"A DECISION-MAKING PROCESS IN RADWASTE MANAGEMENT FOR CONFIDENCE BUILDING: THE FRENCH APPROACH AND THE INTERNATIONAL CONTEXT"

Yves Le Bars, Chairman of the Board, Andra

The search for concrete radioactive waste management generates bitter debates, and mobilises not only in the restricted circles of convinced supporters and opponents, but also in relatively large circles of the civil society.

How would it be possible to go forward in such a situation and ensure in both the short and long terms a valid and socially acceptable management of radioactive waste?

In this presentation, I would like to propose a few elements of reflection based :

- on French experience as I understand it after three years as Chairman of Andra;
- on the results of the Forum for Stakeholders Confidence created by the OECD/NEA;
- and on the comments of EDRAM, an association of managers from major waste-management organisations;
- to those, I should add the observation of a European Project called COWAM (Communities Waste Management), consisting of a group of local communities confronted with radioactive-waste management.

It is necessary to note first and foremost the paradoxical diagnosis of current waste management – that is, a rather positive technical and environmental account associated with very negative social aspects.

The willingness to go forward in this context will lead to sketch the basic features of a stepwise – thus flexible – decision-making and management process over time, leading to a positive debate between the various stakeholders, to the establishment of a mutual confidence and, therefore, to the adoption of solutions by consensual agreement.

WHICH DIAGNOSIS OF CURRENT RADIOACTIVE-WASTE MANAGEMENT ?

Three aspects must be dealt with and compared*:* technical, environmental and social aspects.

Technical diagnosis

In many countries, ***a final solution exists*** for short-lived low-level and intermediate-level waste (a category of waste that in France represents close to 90 % of all radioactive waste generated). The waste involved originates mostly from the operation of current nuclear facilities.

In France, Spain, Japan and United States such a waste is disposed of in surface facilities. In Sweden, Finland, the waste is disposed of in underground facilities. Other projects are underway in Belgium, Switzerland, Korea and the United Kingdom.

In order to dispose of very low level waste, in France, we are planning a specific facility for such a waste. This Andra's new disposal facility should accommodate dismantling waste, starting in 2003.

For the short and medium-term management of intermediate long lived and high-level waste interim, solutions are implemented. Storage facilities exist, thus ensuring technical guarantees over several

decades, whether in surface or subsurface structures (La Hague in France, the CLAB in Sweden and COVRA's HABOG project in the Netherlands, etc.).

There is still ***some progress to be made*** in order to achieve a sound management of all existing radioactive waste, such as conditioning correctly all that waste that consists mostly of historical technological waste inherited from pas civil and military research, cleaning up contaminated sites, completing waste streams. In France, for example, ongoing investigations aim at discovering specific disposal solutions for radium-bearing and graphite waste (low activity, but long lived).

Bearing in mind that WIPP is the first but only TRU waste repository so far, we can say that it is primarily for the very-long term (beyond centuries) management of high-level waste (technical waste, vitrified fission products, spent fuel) that it is necessary to implement solutions, especially in terms of disposal. However, the is no operational emergency, since storage facilities already exist.

Environmental diagnosis

With respect to the impact on human beings and the environment in non-accidental situations, the following impacts were observed in France:

- a few millisieverts to the nearby population due to mine tailings.
- a few millisieverts to nuclear workers.
- but only a few microsieverts for other impacts (mostly facility releases) and even less in the case of waste transportation and waste disposal.

With regard to short and medium-term, we can say that radioactive-waste management has no impact on human beings and the environment.

It is also important to underline the fact that it is the first time that society is concerned with the consequences of its activities on its environment over such long time scales. With regard to the impacts of chemical waste for example, there is no requirement to assess its impact in 10,000 or even 1,000 years from now. On a broader basis, when comparing the safety efforts expended by the chemical and nuclear industries, it is easy to demonstrate the lead taken by the latter, so much so that, after a severe accident that occurred in France, in 2001, many people felt that existing nuclear regulations and safety organisation should also apply to the chemical sector.

Social aspects

But the way our fellow citizens perceive radioactive-waste management does not correspond at all to the technical and environmental diagnosis to which I just referred.

More than 60 % of the French population do not consider radioactive-waste management to be reliable (BVA 2000). Furthermore, 76 % consider it as an unresolved issue (1999) and radioactive waste is even perceived as more dangerous than nuclear power plants (1992, 1995, 2001).

Such an observation unfortunately seems to apply to many countries concerned with that type of problem, even if it seems the opinion has evolved positively in Sweden and in Finland.

So to conclude this diagnosis we can say : based on the technical and environmental diagnosis, radioactive-waste management does not constitute the ***weak point*** of nuclear energy, as it is often heard. And radioactive waste must be properly managed irrespective of the future fate of the nuclear energy.

However, strong concerns are raised about the efficiency of waste management, mainly focused in the debate regarding disposal solutions for long-lived high-level waste and spent fuels.

Despite of the context and of misunderstandings, it is necessary to move forward.

Furthermore, medium-term solutions would be unsatisfactory in the sense that they would put an unwarranted onus on the next generations.

GUIDELINES FOR A DECISION-MAKING AND MANAGEMENT PROCESS FOR HIGH-LEVEL WASTE

Concerns and mistrust ask that vigilance is required in several areas : clear and stepwise policy development and management processes ; a lively dialogue based on a clear framework of responsibilities ; and behaviours that reflect reliable values.

Policy definition process

First of all, it is important to set out a policy-definition process and solutions – both based on a stepwise approach – that allow for interaction and common apprenticeship between all stakeholders.

Such a process combining both the technical and social dimensions of waste management already exists in many countries.

France, for example, formalised its own policy definition process by the Law of 1991 (known as the "Bataille Law"). Sweden has already adopted one, so did Japan recently and in the near future so will Canada complete its already existing laws. The United States also has its own. Other countries, such as Germany (with the Akend process) and Great Britain (with a recently launched national debate) have also initiated a reflection on the issue.

That type of process involves a certain number of characteristics:

- It is based on research with its harvest of doubts, investigations and controversies.
- It must address several alternatives (different solutions, and possibly different sites).
- It is assessed independently on a regular basis (*e.g.,* the National Review Board, in France; Kasam in Sweden, Nuclear Waste Technical Review Board in the US…).
- Specific phase deadlines are scheduled (2006 in France; every 3-5 years elsewhere).
- It allows for mutual apprenticeship between the different partners by benefiting from various fora organised around the debate (*e.g.,* the Local Information and Oversight Committee for laboratories in France).

Waste management process

A waste-management process is also required, based on steps taking into account :

- The various types of waste, each with different characteristics, in terms of their radiological and chemical activities or of their energy potential: technological waste, vitrified fission products, spent fuels have different characteristics and constraints, and could suffer different decisions.
- The various plausible technical solutions: long-term storage, geological disposal, reprocessing for a better adapted specific conditioning, recycling or future transmutation offer different solutions and at different period of time.

– Taking into account the different decision-making levels : decision to build and operate long term storage; decision to implement a repository; decision of partial opening or closure of a disposal cell or drift backed.

Long term waste management is much more than a plain decision limited to a "yes" or "no" answer once and for all ! But several steps, different possible itinerary, and reversibility.

Significant issues need to be clarified for the implementation of those processes:

– How to maintain the continuity of institutions and financial means over the long term ? Proper financial schemes enhance confidence. And how to ensure the stability of the process while allowing it to evolve ?
– Should a decision be made on concepts prior to site selection (as in Sweden or Finland and as planned in Canada) or is it possible to define it progressively after (as in the United States for Yucca Mountain and France for example) ?
- Which equity and fairness in the siting process, so that to balance anticipated positive and negative impacts ? Which form of compensation and when ?

A continuous and lively dialogue is part of the process

The availability and application of clear information and well-designed educational methods is essential. We have to respond properly not only to the complex issues at stake, but also to the sophisticated techniques used to deal with them that often remain difficult to interpret for a large number of the people involved. With that purpose in mind, Andra is finalising its 2001 status report on the progress of its studies and investigations relating to the feasibility of a repository for high-level long-lived waste in a deep geological formation (clay) with a view to providing the elements of scientific and safety approaches. It is a draft report in anticipation of what will need to be submitted in 2005, according to the prescription set out in the Law of 1991. This status report will be available in English at the end of the semester.

However, beyond information, it is necessary to introduce a thorough dialogue within society about the management of radioactive waste. At each phase of the process, stakes must be clarified, key issues must be investigated, and above all, the concerns and expectations of the different stakeholders must be better understood.

In France, the Local Information and Oversight Committee of the Bure underground research laboratory consists of representatives chosen among elected officials, associations and unions to receive and assess the various studies undertaken on radioactive-waste management. The Committee benefits from the assistance of an independent Scientific Secretary and has already organised a symposium on "Reversibility and Its Limits". Its role is that of a standing organisation. In Sweden and in Finland, strong local communities have taken over the lead of the debate with the assistance of their experts. Several countries, like Great Britain, use citizen conference procedures. Nordic countries follow, and even go further than, the EU regulations on Environmental Impact Assessment and on Strategic Environmental Assessment.

It is important to note that such a dialogue is faced with a few obstacles :

- It is not easy, for example, to make people abandon "generally accepted ideas" on waste. And how get associations participation in the debate on radioactive-waste management despite their positions on the fate of nuclear energy ?
- In addition, is society not naturally inclined to "discard the problem" by ignoring the negative aspects of its prosperity, such as a solution to the long-term management of radioactive waste ?

- Lastly, a large number of organisations still have a secrecy culture and the participation of engineers and technicians in the dialogue would require some apprenticeship.

The institutional framework and the role of actors

It is not enough to have established a strong decision making process to build confidence. We think, with the FSC that it is essential the responsibilities of the all actors (generators, operators, regulators, government, Parliament, associations, etc.) be consistent, known and recognised in order for each actor to understand fully his ability to contribute to the decision-making process throughout each of its phases.

France has made some progress recently :

- through four-year contracts signed between the State and organisations, such as Andra, and CEA, the Atomic Energy Commission
- and through the reform of the Nuclear Safety Authority.

An independent scientific assessment is compulsory. It often exists at the national level. But in different countries local communities want to get their own independent scientific assessment.

Several issues of the institutional frame work must be closely examined, especially with regard to the early involvement of regulators as experts to the various stakeholders involved, including during the preliminary phases of the process and on sites. Such is the case in Sweden, but less in France.

The role of local communities during the different phases of the process (investigations from the surface, underground laboratory, repository site, etc.) needs to be specified. In this regard, some countries authorise the application of a local veto power (Sweden, Finland, United States but at the state level, Switzerland, etc.) and sometimes the possibility of a national appeal system or referendum (USA, Switzerland).

The respective – yet complementary – roles of civil-society associations and elected officials must be recognised. During the dialogue phase, they all have the legitimate right to express themselves and no formulated opinion may be considered as a prevailing view, or at the opposite as illegitimate. However, participation in any negotiation involves representativeness, and participation in the decision-making process requires a mandate.

Actors must reflect values in their behaviour

It is essential to comply with the spirit and rules of those processes, failing which they will stall. That means that each actor must remain within his defined missions and capacity. And may compensate for any other actors' deficiency only in accordance with a clear mandate. It is not up to the engineer or researcher to reach a decision, but up to those who have a specific mandate to do so.

More particularly, in the case of operators, it is important to underline the practical importance of :

- proceeding with the utmost rigour in their research approach (research is not an alibi to help an already decided project to be implemented.)
- duly integrating in their research programmes all requests originating from non-technical circles; In France, for example, the concept of a reversible repository was introduced in response to the requests made during previous consultations, and sustained efforts were expected on various research areas,

CONCLUSION

In France the possible decisions for High Level Waste in 2006 are not foreseeable : the national technical and social understanding on what is at stake will be prominent. Alternatives ? Long term storage for spent fuel, especially for the highly heat generating MOX fuel ? Geological disposal for part of the HLW, for non heat generating waste ? Nothing but research? Others ?

At present we put our effort on the preparation of the 2006 scientific and political assessment of the three research areas defined by the 1991 law (partitioning and transmutation, geological disposal, long term storage). But at present with only one geological laboratory, because of the failure of the search for a granite site in 2000.

And we also put effort on our contribution to the national and local debates, especially with the 2001 draft report on feasibility of a repository in clay, and through better information for a better understanding of the current all types of waste management.

In a more general manner, with FSC/NEA we understand that three components are required to ensure the sound management of radioactive waste in developed societies : a robust, stable and transparent working and decision-making process over time that defines the decision-making mechanisms; the consistent and recognised role of respective actors; as well as behaviours that reflect solid values of proficiency, integrity open-mindedness and perseverance.

As technician we must recognise we are in a process which conclusion cannot be written beforehand. But because we are technician, we have to scout the different possible options in order to provide the society with reliable solutions.

Note : See FSC/NEA publication on : www.nea.fr

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