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Select Committee on Economic Affairs

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5th Report of Session 2005–06

# Government Policy on the Management of Risk

## Volume I: Report

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### NOTE:

The Report of the Committee is published in Volume I, HL Paper No. 183-I

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## **ABSTRACT**

We have been unable to find any significant evidence to support the widely-held view that Britain has become an increasingly risk-averse society. We are also sceptical about whether risk aversion can be measured in a way that would allow such a view to be substantiated.

We are, however, concerned that public sector reward and assessment systems may emphasise the adverse impact of failure rather than the gains from success, and so encourage excessive risk-aversion.

We can find no clear evidence to support the view that a compensation culture has developed or that this has pushed policy in undesirable directions. The notion that a compensation culture has developed appears to be based more on widely reported anecdotes than extensive analysis.

Government has developed a sound and potentially useful framework for the assessment of risk. The key issue is whether this framework is applied properly. Cost-benefit analysis provides a useful framework for thinking about risk policy, but costs and benefits are often uncertain or difficult to measure and it is important to recognise the limitations of quantitative approaches to risk assessment.

Policy guidelines such as “As Low As Reasonably Practicable” (ALARP), “Gross Disproportion” and the “Precautionary Principle” are imprecise and there is a danger that they can lead to an excessively cautious approach to risk. Unless these concepts can be clarified, they should be discarded.

More attention should be paid in the formulation of policy to the trade-off between personal liberty and public regulation. Policy formulation should take greater account of the specific and accumulated impact of legislation on personal freedoms.

The case of passive smoking is an example in which policy demonstrates a disproportionate response to a relatively minor health problem, with insufficient regard to statistical evidence.

In transport safety policy, the evidence suggests that there has been a move towards greater consistency, but action is still needed to address an inappropriate differential in the levels of road and rail safety expenditure.

# Government Policy on the Management of Risk

## CHAPTER 1: INTRODUCTION

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1. The Prime Minister, in a speech in May 2005, raised concerns that Britain is becoming an increasingly risk-averse society and that this trend is having a detrimental impact on public policy<sup>1</sup>. He suggested that “we are in danger of having a disproportionate attitude to the risks we should expect to run as a normal part of life” and that this is putting pressure on policy-makers “to act to eliminate risk in a way that is out of all proportion to the potential damage”. The Prime Minister suggested that this attitude is driving a series of negative developments, including the emergence of a compensation culture, in which people are encouraged to attach blame and seek compensation for harmful outcomes that should more properly be regarded as the fault of no one. This theme is echoed in speeches by other ministers, including the Lord Chancellor, who, like the Prime Minister, pointed to increasing public pressures that are driving policy in undesirable directions<sup>2</sup>.
2. The Prime Minister’s speech raises important issues related to the management of risk. It appears to suggest that, in many areas of activity, we have developed an unbalanced attitude to risk and that this has had a detrimental effect on the way that risk is managed. The examples pointed to include: cancelled school trips, closed leisure facilities, defensive attitudes in the practice of medicine, and demoralised business. The Prime Minister also suggests that public perceptions concerning risk have been unduly influenced by inaccurate reporting of risk-related issues by the media and that actions are needed to address the manner in which we think about and deal with risk.
3. Against this background, the Economic Affairs Committee decided to conduct an inquiry into government policy on the management of risk. The objective of the inquiry has been to examine the scale of the problems highlighted by the Prime Minister and, more particularly, to assess whether government policy deals with risk in an informed, balanced and consistent manner.

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<sup>1</sup> Speech by the Rt Hon Tony Blair, MP, delivered at the Institute of Public Policy Research, 26 May 2005

<sup>2</sup> Speech by the Rt Hon Lord Falconer of Thoroton, delivered at the Institute of Public Policy Research, 26 May, 2005

## CHAPTER 2: THE ANALYSIS OF RISK

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### The Nature of Risk

4. Most of the things we do have uncertain outcomes and risk is necessarily an inherent feature of life. From a policy perspective, the relevant cases are typically those that involve hazards affecting people, animal life or the environment. In some cases, the hazards may be well-defined, but with a range of possible outcomes. In well-defined cases, there may be uncertainty about the outcome for any single individual, but there is sufficient scientific and statistical knowledge, derived in part from past experience, to predict the likely outcomes for a group of individuals with a reasonable degree of accuracy.
5. Situations such as those described above can be regarded as ones in which there is a well-defined probability distribution of possible outcomes. For example, it may be impossible to know whether a particular car driver will suffer a fatal accident in any year, but we do have robust information that a certain percentage of drivers are likely to experience accidents that lead to death or injury. In other cases, there may be uncertainty about the nature and extent of the hazard, and the probability distribution of outcomes may be ill-defined or unknown. The risks attached to activities are then far less certain and may be difficult or impossible to quantify. Examples here might include the risks of harms associated with nuclear power, avian flu, vCJD and terrorism.

### Perceptions of Risk

6. Perceptions of risk by the public clearly have a potentially important impact in a policy environment that rightly aims to be responsive to public concerns over safety. There is a danger, however, that excessive risk-aversion on the part of the public may drive policy in an unreasonably cautious direction, with disproportionate expenditure on risk mitigation measures as well as non-financial costs. Part of the job of government is of course to take account of public concerns, but it should also try to avoid any over-reaction to current concerns, which may be transitory. While this may be true, it leaves open the question of whether currently prevailing public attitudes to risk should properly be characterised as overly risk-averse, as the Prime Minister has suggested.
7. In an attempt to shed some light on this matter, the Committee sought evidence that might clarify whether this concern is well-founded. The thrust of the evidence we received points to the conclusion that public attitudes to risk are difficult to measure, and we could find no clear evidence to justify the widely-held view that the public are excessively risk-averse<sup>3</sup>.
8. In this context, it is worth noting that excessive risk aversion in the formulation of policy, which, if it exists, has been attributed to the pressure arising from public perceptions or the media, may also stem from single-interest lobbying groups or indeed from government itself. For example, evidence from Sir Brian Bender suggested that the assessment and incentive

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<sup>3</sup> Evidence from J. Kay (Vol II, pp 56–58); R. Lofstedt and R. Fairman (Vol II, pp 215–218); and P. Taylor-Gooby (Vol II, pp 247–249)

system for civil servants, unlike the profit-based systems in the private sector, may emphasise the adverse impact of failure rather than the gains from success and may consequently induce a culture of risk-aversion among those responsible for the formulation and implementation of risk policy, in the sense that there are greater incentives to avoid getting things wrong rather than taking reasonable risks<sup>4</sup>. **This is clearly something that government should be aware of when it attempts to identify the pressures that drive policy in particular directions. It also points to a possible need for greater awareness of the consequences of the assessment and incentive systems that operate in the public sector.**

### Dealing with Risk

9. Most of the risks that people face are dealt with by individual choices and market interactions. There are areas, however, in which there is scope for government regulation or intervention to mitigate risk, typically in cases where there is no reasonable prospect that market forces will deal with the problem in what is regarded as a satisfactory manner. Apart from the provision of “public goods”, such as national defence and police services, the most obvious cases for intervention arise when there are “market failures”. These market failures typically arise when information is limited or poorly understood by the public, when there are significant externalities<sup>5</sup> associated with an activity, or when participants do not have the age or capacity to make informed decisions.

### The Economics of Risk

10. The economic analysis of government policy usually starts with the presumption that it is better for government not to intervene if a problem can be otherwise resolved. This starting point recognises that there is no merit in government intervention for its own sake and that unnecessary intervention potentially imposes significant costs, which may be both economic and non-economic. The direct economic cost is that money is spent that could otherwise have been saved or spent more effectively elsewhere. It is also possible that government intervention may generate an outcome which is actually worse than the one that would have prevailed in the absence of intervention, particularly when the policy action has unintended consequences. A further cost might be the loss of personal liberty and freedom of choice that arises from restrictive or proscriptive legislation.
11. In some cases, when a free market outcome is considered unsatisfactory, it may be possible to improve the situation with the use of taxes or subsidies, which aim to discourage or encourage particular activities by altering market prices. It may also be possible to improve market outcomes simply by providing relevant information to the public, to enable more informed choices to be made. In other cases, government may judge that such measures would not on their own be sufficient to generate the desired change in behaviour and that other, more direct, forms of intervention are needed to regulate or proscribe behaviour.
12. In economics, judgements about the desirability or impact of government intervention are usually made with reference to some sort of cost-benefit

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<sup>4</sup> Evidence from Sir Brian Bender (Vol II, p 20)

<sup>5</sup> Essentially non-marketed benefits or harms, such as noise or pollution

analysis. In a limited number of cases, the application of simple cost-benefit analysis may point clearly to the desirability or otherwise of intervention. In many instances, however, potential costs and benefits are hard to measure, or uncertain, and no clear outcome may be indicated. Political judgements and the pressure of public opinion may then begin to dominate.

13. The guiding principle suggested by economics is that a potentially desirable intervention is indicated when the policy action generates a positive net benefit to society, where net benefit is defined as the difference between total benefits and total costs. Outcomes are rarely that certain, however, because of uncertainty attached to costs and benefits and potential spillover effects. Furthermore, even when there is a fair degree of certainty that benefits do exceed costs, intervention may not be appropriate. Given that resources are limited, the positive net benefit associated with intervention in any particular circumstance may not be sufficient to justify action, because greater net benefits are judged to be available from spending the money and effort in other areas of government.

### **The Limits of Cost-Benefit Analysis**

14. Although economic analysis provides an apparently rational framework for assessing the impact of policy measures, in many instances the costs and benefits may be difficult to measure in any precise way and it may not be possible to say with any certainty that money spent in one area yields a greater or lesser benefit than money spent in another.
15. More generally, while the economic approach emphasises that policy decisions should be made on the scale and hierarchy suggested by the measurement of costs and benefits, the reality is that we do not have a finely developed calculus or metric that can be applied in a mechanical accounting fashion, and political and social judgements are a necessary and inevitable part of policy calculations.
16. In this context, we noted with interest the evidence provided by John Kay and by Professor Lofstedt and Dr Fairman, who highlighted the potential dangers of attempting to squeeze risk policy into an unduly restrictive assessment framework.
17. John Kay argued that decision-making, including by government, is often not made in a rational way, of the kind emphasised by cost-benefit analysis. He suggested that problems or outcomes are often highly complex and that while we may pay lip service to rationality, decisions are often made on a different basis than those which are held up as good practice<sup>6</sup>.
18. In a similar vein, written evidence from Professor Lofstedt and Dr Fairman, based at the King's Centre for Risk Management, pointed to the limitations of simplistic models of rationality:

“...of course, economic analysis is a vital part of the public policy decision-making process and should help guide decisions. However, to base formalised decision-making on such a rationality will lead to decision-makers adjusting the inputs into

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<sup>6</sup> Evidence from J. Kay (Vol II, p 54)



the framework to produce the outputs they ‘feel’ and ‘know’ are ‘correct’ and politically acceptable”<sup>7</sup>.

19. Comments such as these clearly point to a degree of caution in the application of cost-benefit analyses based on simplistic views of economic rationality. This view was confirmed to some extent by Sir Brian Bender, who argued that there is a danger that the use of formal appraisal methods can lead to the development of a “tick box approach” by decision-makers, with adverse consequences for risk management:

“One of the difficulties of addressing this issue is to get the right balance between structures and culture. At heart, this needs to involve culture change in departments and if we err too far in setting structures, we will get into a tick box approach as we would call it, where we can sit in our departments and tick that we have done this or that, but actually, whether we are really thinking about risk, how to manage it effectively and proactively, is another matter”<sup>8</sup>.

### Policy Guidelines

20. We took evidence from a number of sources about the general framework for risk assessment used by the Government to guide policy decisions. The evidence indicates that there has been a concerted effort within government over recent years to establish a coherent and balanced set of guidelines for risk management. These efforts have taken place under the umbrella of the Government’s “Risk Programme”, led by HM Treasury. This programme has led to the establishment of a general framework that emphasises a series of guidelines which are intended to act as a platform from which sensible risk policy can be developed within government.
21. The broad guidelines are set out in the Green Book and supplementary guidance published by HM Treasury<sup>9</sup>. Additional guidance for project management within government is also set out in the Orange Book<sup>10</sup>. In brief, the guiding principles of risk management are:
- openness and transparency—Government will be open and transparent about its understanding of the nature of risks to the public and about the process it is following in handling them
  - involvement—Government will seek wide involvement of those concerned in the decision process
  - proportionality and consistency—Government will act proportionately and consistently in dealing with risks to the public
  - evidence—Government will seek to base decisions on all relevant evidence
  - responsibility—Government will seek to allocate responsibility for managing risks to those best placed to control them.

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<sup>7</sup> Evidence from R. Lofstedt and R. Fairman (Vol II, pp 215–218)

<sup>8</sup> Evidence from Sir Brian Bender (Vol II, p 19)

<sup>9</sup> *The Green Book*, HM Treasury, 2003; *Managing risks to the public: appraisal guidance*, HM Treasury, June 2005

<sup>10</sup> *The Orange Book, Management of Risk—Principles and Concepts*, HM Treasury, October 2004

22. In addition to these general principles, the Green Book provides guidance about the steps that should be taken in the policy appraisal process. These steps include:
- consider whether market failures or equity considerations point to the need for intervention
  - carry out expert risk assessment and assess public concerns
  - assess monetary costs and benefits of alternative policy options with explicit recognition of uncertainty about values
  - assess non-monetary costs and benefits of alternative policy options; develop and monitor an implementation plan.
23. The guidelines and operational advice arising from the Government's risk programme are certainly comprehensive and they appear to provide an increasingly useful framework for the assessment of policy options. **The evidence presented to the Committee clearly indicates that risk policy is taken seriously, and the view from within government is that, while there is always room for improvement, the current guidelines are appropriate. These witnesses suggested that the framework of risk management in the UK now compares favourably with the best practices found in the rest of the world<sup>11</sup>.**

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<sup>11</sup> Evidence from the Rt Hon Des Browne, MP and B. Glickman (Vol II, pp 17–19); and H. James (Vol II, p 33)

### CHAPTER 3: CONSIDERATIONS AFFECTING THE MANAGEMENT OF RISK

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24. The evidence from the previous chapter suggests that the Government has developed a sound and potentially effective framework for the assessment of risk. The key issue, however, is whether this framework is properly applied. It is also important to consider whether there are any major factors that the framework fails to address. The next chapter looks at some of the detailed aspects of risk management. Before we get to that, in this chapter we draw attention to some general considerations that we believe are relevant in assessing the nature and application of risk policy.

#### Legislation and Liberty

25. Any policy designed to mitigate risk almost inevitably involves some curtailment of individual choices and actions. Taking as a starting point the notion that individuals should whenever possible be left free to make their own decisions about what and what not to do, we have been concerned with the potential impact on personal freedoms and civil liberties of legislation and regulation designed to manage risk.
26. The department most directly concerned with this matter is the Department for Constitutional Affairs and we took evidence about it from the Lord Chancellor. We wished in particular to discover whether matters related to civil liberties and personal freedoms are properly considered when legislation is formulated and potential impacts are assessed. The evidence indicated a general view that considerations about the impact of legislation or regulation on personal liberties and freedoms should be regarded as part of the political process rather than as a matter for formal risk assessment procedures, and that judgements and decisions in this context should be the responsibility of the relevant ministers<sup>12</sup>.
27. The Lord Chancellor commented that the Human Rights Act requires the relevant minister to certify that legislation complies with the Human Rights Convention. Commenting more generally, the Lord Chancellor recognised that the fact that legislation may meet the requirements of the Human Rights Convention does not necessarily mean that individual freedoms are adequately protected. In response to further questioning, the Lord Chancellor responded:
- “Is there a formal process in government whereby, when asked the question, does it infringe against individual freedom more than necessary? Answer: no, there is not any formal process in government by which that is looked at, but that will almost invariably be a purely political question”<sup>13</sup>.
28. In addition to the impact of specific pieces of legislation, we were concerned that insufficient attention might also be given to the cumulative impact of legislation on personal liberties. On this, the Lord Chancellor commented:
- “I think that from time to time we do not focus enough on the cumulative impact. I think we need to think how we could do

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<sup>12</sup> Evidence from the Rt Hon Lord Falconer of Thoroton (Vol II, p 60)

<sup>13</sup> Evidence from the Rt Hon Lord Falconer of Thoroton (Vol II, pp 60–61)

that better, and I think we need to think how we look at the cumulative impact better than we do at the moment”<sup>14</sup>.

29. **While recognising that issues relating to personal freedoms and civil liberties are properly and inevitably part of the political decision-making process, we are nevertheless concerned that such matters appear often to be given little or no weight in assessments of the impact of legislation. In our view, more attention should be paid to the trade-off between liberty and regulation in the formulation of policy and greater account should be taken of the specific and accumulated impact of legislation on personal freedoms. We therefore urge the Government to consider the introduction of a more formal procedure through which the potential impact of legislation on personal freedoms is considered.**

### Public Opinion and the Media

30. Discussions about the impact of public opinion on the direction of risk policy, and the possibility that the public have become excessively risk-averse, often point to the impact of the media in shaping public opinion. Critics of the media suggest that newspaper reports, in particular, too often take the form of scare stories, based on inaccurate or misleading reporting of statistics, which exaggerate the risks associated with particular activities or events. Frequently quoted examples include the debate over the risks associated with the MMR vaccine or air and rail transport in comparison with roads.
31. We took evidence about the possibility of measuring public attitudes towards risk, the impact of the media in influencing public perceptions of risk, and whether there is anything that could be done to ensure more balanced media reporting of risk-related topics, including the accurate reporting of risk-related statistics. We did obtain some evidence that highlighted the potential use of survey data to assess limited aspects of public attitudes to risk<sup>15</sup>. Recent research also suggests that the use of surveys can yield useful information about public perceptions concerning particular factors, such as the safety of alternative modes of transport<sup>16</sup>. **Nonetheless, most of the relevant evidence we received was sceptical about whether it is possible to measure public perceptions about risk in any general way, or to pass judgements on whether public opinion can be regarded as excessively risk-averse<sup>17</sup>.**
32. **We have been unable to find any significant evidence to support the widely-held view that Britain has become an increasingly risk-averse society. We are also sceptical about whether general risk aversion can be measured in a way that would allow such a view to be substantiated.**
33. Focusing on the impact of the media, a number of our witnesses acknowledged that there are cases in which inaccurate media reports may

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<sup>14</sup> Evidence from the Rt Hon Lord Falconer of Thoroton (Vol II, p 61)

<sup>15</sup> Evidence from P. Taylor-Gooby (Vol II, pp 247–249)

<sup>16</sup> S. Chilton et al, 2002, Public Perceptions of Risk and Preference-Based Values of Safety, *Journal of Risk and Uncertainty*, 25, pp 211–232

<sup>17</sup> Evidence from J. Kay (Vol II, pp 56–58); and R. Lofstedt and R. Fairman, Government Policy on the Management of Risk (Vol II, pp 215–218)

have had an adverse impact on public perceptions and behaviour, such as the MMR case noted earlier, but it was mostly suggested that there is little that can be done about this and that it is simply the price society pays for having a free press. For example, asked whether it would be possible or desirable for the Government to introduce a voluntary code of conduct for the reporting of scientific findings and statistics, the Lord Chancellor suggested:

“It does not feel realistic as a way forward. It is, I suspect, for individual bodies to complain if they think that statistics are being misreported to the relevant bodies, but it also has to be a recognition that, whatever code of conduct you have, the earlier you get the material out there, the less likely you are to be misreported in the end”<sup>18</sup>.

34. We agree with the Lord Chancellor. Our view is that, while the introduction of a code of conduct would have some attractions, **in practice there is little government can or should do to change the way that the media report risk-related stories, other than to encourage balance and proportionality in the reporting of statistics and scientific research. Beyond that, the most important thing government can do is to ensure that its own policy decisions are soundly based on available evidence and not unduly influenced by transitory or exaggerated opinions, whether formed by the media or vested interests.**
35. **The evidence we took suggests that the Government has at times given insufficient weight to available evidence and placed too great a reliance on unsubstantiated reports that often have their origin in the media. In view of this, it is important that the Government ensures that its own handling of information and statistics is beyond reproach.**
36. Although we do not recommend a code of conduct, the relevant parts of the media should strive to exercise appropriate responsibility when reporting matters related to statistics and risk. In this context, the editorial guidelines published by the BBC provide a useful example of good practice:

“We should report statistics and risks in context, taking care not to worry the audience unduly, especially about health or crime. It may also be appropriate to report the margin of error and the source of figures to enable people to judge their significance. This may involve giving trends, taking care to avoid giving figures more weight than can stand scrutiny. If reporting a change, consideration should be given to making the baseline figure clear. For example, a doubling of a problem affecting one in two million people will still only affect one in a million”.

“We should consider the emotional impact pictures and personal testimony can have on perceptions of risk when not supported by the balance of argument. If a contributor’s view is contrary to majority opinion, the demands of accuracy may require us to make this clear”<sup>19</sup>.

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<sup>18</sup> Evidence from the Rt Hon Lord Falconer of Thoroton (Vol II, pp 67–68)

<sup>19</sup> BBC Editorial Guidelines, available at <http://www.bbc.co.uk/guidelines/editorialguidelines/edguide/accuracy/reportingstatist.shtml>

37. **We would also like to see greater use of the Press Complaints Commission by interested parties, including the Government, who feel that cases involving risks to the public have been mis-reported or mis-represented.** The relevant sections of the Press Complaints Commission code of conduct emphasise that:

- “i) The Press must take care not to publish inaccurate, misleading or distorted information, including pictures.
- ii) A significant inaccuracy, mis-leading statement or distortion once recognised must be corrected, promptly and with due prominence, and—where appropriate—an apology published.
- iii) The Press, whilst free to be partisan, must distinguish clearly between comment, conjecture and fact.
- iv) A publication must report fairly and accurately the outcome of an action for defamation to which it has been a party, unless an agreed settlement states otherwise, or an agreed statement is published”<sup>20</sup>.

### The Compensation Culture

38. We took evidence from a number of witnesses, including the Lord Chancellor and the Chief Secretary to the Treasury, in an attempt to identify whether there is a developing compensation culture. However, no witness was able to quantify the magnitude of the problem and no significant statistical evidence emerged to support the notion. Evidence from the Medical Protection Society indicates that in the area of clinical negligence although there has been a significant increase in the value of claims arising from catastrophic injuries and an increase in legal costs, the absolute number of claims has fallen<sup>21</sup>. Looking at the wider picture, written evidence provided by the Department for Constitutional Affairs (DCA) shows that the total number of legal compensation claims, including claims dismissed and claims settled out of court, has in fact been falling over recent years. The evidence is summarised in Table 1, which shows that claims in all areas have fallen over the last five years, with the exception of motoring claims, which have been broadly constant.

**TABLE 1**  
**Accident Claims**

	Clinical Negligence	Employer Liability	Public Liability	Motor	Other	No Liability	Total
2000/01	10,890	97,675	94,000	401,740	2882	4933	612,120
2001/02	9773	97,004	100,663	400,434	1843	4409	614,126
2002/03	7973	92,915	109,441	398,870	2168	4179	615,546
2003/04	7109	79,286	91,177	374,740	1881	2993	557,186
2004/05	7196	77,765	86,966	402,892	2194	2269	579,282

Source: DCA written evidence dated, 2 March 2006

Note: Figures include all claims made, whether they were rejected, settled or litigated

<sup>20</sup> Further information on the Press Complaints Commission code of conduct can be found at <http://www.pcc.org.uk/cop/practice.html>

<sup>21</sup> Evidence from the Medical Protection Society (Vol II, pp 220–225)

39. These statistics support evidence produced by the Better Regulation Task Force, which indicates that legal expenditures associated with compensation claims in the United Kingdom are among the lowest in Europe, and significantly lower than in the US<sup>22</sup>.
40. The lack of statistical evidence to support the notion that a compensation culture exists is now widely appreciated in government and the justification for measures designed to curb the compensation culture is, according to witnesses, based on the idea that the real problem is that people believe that such a culture exists, even though it does not<sup>23</sup>. The suggestion is that this has produced defensive policy responses, from local authorities and others, designed to avoid the possibility of being sued by a litigious public. In his evidence to us, the Lord Chancellor repeated the view that pressures on policy makers and risk managers, arising from this mis-perception, have generated significant adverse consequences, with cancelled school trips, a reduction in volunteering activities, and so on<sup>24</sup>. This example is one that has also been used by other commentators. For example, Lord Hunt, speaking as the Minister for Health and Safety, has suggested that over-cautious risk management has “restricted personal freedoms, particularly for children”<sup>25</sup>.
41. In an attempt to shed some light on this matter, we obtained written evidence from the Department for Education and Skills (DfES)<sup>26</sup>. This evidence indicates that at least some of the anecdotes used to inform policy decisions are questionable. The DfES noted that:
- “A study carried out in 2,500 schools in summer 2005 found that over 20% of primaries and nearly 70% of secondaries undertake field trips beyond what is required by the curriculum”.
42. We also received written evidence from the Department for Constitutional Affairs. This included a report on residential activities available for young people through schools, prepared on behalf of the Scout Association and the Duke of Edinburgh Award Scheme. Based on a survey of a large number of schools, the report suggests that, when trips have not taken place, the reasons are not typically connected with risk-related factors. The survey indicates that the most important factors are the time-pressure of examinations (during the Spring and Summer terms), concerns about the weather (during the Autumn and Spring terms), and a belief that pupils and staff would not want to take part in activities during the holidays or at weekends. Having said this, concerns about health and safety were judged to be more important than cost considerations for the small number of schools that do not routinely organise trips.
43. Although the written evidence dealing with schools does not reveal any adverse impact arising from a perceived compensation culture, the picture is less clear in relation to voluntary activities. For example, written evidence from the Play Safety Forum, Wheway Consultancy, and the Department for Constitutional Affairs does suggest that some voluntary organisations are

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<sup>22</sup> *Better Routes to Redress*, Cabinet Office, May 2004, available at:

[http://publications.brc.gov.uk/publication\\_by\\_year.asp?Page=2&PublicationYear=2004](http://publications.brc.gov.uk/publication_by_year.asp?Page=2&PublicationYear=2004)

<sup>23</sup> Evidence from the Rt Hon Des Browne, MP (Vol II, pp 19–20); and H. James (Vol II, p 38)

<sup>24</sup> Evidence from the Rt Hon Lord Falconer of Thoroton (Vol II, pp 61–65)

<sup>25</sup> Speech by Lord Hunt of Kings Heath at the conference on risk and redress: preventing a compensation, 17 November 2005, available at <http://www.major-hazards.gov.uk/sensiblehealthandsafety/lordhunt171105.pdf>

<sup>26</sup> Evidence from the Department for Education and Skills (Vol II, pp 167–174)

worried that fear of litigation has inhibited providers from taking legitimate risks<sup>27</sup>.

44. **In summary, we found little hard evidence to support the notion that a compensation culture is developing. We were also not able to elicit any convincing evidence about the extent to which perceptions of a compensation culture have pushed policy in a risk-averse direction. Our witnesses were clear in stating that their judgements on this matter were based on anecdotal reports, often derived from the media<sup>28</sup>. A sound basis for the formulation of policy requires a more thorough and responsible assessment of evidence before changes in policy are introduced.**

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<sup>27</sup> Evidence from the Play Safety Forum (Vol II, pp 240–241); Wheway Consultancy (Vol II, p 251); and the Department for Constitutional Affairs (Vol II, p 68)

<sup>28</sup> Evidence from the Rt Hon Des Browne, MP and Sir Brian Bender (Vol II, pp 19–20); and the Rt Hon Lord Falconer of Thoroton (Vol II, pp 64–65)



## CHAPTER 4: GOVERNMENT POLICY IN PRACTICE

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45. The Government has put much effort in recent years into the development of a coherent set of guidelines for risk management and it is now confident that an effective framework for policy has been established. The acid test, of course, is whether these guidelines are used to good effect in the formulation and implementation of policy. In this chapter we seek to identify the positive and negative features of policy by commenting on a number of specific themes suggested by the evidence.

### Cost and Benefit Measurements

46. The Government's guidelines on risk management place considerable emphasis on the use of cost-benefit analysis in the decision-making process. We have already pointed to evidence which argues that it may be inappropriate to utilise cost-benefit methods in a mechanical or formulaic manner. Nevertheless, it is clear that cost-benefit analysis is an important part of the process and should at least be used to inform policy decisions. In order for this process to be effective, however, it is important to ensure that costs and benefits are measured as accurately as possible and that all relevant costs and benefits are included in the exercise.
47. In some cases, costs and benefits may be difficult or even impossible to measure, particularly when the relevant outcomes are ill-defined or subject to extreme uncertainty. Problems can also arise if attempts are made to incorporate certain kinds of costs which are not readily amenable to monetary evaluation, such as those associated with the loss of liberties arising from restrictive or proscriptive measures. In such cases, the use of cost-benefit analysis needs to be treated with caution, particularly because of the danger that costs or benefits may in practice be assigned arbitrary values that effectively pre-judge the outcome of the exercise and end up simply as a justification for decisions made on other grounds<sup>29</sup>.
48. Partly in recognition of the matters discussed above, our deliberations on cost-benefit analysis concentrated on examining the valuation methods used in the kind of cases which are the most amenable to cost-benefit analysis—that is to say, where there is a reasonable degree of certainty both about the costs involved in applying risk-reduction measures and about the likely benefits, expressed in terms of such reductions. These conditions are typically satisfied in the context of transport safety and elements of health care. On the cost side, the expenditures associated with the introduction of transport safety measures or new forms of healthcare are generally well-defined; the important questions revolve around the valuation of the benefits obtained from reductions in death or injury on road or rail, or from improvements in health.
49. The evidence suggests that considerable thought has been devoted to valuation questions and that within individual departments valuation strategies are sensible and internally coherent. However, there appears to be considerable variation in methodology and practice between government departments. **More attention therefore needs to be paid to ensuring greater consistency across departments and areas of application.**

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<sup>29</sup> Evidence from J. Kay (Vol II, pp 58–59)

Given that some of the evidence we received questioned the legitimacy and reliability of some of the monetary values currently used in governmental cost-benefit analyses, **it would be desirable to have a more transparent discussion of the strengths and weaknesses of alternative valuation methods and how they can best inform policy.** In this context, we note that some of the evidence we received was sceptical about attempts to value human life using currently available methods, such as the willingness-to-pay method<sup>30</sup>. These reservations applied principally to the robustness of the empirical estimation of the values concerned rather than the ethical and conceptual foundations of the approach, which are explicitly based on the fundamental principle that benefits should be defined and measured so as to reflect the preferences—and more particularly, the strength of preference—of those individuals affected.

### The Valuation of Safety

50. It is frequently argued that the most natural measure of a person's strength of preference for a good or service is the maximum amount that he or she would be willing to pay for it. This amount reflects not only the person's valuation of the good or service relative to other potential objects of expenditure, but also the individual's ability to pay, which is in itself a reflection of the fact that society's overall resources are limited. Thus, in the case of safety, under what has come to be known as the "willingness-to-pay" (WTP) approach, attempts are made to determine the maximum amounts that those at risk would individually be willing to pay for (typically small) improvements in their own safety and possibly the safety of others. These amounts are then added together to arrive at an overall value for the safety improvement concerned. The resulting figure is thus a clear reflection of what the safety improvement is "worth" to the affected group, relative to the alternative ways in which each individual might have spent his or her limited income.
51. Even if reductions in individual fatality risks are relatively small, provided that the number of people enjoying those risk reductions is large (as is usually the case with, say, road or rail safety improvements), then a number of fatalities will typically be prevented. It is therefore natural to seek a common unit of value. For this reason, the concept of the prevention of a "statistical fatality" (or statistical health impairment) is employed. To illustrate this concept, suppose that a group of 100,000 people enjoy a safety improvement that reduces the probability of premature death during a forthcoming period by, on average, 1 in 100,000 for each and every member of the group. While the safety improvement might, in the event, prevent no deaths, or one death (in fact, the most likely outcome) or two deaths (with a lower probability) or three deaths (with an even lower probability) and so on, the mean (or statistical expectation) of the number of deaths prevented is precisely one and the safety improvement is thus described as involving the prevention of one "statistical" fatality.
52. Now suppose that individuals within this group are, on average, each willing to pay £v for the 1 in 100,000 reduction in the probability of death afforded by the safety improvement. Aggregate willingness-to-pay (WTP) will then be given by £v x 100,000. This figure is referred to as the Willingness-to-Pay

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<sup>30</sup> Evidence from J. Kay (Vol II, p 58); and R. Lofstedt and R. Fairman (Vol II, pp 215–218)

based “Value of Preventing a statistical Fatality” (VPF). Thus if, on average, the members of this population were willing to pay £15 to reduce their risks of death to this extent, the VPF would in this case be £1.5m. Exactly the same approach can be used to derive Values for Preventing non-fatal Injuries (VPIs).

53. It should be stressed that, as defined above, the VPF is not a “value (or price) of life” in the sense of a sum that any given individual would accept in compensation for the certainty of his or her own death. For most people no sum, however large, would suffice for this purpose, so that in this sense life is literally priceless. Rather, the VPF represents an aggregate willingness-to-pay for typically very small reductions in individual risk of death (which, realistically, is what most safety improvements actually offer at the individual level). This reflects people’s normal approach to risks which they face in everyday life, where they trade off cost or convenience against real, but very small, risks. The Treasury Green Book emphasises the fact that:

“The willingness of an individual to pay for small changes in their own or their household’s risk of loss of life or injury can be used to infer the value of a prevented fatality (VPF). The changes in the probabilities of premature death or of serious injury used in such WTP studies are generally very small”<sup>31</sup>.

54. By its very nature, it is perhaps hardly surprising that the willingness-to-pay approach to the valuation of safety is not without its critics. Thus, in addition to those who have quite reasonably questioned the robustness of the empirical procedures employed to estimate individual willingness-to-pay—including some very eminent cognitive psychologists—criticism has also been aimed at the philosophical and ethical foundations of the approach. In his evidence to us, Professor John Broome argued that the underlying theoretical basis of the willingness-to-pay approach to the valuation of safety suffers from two fundamental flaws relating to the violation of expected utility theory and the apparent priority given to the safety of the wealthy. Thus:

“Understood as part of a theory of value, expected utility theory is very well grounded. We should reject any method of valuation that is inconsistent with it. However, willingness-to-pay, the dominant method in economics, is indeed inconsistent with it. ...according to the willingness-to-pay method, the value of reducing a person’s risk varies [increases] with the level of risk she bears. But expected utility is a linear function of probability, so according to expected utility theory, the value of reducing a person’s risk is constant: it does not vary in this way”;

and “...the default view that is implicit in willingness-to-pay is that money has the same value to everybody—£1 to one person has the same value as £1 to somebody else—which in effect overvalues the money to a rich person and hence the life of a rich person. My proposal is that...we should think that a year of life has the same value to one person as it does to anybody else”<sup>32</sup>.

55. In response to such criticisms, advocates of the willingness-to-pay approach would no doubt cite two pieces of evidence. First, the theoretical foundation

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<sup>31</sup> *The Green Book*, HM Treasury, 2003, p 61

<sup>32</sup> Evidence from J. Broome (Vol II, pp 44–52)

of the approach, laid down in the early sixties, is firmly founded on expected utility theory which, within the models developed from this theoretical foundation, most certainly does not imply that the value of reducing a person's risk is independent of the baseline level of risk that he or she faces<sup>33</sup>. Second, in the UK and other countries that employ the WTP approach (such as the US, Sweden and New Zealand), while empirical work aimed at estimating WTP-based values of safety does indeed show that on average the rich are willing to pay more for safety than the poor, agencies such as the UK Department for Transport effectively make adjustments for these so-called "income effects" and apply a common value, based on the population mean willingness-to-pay, to all income groups whether rich or poor.

56. Partly as a result of these questions concerning the empirical and ethical robustness of the WTP approach to the valuation of safety and cost-benefit analysis in general, some public sector agencies in the UK have avoided their use in allocative decision-making. The National Health Service (NHS) and National Institute for Clinical Excellence (NICE), for example, have for several years avoided the application of cost-benefit analysis and have instead used so-called "Cost-Effectiveness Analysis" (CEA). In CEA no attempt is made to place a monetary value on the desired objective (in the case of the NHS and NICE, quality of health). Instead, proposed projects are prioritised on the basis of the cost per unit of the objective achieved (the so-called "cost-effectiveness" ratio), with projects having the lowest cost per unit of effectiveness being selected first, and so on until the overall budget is exhausted. In the case of the NHS, for example, the effectiveness of a medical treatment is measured in terms of the number of units of what are referred to as "Quality-Adjusted Life Years" (QALYs) gained as a result of the treatment concerned. Thus, suppose that without treatment a patient would spend ten years in an impaired health state judged to be such that ten years in that state was equivalent to spending five years in normal health. However, with treatment his/her health would be improved to a state such that ten years in that state was judged equivalent to spending eight years in normal health. The treatment would then be regarded as affording the patient a gain of three QALYs.
57. However, Cost-Effectiveness Analysis suffers from two major deficiencies. First, it offers no means by which the desired objective can be aggregated with other benefits that might result from a particular project in a common "unit of account" such as money. Second, it offers no indication of the appropriateness—or otherwise—of the overall budget concerned. It is therefore not surprising that the Department of Health has recently commissioned a major research project aimed at estimating, *inter alia*, the monetary value of a QALY.
58. All things considered, it is therefore not surprising that cost-benefit analysis, rather than CEA, has been the principal analytical tool employed in allocative decision-making by public sector agencies in the UK. That said, it should be stressed that in few if any cases are the results of a cost-benefit analysis regarded as conclusive on whether or not a particular project should

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<sup>33</sup> J. Drèze, 1962, L'Utilité Sociale d'une Vie Humaine, *Revue Française de Recherche Opérationnelle*, 22, pp 139–155 ; M. W. Jones-Lee, 1974, The Value of Changes in the Probability of Death or Injury, *Journal of Political Economy*, 82, pp 835–849; M. W. Jones-Lee, 1976, *The Value of Life: An Economic Analysis*, London, Martin Robertson and Chicago, University of Chicago Press.

be undertaken, with informed and balanced judgement also playing a vital role.

59. As far as the actual magnitude of the WTP-based values of safety employed in UK public sector decision making are concerned, the latest figures used by the Department for Transport in the appraisal of road safety projects and reported in *Highways Economics Note No 1* in June 2004 prices are as follows:

Prevention of a road fatality	£ 1,384,463
Prevention of a serious non-fatal road injury	£ 155,563
Prevention of a slight non-fatal road injury	£ 11,991

While other UK public sector agencies that employ the WTP approach tend to use broadly the same values as the DfT—see for example the 2004 DEFRA report *Valuations of Health Benefits Associated with Reductions in Air Pollution*—the notable exception until recently was the rail industry which employed two distinct VPFs. The first of these was set equal to the DfT roads figure and was applied to, for example, single-fatality accidents in which the victim had some degree of control. The second, higher value, equal to about three times the roads figure, was employed in determining the benefits of preventing rail accidents involving large-scale loss of life or in which the victims have little or no degree of control. The appropriateness, or otherwise, of such differential valuations is discussed in more detail below.

### Operational Guidelines

60. We are concerned that regulatory requirements concerning risk appear to rely heavily on a range of concepts—such as As Low As Reasonably Practicable (ALARP), Gross Disproportion, Societal Concerns and the Precautionary Principle—which may not be sufficiently well-defined to enable the framing of useful operational guidelines. The danger inherent in the use of such ambiguous concepts is that they may encourage excessively risk-averse responses from policy-makers.

### ALARP and Gross Disproportion

61. In implementing and enforcing the relevant legislation, the HSE employs the so-called “Tolerability of Risk” framework. First set some 15 years ago<sup>34</sup> and since then refined in the HSE’s 2001 document “Reducing Risks, Protecting People” (known as R2P2), the Tolerability of Risk framework essentially comprises:
- An upper bound above which risks are deemed to be unacceptable (or “intolerable”) and, save in exceptional circumstances, must either be reduced, whatever the cost, or the activity giving rise to the risk discontinued.
  - A lower bound below which risks are regarded as being “broadly acceptable” and therefore requiring no significant action to effect further reduction.

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<sup>34</sup> The Tolerability of Risk from Nuclear Power Stations, HSE, 1992

- A range between the upper and lower bounds in which risks are regarded as being “tolerable” provided that they have been reduced to levels that are “as low as reasonably practicable” (ALARP)<sup>35</sup>.
62. In applying this so-called ALARP criterion, the HSE employs the concept of “gross disproportion”. This concept originated in a 1949 Court of Appeal decision which concluded that:

“‘Reasonably practicable’ is a narrower term than ‘physically possible’ and seems to me to imply that a computation must be made by the owner, in which the quantum of risk is placed on one scale and the sacrifice involved in the measures necessary for averting the risk (whether in money, time or trouble) is placed on the other; and that if it be shown that there is a gross disproportion between them—the risk being insignificant in relation to the sacrifice—the Defendants discharge the onus on them”<sup>36</sup>.

In addition, the issue of reasonable practicability was considered by the House of Lords in a 1954 case, the head-note of which states:

“The test of what is (reasonably practicable) is not simply what is practicable as a matter of engineering, but depends on the consideration, in the light of the whole circumstances at the time of the accident, whether the time, trouble and expense of the precautions suggested are or are not disproportionate to the risk involved, and also an assessment of the degree of security which the measures may be expected to afford”<sup>37</sup>.

63. We should note that while the first of these legal judgments refers to “gross disproportion” the second requires only that costs should not be “disproportionate” to the risk reduction concerned. Nonetheless, the HSE has continued to refer to gross disproportion. Not surprisingly, this has led to considerable confusion as to what precisely is meant by the term “gross disproportion”. Thus, while it seems reasonable to interpret the requirement that costs should not be disproportionate to benefits as entailing that the former should not exceed the latter (as required by the standard cost-benefit analysis criterion), the question of what “gross disproportion” means is decidedly ambiguous.
64. More specifically, the HSE notes that:

“The process of determining whether a benefit is sufficient to justify a cost depends on a judgement as to what constitutes ‘gross disproportion’. This in turn depends on the prior level of risk. Where this is above the ‘broadly acceptable level’, ‘gross disproportion’ essentially takes the form of a multiplier applied to the value of the health and safety benefits and increasing with the

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<sup>35</sup> While R2P2 is somewhat equivocal about the levels at which the upper and lower bounds of the ALARP region should be set, there are indications that, broadly speaking, the HSE continues to endorse its earlier recommendation (HSE, 1992, paragraphs 169–175) that for fatality risks the upper bound should be set at 1 in 10,000 per annum for individual members of the public and 1 in 1000 per annum for workplace risks, while the lower bound should generally be treated as being in the region of 1 in a million per annum.

<sup>36</sup> *Edwards vs National Coal Board*, 1949, IKB704

<sup>37</sup> *Marshall vs Gotham Co Ltd*, 1954, AC360

level of risk. Precise values for this multiplier have never been defined by the courts”<sup>38</sup>.

Recently, the HSE has acknowledged that in relation to the concept of gross disproportion:

“...there is no authoritative case law which considers the question...HSE has not formulated an algorithm which can be used to determine the proportion factor for a given level of risk. The extent of bias [on the side of safety] must be argued in the light of all the circumstances”<sup>39</sup>.

65. In spite of all this uncertainty, there are indications in the HSE 1992 document that at least for risks that fall roughly in the middle of its Tolerability Region (between 1 death in a million per annum and 1 death in ten thousand per annum) then broadly speaking standard cost-benefit criteria should apply. This would be on condition that the benefits of safety improvements are appropriately defined and estimated (which, according to the HSE, should be along Willingness-to-Pay based lines), but also that they are sufficiently comprehensively specified to include all other costs of the occurrence of accidents involving death or injury.

### Societal Concerns and the Precautionary Principle

66. There are two other important concepts applied by the HSE and other agencies that are subject to a potentially problematic degree of imprecision and uncertainty. These are what the HSE refers to as “Societal Concerns” and the so-called “Precautionary Principle”. Turning to the former first, in R2P2 the HSE states that:

“Societal concerns or the risks or threats from hazards which impact on society and which, if realised, could have adverse repercussions for the Institutions responsible for putting in place the provisions and arrangements for protecting people, e.g. Parliament or the government of the day. This type of concern is often associated with hazards that give rise to risks which, were they to materialise, could provoke a socio-political response, e.g. risk of events causing widespread or large scale detriment or the occurrence of multiple fatalities in a single event. Typical examples relate to nuclear power generation, railway travel, or the genetic modification of organisms. Societal concerns due to the occurrence of multiple fatalities in a single event are known as societal risk. Societal risk is therefore a subset of societal concerns”<sup>40</sup>.

67. While it is undoubtedly the case that events such as Chernobyl or the 9/11 terrorist attacks in the US have social and political ramifications that extend far beyond the loss of life and injury that result from such tragedies, it is not so clear that similar considerations apply in the case of, for example, a large-scale rail accident such as that which occurred at Ladbroke Grove in 1999. Certainly, for some time it was widely believed that the public are inherently

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<sup>38</sup> The Tolerability of Risk from Nuclear Power Stations, HSE, 1992, Appendix 3

<sup>39</sup> Principles and Guidelines to assist the HSE in its judgements that duty-holders have reduced risk as low as reasonably practicable, HSE website, 2001

<sup>40</sup> Reducing Risks, Protecting People: HSE’s Decision-Making Process, HSE, 2001, p12

more averse to the prospect of the loss of, say, thirty lives in a single accident than the loss of the same number of lives in separate accidents. Indeed in its Principles and Guidelines document, in relation to societal concerns the HSE itself states that:

“...society has a greater aversion to an accident killing 10 people than to 10 accidents killing one person each”<sup>41</sup>.

68. On the other hand, evidence from three separate sample surveys of public opinion indicates quite clearly that when directly confronted with the question of whether the loss of a given number of lives in, for example, a single rail accident is inherently worse than the loss of the same number of lives in separate accidents, the majority response was unequivocally in the negative<sup>42</sup>. It should also be noted that one of the studies referred to was carried out in the immediate aftermath of the Ladbroke Grove rail accident, so that while “heightened concern” effects were certainly at work in that study, these do not appear to have had a dramatic effect on implicit relative valuation of multiple and single rail fatality accident prevention.
69. This is not, of course, to deny that considerations such as blame or concern for the wellbeing of the very young or elderly may influence public opinion concerning the appropriate levels of expenditure on accident prevention. However, the scale of loss of life in a single incident *per se* and the undoubted press and media attention that a large-scale accident inevitably generates do not, in and of themselves, appear to the Committee to provide grounds for a disproportionate response on the part of the rail industry or other transport organisations.
70. In R2P2 the HSE argues that:

“However, our risk assessment and risk management procedures have a number of safeguards to ensure that our approach is inherently precautionary and in line with the precautionary principle. Included though not defined in the EC Treaty, the precautionary principle has been defined, for example, by the United Nations Conference on the Environment and Development (UNCED) in 1992 as: ‘where there are threats of serious or irreversible environmental damage, lack of full scientific certainty shall not be used as a reason for postponing cost effective measures to prevent degradation.’

Thus, the precautionary principle describes the philosophy that should be adopted for addressing hazards subject to high scientific uncertainty, and rules out lack of scientific certainty as a reason for not taking preventive action. Although originally formulated in the context of environmental protection, particularly in connection with ‘global’ environmental issues (e.g. climate change, ozone depletion), the precautionary principle has been applied more widely”<sup>43</sup>.

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<sup>41</sup> Principles and Guidelines to assist the HSE in its judgements that duty-holders have reduced risk as low as reasonably practicable, HSE website, 2001

<sup>42</sup> Jones-Lee, M.W. and Loomes, G. , 1995, Scale and Context Effects in the Valuation of Transport Safety, *Journal of Risk and Uncertainty*, 11, pp 183–203; S. Chilton et al, 2002, Public Perceptions of Risk and Preference-Based Values of Safety, *Journal of Risk and Uncertainty*, 25, pp 211–232

<sup>43</sup> Reducing Risks, Protecting People: HSE’s Decision- Making Process, HSE, 2001, p29



71. Some of the evidence we heard on this question defended the vagueness in guidelines such as ALARP as useful, because it gives policy-makers flexibility<sup>44</sup>. Sir Brian Bender also cited an example, related to genetically modified crops, in which the Government's use of the precautionary principle had been generally well-received by commentators<sup>45</sup>. In contrast, John Kay put forward the view, "I think the precautionary principle is one of these vague kind of phrases which crumble when you try to put your hands on it... 'Reasonably practicable' is either meaningless or is designed not to limit in any way the scope for administrative discretion, which is, I think, in reality the way in which it used"<sup>46</sup>.
72. The evidence of Professor Lofstedt and Dr Fairman indicated up to 19 different definitions of the precautionary principle<sup>47</sup>. They suggest that the concept has been pinned down to some extent by the European Commission, but that it has not always been used in the way the Commission recommended. They refer to an example in which the Commission invoked the precautionary principle to ban the import of ground nuts from Africa, even though scientific evidence suggests that eating ground nuts increases the rate of fatal liver cancer by only 1 per 100 million people. They suggest that, if the precautionary principle is used, it needs to be applied carefully, in line with the Commission's recommendations<sup>48</sup>.
73. **In our view, the use of ill-defined and ambiguous terms in risk-management and regulatory documents is generally unhelpful. There is a danger that they can induce an excessively cautious attitude to risk. We recommend that terms such as ALARP, Gross Disproportion and the Precautionary Principle should be more clearly defined or replaced with more specific and unambiguous requirements and concepts.**

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<sup>44</sup> Evidence from B. Glicksman (Vol II, p 27)

<sup>45</sup> Evidence from Sir Brian Bender (Vol II, p 28)

<sup>46</sup> Evidence from J. Kay (Vol II, p 57)

<sup>47</sup> Evidence from R. Lofstedt and R. Fairman (Vol II, pp 215–218)

<sup>48</sup> The Commission's guidelines on the use of the precautionary principle can be found in 'Communication from the Commission on the Precautionary Principle', Brussels, 2000, [http://europa.eu.int/comm/dgs/health\\_consumer/library/pub/pub07\\_en.pdf](http://europa.eu.int/comm/dgs/health_consumer/library/pub/pub07_en.pdf)

## CHAPTER 5: RISK MANAGEMENT—TWO CASES

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74. The risk assessment guidelines adopted by the Government emphasise the importance of openness and transparency in the formulation and implementation of policy, and the requirement that policy decisions should be evidence-based. Openness and transparency imply that the objectives of policy should be clearly stated and that policy should be designed with clear objectives in mind. Good practice in the use of evidence also suggests that policy should be formulated and applied in response to clearly defined problems, with appropriate evidence to support the judgement that a problem exists and that a policy response is required.
75. In this chapter we draw together some of the themes and issues discussed earlier, by examining two cases which illustrate how risk guidelines have been interpreted and applied in specific circumstances.

### Passive Smoking

76. The recently introduced bill to ban smoking in public places illustrates a number of worrying features connected with the formulation and promotion of legislation<sup>49</sup>. The stated objective of the bill was to ban smoking at work and in enclosed public places, because passive smoking imposes a significant health risk on workers and others exposed to environmental tobacco smoke (ETS).
77. In order to evaluate the operation of risk policy in this area, we considered a range of evidence, much of which cast doubt on the stated rationale of the legislation. In her evidence to us, Caroline Flint, Parliamentary Under Secretary of State for Public Health, commented that:

“it is clearly the case that, in relation to deaths from smoking and second-hand smoke, the most serious aspect of that is smoking in the home. Ninety-five percent of deaths are related to smoking in the home”<sup>50</sup>.

Other evidence we received suggested that the health risks associated with passive smoking are relatively minor and the main harm, if there is one, concerns children who are exposed to passive smoking in the home, which is something the bill is not designed to address<sup>51</sup>. Sir Richard Peto did suggest that ex-smokers might be more at risk from ETS than those who had never smoked at all, but the general tenor of his evidence indicated that the risks are uncertain and unlikely to be large<sup>52</sup>.

78. Given the evidence about the impact of passive smoking, we are concerned that the decision to ban smoking in public places may represent a disproportionate response to a relatively minor health concern. It may be that the unstated objective of policy is to encourage a reduction in active smoking

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<sup>49</sup> Health Bill, introduced in the House of Commons, 27 October, 2005. The text of the bill is available at <http://www.publications.parliament.uk/pa/cm200506/cmbills/069/2006069.pdf>

<sup>50</sup> Evidence from Caroline Flint, MP (Vol II, p 105)

<sup>51</sup> Sir Richard Peto suggested that “these risks are small and difficult to measure directly” (Vol II, p 143). See also evidence from Imperial Tobacco Group PLC (Vol II, pp 196–200) and the Tobacco Manufacturers Association (Vol II, pp 249–250)

<sup>52</sup> Evidence from Sir Richard Peto (Vol II, pp 143–151)

by indirect means. This may well be a desirable policy objective, but if it is the objective, it should have been clearly stated.

79. If, however, it is accepted that policy on passive smoking has been genuinely concerned only with a reduction in smoking in public places, other issues about the formulation of policy in this area are raised, in addition to any concern that the ban on smoking may represent a disproportionate policy response. One of these issues is whether decision-making in this area has given sufficient attention to alternative policy responses, as required by the Treasury guidelines. For example, the Confederation of British Industry (CBI), in their written evidence to us argued strongly that voluntary smoking bans are already in place in many areas and that business saw the legislation as further evidence of unnecessary intervention by government<sup>53</sup>.
80. In the context of the passive smoking debate, we also took evidence from the Health and Safety Executive. When questioned about the impact of the smoking ban on consumers and workers in relevant establishments, and the possibility that people have the option of choosing not to visit or work in smoking environments if they are concerned about the possible health risks, the HSE dismissed the idea of relying on labour market forces to deal with the problem:
- “we find rather repugnant the idea that people should have a choice between having that level of safety or alternatively being paid more and not have it, not least because it is a very difficult choice for people to make. Inherently it will appeal to those who are most vulnerable because they are most in need of money, but they then become exposed to this risk from which the rest of us are shielded...we certainly do not like the idea of trading off basic safety against money”<sup>54</sup>.
81. In the case of the actual health risks associated with passive smoking, the HSE offered the view:
- “...the evidence is pretty clear. The Chief Medical Officer regards this as an important health issue”<sup>55</sup>.
82. In the light of these comments, we believe that the HSE, responsible for implementing risk guidelines on the ground, should give due consideration to both the evidence related to the health risks of passive smoking and to the possibility that personal choices and market forces might be used to deal with the problem. Our concern in particular is that the HSE response does not properly reflect either the spirit or the letter of existing government guidelines.
83. Another aspect of this issue that concerned us was the Government’s attitude to the possible trade-offs between personal liberty and risk reduction inherent in many areas of legislation. In the case of the legislation to ban smoking in public places, we were concerned that the preliminary stages of policy formulation appear to have given little or no weight to this important factor. We note that government risk guidelines do not emphasise any requirement

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<sup>53</sup> Evidence from the Confederation of British Industry (Vol II, pp 160–161)

<sup>54</sup> Evidence from the HSE (Vol II, p 80)

<sup>55</sup> Evidence from the HSE (Vol II, p 80)

to assess the impact of legislation on personal freedoms or civil liberties. This is something that needs to be considered further.

84. **The evidence we took on passive smoking leads us to doubt whether government guidelines on risk management have been properly implemented. In particular, the purpose of legislation should have been defined more clearly and greater attention should have been given to available scientific evidence, the relative merits of alternative policy options and the impact of legislation on personal freedom and choice. Failure to consider these matters properly has resulted in the introduction of a policy that appears to demonstrate a disproportionate response to the problem. Lessons learned from the progress of this legislation should be used to ensure that future policy responses are transparent, evidence-based, and proportionate.**

### Road and Rail Safety

85. The evidence we received suggests that the practical application of cost-benefit analysis and the use of willingness-to-pay-based values of safety by decision-making and regulatory agencies in the UK in their assessment of proposed public and private sector safety improvements have not always been consistent.
86. Prominent amongst the apparent inconsistencies was the treatment, until recently, of road and rail safety. Thus, while in assessing the prevention of single-fatality accidents in which the victim has a degree of control, the rail industry uses the same willingness-to-pay-based Value of Preventing a Statistical Fatality (VPF) as is applied to road safety by the Department for Transport (DfT), until 2003 a figure equal to about three times the roads VPF was used in the assessment of projects aimed at preventing multiple-fatality rail accidents. This was in spite of the fact that empirical studies have indicated that members of the public do not regard the loss of several lives in a single accident as being markedly worse than the loss of the same number of lives in separate accidents. In addition, according to evidence presented to the Inquiry by Professor Andrew Evans, the sort of level at which the VPF would need to be set in order to justify the installation of the Train Protection and Warning System (TPWS) is even higher (though this has already been undertaken by Network Rail following the recommendations of the Cullen-Uff Inquiry)<sup>56</sup>.
87. The application of a differential valuation of safety on the two main modes of surface transport in the UK would imply a potentially serious misallocation of resources. Fortunately, as noted above, following widespread criticism of the differential valuation, since 2003 the rail industry and the Rail Safety and Standards Board (RSSB) in particular have now abandoned the use of the two distinct VPFs and have instead elected to apply a common baseline VPF equal to the Department for Transport roads figure. For example, in its recent document, *Valuing Safety*, the RSSB notes that:

“The term ‘gross disproportion’ was used by some people in the past to describe the concept of using a higher VPF for multi-fatality accidents. We can see no justification, either in the

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<sup>56</sup> Evidence from A. Evans (Vol II, pp 130–143)

Edwards judgement or in the balancing approach of risk against sacrifice, for this interpretation”<sup>57</sup>.

88. **We welcome this move towards uniformity of treatment of road and rail safety and we would encourage agencies working in other relevant areas, such as the Department of Health, the NHS and NICE, to follow in the same direction.**
89. A second source of inconsistency—again pointed out by Professor Evans—relates to the values of safety that are implied by the actual levels of expenditure on road safety undertaken in particular by local authorities and subject ultimately to their budget constraints. Thus, Professor Evans noted that in 1997 the Department for Environment, Transport and the Regions (DETR) stated that:
- “The Department has monitored the introduction of recent local safety schemes and this is one of the few areas where expenditure is underpinned by a considerable amount of knowledge about costs and benefits. Clear benefits can be shown, with the first-year rate of return of these schemes typically in excess of 150%”.
- Professor Evans commented that:
- “Such returns imply that, even if the average project produced benefits over a period of only six or seven years, the value of the accident savings would be 10 times the cost”<sup>58</sup>.
90. This suggests that, based on the DfT willingness-to-pay VPF, local authority road expenditure budget constraints are binding well before the level of expenditure justified by cost-benefit analysis can be reached.
91. Turning to centrally-funded expenditure on road safety, while the DfT has set targets for road safety improvement which involve, *inter alia*, a reduction in the number of road fatalities by 40% by 2010<sup>59</sup>, there are indications that expenditure on trunk road safety may, like local authority expenditure, fall short of the level that would be justified on pure cost-benefit grounds. In practice, it is difficult to extract information concerning the rate of return on centrally-funded trunk road safety expenditure *per se* (since safety expenditure and benefits constitute only a relatively small fraction of the overall cost and benefit figures concerned, and are also to some degree inextricable from the overall figures). However, according to the Highways Agency<sup>60</sup>, overall trunk road investment benefit-cost ratios are in the region of 3:1. If a similar benefit-cost ratio applies in the case of safety expenditure, it would indicate a potential shortfall in road safety expenditure.
92. Overall, there are encouraging signs that the decision-making procedures employed in road and rail safety expenditure planning are now generally well-founded, from both a conceptual and practical point of view, and that the decision-making agencies concerned are moving in the direction of consistency of application between the two modes of transport. However, the evidence also indicates that the actual levels of expenditure undertaken on

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<sup>57</sup> Valuing Safety, RSSB, 2006

<sup>58</sup> Evidence from A. Evans (Vol II, pp 130–143)

<sup>59</sup> Tomorrow’s Roads—Safer for Everyone, Department for Transport, 2000

<sup>60</sup> New Deal for Trunk Roads in England: Understanding the new approach to appraisals, Highways Agency, 1998

road and rail safety differ substantially in the extent to which they actually reach the “ideal” levels implied by the planning procedures concerned. Thus, while even on the least demanding interpretation of the HSE’s “gross disproportion” prescription, the rail industry is required to undertake all safety improvements for which benefits, appropriately defined, exceed costs, there is clear evidence that local and central government budget constraints impose a cut-off on road safety expenditure well before all safety projects for which benefits exceed costs have been undertaken.

93. **It appears that project appraisal procedures used in rail safety decision-making are now broadly consistent with those applied to road safety. However, the evidence suggests that government, in particular local government, expenditure on road safety still falls short of the level that would be justified by current safety project appraisal procedures. There is, therefore, still a need for government to ensure that road safety expenditure is set at an appropriate level, consistent with expenditures on rail safety.**

## CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

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94. The evidence presented to the Committee clearly indicates that risk policy is taken seriously and the view from within government is that, while there is always room for improvement, the current guidelines are appropriate and the framework of risk management in the UK now compares favourably with the best practices found in the rest of the world. We are, however, concerned that the assessment and incentive system for civil servants may effectively emphasise the adverse impact of failure rather than the gains from success and may consequently induce a culture of risk-aversion among those responsible for the formulation and implementation of risk policy. This is something that the Government should be aware of when it attempts to identify the pressures that drive risk policy in particular directions. It also points to a possible need for greater awareness of the consequences of the assessment and incentive systems that operate in the public sector (paras 8, 23).
95. Cost-benefit analysis provides a useful framework for thinking about risk policy and we endorse the idea that it should occupy a central place in risk assessment procedures. At the same time, costs and benefits are often uncertain or difficult to measure and it is important to recognise the limitations of quantitative approaches to risk assessment (paras 14–19).
96. While recognising that issues relating to personal freedoms and civil liberties are properly and inevitably part of the political decision-making process, we are nevertheless concerned that such matters appear to be given little or no weight in assessments of the impact of legislation on risk. In our view, more attention should be paid to the trade-off between liberty and regulation in the formulation of risk policy and greater account should be taken of the specific and accumulated impact of legislation on personal freedoms. We therefore urge the Government to consider the introduction of a more formal procedure through which the potential impact of legislation on personal freedoms is considered (para 29).
97. The evidence we received points to the conclusion that public attitudes to risk are difficult to measure, and we could find no clear evidence to justify the widely-held view that the public are excessively risk-averse or that Britain has become an increasingly risk-averse society. We are also sceptical about whether risk aversion can be measured in a way that would allow such a view to be substantiated (paras 31, 32).
98. Although we share concerns about the potential impact of inaccurate media reports, in practice there is little government can or should do to change the way that the media report risk-related stories, other than to encourage balance and proportionality in the reporting of statistics and scientific research. Beyond that, the most important thing government can do is to ensure that its own policy decisions are soundly based on available evidence and not unduly influenced by transitory or exaggerated opinions, whether formed by the media or vested interests (para 34).
99. The evidence we took suggests that the Government has at times given insufficient weight to available evidence and placed too great a reliance on unsubstantiated reports that often have their origin in the media. In view of this, it is important that the Government ensures that its own handling of information and statistics is beyond reproach. We would also like to see

greater use of the Press Complaints Commission by interested parties, including the Government, who feel that cases involving risks to the public have been mis-reported or mis-represented (para 35, 37).

100. The debate over the so-called compensation culture is an example of a situation in which the use of evidence has sometimes been insufficiently rigorous. We were not able to elicit any convincing evidence about the extent to which perceptions of a compensation culture have pushed policy in a risk-averse direction. Our witnesses were clear in stating that their judgements on this matter were based on anecdotal reports, often derived from the media. A sound basis for the formulation of policy requires a more thorough and responsible assessment of evidence before changes in policy are introduced (para 44).
101. In our view, the use of ill-defined and ambiguous terms in risk-management and regulatory documents is generally unhelpful. There is a danger that they can induce an excessively cautious attitude to risk. We recommend that terms such as ALARP, Gross Disproportion and the Precautionary Principle should be more clearly defined or replaced with more specific and unambiguous requirements and concepts (para 73).
102. The evidence we took on passive smoking leads us to doubt whether government guidelines on risk management have been properly implemented. In particular, the purpose of legislation should have been defined more clearly and greater attention should have been given to available scientific evidence, the relative merits of alternative policy options and the impact of legislation on personal freedom and choice. Failure to consider these matters properly has resulted in the introduction of a policy that appears to demonstrate a disproportionate response to the problem. Lessons learned from the progress of this legislation should be used to ensure that future policy responses are transparent, evidence-based, and proportionate (para 84).
103. There has been a significant move towards uniformity in the treatment of road and rail safety and we would encourage agencies working in other relevant areas, such as the Department of Health, the NHS and NICE, to follow in the same direction. However, the evidence suggests that road safety expenditure is below the level that would be justified by current safety project appraisal procedures and government action is needed to ensure that transport safety expenditures are consistent between road and rail (paras 88, 93).



## APPENDIX 1: ECONOMIC AFFAIRS COMMITTEE

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The members of the Select Committee which conducted this inquiry were:

Lord Kingsdown  
 Lord Lamont of Lerwick  
 Lord Lawson of Blaby  
 Lord Layard  
 Lord Macdonald of Tradeston  
 Lord Paul  
 Lord Powell of Bayswater  
 Lord Roper  
 Lord Sheldon  
 Lord Sheppard of Didgemere  
 Lord Skidelsky  
 Lord Vallance of Tummel  
 Lord Wakeham

Professor Michael Jones-Lee, Professor of Economics, Newcastle University, and Professor Graham Loomes, Professor of Economic Behaviour and Decision Theory, University of East Anglia, were the Committee's Specialist Advisers.

### Declaration of Interests

Lord Kingsdown

*38 acres of woodland in North Kent*  
*President, Canterbury Cathedral Trust*  
*Chairman, Canterbury Cathedral Council*  
*Trustee, Leeds Castle, Maidstone, Kent*  
*Honorary Trustee, Royal Agricultural Society of England*  
*Trustee, East Malling Trust for Horticultural Research*  
*Emeritus Trustee, Royal Academy of Arts*  
*Honorary Fellow Trustee, Trinity College, Oxford*

Lord Lamont of Lerwick

*Consultant to The Consensus Group (formerly Rotch Property)*  
*Consultant, Fintrade*  
*Stanley Leisure plc*  
*Consultant to Uniastrum Bank*  
*Chairman, Advisory Board of Uniastrum*  
*Chairman, Small Companies Dividend Trust*  
*Director, Balli Group plc (steel and commodity trading house)*  
*Director, Compagnie Internationale de Participations Bancaires et Financieres (Investment Company)*  
*Director, European Growth and Income Trust (Investment Trust)*  
*Director, Jupiter Finance and Income Trust (Investment Trust)*  
*Director, Scottish Re (Reinsurance Company)*  
*Director, RAB Capital plc*  
*Member of the Advisory Board, MerchantBridge & Co*  
*Member of the Advisory Board of Unistream*  
*Secretary and office at Balli plc (steel and commodity tradinghouse)*  
*(Secretary primarily business and personal but some parliamentary work)*  
*Chairman, Le Cercle*  
*Chairman, British Iranian Chamber of Commerce*  
*President, British Romanian Chamber of Commerce*

*Vice-President, Bruges Group*

*Hon. Chairman of the International Association of Money Transfer Networks*

Lord Lawson of Blaby

*Chairman, Central Europe Trust Co Ltd (Advisory and private equity)*

*Chairman, Oxford Investment*

*Shareholding in Central Europe Trust Company Limited*

Lord Layard

*Non-executive Director, Firebird New Russia Fund Ltd*

*Programme Director, Centre for Economic Performance, London School of Economics*

Lord Macdonald of Tradeston

*Senior Adviser, Macquarie Bank Ltd*

*Member, Fabian Society*

Lord Paul

*Chairman and Director, Caparo Group Ltd*

*Board Member, London Development Agency*

*Visit to Scotland (16–17 June 2004) to view various power facilities as a delegate with the Parliamentary Group for Energy Studies*

*Caparo Group Ltd (Lord Paul, Hon. Ambar Paul, Hon. Akash Paul and Hon. Angad Paul are jointly interested in the whole of the issued share capital of the Company through shareholdings registered in the name of Caparo International Corporation, a Company registered in the British Virgin Islands)*

*Caparo Group, through its subsidiary Caparo plc, has a 35.5% interest in Core Growth Capital LLP, which manages two venture capital trusts, Core VCTI and Core VCTII plc*

*Chancellor of the University of Wolverhampton*

*Chancellor of the University of Westminster*

*Member of the Corporation of the Hall of Arts and Sciences*

*Advisory Board Member, Foreign Policy Centre Advisory Council*

*Director, Parliamentary Broadcasting Unit Limited*

*Visiting Professor, School of Management, University of Surrey (to 31.8.08)*

*Chairman of the Olympic Delivery Committee (a sub group of the London Development Agency)*

*Vice President, Engineering Employers' Federation*

*Co-Chairman, Associated Parliamentary Manufacturing Industry Group*

*Chairman of the Board of PiggyBankKids (a children's charity) and its trading subsidiary PiggyBankKids Projects Limited*

*Trustee and Chairman, Ambika Paul Foundation*

*Trustee, PiggyBankKids*

*Patron, Plan International*

*Patron, UK Youth*

*Member, Cricket Foundation 'A Chance to Shine' Appeal*

*Member, Zoological Society of London, Development Advisory Committee*

Lord Powell of Bayswater

*Adviser to Eastern Star Publications*

*Adviser to the Chairman of BAe Systems*

*Chairman, LVMH (Moët-Hennessy Louis Vuitton) UK*

*Chairman, Safinvest Limited*

*Chairman, Magna Holdings*

*Director, British Mediterranean Airways*

*Director, Caterpillar Inc*

*Director, Financière Agache*  
*Director, LVMH (Moët-Hennessy Louis Vuitton)*  
*Director, Mandarin Oriental Hotel Group*  
*Director, Matheson & Co*  
*Director, Textron Corporation*  
*Director, Yell Group Limited*  
*Director, Schindler Holdings, Switzerland*  
*Director, Northern Trust Global Services*  
*Member, Barrick Gold International Advisory Board*  
*Member, Diligence Advisory Board*  
*Chairman, GEMS Private Equity Fund Advisory Board*  
*Member, Rolls-Royce European Strategy Board*  
*Member, Textron International Advisory Council*  
*Chairman, Wingate Capital International Advisory Board*  
*Member, International Advisory Board of Magna Corporation*  
*Member, the Advisory Board of the European Advisory Group GMBH*  
*Member, Advisory Board of Thales UK*  
*Member, Advisory Board of Alfa Capital*  
*Chairman, Trustees of the Said Business School Foundation, Oxford University*  
*Trustee, Aspen Institute (USA)*  
*Trustee, British Museum*  
*Chairman, Atlantic Partnership*  
*Director, Singapore Millennium Foundation*  
*Director, UK-China Forum*  
*President, China-Britain Business Council*  
*Member, Council of the International Institute for Strategic Studies*  
*Trustee, Karim Rida Said Foundation*

#### Lord Roper

*Visit to Kotor, Montenegro (22–24 November 2003) as a guest of the Transfuse Association, Berlin*  
*Visit to Flanders (October 2004) with the all-party War Graves and Battlefields Heritage Group; all expenses met by Thales plc*  
*Member of “The Liberal Democrat Friends of India” delegation as guests of the Indian Government visiting Delhi, Kashmir and Bangalore to examine political, cultural and technical aspects of the Indian sub-continent (September/October 2005). Travel and subsistence paid by Government of India (15 November 2005)*  
*Hon. Professor, University of Birmingham*  
*Member of Finance Committee, Royal Institute of International Affairs*  
*Vice President, Manchester Statistical Society*  
*Council of Christian Approaches to Defence and Disarmament*  
*International Institute for Strategic Studies*  
*Royal United Services Institute*

#### Lord Sheldon

*Tonrose Ltd (textile distribution)*  
*Trustee, Sheldon Group Pension Fund*

#### Lord Sheppard of Didgemere

*Didgemere Consultants Ltd*  
*Non-executive Chairman, McBride plc (household and personal care products)*

*Non-executive Chairman, Unipart Group (automotive, rail, telecommunication, logistics etc)*  
*Non-executive Director, One-Click HR plc (HR software etc)*  
*Non-executive Director, Nyne Ltd (investor group) (currently not directly remunerated)*  
*Non-executive Director, Global Tote Ltd (betting services to Russia, etc)*  
*Non-executive Chairman, Namibian Resources Ltd (Diamond Mining)*  
*Didgemere Consultants Ltd (business Advisory service)*  
*Didgemere Farms Ltd (farming)*  
*McBride plc (household and personal care products)*  
*One-Click HR plc (human resources management systems)*  
*DeltaDot Limited (an unquoted biotechnology and bioinformatics)*  
*Namibian Resources plc*  
*Global Tote Ltd*  
*Farmland in Essex*  
*Chancellor, Middlesex University*  
*Hon. Fellow, Governor, London School of Economics*  
*President, London First*  
*Director, East London Business Alliance*  
*Director, Central London Partnership*  
*Director, London Business Board (London First/London Chamber/London CBI)*  
*Vice President, Beer and Pub Association (formerly Brewers Society)*  
*Member of the Various Professional Bodies (accountants etc)*  
*Hon. Doctorate/Hon Fellow of various universities*  
*Member, Protection of Roydon and Area (PORA) Committee*  
*Vice President (formerly Appeal Chairman for ‘Sheppard House’) of Blue Cross (animal/peoples charity for pets of those unable—for reasons of health, etc—to pay vet fees)*  
*Vice President United Response (charity for people with learning difficulties)*  
*Fellow, Animal Health Trust*  
*Member, UK Cancer Research Charity*  
*Vice President, (past Chairman) Business in the Community*  
*Past Chairman, The Prince’s Trust (and Prince’s Youth Business Trust) (now only infrequently involved)*  
*Chairman of Trustees, Civilians Remembered Trust (Trust developing memorial park, etc for 60,000-plus civilians killed by bombing in 1939–45 war)*  
*Patron of Trees for Cities*

#### Lord Skidelsky

*Non-executive Director, Janus Capital Group*  
*Chairman, Greater Europe Fund*  
*Director, Transnational Insights*  
*Consultant, Deutsche Bank*  
*Professor of Political Economy, Warwick University, Department of Economics*  
*Transnational Insights Ltd (100% of stock)*  
*Chairman, Governing Body, Brighton College*  
*Member, Advisory Council, Wilton Park*  
*Chairman, The Centre for Global Studies*  
*Director, Moscow School of Political Studies*

**Lord Vallance of Tummel**

*Member, Supervisory Board Siemens AG (engineering and services)*  
*Director (Chairman), Nations Healthcare Ltd*  
*Director (Chairman) Amsphere Ltd (computing services)*  
*International Advisory Board, Allianz AG (insurance)*  
*European Advisory Council, Rothschild et cie (investment banking)*  
*425,000 shares in De Facto 479 Ltd (family owned investment company)*  
*Wife is a member of the Committee on Standards in Public Life*  
*Honorary Governor, Glasgow Academy*  
*Honorary Fellow, Brasenose College, Oxford*  
*Honorary Fellow, London Business School*  
*Chairman, European Services Forum*  
*Vice President, Princess Royal Trust for Carers*

**Lord Wakeham**

*Advisory Board, LEK Consultancy*  
*Chairman, Genner Holdings plc*  
*Genner Holdings Ltd (Investment Company)*  
*Genner Farms Ltd (small family company)*  
*Chairman of Governors, Cothill House*  
*Chairman, Alexandra Rose Day*  
*Chancellor, Brunel University*  
*Deputy Lieutenant for Hampshire*  
*Governor, Sutton's Hospital, Charterhouse*  
*Justice of the Peace, Inner London Commission (Non-active)*  
*President, Brendoncare Foundation*  
*Convenor of the Lords and Commons Cigar and Pipe Smokers' Club*  
*Trustee, H.M.S. Warrior 1860*  
*Trustee, Carlton Club*

## APPENDIX 2: LIST OF WITNESSES

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The following witnesses gave evidence. Those marked \* gave oral evidence.

- \* Association of British Insurers: Mr Nick Starling and Mr Justin Jacobs  
Association of Train Operating Companies  
Birmingham City Council
- \* Professor John Broome, Oxford University  
Confederation of British Industry (CBI)
- \* Cabinet Office: Mr Howell James, Permanent Secretary, Government Communications; Mr Anthony Zacharzewski, Better Regulation Executive; and Mr Roger Hargreaves, Deputy Director of the Civil Contingencies Secretariat  
Department for Culture, Media and Sport  
Department for Education and Skills  
Department for Environment, Food and Rural Affairs
- \* Department of Health: Caroline Flint, MP, Parliamentary Under Secretary of State for Public Health; Mr Gerald Hetherington, Head of Health Protection Division; Dr Bill Kirkup, Acting Deputy Chief Medical Officer  
Department for Transport
- \* Professor Andrew Evans, Imperial College London
- \* The Rt Hon Lord Falconer of Thoroton QC, Lord Chancellor and Secretary of State for Constitutional Affairs  
Food Standards Agency  
Mr Charles Hancock, Loughborough University
- \* Health and Safety Commission and the Health and Safety Executive: Mr Bill Callaghan and Mr Geoffrey Podger  
The Home Office  
Imperial Tobacco Group Plc  
International Risk Governance Council
- \* Mr John Kay  
Living Streets  
Local Government Authority  
Professor Ragnar Lofstedt and Dr Robyn Fairman, King's Centre for Risk Management  
London Play  
Professor John Maule, Leeds University Business School  
Medical Protection Society  
National Institute for Clinical Excellence (NICE)  
Office of the Deputy Prime Minister (ODPM)  
Parliamentary Advisory Council for Transport Safety

- ★ Professor Sir Richard Peto, Oxford University  
Play Safety Forum  
Press Complaints Commission
- ★ Rail Safety and Standards Board: Mr Aidan Nelson, Director, Policy and Strategic Initiatives; Mrs Shamit Gaiger, Acting Head of Safety Policy; and Mr Andrew Sharpe, Head of Research and Development  
Royal Academy of Engineering  
Society of Editors  
Professor Peter Taylor-Gooby, University of Kent  
Tobacco Manufacturers' Association
- ★ HM Treasury: The Rt Hon Des Browne, MP, Chief Secretary; Sir Brian Bender, Permanent Secretary, Department for Trade and Industry; and Mr Brian Glicksman, Treasury Officer of Accounts  
Mr Rob Wheway

**APPENDIX 3: GLOSSARY**

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ALARP	As low as reasonably practicable
CBA	Cost-benefit analysis
CBI	Confederation of British Industry
CEA	Cost-effectiveness analysis
DCA	Department for Constitutional Affairs
DEFRA	Department for Environment, Food and Rural Affairs
DETR	Department for Environment, Transport and the Regions
DfES	Department for Education and Skills
DfT	Department for Transport
ETS	Environmental Tobacco Smoke
HSE	Health and Safety Executive
MMR	Measles, mumps, rubella (vaccine)
NHS	National Health Service
NICE	National Institute for Clinical Excellence
QALY	Quality adjusted life year
RSSB	Rail Safety and Standards Board
TPWS	Train protection and warning system
UNCED	United Nations Conference on the Environment and Development
VPF	Value of preventing a statistical fatality
VPI	Value of preventing a non-fatal injury
WTP	Willingness-to-pay