Chapter 14 CoRWM's recommendations

CoRWM is presenting an integrated set of recommendations, covering three interdependent strands. It recommends geological disposal as the end point for the long-term management of radioactive wastes and robust storage in the interim period, including provision of contingency against delay or failure in reaching the end point. The third strand focuses on implementation, including the need for a staged process, flexibility in decision making and partnership with communities willing to participate in the siting process.

1. The following are CoRWM's final recommendations. Our judgements are based on what we learned from a combination of scientific advice, overseas experience, public and stakeholder engagement (PSE), and consideration of ethical issues. Through its engagement with the public and stakeholders, CoRWM believes that its recommendations provide the basis for inspiring confidence. We commend them to Government as an integrated package and urge progress without delay so that the momentum established by the CoRWM process is not lost. CoRWM considers that continued openness and transparency is essential for the successful implementation of these recommendations.

Recommendation 1: Within the present state of knowledge, CoRWM considers geological disposal to be the best available approach for the long-term management of all the material categorised as waste in the CoRWM inventory when compared with the risks associated with other methods of management. The aim should be to progress to disposal as soon as practicable, consistent with developing and maintaining public and stakeholder confidence.

2. A large majority of CoRWM members have sufficient confidence in the long-term safety of geological disposal, and its ability to reduce the burden on future generations, to recommend it as the preferred end-point. This view took into account various factors, including specialist judgements during Multi-Criteria Decision Analysis (MCDA), the strong consensus that exists in the earth sciences community, and estimates of public exposure to radiation in the far future after repository closure. Most members considered that the risks from geological disposal were substantially smaller than those from long-term storage, which they considered to be vulnerable to terrorist actions, war, loss of institutional control, and severe environmental change. It was stressed, however, that absolute confidence in the long-term safety of geological disposal could not be assumed. One member challenged whether a judgement of sufficient confidence could be reached in the light of the uncertainties associated with repository performance and argued that the risks associated with storage could be mitigated in part by the type of storage regime adopted (siting away from the coast, underground, etc.).

Recommendation 2: A robust programme of interim storage must play an integral part in the long-term management strategy. The uncertainties surrounding the implementation of geological disposal, including social and ethical concerns, lead CoRWM to recommend a continued commitment to the safe and secure management of wastes that is robust against the risk of delay or failure in the repository programme. Due regard should be paid to:

i. reviewing and ensuring security, particularly against terrorist attacks
ii. ensuring the longevity of the stores themselves
iii. prompt immobilisation of waste leading to passively safe waste forms
iv. minimising the need for repackaging of the wastes
v. the implications for transport of wastes.

3. CoRWM recognises that there are social and ethical concerns that might mean there is not sufficient agreement to implement geological disposal at the present time. In any event, the process of implementation will take several decades. This period could last for as long as one or two generations if there are technical difficulties in siting or if community concerns make it difficult, or even impossible, to make progress at a suitable site.

4. The existing wastes in the CoRWM inventory are in storage on nuclear sites and future wastes, as they arise, will also be placed in storage. CoRWM recognises the work that the Nuclear Decommissioning Authority (NDA) and others are carrying out in relation to storage of radioactive waste on those sites for which they have responsibility. Over the timescale for implementing geological disposal, some of the UK's present stores may need to be refurbished or replaced and new stores for future wastes will be required. CoRWM's view is that arrangements are needed – as part of an overall strategy – to take account of the possibility that a repository may be delayed or may never be constructed and that there will be a need to keep the wastes secure and safe for longer than previously thought. The Government will need to take account of the specific issues raised by this requirement for interim storage:

    i. The design and engineering of new stores, and the refurbishment of existing ones, will need to take account of risks to the security of their contents, now and into the future. This includes, but is not limited to, the vulnerability of the waste form and the degree of protection provided against attack, including the possibility of putting stores underground or providing them with heavily reinforced walls and roofs.

    ii. The design lifetimes of new stores should cover a period of interim storage of at least 100 years to cover uncertainties associated with the implementation of a geological repository. The replacement of stores should be avoided if at all possible.

    iii. Regulators agree that wastes should be made passively safe as soon as practicable.

    iv. The repackaging of wastes is regarded by the regulators as inherently undesirable, mainly because of the risk of exposure of workers to radiation. They have also expressed concern about the ability of packages to contain intermediate level waste (ILW) much beyond 100 years.

    v. The transport of wastes is an important issue. In particular, the 'double movement' of waste should be avoided as far as possible, e.g., building interim stores at regional or central sites only to have to move the wastes for a second time in the event that disposal facilities are implemented elsewhere.

Recommendation 3: CoRWM recommends a flexible and staged decision-making process to implement the overall strategy, which includes a set of decision points providing for a review of progress, with an opportunity for re-evaluation before proceeding to the next stage.

5. Experience in the UK and overseas shows that implementation should be a staged process of sequential decision making, with the main elements and stages agreed as milestones by outcome, before the process starts, with clear and transparent roles for the participants. The process should be flexible and include the evaluation of ongoing research and development (R&D) and a review of progress, at pre-determined points, to establish whether there is sufficient agreement to move to the next phase and to decide whether to adopt any proposed alternatives.

Recommendation 4: There should be a commitment to an intensified programme of research and development into the long-term safety of geological disposal aimed at reducing uncertainties at generic and site-specific levels, as well as into improved means for storing wastes in the longer term.

6. CoRWM has made its recommendations on the basis of the best available scientific and societal information. It recognises that there is a need for further research into the characteristics of geological disposal in the UK and that this should address and seek to reduce the uncertainties surrounding long-term safety. More research is required into improving the robustness of storage.

Recommendation 5: The commitment to ensuring flexibility in decision making should leave open the possibility that other long-term management options (for example, borehole disposal) could emerge as practical alternatives. Developments in alternative management options should be actively pursued through monitoring of and/or participation in national or international R&D programmes.

7. CoRWM recognises that there are rapid developments in science and technology so practicable alternatives may become available in the period up to the closure of a repository. CoRWM therefore recommends a flexible approach; it would be wrong to deny future generations the opportunity to avail themselves of alternative methods because of too rigid a focus on the end-point of geological disposal. An example is boreholes where there could be benefits from the enhanced isolation and security offered for some wastes, but there is not sufficient knowledge to put the option forward at this stage. CoRWM is therefore recommending that appropriate research and development should be undertaken into alternative management options.

Recommendation 6: **At the time of inviting host communities to participate in the implementation process, the inventory of material destined for disposal must be clearly defined. Any substantive increase to this inventory (for example creation of waste from a new programme of nuclear power stations, or receipt of waste from overseas) would require an additional step in the negotiation process with host communities to allow them to take a decision to accept or reject any additional waste.**

8. Potential host communities will need to know the nature and the quantities of the waste before they consider possible participation in implementation. This was one of the key responses from PSE, both from the public and NGO stakeholders. If no decision has been taken about existing uranium, spent fuel and plutonium stocks by that time, or if additional materials or wastes are created for example, from nuclear new build, CoRWM is clear that these must be subject to a separate process.

Recommendation 7: **If a decision is taken to manage any uranium, spent nuclear fuel and plutonium as wastes, they should be immobilised for secure storage followed by geological disposal.**

9. In deriving its recommendations, CoRWM has assumed that all of the UK's un-reprocessed spent fuel, all the uranium and plutonium from reprocessing are managed as waste. Should they be declared as waste, they would have to be packaged and then stored, probably for several decades, before disposal.

Recommendation 8: **In determining what reactor decommissioning wastes should be consigned for geological disposal, due regard should be paid to considering other available and publicly acceptable management options, including those that may arise from the low level waste review.**

10. CoRWM makes a caveat regarding reactor decommissioning waste (RDW) some of which is likely to be short-lived ILW. CoRWM was not required to make recommendations about siting of facilities but notes that, if the option of disposing of low level waste (LLW) on site is publicly acceptable and is pursued, consideration should be given as to whether a safety case could be made for including appropriate RDW in order to avoid transport.

Recommendation 9: **There should be continuing public and stakeholder engagement, which will be essential to build trust and confidence in the proposed long-term management approach, including siting of facilities.**

11. CoRWM's experience highlights the importance of continuing to build trust and confidence through effective forms of public and stakeholder engagement.

Recommendation 10: **Community involvement in any proposals for the siting of long-term radioactive waste facilities should be based on the principle of volunteerism, that is, an expressed willingness to participate.**

12. Experience in the UK and abroad clearly demonstrates the failures of earlier 'top down' mechanisms (often referred to as 'Decide-Announce-Defend) to implement long-term waste management facilities. It is generally considered that a voluntary process is essential to ensure equity, efficiency and the likelihood of successfully completing the process. There is a growing recognition that it is not ethically acceptable for a society to impose a radioactive waste facility on an unwilling community.

Recommendation 11: Willingness to participate should be supported by the provision of community packages that are designed both to facilitate participation in the short term and to ensure that a radioactive waste facility is acceptable to the host community in the long term. Participation should be based on the expectation that the well-being of the community will be enhanced.

13. In the light of overseas experience CoRWM has concluded that communities are unlikely to come forward or agree to engage unless a comprehensive Involvement Package will be provided, which will, in turn, allow the negotiation of a Community Package. The scale and scope of the funding will need to be determined nationally and agreed beforehand in discussion with relevant parties. For the process to be fair, a local community hosting a facility should be better off after siting than before. This reflects and acknowledges the service that is being provided for society at large.

Recommendation 12: Community involvement should be achieved through the development of a partnership approach, based on an open and equal relationship between potential host communities and those responsible for implementation.

14. Some of the most promising programmes overseas are based on the potential host community working in partnership with an implementing body to achieve a successful outcome for both. One of the advantages of the partnership approach is that it achieves an environment in which host communities can engage with an implementing body without feeling victimised by a national process over which they ultimately have little control.

Recommendation 13: Communities should have the right to withdraw from this process up to a pre-defined point.

15. In processes that are successfully moving forward abroad, the right of the potential host community to withdraw from the process is an important factor in determining the willingness of communities to participate. This right has some limitations. There will come a point when the process of implementation has proceeded so far that withdrawal would not be possible.

Recommendation 14: In order to ensure the legitimacy of the process, key decisions should be ratified by the appropriate democratically elected body/bodies.

16. Democratic representation and ratification of decisions is necessary to achieve overall acceptability and legitimacy for decisions. What decisions require democratic endorsement, and at what level they should be taken, is a matter for further work.

Recommendation 15: An independent body should be appointed to oversee the implementation process without delay.

17. Given the long history of delay and deferment in the UK on the issue of radioactive waste management, it is clear that any new or revised institutional arrangements for progressing the radioactive waste management process in the future need to draw on the current goodwill and momentum achieved by the CoRWM process. There is a pressing need to establish an appropriate institutional basis to carry the process forward. CoRWM's view is that the staged decision-making process should be supervised by an independent body with overall responsibility for overseeing the research and development programme, the siting strategy and ensuring proper engagement with the public and stakeholders at each stage. Government should set up such a body without delay.

18. There should also be an implementing body responsible for the construction and operation of any necessary facilities, and related research and development. The roles of the overseeing body and the implementing body at each stage of the decision-making process must be clearly defined in advance. It is clear from previous UK experience and recent experience in Sweden and Finland, that the regulators have an important role in the successful implementation of the process.

CoRWM takes no position on the desirability or otherwise of nuclear new build. We believe that future decisions on new build should be subject to their own assessment process, including consideration of waste. The public assessment process that should apply to any future new build proposals should build on the CoRWM process, and will need to consider a range of issues including the social, political and ethical issues of a deliberate decision to create new nuclear wastes.