

CURRENT ENVIRONMENTAL INITIATIVES

GREENHOUSE EFFECT

Carbon dioxide (CO₂), the main product of combustion, is believed to be the single greatest factor behind the warming of the Earth's atmosphere, a phenomenon commonly referred to as the greenhouse effect.

It would appear, however, that little can be done to reduce CO₂ emissions from aircraft other than to improve the fuel efficiency of air transport. And improvement in this area is a key objective for airlines and manufacturers, not only because of environmental concerns, but also because of the financial benefits resulting from lower fuel consumption.

To this end, newer aircraft have more fuel-efficient engines, directly reducing fuel consumption on individual flights while eliminating some fuel-related stopovers. In addition, advances in fuel management systems allow for more accurate prediction of fuel burn before take-off, thus allowing less fuel to be loaded and, consequently, improving efficiency.

British Airways, for example, reports that between 1992 and 1993, these initiatives have contributed to an improvement in fuel efficiency of approximately 0.5%, which avoided emission of some 60,000 tonnes of carbon dioxide. An additional reduction of some 10,000 tonnes of CO₂ emissions was accomplished by initiating measures that reduce the practice of fuel tankering, that is to say carrying fuel to a destination to avoid picking up fuel at high costs.



Pilots are assured of reducing fuel consumption with more fuel-efficient engines.

AIR QUALITY

While studies have shown that the air quality in the vicinity of airports is no worse, and often better, than that found in urban areas, it is nevertheless cause for concern in some cases. Sources at airports include emissions from aircraft engines during approach, landing, taxiing, take-off and initial climb, with the principal pollutant being nitrogen oxide.

As a major step in combatting the problem, ICAO, in 1981, established standards for the control of emissions through an engine certification scheme, which establishes limits for the three main gaseous pollutants from new engines. Namely nitrogen oxide, carbon monoxide and unburned hydrocarbons.

The Organization also set limits on the production of smoke, so that engine exhausts are now required to be virtually invisible, and a prohibition on the deliberate venting

of fuel from engines, which hitherto had been largely blamed for the typical kerosene smell at airports. ICAO keeps these standards under constant review and in 1993, for example, it reduced the permitted amounts of nitrogen oxide by 20%.

Meanwhile, aircraft engine manufacturers have invested millions of dollars in research to help reduce nitrogen oxide emissions and, as a result of staged combustion technology, new engines proposed for aircraft, such as the **Boeing 777**, will emit 30% to 40% less without the trade-off effect of increased carbon emissions.

WATER QUALITY

Quantitative and qualitative influences of aviation on flowing and still bodies of water can arise to varying extents from land modifications, including diversion, drainage, and canalization as a result of space requirements at airports.