

# Sustainable Aviation : The Next Steps

## An Air Traffic Management Perspective

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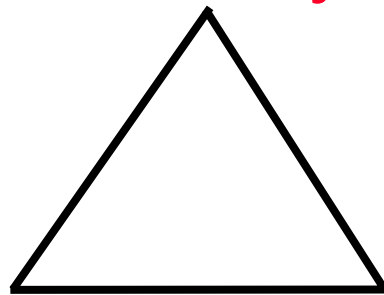
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# Fixed Points and Tradeoffs

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MAINTAIN or ENHANCE

Safety



MAXIMISE

Capacity

MINIMISE  
Environmental  
Impact

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# NATS' Environmental Environment

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- **En route business - regulated statutory monopoly**
  - Environmental regulation by the CAA's Directorate of Airspace Policy
  - HMG issued guidance to CAA in January 2002
  
- **Airports business**
  - Environmental measures agreed with airport operators
  - Regulation of the airport operator rather than NATS
  
- **Designated airports (Heathrow, Gatwick, Stansted)**
  - Direct regulation of noise by DfT
  - NATS attends Airport Noise Monitoring Advisory Committee

# The International Scene

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## ➤ **Eurocontrol environmental programme**

- Now a “Domain” of European ATM Programme (EATMP)
- Environment is now a specific project of the Eurocontrol Airport Operations Team (AOT)

## ➤ **Eurocontrol Developments for the future**

- Arrival and Departure Manager tools (AMAN/DMAN)
- Goal is to reduce taxi/ holding point delays and airborne holding
- Conceptual only at this time

# Air Traffic System Capacity

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## ➤ **Limiting factors**

- Airspace
- Other airspace users
- Airports and departure routes

## ➤ **Capacity increase over time**

- Increased efficiency of the FMS cockpit
- Supported by technological and tools development
- Harmonising best practice

# Examples of Good Practice (Arrivals)

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## ➤ Arrivals Code of Practice

- Promotes good practice and guidance for arriving aircraft
- Continuous Descent Approaches (CDAs)
- ATC facilitate, provide accurate distance to run information
- Pilots control descent profile to comply with CDA

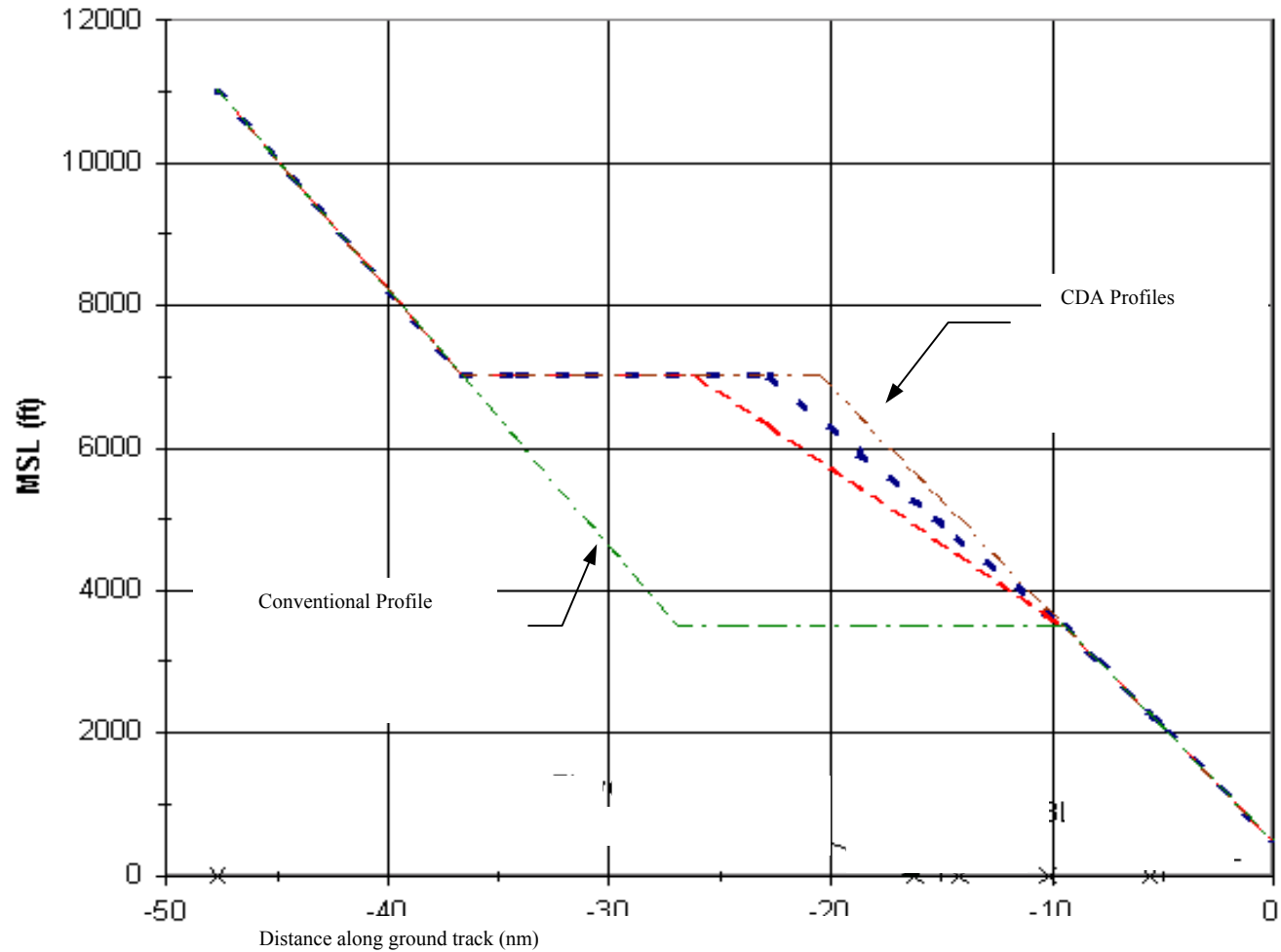
## ➤ Collaboration with Customers

- Two-way communication to help find efficient and workable solutions

## ➤ FMS arrival routes

- Designed to optimise lateral and vertical flight profiles
- Environmental improvement on current situation
- Heathrow arrivals will be part of a trial in the future

# Example - CDA Arrival Profile



# Examples of Good Practice (Departures)

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## ➤ **Departure Routes**

- Standard Instrument Departures (SIDs) first introduced in 1960s avoiding built up areas
- Noise Preferred Route (NPR) swathes (1.5km either side of centreline) introduced later
- Minimum climb profiles to minimise noise over the ground

## ➤ **Departure Vectoring**

- Heathrow and Gatwick (some routes) vectoring altitude - 4000ft
- Stansted current vectoring altitude 3000ft

# Influencing factors

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## ➤ **Environmental factors ATM can influence**

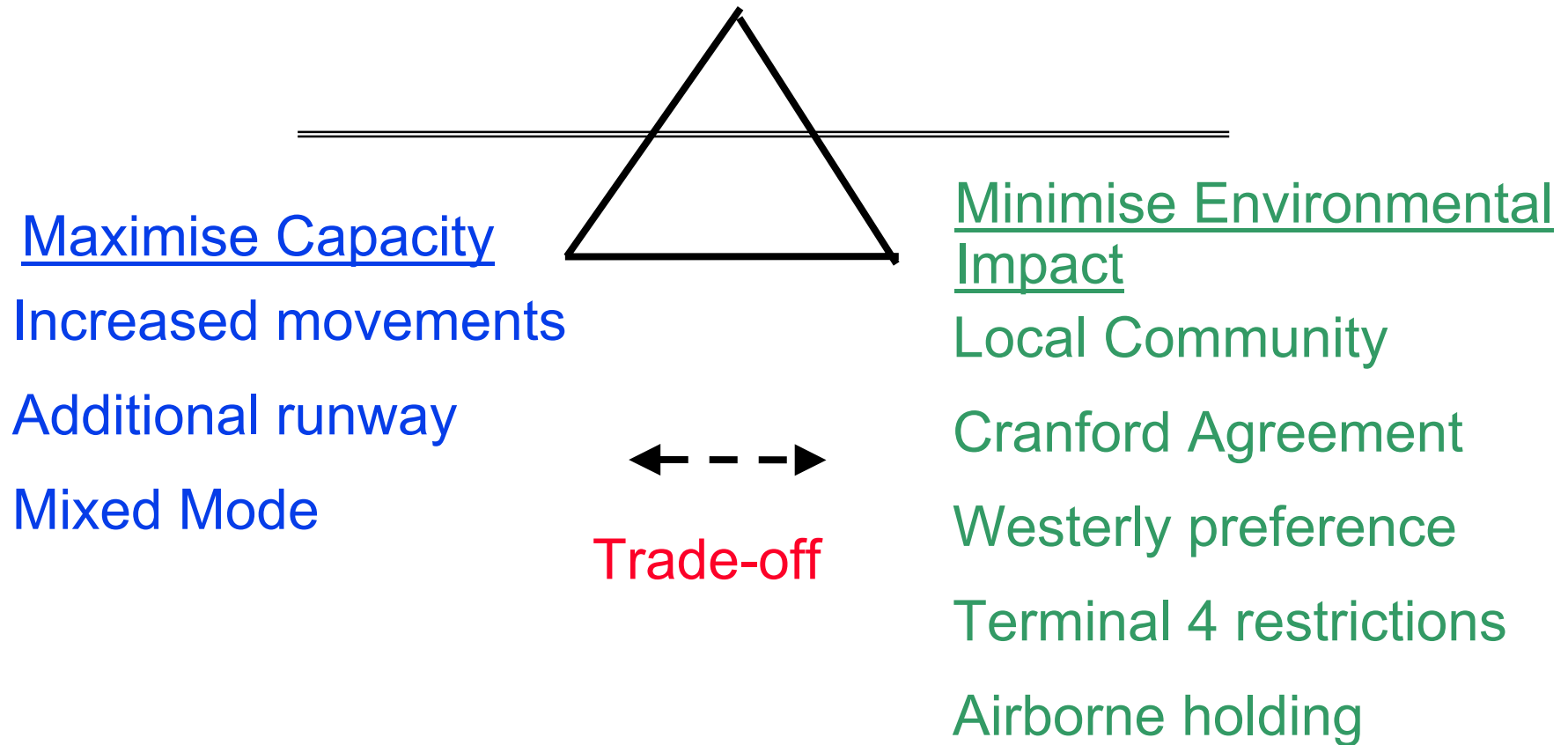
- Facilitation of CDAs
- Design of arrival and departure routes
- Optimum flight levels

## ➤ **Environmental factors ATM cannot influence**

- Execution of CDAs, NPRs, etc.
- Airline Standard Operating Procedures
- Fleet mix

# Heathrow example

Maintain or Enhance SAFETY



# How do we measure the trade-off

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- **No true method**
- **Need to develop a tool which is validated and accepted**
- **How can we assess the costs of each trade-off**
- **Perhaps a Eurocontrol task**

# In Conclusion

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- **Linkage between Capacity and Environment**
- **ATC System can be adapted to lessen the Environmental impact**
- **There may be capacity penalties**



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**Thank you**