Government Response to the Royal Commission on Environmental Pollution's Twenty-First Report

Setting Environmental Standards

July 2000

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Presented to Parliament by the Deputy Prime Minister and Secretary of State for the Environment, Transport and the Regions by Command of Her Majesty
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INTRODUCTION

1. The Government is grateful to the Royal Commission for their report, on issues which are of clear concern to the public as well as to policy-makers.

2. To achieve sustainable development, we need to find ways to achieve economic, social and environmental objectives at the same time. Processes for setting environmental standards must recognise that challenge.

3. This means that such processes have to take account of social, economic and environmental factors, priorities and risks, scientific evidence and public values. They need to consider how standards are delivered as well as what the standards should be. And they must recognise the importance of good communication - not simply to provide information on the standards that exist, but to enable all those with an interest to influence the ways in which standards are set.

4. This is a wide-ranging and evolving area of policy. There is much in the Royal Commission's report to help development of thinking and promotion of good practice. As the Royal Commission point out, their analysis and conclusions are of interest both within and outside the UK. Their relevance extends beyond national governments, and applies to policies other than environmental protection.

5. Many of the Commission's conclusions are reflected in the UK Government's own efforts to improve policy making across the board. Through its Modernising Government initiative, it is putting a new emphasis on evidence-based policy making, and on thinking broadly about the desired outcomes of policy and how best to achieve these. It is particularly concerned to improve the analysis and communication of risk.

6. The Government has already put such ideas into practice, taking account of the Royal Commission's report, in difficult areas such as genetically modified organisms (GMOs) - discussed in more detail in the body of this response. Links between environmental policy and other aspects of sustainable development, such as health, are increasingly recognised. New approaches are being developed by the Environment Agency and the Health and Safety Executive.

7. This response summarises action being taken and proposed, and relates it to the Commission's conclusions. Its structure is based on the groups of conclusions in Chapter 9 of the report, rather than being a point-by-point
response. This allows action to be described coherently, but maintains the link with the conclusions.

8. The subject matter of the Royal Commission's report inevitably means that it ranges widely, into many complex issues. This response does not attempt to set out everything that is happening that might be relevant to those issues. Instead, the Government has sought to respond to the key themes identified by the Royal Commission, and to summarise and cross-reference to relevant work, rather than repeat it. Where the report makes specific recommendations for action by Government, these are addressed.

II THE SIGNIFICANCE OF ENVIRONMENTAL STANDARDS

9. In the opening chapter of the report, the Royal Commission set the scene by commenting on the way environmental standards have developed. In particular, they draw attention to the following:

9.1 The nature of environmental concerns has changed significantly in terms of the objectives of policy, the time-scales considered, the geographical scales considered, and the kinds of environmental modification that are addressed. These changes have implications for the way environmental standards are used and set. They also have implications for the types of evidence, in particular the types of scientific evidence, required to support decisions on policies and standards.

9.2 Environmental standards take diverse forms. They include not only numerical and legally enforceable limits, but standards which are not mandatory but contained in guidelines, codes of practice or sets of criteria for deciding individual cases; and standards not set by government which carry authority for other reasons, especially the scientific eminence or market power of those who set them.

9.3 Standards are a crucial element in the environmental policy process. Numerical standards have come to play a central position in a much expanded system of environmental regulation.

9.4 Other key changes in the policy process over the last 30 years have been:

(a) environmental policies and standards that apply in the UK are now determined predominantly on a European scale;

(b) there has also been a great growth in the number and importance of international conventions relating to the environment, at both global and regional scale;
(c) formal techniques have been used increasingly to aid decision making;

(d) the influence of environmental non-governmental organisations (NGOs) has grown.

10. The Government recognises that the issues identified by the Royal Commission are increasingly important in the development of environmental policy. This section of the response comments briefly on some of these points, and on other aspects of the Government’s approach to environmental standard-setting.

11. The Government is committed to sustainable development as the basis of all environmental standards. The Government’s Sustainable Development Strategy, A better quality of life, was published in May 1999. As part of the preparation of the Strategy, the Government took full account of the Royal Commission’s recent work, including the standards study.

12. The Strategy defines sustainable development as ‘ensuring a better quality of life for everyone, now and for generations to come’. It sets out four objectives which form the basis of the Government’s approach to sustainable development and which need to be met at the same time, in the UK and the world as a whole, if sustainable development is to be achieved:

- social progress which recognises the needs of everyone;
- effective protection of the environment;
- prudent use of natural resources;
- maintenance of high and stable levels of economic growth and employment.

13. The Strategy defines ten ‘principles and approaches’ which underpin sustainable development and which the Government’s policy-making will take into account. These include the precautionary principle – properly defined to include the notion of proportionality of response – the use of sound science, and the need to respect environmental limits.

14. The Strategy’s assessment of priorities relies heavily on around 150 real-world indicators of progress, including 15 ‘headline indicators’. A baseline assessment of these indicators is provided in Quality of Life Counts, published in December 1999. Because sustainable development involves meeting economic, social and environmental objectives simultaneously, the Strategy draws attention to the need for all the headline indicators to move in the right direction over time, or, where a satisfactory level has been reached, to prevent a reversal. Where a trend is unacceptable, the Government will adjust policies accordingly, and will look to others to join it in taking action. The Government intends to publish an annual report on progress towards
sustainable development, beginning this year, which will include an assessment of the headline indicators. It hopes that this annual report will be a basis for widespread discussion, in the media, in Parliament and among interested groups.

15. The Government believes that the need for integrated thinking, which is at the heart of sustainable development, will lead to better environmental standard-setting. As the Royal Commission points out, ‘there is much debate about the relative weight that should be placed on the different elements within the overall balance sustainable development is intended to achieve.’ Such debate will continue. But thinking in terms of sustainable development can help to define priorities, build consensus and identify opportunities for multiple benefits.

16. In the past, the risks of damage to the environment have too often been overlooked or given too little weight when pursuing economic and social policies. Thinking about the environmental consequences of decisions from the start is a key part of sustainable development. Where action is proposed specifically to protect the environment, however, it is equally important that the costs as well as the benefits should be considered. This is not just a matter of making trade-offs, but of ensuring that appropriate levels of protection are imposed: only rarely, for example, will it be necessary to cease completely production of a particular substance or use of a particular process in order to protect human health and biodiversity. Sustainable development means that standard-setting processes must consider social and economic consequences, as well as environmental impacts. At the same time, development of other policies and programmes must give full weight to environmental aspects of sustainable development. An integrated approach is essential. To achieve that, Departments and Agencies will increase their efforts to ensure that a coordinated approach is taken on environmental issues.

17. Sustainable development requires a long term perspective. Many environmental problems, notably climate change and the effects of persistent organic chemicals in the environment, are of a long term, global nature. Tackling them involves international co-operation in setting and implementing standards, and in researching problems.

18. Such an approach also places a premium on evidence and analysis, which in turn helps to determine environmental limits and safeguard environmental capital. In some cases, there are likely to be limits that should not be breached: the risk of serious or irreversible damage to aspects of the environment or resources would pose a severe threat to global society. Because it is usually difficult to define such limits with certainty, precautionary action may well be justified. Environmental standard setting cannot aim to protect every bit of the environment for ever. But the Government aims to prevent further overall deterioration, and to secure
enhancements that contribute to an overall improvement in quality of life. Environmental capital techniques, which help us understand which aspects of the environment are important, and why, can be useful aids to some types of environmental decision making.

19. **Involving stakeholders** is also important. The Royal Commission highlights the increasing influence of environmental non-government organisations (NGOs) and the Government welcomes the constructive contribution they often make. But there are many other stakeholders who have an interest in environmental standards: businesses, local authorities, voluntary groups and, not least, the wider public. It is essential to take account of the views of all these groups, not just those who shout loudest. That means new kinds of consultation; and capacity-building to enable the widest possible participation.

20. There can be no neat separation between standard setting and broader policy considerations. So, local decisions on river quality standards will increasingly take account - through processes such as local Environment Agency plans (LEAPs) - of other sustainable development objectives of local communities. National programmes on water quality standards need to take into account impacts on industry as well as social factors such as the willingness and ability of consumers to pay for higher standards. Processes for standard setting have to recognise such wider issues.

21. In launching its report, the Royal Commission said that a new approach was needed such that 'as well as drawing on rigorous and dispassionate analysis, there must be a greater sensitivity to people's values. It must recognise that scientific assessments, and analyses of technology, economics and risk, must inform policy decisions, but cannot pre-empt them. Setting a standard or target is not only a scientific or technical matter, but also a practical judgement which has to be made in the light of all the relevant factors. People's values must be taken into account from the earliest stages of defining the problem and framing the questions that need to be addressed'. The Government fully endorses this conclusion.

22. The report notes that, in some circumstances, people's values can evolve under the challenge of scientific assessments, other relevant information, and competing priorities. That is of course true, and it is important that scientific assessments should be explained as clearly as possible so that the public can understand what is being said. But this does not mean a presumption that, once they understand the science, people's values will change. For example, it is perfectly justifiable for the public to give different weightings to different kinds of risk, depending how they arise. Indeed, it is also important for science to understand how its own values affect what it does.
23. We should also avoid the temptation to regard "the public" as a single, homogenous entity. Different people have different values, and different attitudes to environmental risks. And of course environmental issues have differential impacts. We need particularly to be aware of the possibility that environmental degradation will cause most damage to those who are disadvantaged and socially excluded – especially as these are the very groups who are least likely to become involved in participatory structures.

24. Decisions affecting the environment are taken at different levels, ranging from global to local. Different decisions involve different stakeholders, with different sets of values. The nature and severity of the risk to the environment, and the degree of uncertainty surrounding those risks, will vary. This means that there cannot be a single approach to involving stakeholders: the specific circumstances should influence the process adopted.

25. In July 1999, the Office of Science and Technology published a short discussion paper on *Strengthening decision-making for sustainable development*. This was based on a workshop organised jointly by the Foresight Programme’s Natural Resources and Environment Panel and the Economic and Social Research Council’s Global Environmental Change Programme. The workshop noted that, “in reaching almost any decision, a mixture of deliberation involving stakeholder groups and formal environmental assessment will be required” and that “decision makers’ lives would be simpler if consistent, repeatable decisions could be made based on standard assessment techniques……but we need to be sensitive to differences between societies and places”. There will not necessarily be a single, ‘right’ decision. But common understanding can allow us to judge whether we are progressing in broadly the ‘right’ direction. The Energy and Natural Environment Foresight Panel has set up a Task Force on environmental appraisal to take forward some of the ideas from that workshop. The Task Force will consider the future requirements of tools, techniques and processes which will help developers, regulators and planning authorities to take account of the environmental, economic and social consequences of their actions.

III PROCEDURES FOR SETTING STANDARDS

9.5 Environmental issues reach the agenda by diverse routes. The stages of recognising and defining the problem, framing the questions that need to be answered and formulating policy aims are all important. They need to be informed, not only by evaluations of the effectiveness of existing policies, but by the articulation of people’s values.

9.6 After a problem has been recognised and defined, and policy aims are formulated, the stages in the policy process are:
rigorous and dispassionate investigation and analysis;
deliberation and synthesis, informed by people’s values;
the decision whether to set a standard, and if so what type of
standard;
specifying the content of a standard; and
monitoring and evaluating its effectiveness

9.7 Better ways need to be developed for articulating people’s values
and taking them into account from the earliest stage in what have
been hitherto relatively technocratic procedures.

9.8 The analytical stage of the policy process has several
complementary and closely inter-related components:

scientific assessment;
analysis of technological options;
assessment of risk and uncertainty;
economic appraisal; and

analysis of implementation issues, including the geographical scope
of standards.

Conceptually, this approach would apply to any kind of
environmental policy or standard but the nature of a particular
environmental problem will determine the resources which should
be devoted to each type of analysis in practice.

9.9 The presentation to decision makers of the results of the analyses
referred to above should clearly state the assumptions and
limitations of each analysis. It will usually be necessary to offer
several options and their implications, so far as these can be
gauged.

26. Setting standards, like many Government decisions, can involve complex
choices between alternatives for which information is often imperfect. The
proper appraisal of choices, whether for policies, projects or programmes, falls
within the overarching framework of HM Treasury’s “Green Book” –
_Appraisal and Evaluation in Central Government_ – and guidance from the
Regulatory Impact Unit of the Cabinet Office. A range of guidance also
exists on specialised techniques within this broad decision framework, such as
risk assessment and environmental appraisal. Such techniques are often
complementary, and their relevance and use frequently depend on the context of a specific decision.

27. Values have to play a part not only in the synthesis, but also - as the Commission recognise - in deciding what constitutes a 'problem', and in framing the questions for analysis. The Government agrees that better ways need to be found to articulate people's values. As part of the Modernising Government agenda it has established a People's Panel to give one indication of the way individuals perceive certain issues. As part of the reform of the regulatory system for genetically modified organisms the Government is setting up an Agriculture and Environment Biotechnology Commission which will consider not only scientific but also ethical and social questions raised by genetically-modified organisms.

28. The Royal Commission report notes that most environmental standards in the UK derive from measures set for the European Union as a whole. The European Commission has sole right of initiative in proposing EU legislation, and most EU environmental legislation is decided by Qualified Majority Voting. This inevitably means that the standards adopted reflect a range of approaches and traditions.

9.10 Any body involved in setting standards should, in all its pronouncements, draw an explicit distinction between scientific statements and recommendations it wishes to make after considering a scientific assessment in conjunction with other facts; and should identify clearly what those other factors are.

9.11 Bodies setting standards ought to take into account the entire range of considerations we have identified as being relevant to such decision and this should be required by their terms of reference.

29. The Government agrees that bodies need to make clear where their recommendations are based on science alone and where they rely on other factors.

30. However, every body involved in standard setting does not need to take account of the entire range of considerations. Sometimes it is appropriate for single bodies to look solely at, for example, scientific questions. For example, the Department of Health and the Health and Safety Commission have a variety of advisory committees, which provide advice that takes account of different parts of the scientific advice/policy/risk management spectrum. Their terms of reference make it clear which considerations their advice rests on. An example is the area of air pollution, where the Department's Committee on Medical Effects of Air Pollutants (COMEAP) advises purely on health effects. The Expert Panel on Air Quality Standards (EPAQS) makes recommendations on air quality standards to the Government and devolved administrations. EPAQS draws on the work of COMEAP, together with an
additional consideration of information on ambient pollution concentrations and personal exposure, to recommend air quality standards that aim to protect human health. EPAQS standards explicitly do not take account of cost or technical feasibility. These aspects are taken into account in the drawing up of national objectives within the National Air Quality Strategy for England, Scotland, Wales and Northern Ireland.

31. What is important in each case is that the process is transparent and the terms of reference clear.

9.12 There should be an audit trail documenting all the considerations taken into account in reaching a decision and how they were taken into account.

9.14 Bodies setting environmental standards must operate in an open and transparent way. By ‘transparent’ we mean that there must be full publicity for their existence, their terms of reference, the decision they take and the reasons for them. By ‘open’ we mean that there must be adequate opportunities for those outside an institution, especially those with a particular interest in a given decision to contribute fully to the decision-making procedure.

9.15 All the analyses should also be subject to peer review and scrutiny.

9.16 It is important that global scientific bodies work transparently, and that their scientific assessments are subject to peer review and published, with the affiliations of the scientists involved made explicit.

32. The Government agrees that wherever possible there should be an audit trail of the sort described, though this may be difficult where standards are set within the EU or though international negotiations.

33. The Government fully accepts the need for transparency in environmental matters. We are enthusiastic supporters of the Aarhus Convention which increases citizens' access to environmental information. A transparent process does not mean, however, that all individuals or stakeholders will have equal opportunity to influence an outcome, because outcomes are constrained by factors such as terms of reference, parliamentary statute, international law and obligations and practicability. Bodies should be clear about both the possibilities and the limitations. However, the Government is convinced of the importance of introducing more openness into the regulatory process both by letting the public see how decisions are reached and also by consulting them about their concerns.

34. Peer review is a valuable part of the scientific process. However, it is not clear that formal peer review, involving specific requests to comment on scientific
work, would be appropriate or even possible for bodies setting standards where a broad range of expertise has already been brought together to attempt to reach a consensus view. What is important is that different approaches and viewpoints are represented on the body; that its deliberations and recommendations are open, as discussed above; and that the science on which the standards are based has been peer reviewed.

35. It may also be appropriate for bodies to have lay members. All Department of Health advisory committees have one or more lay members, one of whose roles is to question the process and make sure that the basis of decision-making is clear and takes their concerns into account.

9.13 All environmental standards should be reviewed at pre-set intervals or earlier if significant new evidence emerges or there is an unforeseen change in circumstances.

9.17 A body setting standards should be able to relate its decisions to decisions about other environmental risks within the geographic area it covers. A body setting standards should also have sufficient resources and continuity of existence to ensure that periodic review of standards is carried out, and that there is a fast reaction if new evidence emerges either about a new form of hazard or about the risks associated with a known hazard.

36. The Government accepts that, in many cases, there will be a need to review environmental standards. The objectives set in the Air Quality Strategy for England, Scotland, Wales and Northern Ireland, for example, are kept under review and will be updated at regular intervals. Standards relating to greenhouse gas emissions will be kept under review as our understanding of the science of climate change continues to develop.

37. The Commission suggest that this should be the case for all standards. The Government considers that such an approach would be unnecessarily burdensome and expensive. For example, it sees no merit in reviewing the decisions to phase out CFCs and HCFCs or to ban the use of lead in petrol. In the unlikely event that new scientific evidence emerged which suggested that these decisions had been unnecessary, the Government would of course review them.

38. As already noted, much of the UK’s environmental legislation, and the standards it contains, derive from European Union legislation. Many such measures contain review clauses and provisions for amending technical elements by committee rather than going through the full legislative process. The pace of change, however, is largely determined by the combination of the review provisions in the legislation itself, the resources available to the European Commission, and the pace of negotiations within the Council of Ministers and the European Parliament.
IV SCIENTIFIC UNDERSTANDING

9.18 In setting an environmental standard, the starting-point must be scientific understanding of the problem or potential problem under consideration.

9.19 Despite the great difficulties involved, determining dose-effect relationships for the effects of substances on the natural environment is an essential exercise if appropriate environmental policies are to be adopted. When environmental policies or standards are adopted, it should always be made clear in an explicit statement whether they are designed to protect the natural environment, human health, or both, and the degree or nature of protection they are intended to afford.

9.20 Use of any model of pollutant-effect relationships should be dependent on careful consideration of the way it represents understanding of the development of the specific toxic effect being considered.

9.21 All exposure models (indeed, all mathematical models used within scientific assessment) should be regarded with caution until they are properly validated.

9.22 A clear dividing line should be drawn between analysis of scientific evidence and consideration of social and ethical issues which are outside the scope of a scientific assessment.

9.23 In a scientific assessment of an environmental issue, there are bound to be limitations and uncertainties associated with the data at each stage. Standard setting and other decision-making procedures should recognise this. The requirement for sound science as the basis for environmental policy is not a requirement for absolute knowledge or certainty and should not be interpreted as such.

9.24 When considering the process of scientific assessment and its output, two separate issues need to be addressed. First, is the science well done, and are uncertainties and limitations in the data properly recognised? The answer to this question determines whether the assessment represents good science. Second, does the science provide a firm basis for policy decisions? The answer to this question determines how useful the assessment will be to the policy-maker, whether decisions will have to be taken in the face of uncertainty, and whether further studies (perhaps including experimental work) should be carried out.
9.25 Scientific assessments should indicate clearly where the boundaries of knowledge lie. To be helpful to policy-makers they should indicate clearly both what is known or considered to be indisputable and what is considered to be speculative.

9.26 Transparency should be the watchword in presenting assessments. It is essential that there should be a succinct narrative summary of the assessment covering the underlying scientific basis, uncertainties in the evidence and the rationale for any methods used to cope with variability and uncertainties (for example, any safety factors used) and the assumptions implicit in their use.

9.27 A scientific assessment should present the range of possible interpretations of the available evidence, or the range of scientific possibilities and options concerning a particular course of action, accompanied by acknowledgement of the assumptions and uncertainties implicit in the assessment. The outcome of a scientific assessment should not normally be presented as a single option or statement; an assessment yielding a single answer (especially a single number) may give a spurious impression of accuracy.

9.28 It is necessary to build review processes and the potential for revision into standard-setting procedures. Scientific knowledge can move rapidly and standards must be readily adjustable and regularly reviewed, so that new insights can be incorporated.

9.29 To prevent development of new understanding being restricted by established regulatory procedures, vested interests or small closed communities of experts, publicly funded programmes of environmental research should include provision for independent investigation and inquiry.

9.30 We welcome monitoring by the Office of Science and Technology (OST) of

(a) the extent to which Departments are modifying their procedures for using scientific advice in policy-making in response to the principles produced by the Chief Scientific Adviser;

(b) Departmental and agency procedures for early identification of issues for which scientific research or advice will be needed.

39. It is important that policy makers (including both Ministers and officials) and the public should understand the limitations of scientific knowledge in particular cases, and the uncertainties surrounding scientific advice. The Government therefore supports the need for these issues to be highlighted
when scientific assessments are being put forward, and for the process to be as transparent as possible.

40. The Government believes that ethical and social considerations need to be factored into the debate on scientific issues. That is why, for example, it is setting up two Commissions (the Human Genetic Commission and the Agriculture and Environment Biotechnology Commission) to form part of a new strategic advisory structure on biotechnology. The two new Commissions will work alongside the existing regulatory and advisory bodies, which will continue to consider detailed scientific evidence in relation to individual products or processes.

41. The Government welcomes the Royal Commission's support for the guidelines produced by the Chief Scientific Adviser (the 'May Guidelines'). The implementation of these is overseen by the Ministerial Science Group. Two annual reports on Departments' progress in implementing the Guidelines have been produced since they were published in 1997. A review of the Guidelines themselves has recently been undertaken, involving public consultation, to establish what, if any, changes are needed. The intention is to produce a revised version of the Guidelines in summer 2000.

42. The Health and Safety Executive (HSE) is leading a research project sponsored by eight Departments and Agencies to produce principles of good practice for securing expert scientific advice and incorporating the advice in policy. The principles and accompanying guidance will complement the May Guidelines, and will address issues such as the selection, remit and independence of scientific experts; avoidance of bias; characterisation and reporting of uncertainty; resolution of conflict and presentation of the advice.

V TECHNOLOGICAL OPTIONS

9.30 While environmental regulation has broadened from considering emissions to a single environmental medium to considering emissions to all media from a process, analysis of environmental performance has been extended even further to cover the whole material and energy supply chains associated with a product to service.

9.31 Taking account of life cycle considerations is the preferable way of managing the overall environmental impact of particular processes or particular industrial sectors because it directs attention to the points at which intervention to protect the environment will be most effective and efficient.

9.32 Policy guidance is needed on where the boundaries of life cycle assessments should be drawn.
To ensure that the full ranges of options and repercussions are considered, assessments of technological options carried out as inputs to decisions on environmental policies or standards should be on a life cycle basis.

Particular options should not be excluded from life cycle assessments on the ground that action required to implement them falls outside the responsibilities of the immediate regulator.

To the extent that regulation of industrial activities continues to use permits and forms of standard on lines similar to those used at present, their use should in future be informed by a life cycle perspective. If necessary, there should be changes in legislation so that the full potential for that can be realised.

Broadly based assessments of options on a life cycle basis must not be allowed to become an excuse for avoiding or delaying significant improvements available at particular stages in the cycle.

The Government believes that life cycle assessment (LCA) is a useful tool in developing environmental standards. As the Royal Commission note, it can help identify where intervention will be most effective, and ensure that all impacts of a process are properly taken into account. As such, it can contribute to better decision making.

Life cycle assessment can, in theory, be applied in several different contexts, and the Royal Commission’s report touches on several of these. For example, it could apply to consideration of:

- manufacturing and production processes
- manufactured products (taking account, for example, of the resource used in the product)
- the use of products ‘downstream’ in the economy (for example, how they are distributed, what they consume, or how they are disposed of);
- whole areas of activity and alternatives within them (for example, transport or tourism).

The scale and complexity of such assessments will vary according to circumstances. Carrying out a substantial life cycle analysis as part of routine processes of environmental regulation could be resource-intensive and burdensome. While sometimes it will be appropriate for decision-makers and regulators to identify and consider options outside their direct responsibilities, there are limits to this.
46. For example, one reason why the EU ecolabelling scheme has made such slow progress is the detail into which its life cycle analyses of products has gone – and the complex debate to which this has given rise. Some attempt to overcome this is being made in the revisions to the present EU ecolabelling Regulation, which try to simplify the assessment process. Research carried out for DETR shows that the more successful ecolabelling schemes around the world have taken a much more streamlined approach to identifying key environmental criteria.

47. Because the precise nature of a life cycle assessment will need to vary according to the circumstances, the Government does not propose to issue a single set of guidance on where the boundaries of life cycle assessments should lie. However, it is certainly interested in promoting awareness about life-cycle thinking and encouraging its use. For example, a new introductory guidance to the subject has been sponsored by DETR for publication under the Environmental Technology Best Practice Programme. The Environment Agency has developed a new software tool (WISARD) that applies the techniques of LCA to the assessment of waste management options. And the Government is actively using LCA techniques to investigate some of the more difficult environmental questions such as the relative environmental impacts of PVC and its alternatives.

48. The Government believes that some of the principles identified by the Royal Commission should have widespread application. For example, it is important not to exclude options from life cycle analysis on narrow grounds: so assessments of alternative materials or manufacturing processes for a product should take proper account of the knock-on effects which those options have in the “use” phase and the “end of life” phase of the product’s life cycle. Nor should life cycle analyses get in the way of practical improvements available now – for example, the problem of end-of-life vehicles may turn out to be small in the context of the total life cycle impact of road vehicles, but is a substantial issue in its own right and one where early practical action can be identified and taken.

9.35 The aim of assessments of technological options should be seen as widening the range of options considered, including those that involve technology or commercialisation forcing.

9.36 There should be scope for suppliers or users of improved technologies to stimulate tightening of standards.

49. The Government agrees that in some circumstances it may be appropriate to set environmental standards which involve technology or commercialisation forcing. For example, the Government’s Cleaner Vehicles Task Force report in 1999 produced wide-ranging recommendations aimed at reducing the environmental impacts of existing, new and future vehicles. The Task Force
also published a booklet on the environmental performance of most new petrol and diesel cars on sale in the UK, aimed at enabling buyers to make an informed choice. On a longer term basis, Foresight Vehicle, which was a recommendation of the first Foresight round, focuses on developing product and process technologies for use in mass-market vehicles of 2020 that are clean, efficient and sustainable. It has a growing network of over 350 organisations and comprises a research portfolio of over £65 million. It would be helpful if the Commission could give examples of other areas where they believe technology or commercialisation forcing would be appropriate.

50. The Government does not accept that suppliers of technology should be able directly to stimulate tightening of standards, since this would cut across the need to make standard setting as objective and disinterested as possible. However, within the framework of integrated pollution control, the development of new technologies does indirectly change standards through the concept of Best Available Technique. If an effective new technology becomes available and is not excessively costly it will be mandatory for regulated industries to use it.

9.40 The Environment Agencies must harness highly qualified staff.

51. The Government agrees with the Commission that environmental regulators must make use of highly qualified staff, to avoid, for example, over-conservative or over-optimistic regulation, or over-reliance on assessments of technological options made by regulated organisations. It also notes that the Commission did not suggest that the Environment Agency was failing in this regard.

52. The Government is aware that the Environment Agency has sought to develop a pool of highly qualified people, in particular through development of skills within the organisation. It undertakes assessments of competencies required for key regulatory posts and puts plans in place to deliver them. The Agency has also pulled together people with particular specialisms into National Centres, so that they can benefit from a 'critical mass' of experts.

53. The Agency has reinforced its expertise in areas which are important for wider, more inclusive approaches to standard setting, such as in economics and social science. It is also examining the need for greater in-house expertise in public health matters. The need for specialist staff in these areas will be one of the issues considered in the Financial Management and Policy Review of the Agency later in 2000.

54. The Environment Agency has taken over responsibility for drafting the guidance issued to local authorities by the Secretary of State under the Local Air Pollution Control (LAPC) system. The work will be undertaken by the Local Authority Unit, which was restaffed in 1999 with an environmental
health officer and an environmental scientist, both with considerable LAPC experience. Location of the Unit within the Agency will benefit cross-fertilisation of local authority and Agency expertise.

55. Responsibility for the Scottish Environment Protection Agency now falls to the Scottish Executive.

9.41 The very slow progress made with assessment of existing chemical substances has demonstrated the need for an entirely fresh approach. The current reviews provide a timely opportunity.

9.42 We consider that the criterion of comparison with the risk presented by other available substances should be introduced into all regulatory procedures for the marketing and use of chemicals, including those covering reactants and intermediates.

56. The slow progress of assessment of existing substances was one of the underlying reasons for the review of chemicals policy which the Deputy Prime Minister launched in 1997. Concern about progress was also a major factor in the review of European Community chemicals policy which was launched in June 1998, during the UK's Presidency of the European Union.

57. Following the UK review, the Government published its Chemicals Strategy in December 1999. The Strategy sets out policies for:

• the continued reduction of risks presented by chemicals to the environment and human health, while maintaining competitiveness of industry;

• the early phase-out of those chemicals identified as being of unacceptable risk to the environment and human health;

• making full information publicly available on environmental risks of chemicals.

58. The Strategy will build on a voluntary data gathering and hazard assessment initiative originating with the international chemicals industry, which aims to deliver 1,000 hazard assessments for high production volume (HPV) chemicals by 2004.

59. A new Chemicals Stakeholder Forum will be central to delivering the objectives of the Strategy. The Forum, to be established by Summer 2000, will bring together industry, environment groups and other stakeholders with an interest in chemicals issues. It will be an independent body, but will be supported by Government and underpinned by technical expertise available through the existing network of Government advisory committees. The
Forum will be very open in operation and full information about its activities will be made publicly available.

60. The Stakeholder Forum will advise on criteria for identifying chemicals of concern, i.e. those chemicals which are likely to cause serious or irreversible damage to the environment. These criteria will be applied to chemicals within the international industry programme and to other chemicals, including ones proposed by the Forum as being of potential concern. The criteria will take into account the key properties of persistence, bioaccumulation and toxicity.

61. Where a chemical meets the criteria for concern, the Forum will review a summary of available information and advise on risk management strategies proposed, where necessary, by industry. On the basis of the Forum's advice, the Government will assess the risk management strategies and seek to agree voluntary but binding agreements with industry to reduce risks. This should make progress on reducing risks from environmental exposure to chemicals possible much more quickly than through the lengthy process of formulating, negotiating and adopting European legislation.

62. The precautionary approach underpins the actions set out in the Strategy in the following ways:

- chemicals produced in high volumes which meet the criteria for concern (see above) will be subject to risk management strategies even if a full risk assessment has not yet been produced;

- risk reduction strategies in partnership with industry will be agreed without having to wait for lengthy legislative processes; and

- even where toxicity has not been proved, chemicals produced in high volumes which are persistent and bioaccumulative will be put forward for priority review.

63. As the Chemicals Strategy makes clear, the substitution of hazardous chemicals by safer alternatives should always be considered in risk reduction strategies. One of the Strategy's commitments is to develop indicators of environmental exposure to hazardous chemicals, including targets for reducing overall exposure of the environment.

64. Industry should be looking to reduce continuously the impacts of chemical production and use on the environment and on human health. This should include systematic replacement of the most hazardous chemicals by less hazardous ones. Where restrictions on the marketing and use of a chemical are introduced, we would certainly expect replacements to be less hazardous.
65. The review of EU legislation on chemicals is due to be concluded this Summer. The EU Environment Council last year called for the review to consider measures that

- provide an efficient and integrated design of the various legal instruments for chemicals;
- place the main responsibility on industry for generating and assessing data;
- adopt a more flexible approach to risk assessment with the aim of targeting; and
- establish risk management strategies for certain chemicals on the basis of their inherent properties.

66. The Government continues to make a full contribution to the development of the EU review and we believe that the Chemicals Strategy has made an important contribution.

VI RISK AND UNCERTAINTY

9.43 We see the assessment of risk and uncertainty dealing with two important components:

- looking at broader uncertainties about the current issue which extend beyond the available scientific evidence and considering a wider range of possibilities;
- where sufficient data are available, quantifying and analysing the risks associated with the issue under consideration.

The relative importance of these two aspects will vary according to the circumstances, and in any given case one of them may predominate.

9.44 Risk assessments prepared in support of decisions on environmental polices on standards should start with information about the nature of the hazard which the policy or standard seeks to address and the extent and quality of the evidence available for assessing the risks it poses. This part of the analysis should indicate whether the hazard is of a relatively well-understood type; if it is unfamiliar, an attempt should be made to identify the most nearly analogous hazards and the aspects which are not understood.

9.45 The limitations and uncertainties in any estimates of risk must always be made clear in ways which are meaningful to people without particular specialist knowledge.
9.46 Risk assessments should identify the uncertainties which have the largest implications for actions that would need to be taken to reduce or resolve them. However, it would be inappropriate and misleading to attempt to incorporate into risk assessments estimated probabilities for the correctness of particular scientific theories or interpretations.

9.47 Whatever action is taken in the name of precaution (from the use of worst-case scenarios and safety factors in assessments through to application of the precautionary principle in decision making) should be transparent and subject to review in the light of development of understanding. Relevant data should be collected and reviewed on a continuous basis; and if a standard has been set, it should be revised up or down as necessary.

9.48 If there are sufficient data, and sufficient knowledge of the underlying processes, quantitative risk assessments should cover not only risk of human deaths but risks of other harmful outcomes. For each estimate the assumptions should be made explicit and clearly stated.

9.49 No satisfactory way has been devised of measuring risk to the natural environment, even in principle, let alone defining what scale of risk should be regarded as tolerable.

9.50 As well as distinguishing between different types of effect from a hazard, risk assessments should also:

(a) indicate the distribution of risks (whether they are especially high for people in certain localities, age groups, or occupations, or people with certain medical conditions or genetic predispositions);

(b) characterise as far as possible the respective perceptions of the risks held by relevant groups, the meanings the risks will have for them, and their views about the tolerability of the risks.

Quantitative information on these points should be provided where it is available, otherwise qualitative assessments should be given.

9.51 For risks of the same general type, and where data are available and the processes sufficiently understood, direct comparison between options may be useful in informing decisions, for example:

(a) between the risks from the hazard being addressed and other risks of the same general type affecting the same group of people or
compartment of the environment, so that estimates can be made of the total risk of that type to which these will be subject;

(b) between the risks from the hazard being addressed and the risks from different sources or pathways for the same pollutant or different pollutants from the same source, in order to identify any options for risk reduction that might obtain a larger benefit for a similar cost.

However, making comparisons between risks which the public does not perceive as comparable can undermine the credibility of regulators and governments.

67. Risk and its communication are high on the Government's agenda. The DETR Guidelines for Environmental Risk Assessment and Management (first published in 1995 and now being revised) provide a common framework for use in environmental decision making. They set out some basic principles which DETR and the Environment Agency normally use in the assessment and management of environmental risks and, more generally, provide decision makers, practitioners and the public with a consistent language and approach for environmental risk management.

68. The guidelines describe a framework based on science-based risk assessment, stakeholder involvement and risk management. They describe ways of estimating the probability of harm and of evaluating the severity of that harm, including how to handle the uncertainty likely to exist in the quantification of the probability and consequences of any hazard. They emphasise the importance not only of communicating the scientific aspects of risk in a coherent and transparent way, but of understanding underlying concerns, particularly those of the general public who may be affected by decisions based on risk assessments. This enables decisions to be made on whether a risk is acceptable, whether and how it should be managed, or whether it should be removed.

69. The framework identifies the key stages in risk assessment:

- **hazard identification**: identifying the potential for harm. This will have an important bearing on the overall assessment. It is important not to overlook secondary hazards that may arise - for example, during flooding contaminated sediments might be deposited on agricultural land;

- **identification of consequences**: identifying the potential consequences that may arise from any given hazard - at this stage no account is taken of likely exposure and therefore likely consequences;

- **estimation of the magnitude of consequences**: these can be actual or potential harm to human health, property or the natural environment.
Estimation needs to take into account geographical scale and duration of consequences, and how quickly harmful effects might be seen. Long-term problems must be considered as well as immediate risks;

- **estimating the probability of consequences**: taking into account the probability of a hazard occurring, and of harm resulting;

- **evaluating the significance of a risk**: having determined the probability and magnitude of the consequences, it is important to place them in context. At this point some value judgements are made, either through reference to some pre-existing measure, such as a toxicological threshold or environmental quality standards, or reference to social, ethical or political standard. In some circumstances, a formalised quantitative approach to determining significance may be possible, for example the tolerability of risk frameworks developed by the Health and Safety Executive. In other instances, the risks of various options might be compared against one another;

- **options appraisal**: considering whether to reject, accept or reduce the risk, or to mitigate the effects.

70. The guidelines emphasise that evaluating the social significance of the risk is an important part of the process. The objectives of doing so are to engage stakeholders, help to identify difficult cases, aid the communication of risk messages, and not least, ensure that decisions on the acceptability of environmental risk recognise that environmental protection is part of the wider context of sustainable development, and so must be considered alongside other sustainable development objectives of economic growth, social progress, and prudent resource management. The guidelines outline factors which influence the perception of risk, and its communication. For example, they specifically recognise the problem of making comparisons between activities that have similar statistical probabilities and similar outcomes but are not comparable with regard to whether they are taken voluntarily or not. Such comparisons are likely to be viewed with scepticism by the public.

71. The Government notes the Royal Commission's view on the difficulty of measuring risk to the natural environment. The guidelines explicitly recognise that a complicating issue for environmental risk management is the lack of an easily defined measure of what constitutes harm to the environment. There is unlikely to be a single 'satisfactory way' of defining the tolerability of risk, simply because views on tolerability will depend on the risk concerned and public attitudes towards it. In some cases definitions of damage are laid down in statute, but in others criteria will need to be selected on the basis of scientific and social judgements. Legislation increasingly requires assessments of this kind to be undertaken (for example
Part IIA of the Environmental Protection Action 1990, and the Habitats Directive). Criteria therefore need to be devised. To assist in this, the Environment Agency is collaborating on research to develop a methodology to evaluate risks to ecosystems from contaminated soils.

72. The Cabinet Office has been organising seminars on risk involving key Ministers, the Better Regulation Task Force, senior officials, scientists, professionals, consumer representatives and journalists. There is a recognised need for greater consistency in the Government's handling of risk, clarifying the role of experts, and improvements in the way in which the Government communicates about risk. Following the Cabinet Office seminars on risk, Government Departments are now required to prepare frameworks which set out their individual approach to risk. Departments will have to make their frameworks and procedures public by the beginning of September 2000.

73. HSE has produced for its stakeholders an account of how it goes about regulating risks. This account (Reducing Risks, Protecting People) shows how assessment of risk and uncertainty are part of a wider process of tackling a risk issue by defining and characterising the issue, examining the available options, adopting a decision, implementing the decision and evaluating the outcome. HSE has also commissioned research to review available techniques for comparing and ranking risks in order to set priorities.

74. The Environment Agency set up a National Centre for Risk Analysis and Options Appraisals in 1997 and, where appropriate, has prepared functional guidance on environmental risk assessment for the various legislation regimes it administers. The Agency's primary use of risk assessment is in supporting regulatory decisions on the issuing of environmental permits.

75. The Interdepartmental Liaison Group on Risk Assessment (ILGRA) has produced guidelines on Risk communication: a guide to regulatory practice. They are based on case studies of communication by Departments and set out four principles for successful risk communication with simple guidance on each. The guidelines have been widely circulated within Government, and Departments have been encouraged to benchmark their own approaches against this good practice.

76. Chapter 4 of the Government's Sustainable Development Strategy A better quality of life sets out the Government's approach to application of the precautionary principle. This takes as the starting point Principle 15 of the 1992 Rio Declaration – "where there are threats of serious or irreversible damage, a lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation". It then elaborates the following key points:
(a) the precautionary principle means that it is not acceptable just to say "we can't be sure that serious damage will happen, so we'll do nothing to prevent it";

(b) precaution is not just relevant to environmental damage – for example, chemicals which may affect wildlife may also affect human health;

(c) at the same time, precautionary action must be based on objective assessments of the costs and benefits of action. The Government is committed to acting proportionately;

(d) there are no hard and fast rules on when to take action: each case has to be considered carefully;

(e) transparency is essential;

(f) decisions should be reviewed to reflect better understanding of risk as more evidence becomes available.

VII ECONOMIC APPRAISAL.

9.52 Economic appraisal should be regarded as an aid to making decisions which also take other factors into account. Formal techniques such as multi-criteria analysis should likewise be regarded as aids to decision making (5.49).

9.53 An economic appraisal of an environmental policy or standard should identify the objectives of the policy or standard and the options to be considered; summarise and analyse all the consequences of the options; and indicate what that analysis implies for the decision that has to be made. It should cover consequences which cannot easily be valued in money terms, as well as those that can easily be valued in money terms. Where consequences are not valued in money terms, they should be represented either qualitatively or in terms of other quantities. It should indicate the timing of the costs and benefits (5.50).

9.54 When performing an economic appraisal it should be borne in mind that the relative values of the things under consideration may change over time (5.27).

9.55 The report of the appraisal should describe the major uncertainties. It should include a sensitivity analysis showing the effects of changing key assumptions (5.51).

9.56 The report of an appraisal should normally incorporate a description of the information that will need to be collected to
enable a retrospective evaluation of the policy or standard to be undertaken at a later date (5.53).

77. Economic appraisal is an important part of all policy making, both to assess benefits against costs and to ensure that objectives are met in the most cost effective way.

78. Environmental policy presents a number of challenges for economic appraisal. As the Commission notes, many environmental goods cannot easily be valued in money terms, and there is a danger that these will be lost or given insufficient weight if economic appraisal is too rigid. Although they remain at a relatively early stage of development, techniques such as contingent valuation can go some way towards assessing the economic value people place on certain environmental goods, and are being increasingly applied within Government – for example in the research into the environmental impacts of aggregate extraction, valuation of noise and valuation of the health benefits associated with reductions in air pollution. The last of these is expected to generate values for health effects which can be used to conduct a more complete economic assessment of domestic, European and international air pollution control policies.

79. As part of the Modernising Government work on good policy-making, the Cabinet Office has been working with DETR and other Departments to develop an information technology-based 'Toolkit for Policy-makers'. The aim of the Toolkit is to ensure that policy makers take account of the impact of policy proposals on issues such as the environment, business, charities and the voluntary sector, health, health and safety in the workplace, race, gender, the disabled etc. The Toolkit is now available on the Cabinet Office website (at http://www.cabinet-office.gov.uk/regulation/1999/checklist/intro.htm) and on the intranet sites of most other Departments.

VIII IMPLEMENTING ENVIRONMENTAL POLICIES

9.57 We consider environmental standards should be set for the smallest area for which it is sensible and effective to do so (6.31).

9.58 We consider that, where a standard is set at European or international level, it should be set in a form that allows as much discretion about the methods of implementing it as is feasible without undermining its effectiveness (6.33).

9.59 Despite attempts to resolve the situation, there is still a need for an internationally agreed set of principles to deal with the potential difficulties caused by the overlap between the General Agreement on Tariffs and Trade (GATT) rules and trade provisions contained in multilateral environmental agreements (MEAs), and for ambiguities in the operation of the GATT to be clarified. Greater
effort is needed by the international community to resolve the difficulties (6.12).

9.60 An essential condition for effective direct regulation is that there should be adequate inspection and adequate monitoring of compliance with limit values (6.37).

9.61 Numerical standards for concentrations of substances should always incorporate protocols for sampling and the analytical techniques or methods by which compliance is to be measured, and should require analyses to be carried out in laboratories which are participating in appropriate accreditation and proficiency testing schemes (6.38).

9.62 Every numerical standard should be specified in a way that takes full account of the nature of the substance to which it relates, the extent of statistical variation in the parameter to which it relates and (where it is legally enforceable) the requirements for verification. Many current environmental standards are defective in terms of these criteria, most often in not being verifiable. Where that is the case, it should be remedied by setting a supplementary standard for verification, with the aim that environmental standards should be, wherever possible statistically verifiable ideal standards. Reviews of existing standards should pay particular attention to this aspect (6.44).

9.63 The drawbacks of direct regulation and the tensions to which it may give rise mean there are considerable attractions in complementary approaches which seek to internalise environmental considerations within the decision procedures of potential polluters, either in financial terms or in cultural terms (6.55).

9.64 While economic instrument are not panacea, and administrative controls may be required as well, economic or financial incentives should be used wherever possible to reinforce the effect of direct regulation (6.59).

9.65 Well-designed economic instruments should be capable of achieving a better overall result for the environment, by providing incentives for the introduction of clean technology and other innovations, although improvements are likely to be differently distributed and the environment outcome in some areas might be inferior to that which would have been brought about by direct regulation. Use of economic instruments should also limit the cost of environmental protection, both in resources used and in transaction costs. They are especially valuable in controlling pollution from diffuse sources. Use of economic instruments does
not dispense with the need for legislation, monitoring and criminal sanctions because a legal framework is required for their operation (6.68).

9.66 Many actions that benefit the environment are taken primarily or exclusively because individuals, either on their own account or as company managers, place a high value on protecting the environment (6.72).

9.67 One form of action that many people take is to buy products which they believe to have been produced in ways that are environmentally sustainable or to be less damaging to the environment than competing products (6.76). Many environmental claims for products are made in very vague terms, and may have only a flimsy basis. To be effective, standards for making environmental claims will have to be established on a European or global scale (6.79).

9.68 There is a need to clarify the relationship between labelling schemes and the GATT rules. More needs to be done to ensure that ecolabelling schemes do not disadvantage developing countries (6.14).

9.69 Firms should be strongly encouraged to install environmental management systems; in due course all firms above a certain size might be required to operate such systems, in a form which involves regular publication of information about their environmental performance (6.85).

9.70 Basic issues arise over how transparency and openness can be increased, and accountability maintained, in a system in which there is a substantial measure of self-regulation (6.91). New forms of standards, possibly in some cases with legal force, can help to make self-regulation function more effectively (6.95).

9.71 We believe that self-regulation and the use of economic instruments should be regarded, not as alternatives to direct regulation, but as complementary to it (6.93). In seeking to deploy the wide range of legal and quasi-legal instruments available in order to control pollution and enhance the environment, policy-makers should identify those strategies which will be most effective in influencing behaviour and the legal status that will best complement those strategies. To ensure transparency and openness, self regulation and use of economic instruments should take place within the framework of clear published targets for environmental quality set by government after taking into account all relevant considerations and on the basis of wide participation of all relevant interests (6.97).
Use of a combination of approaches in setting and implementing environmental standards is the best way to further general adoption of clean technology, whilst not putting at risk compliance with numerical standards to protect humans and the natural environment against specific hazards (6.100).

The Government supports the desire for as much flexibility in international and European standards as possible without undermining effectiveness. It agrees on the need to clarify the relationship between trade measures taken under multilateral environmental agreements (MEAs) and WTO rules, and between ecolabelling schemes and WTO rules, and it is pressing for these subjects to be included in a new round of WTO negotiations. So far as the relationship between MEAs and the WTO is concerned, it welcomes the conclusion of the recently-negotiated Biosafety Protocol which makes clear that the two agreements are of equal status.

The Government agrees that economic instruments and voluntary agreements are complementary to direct regulation and not alternatives. This is demonstrated in our approach to climate change, where we have introduced an economic instrument (the Climate Change Levy) alongside regulation (IPPC, building regulations, minimum appliance efficiency standards) and voluntary agreements (for example the agreement with the Chemical Industries Association on energy efficiency, or with European Car Manufacturers ACEA on fuel efficiency).

The Government agrees with the Royal Commission that numerical standards should be carefully specified. Although the report concludes that ‘many current environmental standards are defective’ in terms of the criteria proposed by the Royal Commission, the report nowhere identifies which standards the Royal Commission has in mind. If the Royal Commission regards this as a matter of serious concern, the Government would welcome further advice as to the priority areas for attention.

Consultation has an important role to play in publicising proposals, stimulating critical debate, and eliciting a broad range of comments on the practicability and desirability of proposals.

When environmental standards are set or other judgements made about environmental issues, decisions must be informed by an understanding of people’s values. Traditional forms of consultation, while they have provided useful insights, are not an adequate method of articulating values.

Parliaments can have a significant influence on environmental standards by requiring Ministers and others to explain and justify
their proposals on the basis of objective criteria, by independently seeking advice from experts, and in debate if proposals are laid before them. Parliaments are able to express public attitudes and values to some extent. Nevertheless, governments should use more direct methods to ensure that people's values, along with knowledge and understanding, are articulated and taken into account alongside technical and scientific considerations.

9.76 A more rigorous and wide-ranging exploration of people's values requires discussion and debate to allow a range of viewpoints and perspectives to be considered, and individual values developed.

9.77 Values should be articulated at the earliest stage possible in setting standards and developing policies. The public should be involved in the formulation of strategies, rather than merely being consulted on already drafted proposals.

9.78 The decision whether to use one of the new methods for eliciting people's values in any given context should depend on the nature of the issue under consideration.

9.79 In setting environmental standards, these new methods should be used primarily in connection with issues which are both complex or controversial and of broad scope. Rather than attempting to cover every proposed standard, efforts to elicit values should focus on general questions of principle or procedure.

9.80 No method for determining or articulating people's values, whether traditional or novel, provides a guaranteed solution. Novel approaches should be evaluated for their ability to elicit a full spectrum of values on the issue in question from representative participants, so that the procedures used can be refined in the light of experience and their full potential realised.

9.81 The cost of methods for articulating public values is significant: a judgement has to be made in each case as to whether gains in the quality and robustness of the decision are likely to outweigh the time and resources required.

83. The Government agrees that understanding public values is essential for good decision making. Selecting consultation and participation methods is therefore a key part of a standard-setting process, particularly since different groups in society may express very different values.

84. Different methods have different strengths and weaknesses. 'Traditional' consultation methods can be an effective way to gather views from a wide range of stakeholders, giving them the opportunity to articulate their views
in some detail in written responses. Tailored surveys, involving random methods of selection and a good response, can sometimes be essential to ensure that responses are genuinely representative - poor responses and biased selection of participants can give misleading results with costly repercussions. On the other hand, as the Commission points out, traditional methods can fail to provide opportunities for interaction and for clarifying values.

85. Deliberative processes, such as citizens' juries and discussion groups, can help to overcome this problem. The Government accepts that they have a valuable contribution to make to policy making. They can, however, have their own disadvantages. For example, they can be time-consuming and resource-intensive, and do not necessarily eliminate conflict. They can also be unrepresentative and subject to capture by particular stakeholder groups. They can be dominated by the articulate with the loudest voices. So they should not be seen as a substitute for other methods, but as a complement. For example, focus groups can help draw out the issues behind responses to larger surveys.

86. There are also issues to consider which can be common to all types of consultation and participation processes. They can suffer from a problem of 'stakeholder fatigue', through seeking to engage the same people again and again. The terms of reference need to be considered carefully - it is difficult to achieve a truly 'neutral' deliberative process (though equally, of course, it is impossible to find a non-deliberative process that is 'neutral'), and there will be questions about the extent to which processes for articulating values should try to change preferences, as well as seek them. There is also a danger that certain pieces of information assume inappropriate levels of importance - 'memorable quotes' being one example. The Government hosted a seminar in March 2000 entitled 'Science and Technology in Government Policy Making - Sharing Technologies for Wider Consultation' to explore the advantages and disadvantages of various approaches.

87. The Government will seek to tailor the approach used to the issue concerned. The Effective Performance Division in the Cabinet Office has published, as part of its series of best practice guides, a guide on 'How to Consult Your Users'. This offers advice on how to conduct consultation exercises, and the various techniques that can be used, including public meetings, focus groups and citizens' juries. While a focus of the guidance is how to ensure service users have a say in how to improve public services, the material in the guide is more widely applicable.

88. Because written consultation exercises will, alongside other methods, continue to be an important way of seeking views, the Cabinet Office has also produced guidance on how to conduct a written consultation exercise. This includes five guiding principles: building consultation into plans;
consulting early; writing documents in simple language; giving consultees time to reply; and reporting back on consultation.

89. A key message from the Cabinet Office guidance is that reliance on a single method of consultation is unlikely to be sufficient. To make the most of resources, a mix of methods, allowing assessment from a range of perspectives, may be appropriate. The Government has frequently adopted such an approach. For example:

- consultation on the Government's current Sustainable Development Strategy involved a detailed written consultation exercise aimed largely at organisational stakeholders, supplemented with consultation conferences organised by Government itself (for example, meetings of regional stakeholders) and other bodies (such as the Chartered Institute for Environmental Health and the Sustainable Communities Action Network). Wider public views were sought through a shorter leaflet and through focus groups which discussed the headline indicators of sustainable development, a key aspect of the strategy;

- the process of drawing up a new rural white paper has involved not only a consultation paper but also a series of regional seminars, attended by a DETR or MAFF Minister, and frequent meetings between ministers and key stakeholder groups

- the Chemicals Stakeholder Forum (paragraph 59 above) will bring together stakeholders with an interest in chemicals issues.

90. For the future, the Government will continue to develop better ways of involving people. For example, the Department of Health and the Health and Safety Executive are currently funding research on evaluating public participation methods such as focus groups and citizen’s panels. This includes a review of the advantages and disadvantages of different methods and an assessment of the most appropriate method in a particular context. The aim is to provide guidance for policy makers who need to involve the public in decision-making. The Department of Health is also considering work specifically aimed at understanding and responding to the public’s values and concerns on risks to health.

9.82 Local authorities should review existing provision for public participation in relation to their environmental functions, and seek to extend this as appropriate. Greater use should be made of community fora to create consensus on local issues. The aim should also be to expand the local partnerships established through Local Agenda 21 initiatives to embrace consideration of policy issues.

91. A number of local authorities have already made significant progress in involving communities in policy formulation through the Local Agenda 21
process, often using techniques such as 'visioning'. Under the Local Government Bill, currently before Parliament, the Government proposes to require each council to secure the development of a comprehensive strategy for their areas. The approach to Community Planning will not, however, be imposed by central Government. Rather, the aims is that local authorities will seek greater partnership working with other bodies, both public and private, and engage their communities as a whole in promoting economic, social and environmental well-being.

9.83 The Environment Agencies should explore ways of stimulating public input into policies relating to all aspects of their work at the earliest stage possible. Local Environment Agency Plans are a welcome innovation. The Environment Agency should consider how procedures can be introduced which will be more effective in articulating values of all sections of the relevant communities.

92. Responsibility for the Scottish Environmental Protection Agency now falls to the Scottish Executive.

93. The Environment Agency continues to seek ways to improve public involvement in its decision making, and the Government supports these efforts. It has actively considered these issues for some time. In March 1998 the Agency produced 'Consensus Building for Sustainable Development' as a means to promote discussion within the Agency about consensus building and communication techniques. It considered past experience within the Agency - for example, the New Forest Local Environment Agency Plan (LEAP) to which the Commission referred in its report.

94. The report includes tables which highlight some of the key factors which the Agency has to bear in mind in its approach to public involvement. These include 'rules for risk communication' and a short summary of the advantages, disadvantages and effectiveness of different methods for information provision, consultation and consensus building. It suggests criteria for effective communication, and how they might be evaluated. As such, it has helped decision-makers in the Agency to decide when and how to use the techniques described.

95. Subsequent work in the Agency has built on this report. It has involved further research and assessment of experience, as well as examples of initiatives to improve public involvement. This work is summarised below.

96. In 1999 the Agency published a report it commissioned from University College London on An Analytical and Descriptive Model of Sustainable Development for the Environment Agency. That report highlighted the increased emphasis on social welfare as part of sustainable development, and of the place of dialogue and participation in determining objectives and priorities. It noted that one of the Agency's main tasks is to ensure that this approach is
reflected in its policies and working methods, and that this will involve the Agency in:

- building partnerships, including with business;

- ensuring that disadvantaged groups are not further disadvantaged by policies;

- engaging regional and local interests in decision-making processes; and

- promoting a higher profile for Local Agenda 21 in local communities.

97. To do that, the Agency has to move from techniques which simply view the public as a constituency to inform or listen to, to develop approaches which involve the public as stakeholders who have a right to inform and benefit from the Agency's activities.

9.84 Improving the mechanisms for articulating values should be high on the agenda for the future development of European institutions.

98. The European Commission is placing an increasing emphasis on stakeholder involvement. This will be an important element of the EU's Sixth Action Programme on the Environment. However, it would not be feasible for the European Commission to undertake adequate consultation with all interested parties across the EU for every measure proposed. The UK, like other Member States, consults domestically on EU proposals for environmental legislation. The European Parliament, which now has an enhanced role in approving environmental legislation, also offers an important mechanism for reflecting different values within the European legislative process.

99. The nature of EU legislation can also be relevant. In particular, the use of Framework Directives (which leave scope for differing ways of meeting objectives) can provide flexibility for Member States to apply their own values.

9.85 The Department of the Environment, Transport and the Regions, in consultation with other government Departments, should:

(a) consider how the new methods should be incorporated into the procedures for considering environmental issues and setting environmental standards, including the framing of questions to be addressed in analysis and communicating the results of scientific assessments in a comprehensible form;
(b) collate the experience gained, and draw up a code of practice for use of the new methods, designed both to maximise their effectiveness and preserve their integrity.

Some bodies may require additional resources for this purpose.

100. The Cabinet Office has already published guidance on best practice in consultation. This encourages people to consider citizens' juries, focus groups and other methods as well as traditional consultation exercises. The Government does not therefore believe that a new code of practice is necessary, though efforts to identify and share best practice will continue.