



Aviation in general

- Aviation transports people across the world, over distances of up to 15,000km.
- Aviation now transports over 2.2 billion passengers annually.
- 40% of international tourists now travel by air.
- The world's 2,092 airlines have a total fleet of nearly 23,000 aircraft.
- Airlines serve some 3,754 airports through a route network of several million kilometres managed by around 160 air navigation service providers.
- Air transport pays over US\$40 billion annually to use its infrastructure - airport and air navigation services - through specific landing, passenger and air traffic control fees.
- Air transport pays substantial taxes to local, provincial and national authorities via passenger duties, value-added tax (VAT), and custom or immigration levies which differ country by country.

Transport's footprint

- Aviation accounts for 2% of worldwide CO₂ emissions from fossil fuel use, according to a forecast by the UN International Panel on Climate Change. This could reach 3% by 2050. (Working Group III Report, IPCC May 2007, p. 6)
- Transport in general accounts for 23% of global greenhouse gas emissions, behind the power and land use sectors and the same as the agriculture sector, according to the IPCC (Working Group III Report (May 2007))
- Aviation is responsible for 12% of CO₂ emissions from all transport sources, compared to 76% from road transport. (Stern Report Annex 7)
- European aviation accounts for 0.5% of worldwide CO₂ emissions. ('EU Energy and Transport in Figures', Eurostat 2004. Int'l aviation accounts for 2% of global manmade CO₂ emissions.)
- 80% of aviation's greenhouse gas emissions are related to passenger flights exceeding 1,500 km/900 miles, for which there is no practical alternative. (AERO modelling system, Pulles J.W. et al., 2004)

Improving efficiency

- Aircraft entering today's fleets are 70% more fuel-efficient than they were 40 years ago.
- Aircraft operations have become 20% more fuel-efficient over the past 10 years. (5% fuel efficiency gain in 2004 - 2005, World Air Transport Statistics, IATA, 2006, p.80)
- The Working Group III Report (May 2007) by the UN International Panel on Climate Change (IPCC) expects fuel efficiency to improve by 1.3% a year.
- Aviation boasts high occupancy rates exceed 75%, compared to 40-50% for trains and 30% for cars.
- Over the past 40 years, emissions of carbon monoxide from aviation have been reduced by 50%.
- Over the past 40 years, emissions of hydrocarbons from aviation have been reduced by 90%.
- Over the past 15 years, oxides of nitrogen (NO_x) from aircraft engines have been progressively reduced by 50%.
- Aircraft and engine manufacturers devote up to 15% of turnover to research.
- Air transport covers the shortest distance between two points, generally 30% shorter than the same route taken by a form of land transport.
- Today, around 73 million tonnes of CO₂ are wasted every year around the world due to infrastructure inefficiencies.



Economic benefits

- Aviation's global economic impact is estimated at US\$3.5 trillion, equivalent to 8% of world Gross Domestic Product (GDP).*
- The air transport industry generates a total of 32 million jobs globally broken down as follows:*

 - 14.7 million direct/indirect/induced jobs.
 - 17.1 million direct and indirect jobs through air transport's catalytic impact on tourism

- In Europe, more than 7.5 million jobs depend on air transport.
- Air transport is responsible for 40% of interregional exported goods (by value).*
- 25% of all companies' sales are dependent on air transport.
- 70% of businesses report that serving a bigger market is a key benefit of using air services.
- As a capital-intensive business, productivity per worker in the air transport industry is very high, at three and a half times the average for other sectors.

* Reference: The economic & social benefits of air transport, ATAG publication

Social benefits

- Air transport helps to improve living standards and alleviate poverty, for instance, through tourism. Some 6.7 million direct tourism jobs are supported by the spending of international visitors arriving by air.
- Air transport generally provides the only transportation means in remote areas, thus promoting social inclusion.
- The air transport network can deliver immediate emergency and humanitarian aid relief anywhere on earth.
- The air transport network ensures the swift delivery of medical supplies and organs for transplantation.

Noise

- Between 1998 and 2004, the number of people exposed to aircraft noise worldwide came down by about 35%.
- Aircraft entering today's fleets are 20 decibels quieter than comparable aircraft 40 years ago.
- A further 50% reduction in noise during take-off and landing is expected by 2020.



Fuel

- Modern aircraft achieve fuel efficiencies of 3.5 litres per 100 passenger-kilometer.
- The next generation aircraft (Airbus A380 & Boeing 787) use less than 3 litres of fuel per 100 passenger-kilometer (78 passenger-miles per US gallon). This exceeds the efficiency of any modern compact car on the market.
- Fuel prices now represent the largest share of airlines' operational costs, reaching record levels of 26% in 2006.
- Because fuel costs are so high, air transport has even stronger incentive to:
 - operate modern aircraft and accelerate technological progress
 - shorten air routes, open new ones – for instance polar routes – and prevent congestion through extra airport capacity
 - implement best operational practices
 - actively explore the progressive introduction of alternative fuels to further reduce CO₂ emissions
- Hydrogen – already used for fuel-cell systems – may become an option to power aircraft engines as from 2050.
- An extra 50% fuel efficiency gain is targeted for 2020. (ACARE and NASA long term targets).

The future

- The European Union (EU) is committed to cutting its emissions by 8% from 1990 levels by 2012 under the Kyoto protocol.
- The EU's emissions trading scheme (ETS) is Europe's principle mechanism to achieve its Kyoto targets. (See Emissions trading section).
- The European Commission (EC) has proposed that the EU ETS should be expanded to cover CO₂ emissions for flights inside the EU from 2011 and all flights to and from EU airports from 2012. Issues regarding coverage of non-European carriers are being discussed by the International Civil Aviation Organization, the UN body dealing with aviation at worldwide level.
- The implementation of the Single European Sky would bring major enhancements in air traffic management leading to efficiency gains of 6-12%. A 1% efficiency gain saves up to 500,000 tonnes of fuel per year in Europe.
- Future improvements in airline operations (through single engine taxiing, reduction of weight in cabin services, etc.), can further reduce fuel-burn by between 2 and 6%.
- Industry research programmes aim to achieve a further 50% fuel and CO₂ saving and an 80% reduction in oxides of nitrogen (NO_x) by 2020. (ACARE and NASA long term targets).
- Airports and airlines are pressing governments and local authorities to provide more environmentally friendly ground access to airports – like trains or metros.
- Fuel-cell systems are under development, which could replace on-board auxiliary power units of airplanes (APUs) and thus reduce emissions by up to 75% per unit.
- Airports and airlines are committed to using more environmentally efficient ground service equipment and vehicles.