Citizens' engagement in designing future scenarios for nuclear waste management in France

Working Material Nuclear Waste Management

Historical and institutional context

French Public Administration

The French institutional framework cannot be characterized in any very simple way. France is known as a country very centralised, bureaucratic and "colbertist" but there exists also a traditional political culture in the French *Republique* that is far from authoritarian (think for instance on French Revolution and May 68). Nevertheless, the "decline of deference" in authority observed in many democracies is certainly not so evident in France.

Rooted in Napoleonic times, French administration has three main lower levels under the central, and principal, administrative services[1]:

a) The local authorities: *communes, communautés de communes, communautés d'agglomération, communautés urbaines, villes*…
b) The *Départément* (the governmental body is the *Conseil Général*),
c) The *Région* (the governmental body is the *Conseil Régional*).

The national administration spread out all over the country mainly through the *Départements'* level, from where the main national policies are assured and controlled. As a general rule, there is a *Préfet* in each *Département* representing the state. An ensemble of administrative bodies, namely the de-concentrated state services (*services déconcentrés de l'état*), are also situated at this level.

The prestigious "great corps of the State" do also play an important role in the French administration[2]. They are mostly engineers issued of the "*Grandes Ecoles*" system (*Mines*, *Ponts*, *Polytechnique*, *Ecoles Normales*…) employed in high-level executive positions (rather than in purely technical positions). They occupy key positions in all the administrative bodies and in the more important enterprises whether public or private.

Together with the omnipresence of the State apparatus, one can say that an utilitarian ethics is commonly acknowledged in the country: it is right what promotes the best consequences for the most people. This principle goes with a tradition of compensate communities that endure loss for the national good. Even so, this centralist and utilitarian imprinting is often at odds with another long-standing theme of the French nation: the insistence on the supremacy of the individual. As Charles de Gaulle put it, "One can't impose unity out of the blue on a country that has 265 kinds of cheese."

[1] See http://en.wikipedia.org/wiki/Government_of_France and http://en.wikipedia.org/wiki/French_Civil_Service
[2] See http://www.vie-publique.fr/decouverte-institutions/institutions/administration/acteurs/quels-sont-grands-corps-etat.html

In this sense, important changes seem to be taking place in France. French politicians refer more and more to participatory forms of democracy. Wider transparency is currently a leitmotiv in public administration in general. Some scholars even speak about a deliberative turn originated in the first 1990s[3]. Such deliberative turn get materialised institutionally, for example, by setting "experimental laws". Aiming to facilitate the formation of the sound arguments needed to take future decisions, experimental laws have a limited application in time, and foresee their results' assessment. Another example is the creation of the National Commission for Public Debates, the CNDP, in 1997 (see http://www.debatpublic.fr). The CNDP is an independent public institution that organises and implements public debates long before the development of major projects and entrusts specific Particular Commissions (CPDP) to deal with. These debates are intended to step towards the decision making process, not in the sense of making a decision or negotiation but rather as a way of getting information and giving expression to all range of arguments. They are usually devoted to infrastructure projects. Nevertheless, a major public debate covering energy policy was instituted in 2003, and followed by three concerning nuclear energy specifically, including a debate on long-lived radioactive waste (http://www.debatpublic-dechets-radioactifs.org). A constant plea for "*concertation*", a word meaning something between merely consultation and real co-decision, states this trend (and how participative democracy is understood *"à la française"*). This concept appears in many policy texts and even in legal dispositions, as it does in the Programme Act 2006 about Radioactive Waste Management that frames this Case Study.

Nuclear Waste Management in France[4]

France carries an extensive nuclear energy programme including all steps of the nuclear cycle fostered during the oil crisis in the mid-1970s. This programme deserved a general support all along the pre-Tchernobyl period. Nowadays, almost 80% of electricity supply comes from this source but attitudes are divided, in particular concerning the issue of nuclear waste.

Spent nuclear fuel is mostly reprocessed in an industrial facility at La Hague. In doing so, the "valuable substances" (plutonium and uranium) can be recycled as new fuel whereas the by-products of the processing (fission products and minor actinides) are confined in a glass matrix and put in steel containers. This vitrified waste is considered as "*ultimate radioactive waste*". It represents less than a 1% in volume of the existing nuclear waste in France, but has the higher level of radioactivity (it concentrates in fact more than 90% of radioactivity out of all wastes). Indeed, it remains radioactive for the longer period of time (hundreds of thousands of years). In France, this waste is usually associated in management prospects to another kind of long-lived nuclear wastes also related to the nuclear fuel cycle, though of medium activity. These are equally considered as ultimate radioactive waste and conditioned in different matrices. Both kinds together are the object of ANDRA's HAVL project[5]. By

[3] A process of increasing local autonomy started already with the decentralisation Act of 1982

[4] For general information on this part, see R.J. van den Berg and H. Damveld, Discussions on nuclear waste – a survey on public participation, decision-making and discussions in eight countries: Belgium, Canada, France, Germany, Spain, Sweden, Switzerland, United Kingdom, Laka Foundation, The Netherlands, 2000. http://www.laka.org/info/publicaties/afval/2-discussions-00/ingang-discussions.html

[5] HAVL = Haute Activité à vie Longue (High Level and Long Lived Waste)

now, they are mostly stored in La Hague and Marcoule facilities (see boxes A, B, and C in annexes).

As chemical toxicity of these wastes persists for so long, even if radioactivity level decays with time, the main concern is how to control radionuclide release and their spreading out in the human environment. In accordance with a multi-barrier concept of security, deep geological disposal seems to be the reference solution of high-level long-lived wastes management[6]. Besides the matrices, the containers, and the facility, the soil acts as a natural barrier that retards transfer towards biosphere. The main phenomena to be avoided are thus water circulation, contact of waste and human actions. Not to burden future generations with the problem is usually advanced also as an argument for this option.

However, the searching for a deep repository site in France has been rather intricate. The CEA (French Atomic Energy Commission), a governmental agency, carried out studies on various types of rock in the 1980s and seek for a laboratory site. The test drillings undertaken at four potential sites by ANDRA, part of the CEA at the time, faced important protests and a moratorium was decided in 1990. Thereafter, the Parliamentary Office for the Assessment of Science and Technology Options (OPECST) entrusted MP Mr. Bataille to write a report on the issue with the view of preparing a law on radioactive waste management.

Bataille's report (1990) recommended the creation of at least two underground laboratories, in which no nuclear waste would be disposed, based upon the selection of potential candidate sites[7]. A more democratic process involving elected representatives and local communities should therefore be developed. According to him:

"the 1990s must mark the end of the cult of secrecy in nuclear affairs (…). The future of nuclear energy in our country depends on our capacity to develop democracy".

This claim clearly denounced the *nucleocratic* way of doing things, rather pervasive in French nuclear policy at the time. Furthermore, he also recommended to assign local mediators in possible sites and offer to communities that possibly wanted to host a laboratory a yearly amount of FF 5 million (around 75K €), prior to the FF 60 million (around 9 million €), when agreements signed.

The Bataille's report also states that ANDRA should be removed from under the CEA to carry on a more independent work and that research to reduce nuclear waste's toxicity had to be increased.

1. The 1991 Act on Nuclear Waste Management

The subsequent Nuclear Waste Management Law adopted all these recommendations one year later, in 1991. This Law was designed as an experimental law dealing with "Radioactive

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ANDRA is an independent State Agency in charge of Nuclear Waste Management in France. See: http://www.andra.fr/sommaire.en.php3

[6] This contention is usually shared at the international level. Worldwide researches have prioritised the rock structures of salt, granite, and now clay as presenting the best proprieties for confinement but no deep geological repository for this kind of waste exists by now. Otherwise, it should be noticed that waste classification and conditioning is not the same in all countries.

[7] He started the search with 28 potential candidate sites (and ruled out those previously engaged).

Waste Management **Research**" for long-lived, high-level wastes. It was the legal instrument for the creation of underground research laboratories in potential host formations (at least in two, as a principle). The corresponding *Départements* (and later the communes) would receive important financial compensations and no nuclear waste could be stored in. The Act required that research should be carried out on three axes, and that an overall assessment of the research should be discussed in parliament in 2006. At that new meeting, 15 years later, a draft law on future waste management defining the future strategy should be adopted by the Parliament again. Therefore, the 1991 Law initiates a stepwise decision-making process consisting on the study of alternative solutions. It introduced independent assessment[8] and also stated the independence of ANDRA in relation to waste producers. ANDRA became an independent state-owned organization, though with a commercial character, reporting to the ministries of industry, environment and research[9].

The three research axes were the following:

- partitioning (actinide separation) and transmutation, aiming at reducing the toxicity of the radioactive substances. They were assigned to the CEA;
- evaluation of retrievable versus non-retrievable options for **disposal** in the deep underground and realisation of underground laboratories to this purpose (assigned to ANDRA);
- studies on conditioning of waste and long-term aboveground **storage**[10] (assigned to the CEA).

Next year, a mission of mediation is given again to MP Mr. Bataille in order to choose the candidate *Départements* susceptible to host the laboratories. The selection was firstly conducted on the basis of the willing of local officials (at the *Département* level). The voluntary *Départements* were afterwards assessed according to the following main criteria:

- geological criteria: hydrogeological conditions, soil stability, depth and mechanical proprieties of the strata, absence of valuable resources (geothermic, mineral…);
- political criteria: consensual acceptance (the "*concertation*" brought by Mr Bataille with the local actors in each voluntary Département);
- economic criteria (although of secondary importance)

2. The choice of a laboratory site

Four *Départements* (Meuse, Haute-Marne, Gard-Marcoule and Vienne) were selected according to these criteria and the four councils voted in favour of hosting a laboratory[11]. In the meanwhile, a National Assessment Commission (CNE) emitted technical reserves about the granite site in Vienne (because two aquifers and the high permeability of the rock). It also

[8] The Commission Nationale d'Evaluation (CNE) was created by the 1991 Act in order to assess, every year, the research programme concerning the management of radioactive waste.
[9] This also involved a switch-over since the purpose was to make clear that not only was the State responsible for managing and conducting research on radioactive waste, but it was also exerting a full control on policies that might have been imposed otherwise by waste producers.
[10] The difference between storage and disposal should be noticed. Whereas disposal has a definitive purpose (the facility being normally "a repository", in industrial terms), storage has a more temporary character.
[11] A total of 30 Départements had showed initial interest, but of these, only 10 could meet geological criteria. Others were dropped due to their own withdrawal or because there was too little support on behalf of the *Conseil Général*.

expressed concerns about seismic activity in the deep marl site at the Gard *Département*, where a strong opposition of wine producers had also aroused. The clay formation existing in the Meuse and Haute-Marne *Départements* seemed to be the preferred site at the time and would be finally chosen to host the laboratory[12].

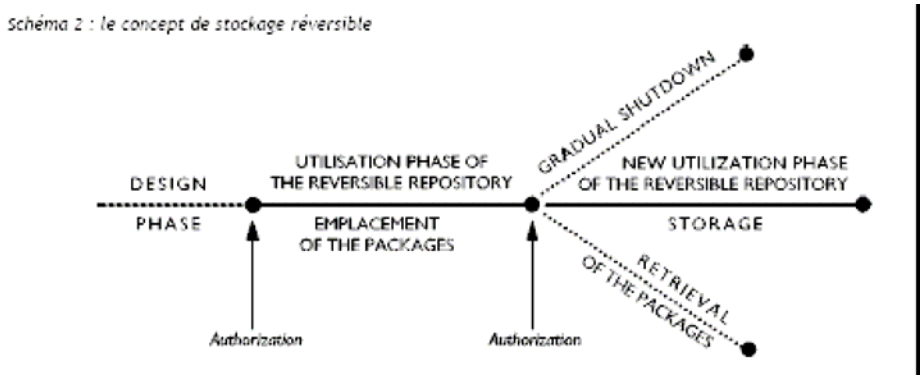
It was clearly acknowledged that the favourable vote of both *Départements* was just about hosting the laboratory, the construction of a deep geological repository needing a new consultation at the issue of the research work. The *Conseil Général* of Haute-Marne voted in favour with only one vote against in 1993 and that of Meuse unanimously agreed in 1994. The condition of acceptance was the economic development of the territory, which was facing depopulation and economic difficulties[13].

The process involving the four *Départements* being considered for underground laboratories was, however, strongly criticised because lack of transparency and not having consulted local populations sufficiently as required by the 1991 law. In 1994, there was a legal complaint, shared by the government commissioner, on the basis of the *concertation* process deficiencies. But the *Conseil d'Etat* considered the *Conseil du Département* as a representation of the population in it and rejected the demand in 1997[14].

In 1997, the *Conseil Régional* of Champagne-Ardennes, where the *Département* of Haute-Marne is located, voted in favour of the proposed site at Bure (Meuse/Haute-Marne). A majority voted against the plans, though, in the *Conseil Régional* of Lorraine, where the *Département* of Meuse, and thus Bure, are located[15]. The *Département* of Meuse did not vote officially at this occasion, but the amount of written objections presented in the public query that took place in this *Département* reached 6.500. The councils of the directly concerned communities also voted in favour. It seems, however, that attitudes were less positive when ANDRA defined the laboratory work as a "pre-study for disposal", people fearing that the process for the construction of a disposal repository *there* had already begun. Groups of elected officials of all the administrative levels got established in each candidate *Département* against the construction of underground laboratories. The various groups unified also in a national association. In the Bure region, the association integrated both *Départements* and was called the AEMHM (*Association d'Elus de Meuse/Haute-Marne*)[16]. They defend the waste storage at the production sites to keep it accessible and monitored instead of disposed (and thus, as they say, forgotten) in a deep repository.

[12] The clay formation is the Callovo-Oxfordian of the Paris basin. The laboratory is currently located in Bure, at the Meuse Département, but just at the border of Haute-Marne.
[13] The territory is characterised in official documents as exocentric, of rural dominance, with few population and very small communities (mostly less than 200 inhabitants)
[14] The plaintiffs argued that the meeting with Bataille only took two hours without real involvement of the affected population. On the subject of public involvement, the law states in Article 6: "Locally elected officials and the population of the affected site shall be involved [in French, the word "concertation" is used] pursuant to the provisions of a relevant decree before any preliminary site investigation for a proposed underground laboratory shall begin". In fact, as previously shown, in Bataille's mission the real decisions about cooperation were actually being made by the department council and MP Mr. Bataille. Other criticisms concerned the scarcity of impact studies (in particular about economy and tourism). In 1995 the CNE also noticed a shortage of studies on socio-political aspects of waste management.
[15] This vote had no legal power as the official deadline had already elapsed.
[16] The fact of involving two different *Départements* in the setting of the laboratory aimed, according to them, to the de-structuring of the opposition. Only one of the *communes* in the 10 kms around Bure belongs to the association.

Brief, council votes varied in the municipal, departmental or regional outcomes and opinions changed with time. Provided a "*concertation*", votes can be certainly overruled by the national government. Nevertheless, the government is expected to take the whole process into account. The decision about the laboratory setting was finally taken at the ministerial level in December 1998. And the condition of waste retrievability, object of discussions since the 1991 Act and MP Mr. Bataille's Mission, became a sine qua non. The concept of a reversible repository can be schematised as follows:



A search began to identify a second site where research into granite formations could be carried out, but the project was not met with any local support and was finally abandoned in 1999 following numerous opposition movements. The negative argument persists since then that Bure was chosen because the others refused. Furthermore, things changed even at the level of the Meuse *Département*. For instance, one important member of the council, the mayor of Verdun, became an opponent to the plans, and some 5,000 people attended a demonstration in the city in March 1999.

Nonetheless, the decree authorising the laboratory was signed and counted with the agreement of the green representative in the government Mss. Voynet, in spite of resistance within her Party, with the condition of making retrievability an integral part of future repository policy. At the same time, a new independent nuclear safety regulatory authority was created, the Superphénix reactor (head of a new generation) was stopped and the government asked for an overall economic evaluation of energy policy, including the reprocessing discussion.

The process of financial compensation entered then in a new phase. Before, all the *Départements* candidates to host the laboratory received funds. Now, the compensatory measures gain in legitimacy. They were designated to those actually hosting the laboratory: the two *Départements* (Meuse and Haute-Marne) and the implicated *communes* (the commune of Bure and those in a proximity zone within a circle of 10 kilometres around). A local information and oversight committee (CLIS) was created in order to evaluate the research advancement and get informed the population. It was composed by government members, local communities' officials, laboratory representatives and environmental protection organisations[17]. A specific institution, a *Groupement d'Intérêt Public* (GIP) was settled in both *Départements* to manage the compensation budget (aiming to the development

[17] It was presided by the Préfet (the only authorised to engage payments) and composed mainly of elected officials and economic actors. There were less than 10% of associations' representatives. According to the collective Bure-Stop, the CLIS is not devoted to debate but to bond an adopted policy (see www.burestop.free.fr)

of both territories in a project basis). Their members belong to all the levels of the public administration (including the communes of the proximity zone), to the Consular bodyes (Chambers of Commerce and Industry, Agriculture, Professions), and to the financing bodies (ANDRA and waste producers). A *"Groupement d'Intérêt Local"* (GIL), based on the three existing inter-communal structures, was also created to manage a part of funds, allocated to the proximity zone (a 20% of the ANDRA's part). These devices allows the majors of the (very) small communities around Bure to take part in the funds distribution and have an important influence in the decisions. The *commune* of Bure received also specific allowances for two years at the occasion of the construction works. Finally, an interdepartmental coordination was previewed within the GIP for transversal actions.

Despite the importance of the compensation measures and the institutional agreement on the laboratory setting, the opposition increased. One of the main arguments was that the Bure choice was mainly due to socio-economic reasons (rather than based upon scientific criteria). A demand for a second laboratory is still recurrent (see www.francoisdose.com). Scientific and technical issues are also the principal tool used by the opponents to put obstacles in the project development. For example: demands of scientific counter expertise (geothermic), dismissing of existing studies (fractures in the rock, water presence…). This strategy legitimates the opposition[18]. But it pushes ANDRA's research accordingly, as well.

Many criticise the retrievability concept as an absolute non-sense, deep geological disposal having *per se* a definitive purpose. For some, the real stake is the nuclear fuel cycle as a whole and pursuit the abandon of the French nuclear program (www.burestop.free.fr). According to them, to find a solution for nuclear waste is to solve the future of nuclear policy[19]. Others, like the AEMHM (www.stopbure.com), make proof of pragmatism and claim that is not a question of being for or against the nuclear policy: waste existence cannot anyway be denied. They affirm however that surface storage is a better solution because, in terms of risks, what really matters is transport and manipulation.

3. The 2006 Act

At the end of the period marked by 1991 Act, in mid-2005, the Dossier with ANDRA's research was submitted to the government. The scientific and regulatory assessments of the Dossier were entrusted to the National Review Board (Commission nationale d'évaluation – CNE) and the Nuclear Safety Authority, respectively. The French government also requested that an international peer review be carried out under the aegis of the OECD Nuclear Energy Agency (NEA). They conclude the feasibility of a deep geological repository.

The government also wished that a national debate be organised before the 2006 law concerning the long-term management of radioactive waste and called upon the CNDP. After six months of preparation, the debate included 13 meetings that were held in different cities from September 2005 to January 2006. Scientific and technical themes, management

[18] Five representatives of associations and trade-unions quit the CLIS because their demands were kept back: CDR 55, ADECO 55, Confédération Paysanne 55 and 52, CFDT 55

[19] Since 2004, AEMHM and Bure-stop (as well as those associations that quit the CLIS) are members of an important national network called "Sortir du Nucléaire" (Get out of the nuclear) www.sortirdunucleaire.org. However, Greenpeace and nuclear counter-experts (like CRIIRAD or GSIEN) are not very present in the local debate.

strategies and governance were discussed at length. In its final report, the Commission stressed the existence of a general demand for:

- all waste categories to be taken into account by the legislation (whereas 1991 Act concerned only long life waste) ;
- the need to improve governance regarding radioactive-waste management;
- the advantages of a stepwise decision-making process: to consider different stages allowing to include the new research findings;
- and the need for a true economic-incentive programme for the territories on which any deep geological repository would be implemented.

The new 2006 Act continue to give pace to investigations on partitioning and transmutation and institutes deep geological disposal as a solution of reference for HAVL waste. The law prescribes specific deadlines for the different management solutions to be enforced. The study of a disposal facility for HAVL waste is assigned by law to ANDRA, given the following general orientation: "after storage, any ultimate radioactive waste unsuitable for disposal in a surface or shallow facility due to concerns pertaining to nuclear safety shall be disposed of within a deep geological formation" (2006 Act, Art. 6). This waste repository must be designed to maintain the waste "for a potentially definitive purpose" (2006 Act, Art. 5). Concerning this **reversible** repository, all relevant elements shall be gathered in order for the corresponding application for the implementation of a deep geological repository to be submitted and reviewed by 2015. This date is compatible with the production schedule of high-level and long-lived waste by the French nuclear-fuel-cycle industry.

The 2006 act also introduces important changes with respect to the Law of 1991. It institutes the National Radioactive Waste Management Plan, reviewed every three years, in order to attribute a relevant management solution to all categories of radioactive waste[20]. It reinforces the status of the existing GIPs devoted to the local development in the Meuse and the Haute-Marne. It improves the status of the local consultation and information structure for elected officials and citizens (CLIS). Significantly the word of the acronym "*surveillance*" (oversight) has turned into "*suivi*" (follow up). He is in charge not only of information and follow up but also of "*concertation*" about research on nuclear waste management, and on deep geological disposal in particular. The CLIS will not be presided by the Préfet and can have the status of an association. The law institutes also a High Committee for the Transparency and Information on Nuclear Safety and both can initiate coordinated actions.

The approach has therefore moved from a rationale based on burying the waste and, to some extent, on forgetting about it, to the approach of a responsible manager who may be called upon not only to recover the waste during a certain timescale, but also to ensure the monitoring of the facilities and of their environment, sustaining thus any further decision either to retrieve waste packages or to close disposal drift or access tunnels. This approach intends also to allow future generations taking part in the decisional process.

Since the Act of 2006 prescribes that no disposal site may be proposed if its host geological formation has not been submitted to various studies within an underground research laboratory (URL), all investigations for the future repository will need to be concentrated in

[20] To regain the public confidence, ANDRA has also been charged now of the regular publication of an updated national inventory of all radioactive waste present on French soil, even with regard to military activities, which are normally secret in nature.

the Bure area. Proposing a site will be the main challenge before submitting by 2015 at the latest an authorisation application to implement a waste repository. A 200-km2 transposition zone has been already acted around Bure: its geology is well described and its characteristics are deemed sufficiently similar to those of the Bure Site to be directly transposable to the zone (where living less than 3000 inhabitants). More precisely, the 2006 Act institutes that studies and investigations concerning a "reversible waste disposal in a deep geological formation" shall be conducted "with a view to selecting a suitable site and to designing a repository in such a way that, on the basis of the conclusions of those studies, the application for the authorisation of such repository be reviewed in 2015 and, subject to that authorisation, that the repository be commissioned in 2025" (2006 Act, Art. 3). In addition, the law requires that, before the submission of such application, a public debate organised by the independent National Commission of Public Debate (CNDP) takes place on the basis of a case report also prepared by ANDRA (2006 Act, Art. 12).

For ANDRA, a reversible repository means, in fact, designing an underground facility that may be managed as a storage facility during its first phase but that may be gradually closed without requiring any further human intervention. Consequently, the socio-technical control of such a facility is developed on a stepwise basis: the shutdown of the facility may be implemented progressively in order to reduce gradually the reversibility level as decisions are taken to move forward in the closure procedure. It implies inner control of the system behaviour (the thermo-hydro-mechanical system). It could also take into account that researches for advanced processing and transmutation remain open. Nevertheless, it is generally acknowledged that produced transmutation would not be relevant for the existing as well as the committed fuels and waste.

ANDRA will be also responsible for waste acceptance according to criteria complying with the requirements of the operated facilities, and for storage, knowing that some HAVL waste should be first stored for several decades to cool down before its emplacement in the confined geological formation. ANDRA's report should therefore define waste acceptance criteria and balance the possible combinations between storage and deep disposal in relation with the type and package conditions of radioactive substances. Moreover, ANDRA's responsibility comprises the whole process from package reception to waste transport, temporary storage, reversible disposal and potentially definitive management, as well as the respective socio-economic implications.

As shown before, the possible futures concerning HAVL waste management present a high degree of scientific and technical complexity. Furthermore, social complexity plays also an important role, since many actors and institutional levels (local, national, international) are implied. All those elements, whether scientific, technical, socio-economic or political, will nurture the public debate prescribed by the Law of 2006 in preparation for the authorisation application to implement a disposal facility for high-level and long-lived waste. Public acceptability of the parliament decision in 2015 depends to a great extent on the comprehension of the different options under consideration, and what at stake in each of them. ANDRA should provide the CNDP with precise information about possible alternatives, and frame therefore the discussion of the public debate in 2013, which is not an easy task. For that reason, ANDRA is willing to open the process to external actors and, in particular, to engage in a participative procedure with the local population.

The exercise

ANDRA is in charge of studies and researches to demonstrate the feasibility of a reversible repository for high-level and long-lived radioactive waste in a deep geological formation.

The decision on this topic is being taken by the parliament in a stepwise approach. The next step is expected for 2013 in relation with the studies and researches carried out by ANDRA. The previous law institutes transparency and "concertation" with the local population as basic principles for the Agency procedures. Prior to the political decision, and as a part of its mission, ANDRA has to show progress, in particular, in the two following directions :

a) The 2006 Act identifies a zone of transposition for the construction of a reversible repository of 200 km2 around the Bure laboratory (Meuse-Haute Marne). By 2009, ANDRA has to propose to the government a small zone of interest of 30 km2 where refining research and finally settle the disposal facilities.

b) Before that, by 2012, ANDRA should prepare a dossier for a National Commission on Public Debate. This institution will assemble the various stakeholders' dossiers ("cahier d'acteurs") and organise a public debate in the issue.

You are in charge of advising ANDRA about how to engage the local population in the process. You are asked to define the frame in which the participative procedure will take place and to propose (and justify) a participatory programme. The proposed programme will refer:

- to the zone restriction in 2009,
- to the preparation of the debate in 2013,
- or (better) to both.

Further reading:

Radioactive waste management research: an ongoing process of advances, by Charles Courtois in:
http://www.cea.fr/var/cea/storage/static/gb/library/Clefs53/pdf-gb/004-08pcourtois_53gb.pdf

Industrial solutions for long-lived, high- and intermediate-level waste, by Jean-Guy Devezeaux de Lavergne and Bernard Boullis in :
http://www.cea.fr/var/cea/storage/static/gb/library/Clefs53/pdf-gb/036-42pdevezeaux_53gb.pdf