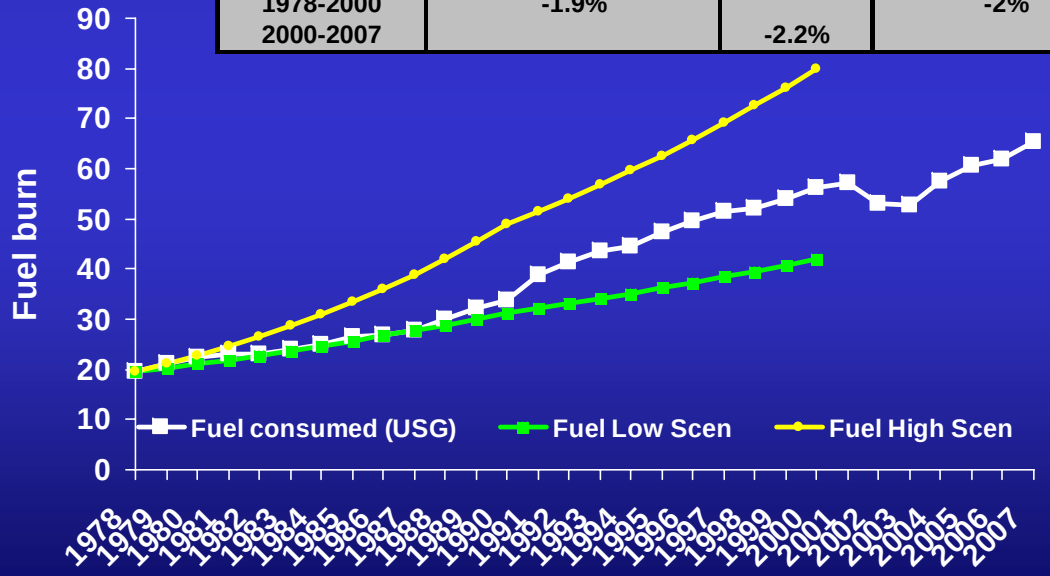
Economic growth
Declining fares in real terms in line with the trend of oil price between 1978 and 2000
Route network expansions with more direct routing
Higher service frequencies and reduced travel times

Source: ICAO

Fuel consumption and fuel efficiency

Study Results

	Fuel Efficiency (in Fuel burn per RTK)		
Period	1978 Low Scenario	Historical	1978 High Scenario
1978-1990	-1.9%		-1.7%
1990-2000	-1.8%	-2.2%	-2.4%
1978-2000	-1.9%		-2%
2000-2007		-2.2%	



Source: ICAO based on OAG timetable

Adequacy of supplies for aviation fuel demand

More specifically, the major conclusions were:

Study Results

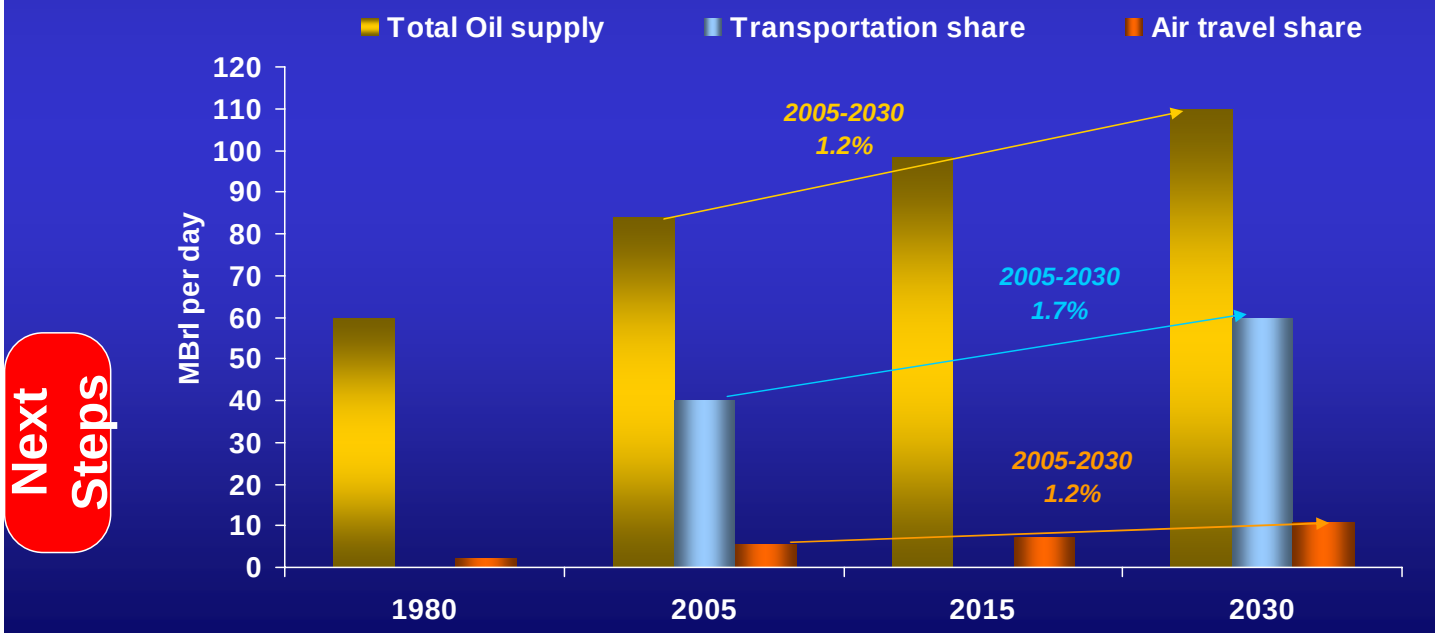
End 2000, aviation fuel consumption would represent 5 to 10 % of projected total oil consumption;

Future civil aviation fuel needs will depend on the proportion of the production which can be refined to meet civil aviation specifications;

Demand for aviation fuel towards end 2000 might be higher than 10 to 15 % of total oil supply and only 10 to 15 % of total crude oil production can be converted to kerosene; and

If the prospective availability of aviation fuel had not been adequate, there would have been a need for remedial measures such as broader technical specifications to aviation fuel or the use of synthetic fuels

Oil supply and air travel consumption share



Next Steps

Source: ICAO, CAEP Scenarios to 2050 (preliminary figures), EIA

GIACC/3 request for fuel consumption data under Article 67 mechanism

- Article 67 defines the ICAO mandate to collect data from each Contracting State, based on the “carrier principle”, i.e. from commercial carriers (to be submitted by the State in which a carrier has its principle place of business),
- ICAO Statistics Programme is addressed in Appendix B of Assembly Resolution A36-15 precising that:
  - ICAO must examine on a regular basis the statistical data (referring to “statistics on airline operations”) collected
  - Establish the necessary metrics to monitor the performance of the organization in meeting its Strategic Objectives
- Fourteenth meeting of the Statistics Panel (STAP/14) convened in March 2009 to provide recommendations to the forthcoming Tenth Session of the Statistics Division, to be held in November 2009

Next Steps

STAP/14 recommendation: Data collection on fuel consumption to be implemented

CHALLENGES

- Issue of possible duplication of requirements and additional burden placed on Contracting States to report fuel consumption data both to ICAO and the UNFCCC
- Complex UNFCCC principles for collecting emissions data, based on country of departure rule
- Annex I countries (62% of total traffic) should report emissions while non-Annex I countries should report them to the extent possible
- In that context, based on the UNFCCC principle of country of departure, fuel sale data are the only information available by country of departure

Next Steps

RESPONSES

- Introduction of a new form for reporting fuel consumption by commercial air carriers.
- Addition of an item regarding aircraft type (passenger versus all-cargo).
- Inclusion of an item related to alternative fuels share in total fuel consumed (by aircraft type).
- Regular assistance to be provided to States regarding the collection and analysis of data, in the form of workshops, on-the-job training and other assistance requirements

Conclusion

- Crisis periodicity is shortening from a 10 year period to less than 8 years period and the current economic crisis impacts on air travel fuel consumption have to be carefully analyzed
- Need to monitor closely fuel consumption, and fuel efficiency through an ad hoc annual data collection, as recommended notably by the Assembly resolution A22-27
- Need to implement air travel forecasts enabling sensitivity analysis to economic growth but also to oil price
- Need to explore how , e.g. airport and airspace constraints could impact the current unconstrained forecasts
- Continue to follow-up the economic restructuring of the air transport industry in order to determine any potential impact on ICAO Strategic Objectives

Next Steps