

# Editorial

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**SVEN OVE HANSSON**

Department of Philosophy and  
History, Royal Institute of Technology,  
Stockholm, SE (soh@kth.se)

Spent nuclear fuel stays radiotoxic for hundreds of thousands of years. It is generally agreed that for permanent storage, it has to be placed in containers with minimal leakage risk, deposited in deep geological formations. However, that has not yet happened. Instead, about 400.000 tons of high-level nuclear waste, accumulated from about 70 years of both civil and military nuclear activities, are kept in different types of interim storage facilities. In order to solve this problem, we need to answer quite a few difficult questions:

*Should the waste be reprocessed for reuse in reactors?* Through reprocessing, more energy can be extracted from the fuel, and the amount that needs to be permanently stored will decrease significantly. However, reprocessing is expensive, and in order to obtain full effect from it, breeder reactors are needed.

*Should the waste repository be permanently sealed, or should it be possible for future generations to retrieve the waste?* Sealing the repository prevents retrieval for beligerent purposes, but also for beneficial purposes that we may not be able to foresee.

*Should we try to inform future generations of the dangerous site, and in that case how?* It is no easy task to make signposts that remain intact hundreds of thousands of years into the future and can be understood by those who live then.

*Should we deposit the waste now, or later when we know more?* The knowledge argument for delay can always be made, since there will be no end to new scientific information. But at some point we will have to decide that we know enough. Is that point now?

*Is the deposition of nuclear waste a strictly national or also an international responsibility?* There are good reasons why each country should take care of its own waste. But on the other hand, today's nations may not be very relevant in a time perspective reaching hundreds of thousands of years into the future.

*Should local populations have a veto against the siting of a waste repository?* There are strong reasons for local influence, but can we let local influence lead to extended delays or to siting in suboptimal geological formations?

All of these are questions that technology assessment has methods and tools to analyze. Hopefully, an increased involvement of technology assessors can contribute to breaking some of the deadlocks that stand in the way of a safe permanent storage of the nuclear waste.

*Sven Ove Hansson*



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