

Main thematic area: Economics/Science/Technology

Cost: £/££/£££

## A framework for estimating the marginal costs of environmental abatement for the aviation sector

### Background

There is a growing need to control the environmental impacts of aviation – namely global climate change, local air quality and noise around airports – while simultaneously safeguarding aviation's social and economic benefits. This is especially the case with predicted future growth in air traffic.

### Study aims

This project seeks to enhance the sustainability of the aviation sector by supporting a strategic approach to the management of environmental risks. It will develop and apply a framework to identify and evaluate cost effective actions by the aviation sector to improve environmental performance. It adopts a multi-disciplinary, integrated approach, bringing together applied economists with experience of cost and environmental accounting, aviation research engineers, aviation design and manufacturing engineers, aviation service providers, environmental scientists, and regulators.

The study will identify the relationship between aspects of aviation – such as engine and airframe technologies – and environmental effects. It will develop a robust and practical framework for estimating the extra (marginal) costs of measures which can be taken to control environmental effects. The intended accounting framework will help identify cost effective measures that can be taken to help the aviation sector meet its medium and long term environmental goals. This will contribute towards designing policies to encourage the adoption of aviation technologies which reconcile economic and environmental objectives.



Critically, there is a need to deliver solutions that are economically effective, technologically practicable and scientifically robust from the viewpoint of major stakeholder interests. This study will therefore work in collaboration with key stakeholders, including aeroplane/engine designers, manufacturers, operators and regulators.

### Industry consultation

Part of the study will involve a workshop of industry representatives held to validate the outline methodology and the preliminary assessment of possible interventions, thereby helping to achieve stakeholder 'buy-in'.

### Ground-breaking

There has not as yet been a systematic attempt to construct marginal environmental abatement cost functions for the aviation sector. This study brings together key academic disciplines with stakeholders to enhance the sustainability of the aviation sector by supporting a strategic approach to the management of environmental risks. Entirely consistent with the recent Stern Review, the study will inform future research on economically efficient measures to yield environmental gain.

Lead: Cranfield University  
Duration: 12 months  
Partner: Cambridge

Principal investigator: Prof Joe Morris  
E-mail: [j.morris@cranfield.ac.uk](mailto:j.morris@cranfield.ac.uk)

[www.omega.mmu.ac.uk](http://www.omega.mmu.ac.uk)

Omega is funded by HEFCE