

Contents

The Impact of Aviation on Climate	1
<i>David S. Lee</i>	
1 Introduction	1
2 Aircraft Emissions	4
3 Radiative Forcing and Climate Change	9
4 Aviation's Impact on Radiative Forcing and Climate Change	11
5 Reducing the Impacts	17
6 Conclusions	22
7 Acknowledgements	23
Global Warming Consequences of a Future Hydrogen Economy	25
<i>Richard Derwent</i>	
1 Introduction	25
2 Fate and Behaviour of Hydrogen in the Atmosphere	26
3 Hydrogen as a Greenhouse Gas	29
4 Greenhouse Gas Consequences of a Global Hydrogen Economy	32
5 Conclusions	22
6 Acknowledgements	33
Sustainable Transport and Performance Indicators	35
<i>Henrik Gudmundsson</i>	
1 Introduction	35
2 Making Sustainable Transport Operational	38
3 Sustainable Transport Indicator Sets	52
4 Discussion and Conclusion	61

Issues in Environmental Science and Technology, No. 20

Transport and the Environment

© The Royal Society of Chemistry, 2004

Contents

Policy Instruments for Achieving Sustainable Transport	65
<i>David Begg and David Gray</i>	
1 Introduction	65
2 'Sustainable' Transport in the UK: the Transport White Paper	66
3 From Integration to Political Pragmatism: the Evolution of Transport Policy	68
4 National Transport Policy	71
5 Local Transport Delivery	74
6 The Case for National Congestion Charging	76
7 Delivering National Congestion Charging	77
8 Conclusion	80
Water Pollution Impacts of Transport	81
<i>D. Mike Revitt</i>	
1 Introduction	81
2 Sources of Transport-derived Pollutants	82
3 Impacts of Transport-derived Pollutants	89
4 Control of Transport-derived Pollutants	97
5 Conclusions	108
Climatic Impact of Surface Transport	111
<i>Martin G. Schultz, Johann Feichter and Jaques Leonardi</i>	
1 Historical Evolution of Surface Transport	111
2 Mechanisms of Climate Impact	116
3 Emissions from Surface Traffic	120
4 Climatic Impacts of Traffic Emissions	121
5 Future Developments and Possible Mitigation Options	124
6 Conclusions	126
Human Health Implications of Air Pollution Emissions from Transport	129
<i>Stephen B. Thomas and Roy M. Harrison</i>	
1 Sources and Emission Inventories of the Transport Sector	129
2 Estimates of Ground-level Concentrations of Air Pollutants Attributable to Transport Emissions	134
3 Health Effects of Transport-related Air Pollutants	141
4 Methods of Quantification of the Effects of Air Pollution on Health	144
5 Recent Investigations of the Impacts of Transport Emissions upon Human Health	150
Subject Index	157