



AIRPORT ENVIRONMENTAL MANAGEMENT

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Abu Dhabi, UAE

Module 3: The Environmental Impacts of Aviation

Module Objectives

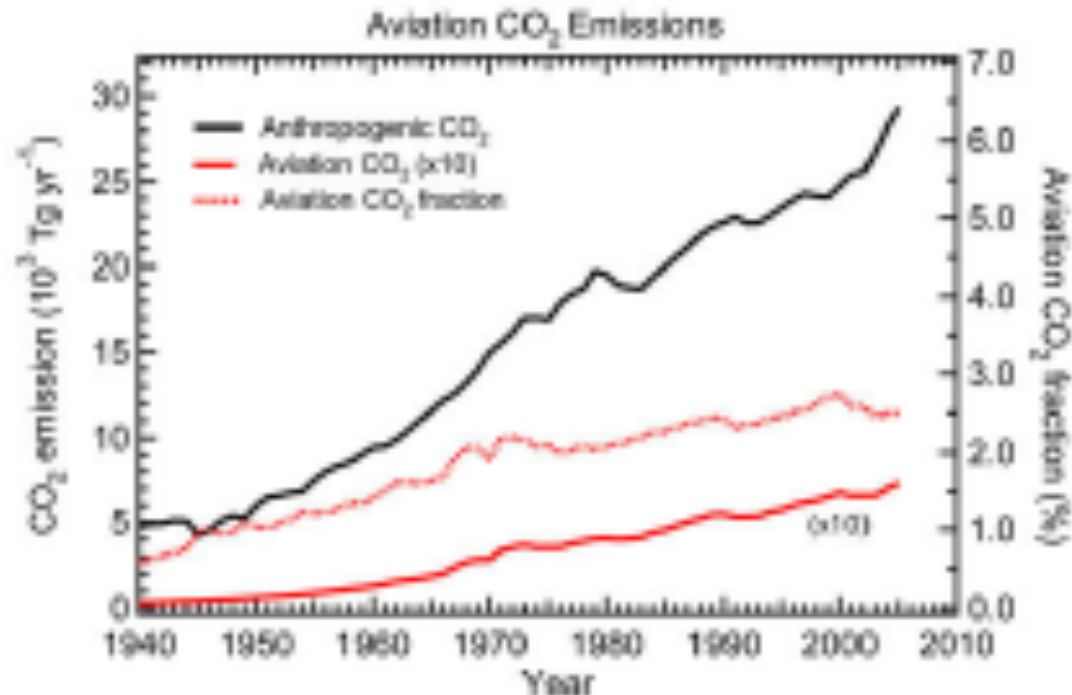
- To catalogue the range of environmental impacts arising from the delivery of aviation services
- To establish factors that influence the significance of impacts
- To introduce the concept of airport environmental capacity constraints

Exercise: Environmental Impacts

Air transport activities generate impacts that can have negative environmental consequences. Think about what activities could be potentially damaging and fill in the table below.

Aviation activity with potentially damaging outputs	Potential environmental impacts	Level of threat impact poses to business activity and why
<i>E.g. Flying planes releases CO₂</i>	<i>Climate changes</i>	<i>Aircraft engine CO₂ emission standard Higher costs through market-based measures Green consumers avoid flying</i>

Global environmental impacts I



- Small but significant and *growing* contribution to global climate change (~3% carbon emissions globally); equivalent to the carbon emissions of industrialised countries such as Canada and the UK

Global Environmental Impacts II

- Issues:
 - Type of aircraft, onboard weight (load factor and services), distance flown
- Fuel efficient operation in Terminal Manoeuvring /Control Area and at the airport
- Implications for airline, ANSP, airport, ground handlers, service partners
- Links to operating costs and potential regulatory constraints: fuel consumption, emissions taxes, airport carbon limits, EU ETS

Local Environmental Impacts

- Noise – aircraft/airport activities
- Air pollution
- Ground/surface water pollution
- Carbon emissions
- Energy and water use
- Waste generation
- Habitat loss



The aviation growth challenge

- Growth outstripping technological and operational improvement.
- Key impacts C.C., noise and local air quality are likely to grow.
- Noise and local air quality emerging as an airport capacity constraints.
- Climate change / peak oil is emerging as an aviation constraint.
- By 2050 airlines could require 12 times as much fuel as today
- This trend is unsustainable in the longer term.

Drivers for Action

- Regulation
- Operating costs
- Operational capacity
- Securing planning approval
- Building positive reputation
- Avoiding bad PR
- Investor requirements

Constraints can limit operations

- The implications of climate change affects demand, planning decisions, infrastructure operating capacity.
- General operations, noise, emissions exceed:
 - regulatory limits or planning agreements.
 - tolerance within surrounding communities.
- The airport cannot secure resources (e.g. land, energy, water) to allow normal operations and growth.
- Further infrastructure growth is restricted by sensitive habitats, sites or buildings (houses).

Capacity constraints

- The capacity of an airport is a function of:
 - infrastructure – runways, terminals, aprons, ground access;
 - air traffic control system;
 - quality of management.
- Environmental issues can restrict current operations or future growth and prevent full use of infrastructure.
- Up to 80% of European airports have actual or potential environmental capacity constraints (www.eurocontrol.int)

Environmental pressures will grow

- Growth faster than technological /operational improvements.
- Tightening regulatory environment.
- Better scientific knowledge
- Stricter planning requirements for airport developments.
- Growing public awareness.
- Increasing affluence / changing public attitude.
- More effective networking and lobbying by NGOs.

= tighter constraints in the future!

Any questions?