



Document 1393

# Committee on Radioactive Waste Management

## Second Annual Report 2005

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# 1 Introduction by the Chair

I have pleasure in presenting CoRWM's second Annual Report to our sponsor Ministers - the Secretary of State for Environment, Food and Rural Affairs, and Environment Ministers in Scotland, Wales and Northern Ireland. In August we reported (document 1210) on the completion of the second phase of our work programme, and our detailed plans for the final stage of our programme up to July 2006. This Report mainly summarises that one, with some extra details, and says what we have done since.

The main elements of our work up to July included an inventory of radio-active wastes that the UK will need to manage; a short-list of the most promising options for managing the wastes in the long term; and detailed plans for assessing options including criteria on which each will be tested.

Since then, we have gathered most of the scientific and other data needed to test the options against each criterion using a formal, quantified process. We have re-convened our citizens panels to suggest weightings for each criterion and to give their own assessment of the options in a less formal way. We have identified ethical considerations and applied them to each option. We have held further meetings with stakeholder organisations to ensure that they, as well as citizens and specialists, are effectively brought into the process. And we have launched a discussion guide to encourage wider circles of people, especially young people, to give us their views on the issues we are considering.

Next we shall hold workshops with specialists to assess the options against the criteria. We shall invite stakeholder groups to comment on the results including advising how the inevitable areas of uncertainty or disagreement can be reduced. We shall consider how options could be best combined to enable the UK to manage all the different waste streams safely. During spring 2006 we shall draw up outline recommendations to Government and show them to participants in our programme. These may include not only recommendations on how to manage the wastes, as required by our Terms of Reference, but also advice on how these could be implemented.

We welcome the support we have had from Ministers, and from the specialists, citizens and stakeholder organisations who have worked with us. We welcome the interest shown in our work by the UK's Parliaments, Assemblies and Councils including the House of Lords Science and Technology Select Committee and the House of Commons Environment, Food and Rural Affairs Committee. We hope that our report will be of interest to them all.

Gordon MacKerron

## 2 Who we are and why we were set up

1. More than 80,000 cubic metres of radioactive waste are stored in the UK, awaiting a decision on their long-term future. This is mainly high- and intermediate-level waste (that is, the most radioactive and heat-generating wastes) plus a relatively small amount of low-level waste that is unsuitable for disposal at the existing UK facility at Drigg in Cumbria.
2. This amount will increase to about 470,000 cubic metres - in conditioned and packaged form - over the next hundred years or so mainly from the decommissioning of existing nuclear power plants. Future waste arisings on this scale are unavoidable, even if no new nuclear power stations are built. Some will be radioactive and potentially dangerous for hundreds of thousands of years.
3. Margaret Beckett, Secretary of State for Environment, Food and Rural Affairs, and environment Ministers in Scotland, Wales and Northern Ireland appointed us in November 2003. They asked us to review options for managing UK solid radioactive waste and to recommend the option, or combination of options, that can provide a long-term solution, inspiring public confidence and providing protection for people and the environment. Our priority task is to advise how to manage the types of waste described above. Our Terms of Reference are attached at **Annex A** on page 23.
4. Ministers did not appoint a Committee composed entirely of nuclear experts, but a diverse team bringing together a wide range of experience - for example, in scientific, technical, legal, environmental, economic, social and ethical issues. As you can see at **Annex B** on page 29 we are part-timers, most of us have a "day job".
5. To help guide our work, we have drawn up a number of principles, set out at **Annex C** on page 30. We try to ensure that these, as well as our Terms of Reference, underpin our work.
6. Margaret Beckett's Department (Defra) gave us a secretariat, and a budget to which the Scottish Executive has also contributed. In July 2004 Defra appointed NNC as our programme management contractor, to provide a wider range of services including technical support. So we the Members, our secretariat, and NNC make up the CoRWM team.
7. If you want to know more about us, see "**Further information**" on page 21.

### 3 The radioactive wastes that need long term management

8. One of our first tasks was to estimate what materials may eventually have to be managed as wastes, including what condition they may be in. That helps us identify which options may be best for some or all kinds of waste.
9. Our Terms of Reference require us to consider 6 main categories of radioactive waste in the UK which currently have no long-term management route:
  - High level waste.
  - Intermediate level waste.
  - Low level waste. (Our Terms of Reference ask us to consider a small proportion of this which is unsuited for disposal at the UK's existing facility at Drigg in Cumbria.)Materials that may need to be managed in the same way as radioactive waste:
  - Plutonium.
  - Uranium.
  - Spent nuclear fuel.
10. These waste categories make up the CoRWM "inventory". They contain thousands of individual waste streams.
11. We published a [preliminary report](#) on the inventory (document 542) in October 2004 for public comment. Following comments and further information gathering we published our [final inventory report](#) (document 1279) in July 2005. "Final" means that this is the last time we shall publish a separate report on the inventory. It does not mean that everything is known about the state of radioactive wastes. Our report to Ministers in July 2006 will reflect any further developments and recommendations for further work.

### 4 The waste management options that we considered

12. Our next task was to identify options for managing those wastes. Our first Annual Report described the options we had identified in 2004.
13. By March 2005, reflecting information from our first round of public engagement and other sources, we published this slightly revised list:
  - (1a) Long-term interim storage: packaging radioactive wastes and storing them in purpose built facilities as a key stage of a longer-term management strategy. With periodic refurbishment, stores might last for 300 years or more. We included six variants:

- at a central location, constructed above ground, protected to current standards;
- same, but protected to higher standards;
- at current location of waste, constructed above ground, protected to current standards;
- same, but protected to higher standards;
- at a central location, constructed underground; and
- at current location of waste, constructed underground

(1b) Storage forever. Storing radioactive wastes in purpose built facilities, above or below ground, with no intention to implement any other management option at any future point.

(2) Near-surface (non-geological) disposal of short-lived wastes. Burial below ground in a facility with engineered barriers.

(3) Deep geological disposal. Placing packaged radioactive wastes in an engineered repository, deep underground in places where the geology can provide a barrier.

(4) Phased deep geological disposal. This differs from the previous option in that the repository is designed to function as a store with access and monitoring for an interim period until it is finally closed and backfilled at some future date. At that point the option becomes disposal.

(5) Disposal by direct injection. Injecting liquid radioactive wastes into layers of rock that have an appropriate geological formation to contain the waste and to provide a barrier.

(6) Disposal at sea. Waste is placed in containers and dropped by ship or aircraft at suitable, remote locations on the seabed with no intention of retrieval.

(7) Sub-seabed disposal. Placing waste deep under the seabed in stable geological formations.

(8) Disposal in ice sheets. For example, placing containers of heat-generating wastes in very thick, stable ice sheets.

(9) Disposal in subduction zones where one denser section of the Earth's crust (usually part of an ocean floor) is moving towards and underneath another, lighter section.

(10) Disposal in space. Removing waste from the Earth forever by ejecting it into space (either into a high Earth orbit or out beyond the

solar system) or by aiming it into the Sun where intense heat would vaporise it.

(11) Diluting and dispersing the wastes now, or planning to do so in the future, for example by mixing solid wastes with very large amounts of other materials.

(12) Partitioning and transmutation. Separating the waste into its constituent parts (partitioning) and then changing one type of radionuclide into another so that the radioactive and toxic properties of the waste are changed (transmutation). The idea is to change long-lived radioactive substances into shorter-lived, less toxic ones.

(13) Use of plutonium and uranium in reactors. Some of these materials are not currently categorised by the Government as wastes because they can be used as components of fuel in some nuclear reactors.

(14) Incineration - a possible way of reducing the volume of radioactive waste that has to be managed in the long term; the residues that are produced would have to be managed as radioactive waste.

(15) Melting of radioactive waste metals in furnaces in order to reduce the volume and contain radioactivity in the slag. Some metal might be reused, though there would still be left-over radioactive waste that needs management.

## 5 How we short-listed the most promising options for more detailed assessment

14. We had already decided to draw up a set of screening criteria to apply to each option. This would enable us to determine whether it was promising enough to go forward for detailed assessment. Having invited comments on our proposed criteria, we added another, and invited comments on them in our second round of engagement in April-June 2005.

15. We used these criteria:

An option will not be short-listed if:

1. There is no "proof of concept" (i.e. no proof that it could work) in the form of either:
  - actual implementation of the option in the UK or elsewhere, or evidence of ability to achieve implementation within the foreseeable future; or

- sufficient research and development on the part of the international scientific community to demonstrate confidence that the option can be implemented.
2. It causes us to breach our duty of care to the environment outside national boundaries.
  3. It causes harm to areas of particular environmental sensitivity.
  4. It places an unacceptable burden (in terms of cost, effort, or environmental damage) on future generations.
  5. It involves a risk to future generations greater than that posed to the present generation that has enjoyed the benefits.
  6. It results in unacceptable risk to the security of nuclear materials.
  7. It poses unacceptable risk to human health.
  8. Cost is disproportionate to the benefits achieved.
  9. It breaches internationally recognised treaties or laws and there is no foreseeable likelihood of change in the future.
  10. It involves implementation overseas when implementation could, in principle, be achieved in the UK.
16. We considered information we received during phase 2, particularly the results of our second round of public engagement. In July, we decided that four options looked promising for the UK and should be assessed in detail:
- (1a) Long-term interim storage.
  - (2) Near-surface disposal of short-lived wastes. We are now considering this in relation to reactor decommissioning wastes.
  - (3) Deep geological disposal.
  - (4) Phased deep geological disposal.
17. Our Phase 2 Report explains on what screening criteria the remaining options failed. It also describes the detailed methodology for assessing the short-listed options. This methodology was agreed in our July meeting though we are refining it as we go. Here is a summary.



## 6 How we are assessing the short-listed options and identifying the best strategy for the UK

18. By the end of July 2006 we shall send Government our recommendations on a long-term UK strategy. To achieve this, we have 3 main processes:

- We are assessing the performance of each option against a set of performance criteria, using a process called multi-criteria decision analysis. This involves looking at the performance of each option, criterion by criterion, in a bottom up approach.
- We are assessing the performance of each option as a whole, by a more "holistic" top down approach.
- These two processes will enable us to identify how the options perform in different circumstances, but this alone will not give us "the answer". So we have a process for integrating and going beyond these 2 assessments, including looking at how we might best combine options, how we can reduce or manage uncertainties, and ensuring that we address strategic, cross-cutting issues such as whether waste should be retrievable.

19. Our process is designed to incorporate relevant and reliable information; to involve a broad range of participants in ways that enable them to make an effective contribution; and to integrate the outputs of each process into a coherent and conclusive set of recommendations that inspires confidence.

20. Here are some examples of how we are involving different groups of people:

- In the multi-criteria decision analysis, specialists in the relevant fields are judging the performance of each option against our criteria. They have developed 'scoring schemes' and identified information needed to facilitate the scoring. We are gathering this information. Scoring workshops are taking place in December. We say more about this process in section 8.
- Citizens' panels have expressed judgments about the relative importance of the different criteria ('weighting'). They have also done an holistic assessment of options.
- Stakeholder groups will be able to comment on the scoring, and contribute to the weighting of criteria.
- We, in open plenary session, will use these and other inputs when we do our own options assessment to create a "base case". They will also be used in sensitivity testing, which will explore the impact of varying scores and weights on overall option performance. This will enable

us to develop a deeper understanding of the key factors that make different options perform well or badly.

21. The "headline" criteria we are using are set out below, with their sub-criteria in brackets. Each is broken into a set of detailed questions. "Environment" gives examples.

- public safety, individual - up to 300 years, (radiation and non-radiation)
- public safety, individual - longer than 300 years, (radiation)
- worker safety, (radiation and non-radiation)
- security, (misappropriation and vulnerability to terrorist or other attack)
- environment (chemical pollution, physical disturbance, and use of natural resources.
- socio-economic, (employment and spin-off)
- amenity, (visual, noise, transport and surface land-take)
- burden on future generations, (cost, effort, worker dose and environmental impacts)
- implementability, (technical, legal and regulatory acceptability, and land use planning requirements)
- flexibility, and
- costs.

22. A flow-chart on pages 18-19 shows the programme in more detail.

23. At the end of November, our programme is on track. With our specialists, we have developed and tested a system for scoring each option; identified the data needed to complete the scoring to a high level of confidence; and have gathered most of the data. Our Citizens' Panels have met, advised us on weighting the criteria and have done an holistic assessment of the options. We too have contributed to the holistic process by testing each option against a set of ethical tests. Section 9 reports events by month.

## 7 How we work with scientists and other specialists

24. To win public confidence, our reports must also be scientifically and technically robust. Previous UK and international initiatives on long term waste management have failed because they have not engaged successfully with citizens and stakeholders and gained their confidence - getting the science "right" is a key part of building this confidence.
25. We therefore aim to use the best available scientific knowledge at appropriate stages of our process. Science plays a vital part at several stages - particularly short-listing and option assessment.
26. We have always been clear with our sponsor Ministers that we would use existing science and not commission new research. If there are unresolved issues, then any need for new research can be included in our recommendations next year.
27. In our short-listing process in Phase 2, we commissioned review papers to look at UK and international knowledge and experience of the long list of options. We judged that in-depth science was not required at this stage, since we were simply looking for discriminators to eliminate non-viable options. Experts, stakeholders and the public are in general agreement that our short list is appropriate and reasonable.
28. In our options assessment process in Phase 3, we set up 7 specialist panels on issues reflecting our assessment criteria, for example health & safety; security; and the environment. More than 70 specialists are involved and give appropriate, effective - and independently assessed - representation across disciplines.
29. For example, the health & safety panel includes expertise at internationally recognised senior academic level on radiation effects, health and safety, radiation protection, regulation, engineering, geology, geochemistry, transport. It includes representatives from the HPA, NII and EA/SEPA. Advice on its composition was given by external academics including Professor Geoffrey Boulton FRS and Professor Howard Dalton FRS.
30. Outputs from the assessment scoring will be widely disseminated in the scientific community for comment.
31. Also in Phase 3, we have benefited from support from the Royal Society, the Geological Society and the Royal Academy of Engineering. The Royal Society invited CoRWM to attend a meeting on 7 November where Fellows discussed key issues relating to our scientific process and the short listed options. Their expertise ranged across science and engineering. The meeting will be reported. The Geological Society has invited us to an international meeting on radioactive waste management

that they are holding on 9 January 2006. The Royal Academy of Engineering has nominated an eminent engineer to sit on our Quality assurance group described below.

32. Involving specialists, and expert bodies, goes hand in hand with engaging citizens and stakeholders. One process informs the other, and thereby informs us.
33. For example, many of the specialists were initially suggested by stakeholder organisations. Each Citizens' Panel meeting has a group of specialists on hand, representing different knowledge and viewpoints. This helps to build a link between citizens and the science. And our specialist reports are published so that they can be challenged by citizens, stakeholders and other specialists. In this way we can ensure that information is trustworthy, and that citizens can comment from a position of knowledge.

## 8 How we work with citizens and stakeholders

34. We must inspire public confidence in our work and thereby in our recommendations. Our previous Reports (including our first Annual Report and Phase 1 and 2 reports) describe how we are trying to achieve this, for example by working in public and involving people actively in our information gathering and decision making.
35. During 2005 we continued to hold every plenary meeting in public, with opportunities each day for observers to comment or ask questions. Our agenda and supporting papers are published in advance. Our website <http://www.corwm.org.uk/> includes over 1,300 documents, or details of how to obtain them.
36. We completed our first 3-month round of public engagement and held a second. As part of our policy of encouraging comments from a broader range of people, this included: a consultation document to which people could respond by pro-forma, letter or e-mail; meetings with local stakeholder bodies at several nuclear sites; public meetings near nuclear sites; a meeting with national stakeholder organisations; meetings with our 4 Citizens' Panels; and an on-line discussion forum.
37. Our website has detailed reports on each of these. These include an overview report, summarising people's comments on the questions we put to them and their views on other issues. This is at [http://www.corwm.org.uk/PDF/1186.3 Overview of PSE2 Feedback Final.pdf](http://www.corwm.org.uk/PDF/1186.3%20Overview%20of%20PSE2%20Feedback%20Final.pdf).
38. We also held meetings with a number of stakeholder organisations. We use the term broadly, including (for example) national and local elected or government bodies, and bodies representing the views and interests of other people as well as their own.

39. For example, besides the meetings mentioned in section 10 below, we met our sponsor Ministers and officials; the British Geological Survey; Nirex, the Nuclear Decommissioning Authority; and the Nuclear Waste Management Organization (Canada) which recently published its own recommendations on long term waste management. We met Irish Government officials and representatives of the Isle of Man, Cumbria and Copeland Councils. We attended other meetings including the Joint Irish and UK Local Authorities Conference on Nuclear Hazards.
40. These meetings enabled us to keep in touch with technical and policy developments affecting our work; and to exchange information with others so that they can plan their own programmes.
41. Our Citizens' Panels enable us to gather views from people who have no prior involvement with radioactive waste issues. This allows a fairly detailed level of engagement, but with a small number of people. So we have developed other activities. These include
- a discussion guide on *Radioactive waste - how should it be managed?* involving (so far) over 700 discussion groups in commenting on the criteria, the options, and their implementation; and
  - an education project which is running in Bedfordshire secondary schools.
- We shall say more about these in our 2006 report to Government.
42. Public engagement in our second phase was mainly based on the two 3-month episodes in which we sought views on specific proposals. As indicated in section 6, the current phase involves a more dynamic process in which citizens, stakeholders and specialists all play a more central role in our work, rather than just commenting at intervals. We plan to reinforce this by another consultation step around April, which will be shorter and more informal. (See section 12.) We also plan a website-based opportunity for comment on other significant aspects of our programme.

## 9 Ensuring the quality of our reports and recommendations

43. Our quality assurance process is designed to ensure that we make good use of relevant scientific and other information and opinion, and that this is effectively and visibly used in making recommendations to Government. There are several main elements to this.
44. We have a Quality assurance group whose terms of reference are to ensure that our work is of good quality and leads to robust recommendations to Government. It does this, in particular, by ensuring the quality of specialist or technical reports - for example by peer review or other external scrutiny - and by ensuring the quality of our processes. The group includes independent academics suggested by the Royal

Society and the Royal Academy of Engineering. These include Professor Geoffrey Boulton FRS.

45. We have an independent evaluator whose reports are published on our website. These include an evaluation of Phase 2 and lessons for Phase 3 including how we use scientific information.
46. Defra's Chief Scientific Advisor, Professor Howard Dalton FRS, has set up a specialist panel to advise on how to ensure the robust use of science in our work. They have advised on our quality assurance process, peer review, and the membership and scope of the specialist panels.
47. Our meetings with sponsors also give them the chance to review the rigour of our work, especially as their Ministers have to answer Parliamentary questions and take part in debates.
48. And much of our work is done in public, including making all key decisions. We think this is one of the most effective ways to ensure that we do a proper job.

## 10 2005: How we spent our time

49. Here are some highlights from the period.

- **January**: as part of our first round of engagement we met our National Stakeholder Forum including green NGOs, nuclear bodies, regulators, local and central government and others.
- Our first round of engagement ended, and we evaluated the results.
- **February**: we proposed a draft short-list of waste management options to publish for comment during the Spring. We also developed our methodology for assessing those options.
- **March**: we agreed plans for our second round of public engagement on the proposed short-list; the assessment methodology, including individual criteria; and what issues the public thought important when any option (or combination of options) was eventually implemented.
- **April**: we launched our second round of public engagement with a consultation document *How should the UK manage radioactive waste?*
- We held the first of 4 meetings with our Citizens' Panels: 16 people in each of 4 locations in Hatfield, Stirling, Lancaster and Bridgend.

- **May:** as part of our second round of public engagement, we held 8 public meetings near nuclear sites at Blaenau Ffestiniog (in the area of the Wylfa and Trawsfynydd sites), Thurso (near Dounreay), Helensburgh (near Faslane), Hartlepool (near the local site), Thornbury (near Berkeley and Oldbury), Whitehaven (near Sellafield), Wallingford (near Harwell) and Maldon (near Bradwell).
- We also held 8 meetings with the local "round table" stakeholder organisations at nuclear sites: Wylfa, Dounreay, Faslane, Hartlepool, Hinkley, Sellafield, Aldermaston and Sizewell.
- **June:** as part of our second round of engagement, we held a meeting of our National Stakeholder Forum.
- Our second round ended and we evaluated the results, including written and website responses as well as meeting reports.
- We held the first of our specialist workshops to draw up a scheme for scoring the short-listed options against each criterion. These workshops also identified data needed for the scoring.
- We held meetings with Members of the Scottish Parliament and Highland Regional Council.
- **July:** we decided our final short-list; our methodology for assessing the short-listed options; and the list of criteria against which each option would be tested.
- We started gathering and collating the data needed to score the options.
- We reported to sponsor Ministers that these decisions had completed the second phase of our programme. We set out our plans for the final phase, the assessment of short-listed options and drawing up recommendations to Government in July 2006.
- **August:** we held trials of our option-scoring schemes, and continued our data gathering programme.
- **September:** we held an ethics workshop to help us ensure that our options assessment properly reflected issues such as fairness between, and within generations.
- **October:** we assessed our short-listed options against a set of ethical tests.
- We reviewed the inclusion in our short-list of near-surface (non-geological) disposal. We decided to keep this but to redefine it to include reactor decommissioning wastes.



- **November:** we identified some indicative combinations of options, given that many individual options might only deal with some of the UK's many waste streams, and that a long term waste management process taking decades or centuries to implement would employ several different options (including interim storage) at different stages. This will allow us to learn about the implications of combining options before we consider doing it for real next year.
- We met the Royal Society and the Geological Society to discuss scientific issues affecting the short-listed options and the use of science in assessing them.
- We met Select Committees of both Houses of Parliament to explain and answer questions on our work and forward plans.

## 11 2005: How we spent your money

50. Defra provides our budget. It set up a Cost Review Panel, including representatives of all CoRWM's sponsors, to recommend what we should be allocated and how we could best manage our finances. For 2005/6 CoRWM and the Panel reviewed its needs. The Panel recommended a budget of £2.749 million and Defra has agreed that our indicative budget should be increased accordingly.

51. Here is our budget, broken down by main spending areas:

| Budget item                     | 2003/4     | 2004/5       | 2005/6*      | 2006/7*    | Total        | Spent so far             |
|---------------------------------|------------|--------------|--------------|------------|--------------|--------------------------|
|                                 | £'000      | £'000        | £'000        | £'000      | £m           | £m                       |
| Public & stakeholder engagement | 50         | 681          | 1079         | 209        | 2.019        | <b>1.209</b>             |
| Members' fees & expenses        | 168        | 542          | 520          | 170        | 1.400        | <b>0.987</b>             |
| Programme management            | 97         | 372          | 383          | 105        | 0.957        | <b>0.730</b>             |
| Specialist / technical reports  | 46         | 230          | 642          |            | 0.918        | <b>0.672</b>             |
| Media specialist                |            | 95           | 75           | 30         | 0.200        | <b>0.157</b>             |
| Meeting costs                   | 33         | 83           | 50           | 19         | 0.185        | <b>0.189<sup>Δ</sup></b> |
| Overseas visits                 |            | 18           |              |            | 0.018        | <b>0.018</b>             |
| <b>Total</b>                    | <b>394</b> | <b>2,021</b> | <b>2,749</b> | <b>533</b> | <b>5,697</b> | <b>3.962</b>             |

ΔThis includes £35K spent on technical meetings.



52. Members spend much of their time preparing, or taking part in, our public engagement process. They also spend a lot of time identifying the waste inventory, the management options, and commissioning and evaluating studies to fill information gaps so that these options can be short-listed and assessed. So the proportion of CoRWM's budget spent, for example, on public engagement and on scientific and technical evaluation (including legal, economic and other issues) is substantially higher than the amounts shown under those specific headings.

53. We are not required to report what individual Members were paid. But in the interest of transparency we have decided that this information should be public. The fees paid to individual Members so far are

| Member                          | Period                        | Fees            |
|---------------------------------|-------------------------------|-----------------|
| Gordon MacKerron                | November 2003 -               | £121k           |
| Fred Barker                     | November 2003 -               | £113k           |
| Mark Dutton                     | November 2003 -               | £104k           |
| Pete Wilkinson                  | November 2003 -               | £73k            |
| Fiona Walthall                  | June 2004 -                   | £68k            |
| Wynne Davies                    | November 2003 -               | £65K            |
| Andrew Blowers                  | November 2003 -               | £52k            |
| Lynda Warren                    | November 2003 -               | £48k            |
| Mary Allan                      | November 2003 -               | £37k            |
| Keith Baverstock<br>(Dismissed) | November 2003 - April<br>2005 | £35k            |
| David Ball<br>(Resigned)        | November 2003 - May<br>2005   | £30k            |
| Jenny Watson                    | November 2003 -               | £30k            |
| Katharine Bryan<br>(Resigned)   | July - December 2003          | £13k            |
| Brian Clark                     | November 2003 -               | claims expected |

54. The budget is managed by the secretariat and we are subject to Defra's financial management system. For example, we have to provide regular reports on what we have spent and what we expect to spend for the rest of the financial year. Individual payments have to be checked and

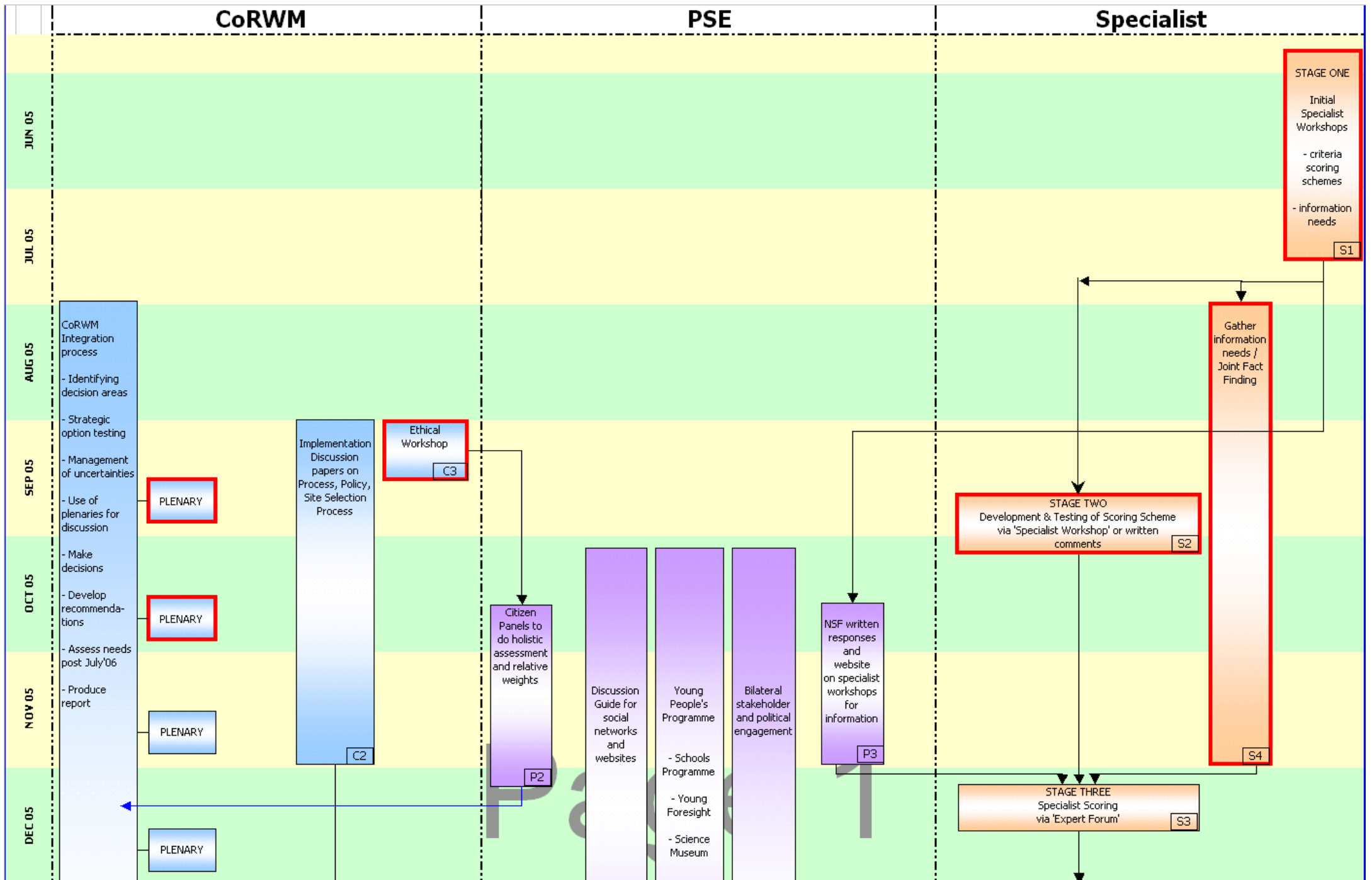
approved to ensure that each project has been approved, that the goods or services were delivered to the necessary standard, that the cost is reasonable and that there are adequate funds in the budget.

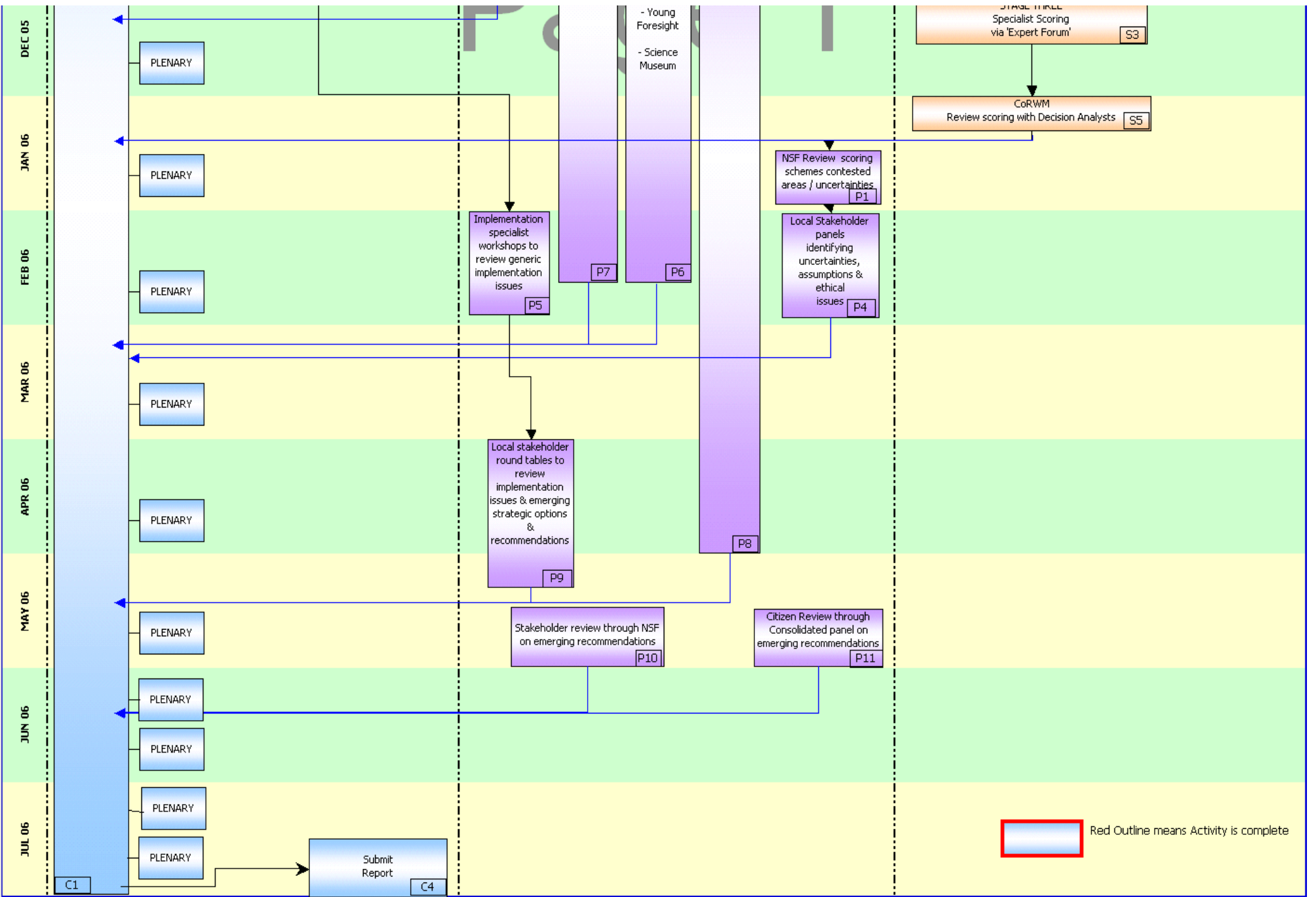
55. In addition, Defra's Cost Review Panel meets from time to time to review whether our budget is appropriate to our needs, and that it is being properly managed.
56. This budget does not include the running cost of the secretariat, such as the pay and office costs of the Defra staff.
57. In July 2004, Defra appointed NNC as CoRWM's programme manager following a competitive tendering process. NNC (now AMEC-NNC) also provide, or buy in, other services including design and operation of our public engagement programme, production of technical reports and public information, and running our website. This is managed by a "task sheet" process where any significant task must be approved by a Chair or a relevant Member and financially approved by the secretariat. The project must be delivered to a specified standard, time and cost. NNC have tracking systems to ensure that this happens and send invoices to the secretariat to check and pay as described above.
58. CoRWM wants to see competitive tendering wherever possible and to develop a wide range of suppliers. Details of CoRWM's procurement policy, including opportunities for suppliers, are posted on our website at <http://www.corwm.org.uk/content-511>. Since July 2004 NNC have committed £2.28m worth of orders for work other than programme management. Of this, £1.73m went to 104 outside suppliers including 96 technical or specialist suppliers.

## 12 2005-6: our work programme that Ministers have agreed

59. Our programme is set out in detail in our Phase 2 Report. This is on our website at <http://www.corwm.org.uk/PDF/1210 - Phase 2 report July 2005.pdf>. We refine our process continually and the current version of our programme is in the detailed flow-chart on pages 18-19.

# CoRWM Phase 3 Options Assessment & Recommendations - Agreed at Completion of Phase 2





60. Here are some of the main steps in our remaining programme.

December 2005:

- Hold workshops to score each short-listed option against our assessment criteria.

January 2006:

- Review results of scoring workshops to ensure quality and identify uncertainties.
- Start reviewing results with national and local stakeholder groups including how uncertainties could be reduced or managed.

February:

- Hold workshop to review issues involved in implementing any recommendations and how we can advise Government.

March - April:

- Hold a series of plenary meetings to review the results of the holistic and multi-criteria options assessment, do our own options assessment and identify outline recommendations to Government.

May:

- Invite comments from stakeholders, specialists and the public on our outline recommendations.
- Start substantive sections of our report to Government. We shall start introductory sections (such as defining the problem and how we set about our task) much earlier.

May - June:

- Consider views of stakeholders &c and ensure that these are reflected in our report to Government.

July:

- Review our recommendations, approve our report, deliver to Government, and publish.

61. There is a simple chart on page 22 summarising our progress since 2003.

62. We were appointed for three years. While those appointments can be terminated earlier, we are assuming that this may not be our final Annual Report. We are discussing with our sponsors what further advice would be useful during 2006, including advice on how any recommendations could be implemented by Government. This reflects paragraph 35 of the Government's response to the House of Lords Science and Technology Committee's Report on Radioactive Waste Management in December 2004.

## 13 Further information

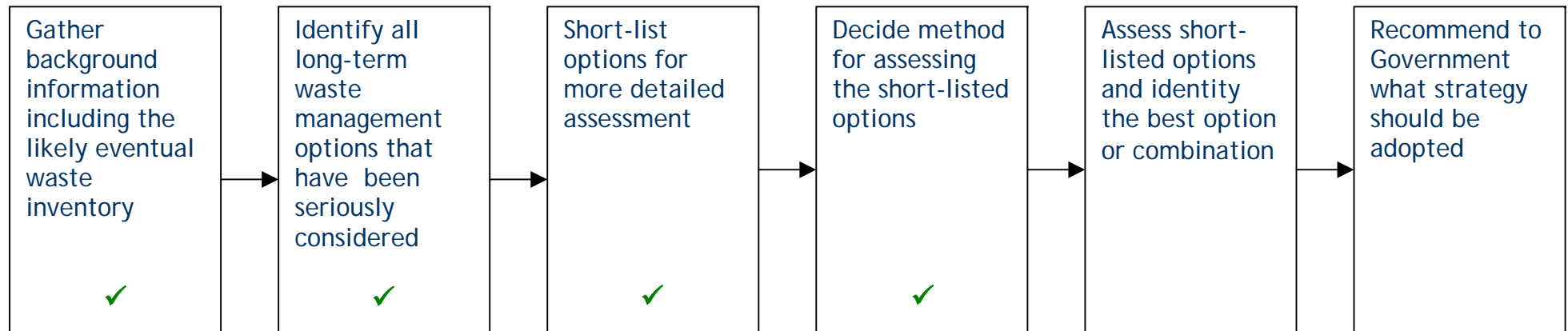
63. If you would like more details of our activities, including how we work and how people can get involved, you can read more about us on our website at <http://www.corwm.org.uk/> or telephone us on 020 7082 8491.

64. You can read our reports and other documents; follow links to other organisations ranging from environmental groups to the nuclear industry; ask for the documents that supported our decision making process; and send us your comments or questions.

65. Thank you for reading this report.

## Progress since 2003

Here is where we are and where we are heading:



## Objectives

1. CoRWM is appointed jointly by Ministers of the UK Government and devolved administrations of Northern Ireland, Scotland and Wales, to oversee a review of options for managing solid radioactive waste in the UK and to recommend the option, or combination of options, that can provide a long-term solution, providing protection for people and the environment. This follows the announcement by the Secretary of State for Environment, Food and Rural Affairs to the UK Parliament, and by devolved administrations, on 29 July 2002.
2. CoRWM must ensure that this review of options is carried out in an open, transparent and inclusive manner. The process of review must engage members of the UK public, and provide them with the opportunity to express their views. Other key stakeholder groups with interests in radioactive waste management, must also be provided with opportunity to participate. The objective of CoRWM's programme is to arrive at recommendations which can inspire public confidence and are practicable in securing the long-term safety of the UK's radioactive wastes. It must therefore listen to what people say during the course of its work, and address the concerns that they raise.
3. CoRWM will have a corporate responsibility to deliver its recommendations to sponsoring Ministers in accordance with agreed work plans. It must aim to supply recommendations to them no later than the end of 2005, and sooner if possible. It will be for Ministers, with appropriate reference to their respective Parliaments and Assemblies to decide future policy for the long-term management of the UK's solid radioactive waste and to make arrangements for its implementation.

## Committee characteristics

4. *Size of the Committee.* CoRWM will consist of a Chair, and 12 Members which will include a Deputy Chair.
5. *Composition of the Committee.* CoRWM will include people with a range of expertise: people with a perspective of environmental, health, social or ethical issues, as well as people with technical experience and expertise in radioactive waste matters. Ministers hope to find these skills and perspectives: radioactive waste, nuclear materials and how they can be managed; regulation of UK processes that give rise to radioactive waste; public engagement, consensus-building and resolving conflict on contentious issues; applying ethical principles to scientific and technical decision-making; national and international environmental law; scientific and technical issues such as earth science, materials and their properties, and civil engineering; radiation protection principles and their implementation; radionuclides and how they affect the environment; environmental, health and safety issues and how they interact and conflict.



6. All members will need to be effective team workers, with good analytical skills and good judgment besides a strong interest in the process of decision making on difficult issues. A number of them will need experience of managing complex projects, drawing on public and stakeholder group involvement and discussion, excellent drafting and communication skills, or business experience and knowledge of economics.

7. The Chair, in addition, will be capable of successfully and objectively leading committee-based projects, grasping complex technical issues, managing a diverse organisation effectively and delivering substantial results, presenting progress and outcomes in public, a person with appropriate stature and credibility.

8. *Access to other sources of expertise.* CoRWM itself will have to decide how best to secure access to other appropriate sources of expert input during the course of its work. Within this, it will have option of setting up expert subgroups containing both Members of CoRWM itself and other appropriate coopted persons. A member of CoRWM will chair any sub-group of this nature and ensure its effective operation, as well as provide a clear line of responsibility and accountability to the main Committee, and hence to Ministers. This approach will enable them to draw on a broad range of expertise in the UK and elsewhere.

9. The number of such sub-groups will be kept to the minimum necessary. Their role will be that of providing advice for the main Committee to consider and assess as it sees fit, and managing any activity which CoRWM delegates to them. It will be for the main Committee to assess and decide upon the advice it receives from such sub-groups. CoRWM may also utilise other appropriate means of securing expert input, such as sponsored meetings and seminars. The Chair will ensure that sub-group work and all other activities are closely integrated with the Committee and with one another.

10. *Length of appointment.* Initial appointments will be for three years. Sponsoring Ministers retain the right to terminate appointments at any time in light of individual members' performance appraisal, changes in CoRWM's work requirements, or completion of the work required of CoRWM.

### **Programme of work**

11. CoRWM's objective is to recommend to Ministers the best option, or combination of options for managing the UK's solid radioactive waste that can provide a long-term solution, providing protection for people and the environment. The UK's waste inventory contains, or will contain, a wide range of high and low activity, short and long lived wastes. CoRWM's priority task is to recommend what should be done with the wastes for which no longterm management strategy currently exists - that is, high and intermediate level waste now in storage or likely to arise over the next century or two, and some low level waste unsuitable for disposal at Drigg. However, for some of these wastes, the Nirex "Letter of Comfort" system has provided a framework which has enabled helpful progress to be made on conditioning and packaging. (Ministers have other sources of advice on other wastes for which a long term management strategy already exists but where there may be long or shorter term issues needing attention. CoRWM may wish to offer advice

on these issues but this should not divert it from its priority task set out above.)

12. CoRWM will take a strategic approach to the review and assessment of options for the long term management of radioactive waste. It will start by gathering information and familiarising itself with the issues, including meetings and presentations as appropriate. The outline framework within which CoRWM is then expected to complete its work is:

- (i) *setting the framework for the review* through identification, on the basis of sounding public and stakeholder views, of:
- the inventory of materials to be covered (this will include not only the materials currently classified as waste liable to arise over the next century or so but also materials which may have to be managed as waste during that period, such as some plutonium and uranium as well as certain quantities of spent nuclear fuel);
  - the options for the long-term management of the various waste materials; and
  - the criteria against which each of the options being carried forward to the main assessment are to be assessed. (These criteria are likely to be wide-ranging, reflecting among other things, the potential risks involved, concerns been expressed by the public and stakeholders, and practicability of implementing each option.)
- CoRWM should take the earliest possible opportunity to identify those options which have no realistic prospect of being implemented within the reasonably foreseeable future, so that the main effort during the assessment phase can be focussed on those which are practicable.

(ii) *implementation of the review*. This will involve evaluation of each of the remaining options, for each of the wastes concerned, against the agreed set of criteria. The assessment will take account of existing information and any new research that CoRWM judges necessary. An initial assessment report will be produced by CoRWM and subjected to appropriate soundings of public and stakeholder group views. A final version will then be produced taking due account of the views expressed.

(iii) *formulation of recommendations*. The final assessment report will be used to formulate Committee recommendations to its sponsoring Ministers. We also anticipate that, during the course of its work, CoRWM will have acquired views relevant to subsequent stages of the policy programme. For example, the assessment of options will not consider potential radioactive waste sites; but it will raise siting issues – including whether local communities should have a veto or be encouraged to volunteer, and whether they should be offered incentives. CoRWM will need to consider these issues, and may want to make recommendations to Ministers on them.

## **Formulation and agreement of work programme**

13. CoRWM will prepare a detailed draft work programme, within this outline framework, that will enable it to deliver its recommendation to Ministers within the required timescales. The programme will include any proposed subgroups or other activities or events that are likely to involve significant time and effort by the Committee. CoRWM will send this draft work programme to its sponsoring Ministers for discussion and agreement at an appropriate early stage of its work. Such discussion may lead to appropriate adjustment and refinement. In considering this programme, CoRWM and sponsoring departments and Ministers will be able to take account of the parallel work with Government in this area.

14. In familiarising itself with the relevant background and issues, CoRWM will make itself aware of the UK Radioactive Waste Inventory and the nature of current and expected future UK holdings of plutonium, uranium and spent nuclear fuel. It will take account of existing technical assessments and research into radioactive waste management, and reports arising out of the Defra and devolved administrations' public consultation on radioactive waste. It will work closely with Nirex and other organisations with relevant experience and expertise. CoRWM is also recommended to meet and take presentations from appropriate key-player organisations and to visit a selection of key UK and, possibly, other European nuclear sites. It will also take account of other relevant policy developments, including the UK energy review. In particular, it is recognised that CoRWM will need to engage with the Nuclear Decommissioning Authority (NDA) and its predecessor, the Liabilities Management Unit, given that the former's output will directly impinge on the long-term responsibilities of the NDA.

15. CoRWM is recommended to aim to complete its first phase (familiarisation work and proposals for the waste inventory, the waste management options, and the criteria to be used in their assessment) after about a year from the date of its appointment. It is thereafter recommended to aim for completion and reporting of the assessment work itself (the second phase) after about a further year. Provision of recommendations to sponsoring Ministers would follow as soon as possible after that.

16. CoRWM should indicate the timing proposed for its work in the draft work programme sent for discussion with sponsoring Ministers. The intent is that CoRWM's recommendations should be delivered around the end of 2005. If the Chair anticipates that CoRWM will be late in completing any current phase or overall delivery of its work programme, he or she should inform the sponsoring Ministers as soon as possible, together with an indication of whether and how the Committee can catch up during any subsequent phases of its programme. CoRWM will agree with Ministers how to proceed so as to be able to carry its programme forward.

## **Public engagement**

17. CoRWM must inspire public confidence in the way in which it works, in order to secure such confidence in its eventual recommendations. Hence, its work should be characterised by:

- a transparency policy;

- an active programme of public and relevant stakeholder group debate, using innovative and appropriate techniques to ensure public involvement and support;
- encouraging people to ask questions or make their views known, listening to their concerns, ensuring that they are addressed and that people get a response;
- public meetings and other consultative processes, well advertised in advance and involving a variety of interested stakeholders including members of the public;
- holding a significant number of its own meetings in public;
- clear communications including the use of plain English;
- making information accessible to as many people as possible, including use of the internet, as well as ways of reaching people who do not use the internet; and
- providing opportunities for people to challenge information, for example by giving them access to alternative sources of information and points of view.

## **Chair**

18. The Chair will be responsible for supervising the work of CoRWM and ensuring that its objectives are achieved. He or she will be the main point of contact with the public and the media, in presenting progress and answering questions. The Chair will meet Ministers on appointment, and then sixmonthly to report progress. Notes of these meetings will be published. The Chair will provide an annual written report to Ministers, by 1 December, which he/she may be required to present to Parliament or Assembly representatives as appropriate. The report will set out, among other things, CoRWM's work programme, progress made, and costs incurred. Ministers will also appoint a Deputy Chair who can assist the Chair as the latter sees fit.

## **Members**

19. Members will work, under the Chair's supervision, to the programme agreed with sponsoring Ministers so as to ensure its satisfactory delivery. Members will have a collective responsibility to ensure achievement of CoRWM's overall mission. It is not envisaged that Committee Members themselves will be responsible for day-to-day work activities but rather in deciding what these should be, overseeing their delivery, and reviewing and being responsible for the reports and other output delivered under CoRWM's name. Individual Members may be appointed by the Chair to undertake specific, active roles, for example chairing sub-groups or in representing CoRWM in meetings with the public, organisations who are contributing to the work, or the media. All Members will be subject to individual performance appraisal as laid down by the Cabinet Office guide (see next paragraph).

## **Standards**

20. CoRWM is set up by, and answerable to Ministers and is funded by the taxpayer. It must therefore comply with the Cabinet Office guide "Non-Departmental Public Bodies – a Guide for Departments".

21. These and other relevant procedural requirements, including working to standards laid down by the Office of the Commissioner for Public Appointments, are set out in the **Code of practice for members of the Committee on Radioactive Waste Management** to which Members will agree prior to appointment.

### **Resources**

22. Sponsoring Ministers will provide CoRWM with resources – both staff and financial – to enable it to carry out its agreed programme of work. These will include a secretariat which will help CoRWM carry out its programme including, at the outset, providing reading material and arranging for further briefings and visits. The Chair and Members will have a collective responsibility for delivering the work programme within the agreed budget, although the Chair may request sponsoring Ministers for adjustment to this budget should this be considered necessary.

### **Payments**

23. The Chair and Members will be paid for their work for CoRWM. They will also be fully reimbursed for all reasonable travel and subsistence costs incurred during the course of their work.

Chair

[Gordon MacKerron](#), Brighton - economist and energy policy consultant, Director, Sussex Energy Group, SPRU, University of Sussex

Deputy Chair

[Dr Wynne Davies](#), Buckinghamshire - former Vice President, Group Health, Safety and Environment, Amersham plc and former Lecturer in Physics and Radiation Biology, University of London,

Members

[Mary Allan](#), Ross-shire - Lecturer, School of Business, The North Highland College,

[Fred Barker](#), West Yorkshire - consultant, specialising in nuclear policy analysis and stakeholder engagement,

[Professor Andrew Blowers](#) OBE, Bedfordshire - Professor of Social Sciences at the Open University, former county councillor, former Board Member of Nirex UK,

[Professor Brian D Clark](#) MBE, Aberdeen - Professor of Environmental Management & Planning and Board Member, Scottish Environment Protection Agency,

[Dr Mark Dutton](#), Cheshire - physicist and radiological protection and radioactive waste management expert, independent consultant, formerly with NNC,

[Fiona Walthall](#) OBE, Oxfordshire - former Colonel, British Army and former Chief Executive, Sargent Cancer Care for Children,

[Professor Lynda Warren](#), Ceredigion - zoologist and Emeritus Professor of Environmental Law at the University of Wales, Board Member of the Environment Agency,

[Jenny Watson](#), London - Equal Opportunities Commission and former Chair, Nirex Independent Transparency Review Panel.

[Pete Wilkinson](#), Suffolk - Director of Wilkinson Environmental Consultancy, former Chair of Greenpeace UK, Director of Greenpeace International and co-founder of Friends of the Earth.

(Clicking on each name in the electronic version of this document will take you to the Member's details on our website.)



### *What are our guiding principles?*

Principles may be described as statements of fundamental core values. They apply both to the way we intend to work as a Committee and to our approach to the process of engagement with the public and stakeholders. Principles 1, 2, and 3 relate to the way in which we will carry out our work. Principles 3 and 4 relate to the recommendations that, as an independent Committee, we will make. Principle 5 sets out the financial and time constraints on our work. Our intention is that these principles will underlie all that we do.

#### ***1. To be open and transparent.***

Our aim is to earn public trust by securing confidence in our actions. Openness requires that we operate in public and are accessible both in person and through our publications. Transparency means that we aim to make as clear as possible how, and why, we have formulated our recommendations. This principle is reflected in our Publication Scheme and Transparency Policy.

#### ***2. To uphold the public interest by taking full account of public and stakeholder views in our decision making.***

Our objective is to identify and evaluate the options and decide on the recommendations for the future management of radioactive waste. We shall achieve this through encouraging discussion and deliberation with the public, local political representatives, and a wide range of stakeholders. Through this process, we aim to make recommendations that are both practicable and acceptable.

#### ***3. To achieve fairness with respect to procedures, communities and future generations.***

We consider fairness (equity) to be fundamental in order to inspire public confidence. We shall try to ensure that anyone who wants to participate in the process has the opportunity to do so. We shall strive to avoid favouring particular groups, stakeholders, communities, or regions. But, we also recognise that some may have a greater interest in the process and its outcomes than others, for example, people living close to sites where waste is currently managed. Fairness also involves recognising the rights of future generations.

#### ***4. To aim for a safe and sustainable environment both now and in the future.***

This principle applies to present and future generations and embraces the natural, as well as the human, environment. In seeking to fulfil this principle, we recognise the need for input based on sound science and the application of the precautionary principle. We accept that proposals for the long-term management of radioactive wastes should seek to avoid placing undue burdens on the environment, both now and for future generations.

#### ***5. To ensure an efficient, cost-effective and conclusive process.***

We recognise we must operate within resource and time constraints. We must maintain the direction and objectives of the programme, keeping within budget and reaching conclusions within an appropriate timescale. We will ensure that other matters that are raised are considered in appropriate ways. But, above all, we will endeavour to present recommendations which have broad support and which we believe will provide a solution to the problem.