

MUTADIS

Public Information and Participation in Nuclear Activities (PIPNA)

**Assessment of good practices on the participation of civil society in the development of
nuclear activities**

Final report

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1. CONTEXT, PURPOSE AND OBJECTIVES

The European Commission DG ENER contracted end 2011 with MUTADIS Consultants for a service contract regarding the "Assessment of good practices on the participation of civil society in the development of nuclear activities".

While "Transparency is mentioned in both safety and radioactive waste directives", it is however stated by the European Commission that: "participation and information is still not sufficiently developed in some Member States". According to these legal provisions as well as to fundamental environmental provisions (EIA, SEA and UNECE Aarhus Convention), "Civil society groups should have the opportunity to participate effectively in the process of decision making".

The ENEF Working Group on Transparency (WGT) has issued 22 recommendations (see annex 2) to the Commission, to governments and to stakeholders in the nuclear debate to improve practices on information, communication, participation and decision-making in nuclear matters.

The scope of this contract is to define an appropriate framework for the promotion of transparency and public participation in the management of nuclear activities, incorporating the recommendations and good practices identified by the ENEF WGT and taking into account cultural diversity in Europe. This analysis has been carried out taking into consideration the relevant initiatives or legal framework on public participation in the nuclear sector in Europe (national laws, Aarhus convention, SEA and EIA directives). It is also making reference to evaluation practices and methods stemming from different economic sector and related to information, awareness raising and transparency in the field of environmental and sustainable development.

The current report proposes a method and a process for managing transition towards active public information and participation in specific fields of nuclear activities with pluralistic groups of stakeholders at the local, national or European level. Another expected result is to consolidate the impact of existing local and national initiatives, increase their visibility and their anchorage in the process of decision-making.

The report includes a summary of the main findings in risk governance projects performed in the recent years, on which the proposed method is grounded. It then presents the principles underlying the method and describes the proposed process. It includes analytical sheets for 6 specific fields of nuclear activity that are tools to support discussion within the stakeholder groups. A specific strategy for the EC to contribute to this transition is proposed.

2. EXECUTIVE SUMMARY

2.1. Managing a transition towards active public information and participation in the context of nuclear activities

Raising the level of transparency, achieving active information and participation of the public, and developing inclusive governance of nuclear activities are now widely recognised as an essential goal in order to improve their sustainability. It is however not an easy task and notably the high level of technical elaboration indeed makes difficult public access to information and public comprehension of the context in the perspective of efficient participation. This situation is at the origin of a trend of research and experimentation regarding the development of public information and participation in various fields of nuclear activities in the past decades leading to concrete improvements in some nuclear activities at least in some member states or in some regions of the EU. Looking for a strategy for managing a transition towards improved information and participation, the following factors have to be considered:

- Necessity to establish a cooperation framework between the concerned stakeholders (the operators, the public authorities, the experts, the NGOs, the population, etc.) and at first to be convinced that the corresponding changes will be mutually beneficial (win-win situation).
- Establishment of a sound articulation between the debate on the justification of future nuclear activities and the question of public information and participation in the context of existing nuclear activities.
- Customisation or re-interpretation of the good practices by the actual concerned actors according to national specificities.

Managing a transition towards active public information and participation makes it necessary to take into account the specificity of each of the specific fields of nuclear activity. In this perspective, we think useful to consider specifically the following activities:

1. Management of radioactive discharges and surveillance of radioactivity in the environment around nuclear facilities
2. Radioactive waste management
3. Nuclear emergency management, post-accident and long term management
4. Nuclear safety management (including transport of radioactive materials)
5. Nuclear new build and facility siting
6. Decommissioning of nuclear facilities

Starting from the indicators established by the ENEF WGT, it is interesting to situate them into the broader context of European thinking on public information and participation and inclusive governance concerning hazardous activities in general and nuclear activities in particular. In this perspective, the following basic principles (see box hereunder) have been derived from the various European experiences examined, notably the ARGONA and COWAM In Practice European research projects, and the stakeholder engagement process carried out by the British Environment Council in new nuclear energy build policy.

Basic principles for inclusive governance of nuclear activities

- Provide a *safe space*¹ for discussion;
- Give *access of civil society to expertise* to favour their engagement into the process while developing their own understanding of the issues at stake and preserving their autonomy;
- Have *flexibility in the design of the dialogue process* in order to give opportunity to the stakeholders to adapt the dialogue process to their needs and constraints;
- Organise the *power sharing* within the dialogue process;
- Develop the *inclusiveness* of the process to encourage the participation of all stakeholders who have an interest in or who would be affected by decisions;
- Ensure the *independence* of the dialogue process;
- Ensure the *responsiveness* of decision-makers engaged in the process;
- Develop a *collective learning* process in which every engaged person and/or organisation should learn from other participants;
- Allow the participants to *reframe* the issues at stake;
- Ensure the *accountability* of the initiator of the process;
- Ensure the availability of adequate *resources* for supporting stakeholder engagement;
- Enable the participants to exert some *reflexivity* over the process itself, by assessing its quality on the course of the process in order to adapt it to emerging needs.

Various conditions have been identified above in order to facilitate evolutions towards improved public information and participation in the context of nuclear activities. Such evolutions are linked with the existence of “processes” engaging a relevant and pluralist group of stakeholders. The considered process might be limited in time or permanent. The relevant context where the evolutions are to be achieved should be clearly identified: What is the specific nuclear activity in the scope of the process? At what level of decision (local, national, European) is it foreseen that progresses are to be achieved?

The initiators of the process can be:

- Public authorities or governments (at local, national or international levels),
- The operator of the considered nuclear activity be it public or private,
- A group gathering personalities from the civil society or a NGO bearing specific concerns vis-à-vis the activity,
- Some more neutral parties (e.g. Ombudsman, Parliamentary office, Aarhus Focus point, intergovernmental organisations, like REC, European initiatives like Aarhus Convention & Nuclear, etc.),

¹ As defined by the ARGONA European research project, safe spaces are spaces of interaction where ‘different stakeholders can move forward together to increase their understanding of the issues and also of their respective views without being committed to find common solutions, which may cause certain stakeholders to feel like hostages for a certain purpose’.

- In some cases, temporary experimental processes have been initiated within the frame of a national or European research project (RISCOM², COWAM³, ARGONA⁴, IPPA⁵).

2.2. What should/could be the role of the European Commission?

It is foreseen that the EC can contribute to foster the development of initiatives and support them in several manners. For this purpose, this report is providing several contributions and tools that may enhance the existing or planned initiatives. These are:

- *Methodological guidelines* in the perspective of managing a transition towards improved public information & participation in a given (local, national, European) context of a selected nuclear activity,
- *Analytical sheets*, mapping the public information and participation stakes in the specific context of the six considered nuclear activities (see the list above). Analytical sheets are grounding on meaningful practices and experimentations in the specific contexts of each area of nuclear activity.
- *A set of draft reference criteria* (Generic Inclusive Governance Patterns) for assessing governance patterns in the context of the 6 considered activities.

In order to facilitate dialogue and reframing of issues, kick-off interactions in the considered processes can be achieved by putting into discussion the proposed *analytical sheet* for the considered activity. The Generic Inclusive Governance Patterns (GIGP) are proposed as basis for a possible European reference standard to the involved groups of stakeholders (see chapter 7). GIGP should not be regarded as a model that would apply to any context and should not be regarded as a kind of compulsory framework, but as a reference level, in the same way than the IAEA INSAG 4⁶ (1991) on safety culture.

It is suggested that the proposed contributions and tools of this report would be discussed, completed and validated by a pluralistic group of stakeholders at EU level. A specific platform can be settled by the EC in order to hold this dialogue among stakeholders. Another option could be to examine with other interested parties⁷ at EU level the possibility of a joint initiative in order to achieve this validation process.

² See K. Andersson et al., Transparency and public participation in radioactive waste management. RISCOM II final report, SKI Report 2004:08, October 2003. (http://www.karita.se/docs/SKI_Report_2004_08.pdf)

³ Final reports of the COWAM, COWAM 2 and COWAM in Practice are available on the COWAM website: <http://www.cowam.com>

⁴ see ARGONA reports on the project website: <http://www.argonaproject.eu>

⁵ see IPPA project website: <http://www.ippaproject.eu>

⁶ see 4th report of the IAEA International Nuclear Safety Advisory Group (INSAG) : “Safety culture”, (available on the IAEA INSAG webpage: <http://www-ns.iaea.org/committees/insag.asp>)

⁷ Among the possible interested parties, we could mention: ENSREG, EESC, FORATOM, ETSO, EUROCLI, and major NGOs or federations involving civil society actors at EU levels such as ANCCLI or GMF together with initiatives such as Aarhus Convention and Nuclear – ACN and ENEF. The involvement of other interested international parties such as IAEA or the UNECE Secretariat of the Aarhus Convention, should also be considered.

As soon as such standards (GIGP) are made available, the option of organising pluralistic national peer reviews should be considered in connection with the above listed European and international organisations and networks. Connections with the Aarhus implementation national reports (with a periodicity of three years) should also be established.

Regarding the question of fostering the development of potential initiatives (processes) at national or European levels, it is suggested to open dialogue with the above listed European organisations in order to examine with them the possible strategies in the perspective of further implementing public information and participation in the nuclear sector. Existing initiatives should be regarded as opportunities. The national ACN round tables, for instance, should be considered in this perspective together with more permanent forums of dialogue regarding nuclear governance (some of them being the autonomous continuation of research initiatives such as ARGONA (in the Czech Republic), as well as from ACN national round tables (in Bulgaria)).

2.3. Analytical sheets for the considered fields of activity

The proposed analytical sheets map the public information and participation stakes in the context of specific nuclear activities for the 6 considered fields of activity:

1. Management of radioactive discharges and surveillance of radioactivity in the environment around nuclear facilities
2. Radioactive waste management
3. Nuclear emergency management, post-accident and long term management
4. Nuclear safety management (including transport of radioactive materials)
5. Nuclear new build and facility siting
6. Decommissioning of nuclear facilities

These analytical sheets do not constitute a full diagnosis of the considered fields but are a tool to facilitate dialogue within a stakeholder group.

The following boxes present summaries the analytical sheets (see chapter 6 for the full version).

Summary analytical sheet #1: Management of radioactive discharges and surveillance of radioactivity in the environment around nuclear facilities

Key issue: What are the means and the conditions for public access to information and participation in the context of management of radioactive discharges and environmental surveillance of nuclear installations?

Identification

The operation of nuclear facilities leads to routine atmospheric and liquid discharges of radionuclides in the environment. To deal with this situation, two means of surveillance have been developed. First, national authorities establish discharge authorisations; these discharges being controlled by the operator. Second, the radioactivity is regularly monitored in the environment by national institutions.

Although the primary aim of discharges authorisations is to ensure that exposures to workers and to members of the public are maintained as low as reasonably achievable, they are mainly driven by the best available techniques regarding the management of discharges in nuclear installations. Therefore, the set of discharges authorisations is the result of a technical discussion between operators, authorities and experts, taking also into account international comparison. This debate is not straightforward for citizens: how can they gain confidence in this process and have access to it?

For local stakeholders, the issue at stake is to address the quality of the environment in a global perspective (including all sources of radionuclides and other pollutants in an historical perspective). At the national level, the main issue is to organise the collection and access of information on environmental surveillance and to favour the dialogue between the different stakeholders, notably NGOs involved in environmental issues. At the international level, the issues at stake are the organisation of the sharing of reliable information in case of emergency situation and the identification of a common objective on environmental quality regarding trans-boundary transfers of radionuclides.

The strategic core of the issue lies in the necessity to move from conventional governance to more inclusive patterns of governance of decisions-making processes on radioactive discharges management and environmental surveillance. It relies on the development of trust in the whole regulation, the design of a monitoring system responding to regulatory, operational and public requirements and the development of information system and public expertise associated with participatory processes involving local stakeholders.

Diagnosis

The management of discharges from nuclear installations is driven only by the operators and the authorities while different organisations (NGOs, university laboratories, regional and local laboratories...) contribute to the monitoring of the environment by providing complementary information to local authorities or to different groups of stakeholders. Their main interest is to obtain information in order to appreciate the quality of their environment.

The result of the present system is a certain trust deficit within the population due to information deficit within citizens and limited to achievements of discharges authorisation without possibility to judge the limits and evaluate their impacts on health, and complex use of measurement units.

Prospects

In Europe, within the perspective of the ALARA principle, operators of nuclear installations have continuously undertaken efforts to reduce radionuclides discharges in the environment. As a consequence, the related requests for discharge authorisations could be reduced, except for tritium and C-14 because of technical limitations to filter and retain these radionuclides. Due to the evolution in the management of fuel for some NPPs in Europe, tritium releases have however tended to increase and request for discharge authorisations have accordingly tended to increase. In addition, because of the low residual level of radioactivity in the environment, more sophisticated monitoring system may be needed for some compartments and therefore the financial constraints could lead to reduce the renewal of the existing monitoring system. Local stakeholders will call for access to reliable information to assess the quality of their environment, but will have difficulties to elaborate relevant indicators concerning the evolution of the residual radioactivity in the different compartment of the environment.

A negative evolution of the situation could occur with the publication of new epidemiological studies questioning the existence of excess of cancers or leukaemia around nuclear installations. Even if such studies would not conclude to the existence of a direct relationship with discharges of the nuclear installations, they would create concerns and worries of the populations living around nuclear installations and lead to a lack of confidence in the quality of the surveillance of the environment for these populations. Even if the experts explain that the data are not sufficient to derive a relationship between exposure and the effects, the suspicion could evolve rapidly and threat the credibility of the governance.

A positive evolution would be to favour the involvement of local stakeholders in the follow-up of the discharges of the nuclear installations and to the monitoring of the concentration in their local environment. This approach is built with a precautionary approach to address health concerns while taking into account the existing state of knowledge and the possible uncertainties at low and very low doses. The participation of local stakeholders would allow the sharing of the evaluation of the quality of the territorial environment in a global perspective and would create place of dialogue for addressing the meaning of the different indicators and could call for the elaboration of dedicated indicators and measurements to cope with the concern of the local stakeholders. In this context, the development of the surveillance could also address health issues to cope with the concern of the local stakeholders.

Proposed actions and strategies

The key issue to be addressed for improving the access to information and participation of local stakeholders to the management of discharges and environmental surveillance is to adapt the current system for better cope with the concern of local stakeholders concerning the quality of their environment. For this purpose, additional indicators and measurements should be developed to complement the current monitoring system. In addition, common assessment of the quality of the environment should be promoted, including health surveillance.

Pluralistic experiences have been experimented in different contexts in France (GRNC and APEL), the United Kingdom (COMARE) and Germany (Radioecological studies around nuclear installations). There is also a need to enlarge these approaches to cope with the quality of the environment in a global perspective, not limited to radioactivity.

Summary analytical sheet #2: Radioactive waste management (RWM)

Key issue: What are the means and conditions for public access to information and participation in the context of radioactive waste management?

Identification

The issue of RWM encompasses all types of waste that have been produced in the past and will be produced in the future and is therefore connected to the issue of energy policies. It is a national issue with localised technical management option, on the one hand, and with involvement of a supranational (notably European) dimension. It builds a relation between communities in demand of a RWM solution (national community benefiting from the energy production activities and communities neighbouring nuclear facilities) and local communities in a position to bring a localised contribution to this solution on the long term. This raises issues of intergenerational ethics and long-term solidarity as well as of long-term funding of RWM activities. This also raises the question of what is passed to the next generations in terms of accountability, resources and freedom of choice.

Concerned local communities are not limited to the municipalities hosting (or candidates to hosting) RWM facilities. Neighbouring communities belonging to a broader geographical area (taking into account economic, geographic, political and socio-cultural factors) are also concerned. Energy consumers and nuclear operators are also accountable vis-à-vis RWM. Future generations are also concerned with RWM.

RWM is an issue with highly technical dimensions in which experts play a key role. Stakeholders from the public have to develop the necessary skills to address technical issues while they are often not familiar with nuclear matters. RWM is about managing in the long term a negative legacy, while compensatory incentives may be proposed by the national community. For local communities which host (or may host) a RWM site, integration of these elements into a long-term sustainable development strategy is a key issue.

The core issue regarding public information and participation is therefore to set up the conditions for building a long term shared responsibility and vigilance on radioactive waste management at national level while maintaining solidarity between the national community and the local communities hosting the RWM facilities

Diagnosis

At the national level, political actors play a key role in the decision making process, while radioactive waste operators are at the centre of the technical design of facilities. Experts perform the evaluation of technical arrangements. Beyond the nuclear field, scientific expertise is also mobilised in fields that are not nuclear-specific (e.g. geology).

The European Union includes diverse national situations as regards RWM, with experiences of both progresses and blockades, as well as situations in which little initiative has been taken in this field. In different European countries, processes of mobilisation of civil society at the national level on RWM issues were initiated by different actors (civil society actors, Government, waste operators, European Commission), enabling local actors to be engaged not only at the local level, but also at the national level. This includes the Committee on Radioactive Waste Management (CoRWM) in the UK, COWAM Spain, the French National Public Debate on RWM and the working group of the National Plan for Management of Radioactive Waste and Management, the permanent group on RWM set up in France by the National Association of Local Information Committees⁸ (ANCCLI). It also includes

⁸ Local Information Committees in France are local forums attached to nuclear sites which gather a wide range of territorial actors: elected representatives, civil society organisations and qualified personalities. They exert a follow-up of the activity of the site and inform the local population on this basis.

different European research projects with stakeholder participation dimensions (RISCOM, IGNA, COWAM, ARGONA, IPPA) and the “Aarhus convention & Nuclear” dialogue process. These projects enabled networking between stakeholders at a European level but also included national forums. Civil society mobilisation at the national and European level facilitates reflexive thinking of local actors on their own process and better identifying stakes and possibilities through comparison with other territorial and national contexts.

In Europe, a very strong focus is put on the siting of storage or disposal facilities, with the development of siting approaches involving a new role for local communities and stakeholders (notably in Sweden, Belgium, Slovenia and UK). These approaches have most often resulted in the identification of potential sites for RWM. However, they may result in some situations in a transfer of the RWM debate to the local level and, to the depletion of the national dimension of the issue. Moreover, there is a risk of loss of momentum in public participation at national & local levels after the siting phase.

Prospects

As there are important disparities between European countries, there is not one standard baseline evolution scenario and RWM is therefore likely to take a diversity of paths. However, there is a common trend on focussing the dialogue at the local level (and so do associated information and participation arrangements). As a consequence, public participation on this issue tends to be more and more confined to the local level as the decision-making process unfolds. At the same time, some stakeholders or stakeholder groups engage at the national or European levels either within the framework of participatory processes or as an autonomous action. However, there is no guarantee of connection of public engagement at the local and national or European level.

A negative scenario would be the rise of blockades in some European countries resulting from decision making processes where public consultations are purely formal, or are organised too late in the decision making process and do not have actual influence. Distrust can also be fuelled by disconnection between the energy policy debate and the RWM debate. On the medium and long term, potential depletion of public information & participation can be expected as soon as decisions on siting are taken, both at local and national levels, while national solidarity with RWM hosting local communities would decrease.

A positive evolution scenario would be associated with the creation of conditions and means for addressing the RWM issue in a sustainable way both at national and local levels. This includes an open, stepwise and clearly defined decision-making process enabling local & national stakeholders to effectively participate on the long run. It also includes connection between RWM and energy debates and appropriate access of stakeholders to expertise. This also includes a potential contribution of the European level to the long-term vigilance and memory of RWM sites as well as to the building of shared quality criteria for the decision-making processes among European stakeholders.

Proposed actions and strategies

Proposed actions (as a basis for discussion within a pluralistic stakeholder group) aim at facilitating identification of common stakes between local communities, national communities and the European level in a long-term perspective. This could notably be achieved through:

- Setting up ‘safe spaces’ of dialogue at the national level (like CoRWM in the UK, COWAM Spain, the COWAM In Practice or ARGONA stakeholder groups, the permanent stakeholder group set up by the ANCCLI on Radioactive waste and materials management in France...) with a pluralistic steering committee.
- Pluralistic dialogue and advisory forums created by the administration and attached to public policies (e.g. the National Plan for Radioactive Waste and Materials Management in France)
- Creating a ‘library’ of available experiences to identify good practices with stakeholders at local, national & European levels.

Summary analytical sheet #3: Nuclear emergency, post-accident and long term management

Key issue: What are the means and the conditions for public access to information and participation in the context of Nuclear emergency, post-accident and long term management?

Identification

Emergency situations involving the release of radioactivity are particularly complex in that radioactivity is invisible and invades everyday life. It disrupts lifestyle of a large number of people and territory's activities

Although emergency management relies on decisions taken by the responsible national or regional authorities, the scope of actors and responsibilities involved goes far beyond institutional actors engaged in emergency management and deploys from the local to the European level. A key issue for the various concerned stakeholders is to access reliable and understandable information enabling them to take decision and implement protective actions (for themselves or for others) in their particular context and according to their responsibilities.

Beyond the production of reliable information, what is at stake is the capacity of each stakeholder to understand and interpret this information as a resource for action. For this, they also need references and interpretation elements as well as information on possible actions and their consequences and elements of justification of actions. Notably, the standard and reference values for action levels adopted by national and international organisations are key parameters for the management of the situation. However, they are generally subject to debate or controversy and not necessary understandable nor shared by the various stakeholders.

It has also to be kept in mind that the decisions adopted for managing the emergency situation will significantly influence the medium and long-term consequences and management of the post-accidental situation.

All these characteristics of the emergency situation put the expertise production system (TSOs, nuclear safety authorities, but also universities, foreign experts, NGO experts and other independent experts) at the core of the production of reliable information and influence the capacity of the different stakeholders to take actions. However, the complexity of the situation calls for opening the expertise and management processes beyond nuclear safety and radiation protection issues in order to favour the capacity of the stakeholders to cope with this situation. The plurality of the national and international sources of expertise regarding the situation (along its development) can be regarded as an opportunity for the various concerned categories of stakeholders to address the complexity of the accident and post-accident situation in order to raise their capacity of action. It can however lead to a traumatic situation where unprepared stakeholders would hardly be able to cope with the emerging complexity, resulting in the raising of the impact of the accident and in growing social distrust.

In this context, a core issue is to set up conditions for a shared evaluation of the situation between the various concerned actors (in particular territorial actors) in a situation marked by uncertainties, time pressure, possibility of quick evolutions and controversies.

Diagnosis

A variety of stakeholders would be providing information and expertise during the emergency and post-accidental situation. They fall into 3 different categories: institutional actors engaged in emergency and post-accidental management, other expert actors not directly engaged in the response to the situation (e.g. foreign radiation protection organisations, independent experts ...) and a wide range of actors whose responsibilities (as elected representatives, enterprises, producers, media, parents ...) are impacted by the situation. This last category of actors depends on the two first ones to produce elements that will ground their decisions.

Facing a new situation where the decisions to be made would affect the different facets of the daily-life and the economic and social activities, the traditional decision-making processes are challenged as far as they are generally focussed on the reduction of the complexity to deal with the situation, focussing on safety and radiation protection issues, which may not give an adequate answer to the issues to which territorial actors are confronted, especially in the long-term perspective.

Facing the urgency of the situation, there is generally a lack of shared evaluation of the situation in order to provide common understanding of the situation. This may lead to controversies and blockades and may hamper the capacity of the various concerned categories of stakeholders to manage efficiently the situation notably for the long-term.

Prospects

Emergency situation can be of different severity and could extend from the declaration of an accident to the period when the contamination of the environment is characterised after releases from the installation. The post-accidental management will address long term issues for the possible future of living in the affected territories, including the different facets of the daily life.

In case of such an event, the different stakeholders, notably the authorities, would have difficulties to deal with the complexity of the situation. There would be a concern for the authorities to get enough information in order to be able to inform the population on the protective actions to be adopted. This incapacity to produce quickly reliable information would increase the impact of the accident on the population.

A worse evolution of the situation would be the emergence of controversies on the information and interpretation of the situation and its evolution among experts. The absence of capacity to debate and promote a shared evaluation of the situation would lead to adoption of extreme positions for each category of actors impeding the emergence of appropriate cooperative strategies of rehabilitation of the living conditions.

At the opposite, a positive evolution would be to promote the construction of reliable information involving experts from different origins and favouring the debate and opening the various possible interpretation of the situation. Based on this information, the authorities would be in position to take their own decisions and to explain their rationality while creating the conditions for the concerned categories stakeholders (population, professionals, industry, etc.) to develop their own contribution to the long-term management of the situation.

Proposed actions and strategies

In order to favour the production of reliable and shared information and to allow the different concerned stakeholders to cope with the complexity of the situation in case of an accident, it is suggested to put emphasis on the development of preparedness processes. Different experiences and researches already exist in this domain, which could be shared with the various concerned stakeholders. One can noticed the CODIRPA processes set up in France by the Nuclear Safety Authorities since several years. The exchange of experiences through national and European networks such as the European NERIS Platform could provide useful processes for engaging the reflections with the different categories of actors and create the necessary shared evaluation of the possible strategies as well as to identify the possible ways for producing reliable information and promoting place of dialogue and debate to cope with the complexity induced by an emergency situation.

Summary analytical sheet #4: Nuclear safety management

Key issue: What are the means and the conditions for public access to information and participation in the context of nuclear safety management?

Identification

The whole lifecycle of a nuclear facility is at stake when considering public information and participation regarding nuclear safety, from design to decommissioning. Specific moments (e.g. siting, decennial inspections...) may require specific processes of public information and participation. Above this, citizens may wish to exert vigilance over safety of the day-to-day operation of nuclear facilities. There is now a wide range of public and governmental attitudes towards the role of nuclear power. However, vigilance on nuclear safety will remain a topical issue whatever is the position of each Member State vis-à-vis nuclear energy. In effect, countries having decided to phase out will have to undertake decommissioning activities during decades and manage radioactive waste on the long term. A decline of the nuclear industry in countries having decided to phase out nuclear could lead to a lack of investment in nuclear safety that justifies reinforced scrutiny.

Trusted public information and participation cannot be limited to technical aspects of safety but also encompasses the rationales on which choices orienting safety are grounded. Moreover, following 11th September 2001 attacks and the Fukushima catastrophe, the range of parameters of attention for nuclear safety has extended.

Three key qualities are related to public information and participation: trust of the public in the safety of nuclear activities, capacity of stakeholders to ensure the quality of nuclear safety and, finally, capacity of civil society to contribute to nuclear safety. In this regards, the importance of the stretching function played by stakeholders, notably civil society actors, is internationally acknowledged.

Contribution of the public to safety entails local, national and international dimensions, since the scale of the risks entailed by nuclear activities definitively overcomes the local and national boundaries. Creating the conditions for the public to contribute effectively to nuclear safety remains an ambitious goal since the public is confronted with many obstacles.

Nuclear safety has traditionally relied on a governance system essentially based on three pillars: operators of nuclear sites, nuclear safety authorities, and their technical support organisations. The strategic core of the issue is to create the conditions for the different concerned categories of the public at local, national and international levels to share and update, on a regular basis, the assessment of the safety of nuclear facilities. This requires an evolution of nuclear safety governance to include civil society as a fourth pillar and create conditions for the various concerned stakeholders to contribute to nuclear safety improvements, whatever is their position regarding nuclear energy.

Diagnosis

Nuclear safety management in Europe is centred on the relationships between nuclear safety institutions (nuclear safety authorities and technical support organisations) and operators of nuclear sites. The centre of gravity of this system is situated at the national level, as nuclear safety is a national responsibility. This national dimension is complemented at the international level by the works of the IAEA and the OECD NEA.

Civil society actors at the national or local level have various levels of mobilisation and competence in nuclear safety and are in some cases capable of raising safety issues and performing counter-expertise. However, notably due to the high level of necessary technical skills, only a few civil society actors are actively engaged in this field. Especially in small European countries, it can be difficult to find independent experts. In some countries, processes of engagement of civil society in nuclear safety issues have however developed. Reinforcement of a European dimension in nuclear safety has been initiated through:

- The development of a community framework with the European Directive 2009/71/EURATOM of 25th June 2009, involving specific dispositions regarding the information of the public.
- The intensification of exchanges between nuclear safety authorities and between TSOs and creation of European networks (WENRA, ENSREG, ETSO...). This notably enabled nuclear safety authorities and the European Commission to develop the process of stress tests after Fukushima.
- The recent European initiatives of NGOs for assessing the implementation of the Aarhus Convention in the nuclear field (notably for nuclear safety) through the Aarhus Convention and Nuclear initiative

The Fukushima accident has triggered an evolution on the way nuclear safety issues are considered in Europe and have entailed the emergence of new safety requirements. In this context, nuclear safety remains a national competence, although harmonisation of safety levels across Europe is expected both by institutional actors and by the civil society.

A core issue is therefore to define the conditions and means for an effective contribution of the public to a sustainable vigilance on nuclear safety and to facilitate interactions between the public and the traditional actors of nuclear safety governance while there are no precise European or international guidelines for such interactions in the field of safety.

Prospects

There is some degree of consensus in Europe on the necessity to enable civil society engagement in safety issues. Some countries are engaging, with varying intensity, in partnerships with civil society organisations on safety issues. However, it is unclear whether a European dynamics of investment in the capacity of civil society to contribute to safety of nuclear activities would develop. Following the stress tests, there is a European will to continue to some extent a transparent process of European cooperation on safety issues. However, as the stress tests were resource-intensive, future European cooperation is likely to be far less intense. Nuclear safety is likely to remain a national competence with limited harmonisation in Europe and limited contribution of the European level as regards transparency and participation of civil society.

A worst case scenario would be characterised by a lack of capacity of institutional actors to share technical issues with civil society actors at the local, national and European level. In countries facing economic difficulties, safety investments could be delayed. Decisions impacting nuclear safety would be taken with some opacity, which would reinforce crispation between civil society and institutional actors, entailing a reinforcement of polarisation of nuclear safety debates on pro / anti-nuclear positions which would jeopardize effective dialogue on safety issues.

At the opposite, a positive evolution would include the progressive emergence of a European community of regulators and TSOs, resulting in harmonisation of practices, frameworks, evaluation criteria and procedure ... This will also include investment of resources at the local, national and European levels for the civil society to develop its capacity to engage and exert a stretching function on a permanent basis into well-informed dialogue on safety issues with institutional actors.

Proposed actions and strategies

In order to facilitate the engagement of civil society actors and their contribution to nuclear safety, it is proposed to:

- Update the existing legal frameworks and guidelines for implementing Public Information & Participation (PIP) in the context of nuclear safety, notably taking advantage of the result of experiments and new practices,
- Develop at EU level common quality criteria, principles, and methodologies in order to assess the implementation of PIP in the context of nuclear safety in the Member States

- Develop comparative assessment of PIP practices among Member States in the context of nuclear safety, notably in the perspective of the implementation of the European directive on nuclear safety,
- Facilitate the emergence of networks of experts able to support civil society engagement in the field of nuclear safety,
- Support the development of European cooperation among civil society organisations involved in the field of nuclear safety, encouraging the development of coordinated civil society contributions to the assessment of nuclear safety at EU level (e.g. in the upcoming follow up of the post-Fukushima stress tests recommendations)

Summary analytical sheet #5: Nuclear new build and facility siting

Key issue: What are the means and conditions for public access to information and participation to a decision on siting a nuclear installation?

Identification

The decision to build a new nuclear installation is a long process that generally extends over several years.

The strategic core of the problem concerning the public access to information and participation to the decision-making process on the siting and/or the building of a new nuclear facility is to ensure the three following main conditions:

- Relevance and transparency of the strategic decision linked with nuclear installations as part of a sustainable national energy mix,
- Quality and transparency of safety options (technical options and site specificity, conditions of long term monitoring of these facilities involving local stakeholders),
- Relevance of the implementation and/or the building of a new nuclear installation in a specific territorial context and the transparency of the decision-making process, notably regarding issues like nuclear safety, local incomes (taxes, local development, local investment, compensations) associated with siting.

The issues at stake with the siting of a new nuclear installation are the access to detailed information associated with its economic, social and environmental impacts, the possibility for members of the public to participate to the evaluation and the decision-making process and the access to pluralistic expertise. The organisation of the consultation processes will largely influence the possibility for local stakeholders to play a role in the decision process.

Diagnosis

A variety of stakeholders (local and national ones) would have access to information and expertise in the decision process related to the implementation of the new installation.

In some countries, affected municipalities have a veto power regarding the decision to siting and/or building a new nuclear installation. This provides a guaranty and gives a key role to local stakeholders in the decision-making process.

National and European regulations (EIA and SEA Directives) and cross-border consulting agreement (ESPOO Convention) set out the basis of the consultation processes concerning the siting and/or the building of a new nuclear installation.

Although the principles for public consultation and participation to the decision-making processes for the siting and/or the building of a new nuclear installation promote active involvement of the different categories of stakeholders, many difficulties were encountered in the past in different countries: lack of expertise for local stakeholders, difficulty concerning the interaction between the consultation process and the political debate on energy issues, the public capacity to influence the decision through consultation processes, the perimeter of the consultation of the public generally limited to the local communities around the nuclear installation.

Proposing and discussing with the public actual technical alternatives should be regarded as a key dimension of the quality of the public information and participation process.

Prospects

The development of participatory processes on the siting and/or the building of new nuclear installations involves difficulties for the local stakeholders to address technical issues. In this context, local stakeholders are frequently suspicious regarding the information provided by national experts

and by the operator himself. This situation is resulting in a confrontation at the local level between two views. One is focussing on economic benefit for the territory and the other on the possible negative impacts associated with the siting of the nuclear activity and on the risks involved. The articulation of the local consultation (at territorial level) with the national political debate (on energy policy) is dealt with in a separate manner, thus creating ambiguities and frustrations in the public.

After launching a consultation process, the government doesn't wait for the end of this process to decide on the siting and/or building of the new nuclear installation. Furthermore, the scope of the debate is limited regarding the safety issue: defence/commercial/industrial secrets impede the public access to information. At the local level, there is a severe conflict between the local elected representatives and the civil society opponents to the project. The elected people tend to focus the debate on the economic benefits brought by the new installation in their territory, while the opponents request the phase out of nuclear energy. The situation tends to polarize on anti/pro nuclear interactions. The debates cannot take place while the actual decisions are taken outside of any participation framework.

In a positive scenario, a process of consultation is organised prior to any decision to siting and/or building a new nuclear installation at the local and national levels. The consultation is well integrated in the decision-making process and allows the discussion on how this proposal fits with the future of the energy policy. The pluralistic expertise processes are settled, notably on stakes linked with territorial development and on the future of energy policy as well as on nuclear safety. The outcomes of the information and participation process can contribute to improve the quality and the transparency of the decision regarding the following issues: influence on the decision on building or not a new nuclear unit in the perspective of the national energy mix including a long-term perspective; contribution to the definition and/or the reinforcement of the local development project of the territory; a shared evaluation of the nuclear safety and identified the strengths and weaknesses of the proposed new installation (technical concept, quality of the site), possible improvements have been suggested.

Proposed actions and strategies

In order to favour the development of a fair decision process, one objective is to set up spaces of dialogue at national level, involving the different stakeholders, for articulating the nuclear siting decision with energy policy issues. A second objective is to create the conditions for public information and participation at national/local levels regarding the assessment of nuclear safety. The access of the public and NGOs to relevant and pluralist expertise is a significant means in this perspective. Another objective, at local level, is to set up the conditions for an active and sustainable engagement of territorial actors 1) in the evaluation of the consistency of the siting decision vis-à-vis the characteristics of the territory and its sustainable development perspective and 2) in the assessment of the radiological and nuclear safety of the proposed installation in its territorial context. An additional objective is to build a shared understanding at EU level of the necessary conditions and means for the public and the NGOs to effectively contribute to the quality of decisions in this context and to coordinate actions in the EU in order to raise the public information & participation in the context of nuclear siting.

Summary analytical sheet #6: Decommissioning of nuclear facilities

Key issue: What are the means and the conditions for public access to information and participation to the dismantling of the installations and the future of the site and its economic activities?

Identification

The stakes linked with the decommissioning of nuclear facilities concern two main categories of issues: the safety and the waste management associated with this operation on one hand, and the future economic and social activities on the site and in the region on the other hand. The decommissioning of a nuclear installation is characterised by a transition to new activities on the site that will be shaped by constraints resulting from past nuclear activities and existing installations to be dismantled. Decommissioning activities involve multiple issues (technical, financial, economic, environmental, health, social, cultural and heritage) that need to be considered altogether. The operators in consultation with the regulators and the policy makers have to establish a balance between the costs of decontamination (how far to decontaminate the material and the soil on the site?) and waste management strategies (including the agreement on the clearance of dismantled material).

The strategic core of the problem concerning the decommissioning of nuclear installations is to create the conditions for a constructive participation of the local stakeholders in the follow-up of these operations in the perspective of elaborating a sustainable economic and social sustainable development project for their territory.

Diagnosis

The process of decommissioning is generally longer than initially expected given the technical or administrative problems that may emerge over time, as well as given the potential confrontations between the different actors.

- The system of actions for the authorities in the context of decommissioning is now well structured by a standardised approach. The authority will ensure that residual radioactivity is reduced to a level that permits the released of the site for unrestricted use or will define the conditions for the use of the site if necessary.
- Local stakeholders do not always have the means to know what is the achieved level of decontamination (and the meaning and consequences of the remaining contamination) and may have a doubt concerning the maintenance of long-term safety.
- Local and even national stakeholders are concerned with the change of economic activity and transfers of the property and responsibilities when the operator leaves the site. From the economic point of view, a nuclear site could be seen as an employment source and its closing is a real challenge for the local development.

The analysis of different experiences allows pointing out some difficulties in the absence of the conditions and means for an informed and constructive dialogue among the national and local concerned parties, resulting in blockade for years of the work of decommissioning.

Prospects

With the aging of many nuclear installations, the decommissioning programmes will increase in the coming years. Maintaining the legal statute of nuclear activity for closed activities is involving less restrictive decontamination standards. Some facilities will therefore be dismantled while their site itself will not necessarily be made available for non-nuclear activities, at least temporarily. Nevertheless, several sites will be rendered to non-nuclear activities. In this case, the initial prospect of operators will lead local stakeholders to question the guarantees they may have regarding the remediation and their ability to monitor the evolution of the site in the future. Economically, decontamination operations are often more costly than expected, given the expected demands of the authorities and local stakeholders to reduce the residual contamination to its lowest level.

In a negative scenario, given the economic constraints, operators manage the decommissioning processes with a limited involvement of local stakeholders and focus on the strict application of regulations. Uncertainties about the radiation situation are causing a social concern and controversies. This is combined with doubts about the clean-up levels, notably because this assessment is based primarily on the technical means of the operator. NGOs on environmental protection are seeking to demonstrate that the environment is more polluted than expected searching for traces of radioactivity and highlighting the mismanagement of the operator and their connivance with the authorities whose requirements are perceived as insufficient by local stakeholders. Legal processes are initiated while battle of experts and controversies take place without sustainable solutions emerging for the long term.

A positive scenario would be the establishment of a participatory process engaging the various concerned stakeholders and notably the neighbouring public in the building of a shared vision of the future use of the site to be decommissioned. This process is characterized by: 1) transparency on the environmental quality based on a pluralistic process of monitoring and evaluation; 2) provision with expertise resources and means to local population for participating from the early stage of the decommissioning planning; 3) the financing of decommissioning activities as well as of the socio-economic transition of the site, negotiated in a transparent and equitable manner.

Proposed actions and strategies

To facilitate increased public information and participation in the decisions on decommissioning of nuclear installation, possible actions and processes can be considered: the setting of a national consultative committee gathering the various involved parties under the aegis of a neutral institution (and chaired by a qualified independent personality accepted by the different parties involved) in order to ensure the follow up and quality of the participatory process along the different steps of the decision-making process related to the decommissioning programmes including waste management; Similar structures at territorial level in order to support the engagement of local actors in the process of following the decommissioning programme of the nuclear installation in their local context and addressing the future economic and social activities in the region.

2.4. Validation of the method during the IPPA European Workshop on Nuclear Waste Management, Aarhus and Cross-border Issues

The approach and method proposed in this report as well as the analytical sheet and GIGP in the field of radioactive waste management (RWM) have been presented and discussed with a pluralistic group of European stakeholders during a European workshop organised by the IPPA (Implementing Public Participation Approaches in Radioactive Waste Disposal) European research project on “Nuclear Waste Management, Aarhus and Cross-border Issues” (Szentendre, Hungary, 20th-21st September 2012). This workshop gathered 52 participants from 12 European Member States and from European organisations: NGOs, operators, public authorities, regulators, technical support organisations, research organisations, representatives of local partnerships, the Regional Environmental Center for Central and Eastern Europe and a representative of European Commission – DG ENER.

The discussion with the participants first validated the quality and relevance of the proposed approach, method and tools as elements of guidance for implementing transparency, information and participation of the public in general and, more specifically, in the framework of the implementation of the Directive 2011/70/EURATOM of 19th July 2011, establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste, which was presented during the workshop. A translation of these tools into national languages would be, according to the participants, very useful in order to facilitate their appropriation by the stakeholders, notably from the civil society. The development of a communication tool such as a brochure in order to support the diffusion of the results of the PIPNA study was also suggested.

The discussion also contributed to clarify the purpose of the proposed scenarios. Whereas, some participants expressed scepticism about the feasibility of the proposed inclusive governance patterns, it was made clear that the PIPNA study is by no mean an attempt to foresee the future. It is providing a description of a dynamic situation with diverse potential evolution scenarios, with several categories of interacting stakeholders with different capacities and opportunities. This description is generic. The IDPA method is aiming at the identification of the conditions for the different stakeholders (including institutional ones) to develop a common perspective supporting the development of PIP as a means to achieve it.

The strategy in order to facilitate a transition towards more inclusive patterns governance of nuclear activities has to be implemented at the national level, taking into account the social political, legal, cultural and historical specificities of each country. This includes a range of possible negative or possible attitudes of the different stakeholders vis-à-vis the perspective of developing PIP in the context of nuclear activities. It is understood that the purpose is not necessarily to provoke immediate changes but to build a long-term partnership involving as much as possible all the concerned categories of stakeholders. It is however clear that starting a strategy of transition does not entail, as a precondition, the necessity that all the stakeholders would be convinced of the opportunity of raising transparency of nuclear activities and PIP. The discussions have also underlined the importance of external support to national initiatives such as European initiatives (e.g. the Aarhus Convention & Nuclear roadmap for instance), or the European participatory researches on RWM governance. The perspective of the implementation of the European Directive on RWM is perceived as an opportunity for national stakeholders to initiate strategies in order to raise PIP. A careful review of the RWM stakeholders positions regarding PIP and of the national or European opportunities and timing

is necessary in each Member State in order to develop a strategy for raising Public Information and Participation in the context of Nuclear Activities.

3. HOW TO MANAGE A TRANSITION TOWARDS ACTIVE PUBLIC INFORMATION AND PARTICIPATION IN THE CONTEXT OF NUCLEAR ACTIVITIES?

Issues associated with nuclear activities are emblematic of the complexity raised by technological development. For a long time it was viewed that nuclear activities request a too high level of expertise to be understood by ordinary citizens, and are managed at too high level of responsibilities to be questioned. Thus the public was essentially expected to trust decision-makers and technical experts.

Raising the level of transparency, achieving active information and participation of the public, and developing inclusive governance of nuclear activities are now widely recognised as an essential goal in order to improve their sustainability. It is however not an easy task. The military origin of nuclear activities is associated with a long tradition of secrecy. This is also reinforced by the sensitivity of some radioactive materials regarding malevolent events. The notion of transparency generally remains weak, although improvements have been achieved during the last decade as described below. The high level of technical elaboration indeed makes public access to information and participation difficult.

This situation is at the origin of a trend of research and experimentation regarding the development of public information and participation in various fields of nuclear activities in the past decades. It has produced concrete improvements in some nuclear activities at least in some member states or in some regions of the EU. A significant number of innovative practices of information and participation have been developed in several nuclear fields, and at first in situations where the public was confronted with direct impacts of nuclear activities on health and environment. Legal frameworks have been implemented in this perspective at international, European and national levels. A considerable material of research, case studies, analysis of feedback experience is now available. It is not clear however that a global homogeneous trend of improved nuclear transparency is now achieved in the EU, as stated by the European Commission⁹. It is however clear that true innovative practices have been achieved in several areas of activities.

Looking for a strategy for managing a transition towards improved information and participation in the nuclear sector, one should take into account several factors:

Active information and participation practices regarded as "best" in one country or one area of nuclear activity might not be suited for other countries or sectors of nuclear activities. Before such practices are implemented elsewhere the concerned stakeholders (the operators, the public authorities, the experts, the NGOs, the population, etc.) first need to interact and be convinced that the considered practices and the corresponding changes in the governance of a particular field of nuclear activities will be mutually beneficial (win-win situation). It is therefore necessary to first collect and disseminate all available information on the practices in question. It is also necessary to create practical conditions for the different concerned stakeholders of the related national and local context to meet in safe and fair conditions

⁹ See terms of reference of the present study.

enabling them to establish relations and to open a dialogue on the benefits of the practice before negotiating the conditions for its concrete implementation.

An additional challenge is to establish a concrete connection between the debate on the justification of future nuclear activities and the question of public information and participation in the context of existing nuclear activities. The lack of distinct clarification and of connection between those two issues should be regarded as a stumbling block for the considered transition towards an active public information and participation in the nuclear sector.

In addition, progress in nuclear transparency is also linked, beyond the nuclear sector characteristics, with the specificity of the cultural, political, legal and historical context of each country in the EU. Good practices should by all means be customised or re-interpreted by the actual concerned actors according to national specificities.

It is also necessary to recognise that nuclear activities cover a wide range of purpose, techniques and contexts. When implementing information & participation of the public, it is observed that specific practices are developed in each context for the purpose of the activities while the mapping of concerned stakeholders is different in many cases. Practices of public information & participation in the context of siting a radioactive waste management facility are substantially different compared to those in the field of environment monitoring around nuclear facilities or in the field of management of nuclear emergency situations. Managing a transition towards active public information & participation makes it necessary to take into account the specificity of each of the specific fields of nuclear activity. In this perspective, it might be useful to consider specifically the following activities:

1. Environmental monitoring of nuclear facilities
2. Radioactive waste management
3. Nuclear emergency management, post-accident and long term management
4. Nuclear safety management (including transport of radioactive materials)
5. Nuclear new build and facility siting
6. Decommissioning of nuclear facilities

In addition, the practices do vary according their level of implementation at local, national and supranational level. Specific local structures of information such as Local Commission of Information or Local Liaison Committee (in the case of citizen participation in the vicinity of nuclear facilities) are different from corresponding information and participation provisions regarding nuclear safety at national or international levels (stress test for instance). Adequate structures and processes for a continuous participation of citizens in the context of nuclear activities are different from temporary processes settled for the purpose of a given decision making process (such as public inquiries, environmental impact assessment procedures or national public debates).

Nuclear activities entail complex interactions of stakeholders or conversely a lack of interactions between stakeholders. Each category of actors, be they local actors, NGOs or the general population, the operators, the experts and the public authorities and also the media, plays a specific role. Creating a transition towards an active level of information and participation of the public requires a contribution and possibly an attitude change of all concerned stakeholders while none of them is in the position to achieve change by its sole

action. Even more, transition requires the co-creation of a common culture among the various concerned stakeholders in relation with the issues they want to deal with.

4. PROPOSALS FOR TRANSITION TOWARDS INCLUSIVE GOVERNANCE OF NUCLEAR ACTIVITIES

The ENEF WGT has already identified a series of good practices (see annex 2) to favour transparency for nuclear activities in Europe. Starting from the indicators established by the ENEF WGT, it is interesting to situate them into the broader context of European thinking on public information and participation and inclusive governance in the context of hazardous activities in general and of nuclear activities in particular.

The different projects carried out in public information and participation in the European context¹⁰ demonstrate that it is actually possible to improve decision-making processes by engaging concerned parties in the preparation of decisions and in the oversight of nuclear activities. They also pointed out that the effectiveness of stakeholder involvement relies on two complementary evolutions: a stronger role for new categories of actors, including local and regional governments and institutions; and an opening up of the institutions in the perspective of stakeholder involvement in the decision-making process in the nuclear sector. These evolutions prove to be practicable and achievable. Although they imply significant changes from the various actors, they are by no means “revolutionary”, but rather manifest a progressive evolution opening room for change in existing institutional structures.

Over and above the general emergence of a new role for local actors, evolutions in the current decision-making process are the result of an emerging understanding, linked with the identification of actual benefits for the various categories of actors engaged in the participatory process.

The following section describes a methodological framework for setting up and carrying out processes contributing to this transformation of governance of a particular sector of nuclear activities towards enhanced inclusiveness. In a first part, basic principles will be described. In the second part, a method for facilitating evolutions in governance of nuclear activities will be proposed.

4.1. Basic principles

Managing a transition towards more inclusive patterns of governance requires processes where the various concerned stakeholders will experiment with a new system of relations among them, reframe their understanding of the decision making context, while incorporating issues, stakes, concerns, goals, of various categories of local, regional, national stakeholders, and experiment new strategic positioning.

¹⁰ This notably includes the following projects: TRUSTNET European pluralistic think tank on governance of hazardous activities (1997-2006), RISKGOV European research project on risk governance in chemical and nuclear fields (2001-2004), IGNA European study on Inclusive Governance of Nuclear Activities (2005-2006), ACN (Aarhus Convention and Nuclear) European roundtables, CSS (Civil Society for Sustainability) European research project (2009-2011), ARGONA European research project on transparency and deliberation in the field of radioactive waste management (2006-2009), IPPA (Implementing Public Participation Approaches in Radioactive Waste Disposal) project (2011-2013) and the stakeholder engagement process carried out by the British Environment Council in new nuclear energy build policy.

The proposed methodological framework aims to set up such a process, in which a group of stakeholders (including operators and regulators of nuclear activities as well as actors from the civil society) will:

- Identify commonly relevant questions
- Identify conditions and means for these questions to be addressed in a way that raises interest for stakeholders in relation with their own concerns.

A set of principles underlying the proposed methodology has been identified from the various European experiences examined, notably the ARGONA¹¹ and COWAM In Practice¹² European research projects, and the stakeholder engagement process carried out by the British Environment Council in new nuclear energy build policy.

The processes should provide a *safe space*¹³ for discussion, which is a space of interactions where the ‘different stakeholders can move forward together to increase their understanding of the issues and also of their respective views without being committed to find common solutions, which may cause certain stakeholders to feel like hostages for a certain purpose’¹⁴. This supposes not only setting up *procedural conditions* for fair and equitable dialogue between the participants (such as transparency, openness and clarity) but also taking into account the *background conditions* of the process, which can be of cultural, organisational, financial, material, ... nature and may impact the capacity of the various actors (in particular actors from civil society) to take part in the process on an equal footing with other participants.

Among these background conditions, *access of civil society to expertise* is of key importance (as regards scientific and technical issues, but also legal, economic or social issues) for those actors to engage into the process while developing their own understanding of the issues at stake and preserving their autonomy. This supposes in particular that civil society actors engaging in such processes should have the opportunity to develop their competence to address scientific or technical issues without being experts (although some of them can be both engaged citizens and experts). A possible way of facilitating this process of competences development is the engagement in the process of autonomous actors playing a role of *scientific and technical mediation*¹⁵ to ensure effective access of civil society actors to expertise and facilitate the development of their competences.

In order to take into account the background conditions and to build a safe place for discussion, it is necessary to have *flexibility in the design of the dialogue process* in order to

¹¹ <http://www.argonaproject.eu>

¹² <http://www.cowam.com>

¹³ The notion of safe space has been developed in the ARGONA European research project

¹⁴ quotation from the “Suggested Guidelines for Transparency and Participation in Nuclear Waste Management Programmes” (2010) developed by the ARGONA European research project:

¹⁵ This notion has been developed in the study “Les évolutions de la gouvernance des activités nucléaires” (evolutions in governance of nuclear activities) carried out by Mutadis for the French Institute for Radiation Protection and Nuclear Safety (IRSN) in 2009 (see page 56 to 72). <http://www.mutadis.org/images/stories/pdf/epdg%20ii%20audit%20fin.pdf>

give opportunity to the stakeholders to adapt the dialogue process to their needs and constraints. This is a way to develop co-ownership of the process by the whole group of participants.

Power sharing within the dialogue process is an important condition of reliability for the stakeholders¹⁶. While it is not a place for decision-making, the dialogue process is an arena for confronting and developing ideas. Usual hierarchies (experts or decision makers vs. citizens) should be put aside in this arena where each participant's contribution potentially has the same value. This pushes each participant to better define the interest, position and knowledge of his or her stakeholder network, and each participant can assess the position of others.

The dialogue process should also be driven by a concern of *inclusiveness* thus encouraging the participation of all stakeholders who have an interest in or who would be affected by decisions in the considered field of activity.

Independence of the dialogue process is key to its trustworthiness for stakeholders: using a neutral convener and independent facilitators, especially in highly polarised situations, can help to build the confidence of stakeholders in the process. In particular, it is difficult for a sponsoring organisation, whether local authority, a private company, or even an NGO to facilitate an independent process, and the attempt to do so may in itself arouse suspicions about the integrity of the process.

Responsiveness of decision-makers engaged in the process (in particular its initiators) is also an important factor for trustworthiness. Decision-makers engaged in the dialogue process should be open to evolutions of their framing of the issues, vision of the situation and proposed solutions. All engaged stakeholders must perceive that their voice will be taken seriously, and that things are open to change.

The dialogue process is a *collective learning* process in which every engaged person and/or organisation should learn from other participants. This implies that the process should be as interactive and as incremental as possible to build increasing layers of mutual understanding, respect and relationship.

In particular, collective learning should enable the participants to *reframe* the issues at stake, so that no stakeholder could feel trapped in a framing of the issues imposed by other actors. During the process, the participants must be in position to start developing answers, to reshape their understanding, and to uncover further questions together. Some participants or sets of participants may undertake their own autonomous investigations before interacting with other categories of players.

Another quality criteria of the dialogue process is the *accountability* of the initiator of the process: during the process and after its end, the various engaged stakeholders should have an unambiguous account of how and why their contributions have - or have not – influenced the

¹⁶ see COWAM In Practice European-level Guidelines for the Inclusive Governance of Radioactive Waste Management: http://www.cowam.com/IMG/pdf_CIP-EUG_version_finale_telechargeable.pdf

outcome, and ensure there are routes for follow-up including reporting on final decisions, strategies and/or implementation plans.

Dialogue processes require adequate *resources*¹⁷ for supporting stakeholder engagement. These resources should provide adequate access to information (including information from independent experts chosen by stakeholders), support access to expertise and skills building and provide material conditions for the participation of stakeholders (e.g. reimbursement of travel and subsistence costs for NGOs or local stakeholders). Specific attention has also to be put on the accessibility of information in providing different ways for people to be engaged and ensuring people are not excluded through barriers of language, culture or opportunity.

Finally, the dialogue process should enable the participants to exert some *reflexivity* over the process itself, by assessing its quality on the course of the process in order to adapt it to emerging needs.

¹⁷ This is notably stressed in the recommendations on decision-making of the ENEF Working group on Transparency

5. PROPOSED METHOD FOR FACILITATING EVOLUTIONS IN THE GOVERNANCE OF NUCLEAR ACTIVITIES IN THE EUROPEAN UNION

Various conditions have been identified above in order to facilitate evolutions towards improved public information and participation in the context of nuclear activities.

Such evolutions are linked with the existence of “processes” engaging a relevant and pluralist group of stakeholders. The considered process might be limited in time (one project within fixed time schedules, typically several month or few years) or permanent. The participants should be provided with sufficient time for developing a collective learning process, and to progressively reframe together the complex issues at stake (taking on board other actors concerns). Synergies among various (successive) processes should be considered as a contribution to change in the long-term perspective.

The relevant context where the evolutions are to be achieved should be clearly identified

- What is the specific nuclear activity (see the proposed list of activities above) in the scope of the process?
- At what level of decision (local, national, European) is it foreseen that progresses are to be achieved?

The process should aim at the setting of an inclusive governance framework enabling public information and participation for the considered nuclear activity in the given local, national and/or international context. However, it is up to the participants of the group to determine their priorities. The process can be connected or not with a concrete decision making process (e.g. the setting of a regulation framework). In some cases, it might be more appropriate to start dialogue outside the pressure of an actual decision making process (see hereunder).

In any cases, one or several legitimate actors should initiate the process in the considered context. The initiators can be:

- Public authorities or governments (at local, national or international levels),
- The operator of the considered nuclear activity be it public or private,
- A group gathering personalities from the civil society or a NGO bearing specific concerns vis-à-vis the activity,
- Some more neutral parties, e.g. Ombudsman, Parliamentary office, Aarhus Focus point, intergovernmental organisations, like the Regional Environmental Center (REC) European initiatives like Aarhus Convention & Nuclear, etc.,
- In some cases, temporary experimental processes have been initiated within the frame of a national or European research project (RISCOM, COWAM, ARGONA, IPPA, see section 8).

A facilitator should be hired in order to form the group and negotiate the rules and the goals of the process, and to create the conditions for the process to be vested with trust by the participants. The role of the facilitator is to identify and approach the representatives of

different categories of actors concerned by the considered field of activity (industrial operators, public authorities, experts, local elected representatives, local or national NGOs...).

The facilitator together with the initiator of the process is then to offer potential participants a cooperative and equitable approach and to negotiate the conditions of their engagement. It is also to specify the rules of interaction in the process and to identify the needs for ad hoc resources in order to bridge the possible gaps (capacities, expertise, money, power, self-confidence) among the participants.

In order to enable the participants to take a new perspective on the issues currently structuring the considered field of activity, the proposed process could also make it possible for the participants to hire experts non-involved or independent from the vested parties (academics, NGOs, etc.). An appropriate methodology should be selected for the process by the facilitator.

The considered initiatives are to facilitate evolutions towards inclusive and democratic governance of the selected field of nuclear activities. In many cases, the processes take place outside the current governance of the nuclear activity. It is rather a parallel activity creating specific conditions allowing a new system of relationships to emerge among the concerned players. It is setting up conditions under which participants take a step back from their usual governance context with its strict role divisions, to reflect together on the considered field of activity. The processes therefore would bring together stakeholder categories that may not meet otherwise in the current governance system, in order to cooperate within investigations that may cut across their habitual or mandated areas of action.

The experience of the process is then to enable participants to test how applying such rules of democracy and cooperation could enhance governance of the nuclear activity, sharing power and knowledge building. The system of relations set up and experienced during the defined terms of the process, as well as the investigations carried out by the stakeholder group, can be used and developed by stakeholders after the process. In this regards, the process acts as a *change operator*¹⁸ for the governance of the considered activity.

What should/could be the role of the European Commission in this perspective?

Initiating this kind of “processes” in the member states at various local and national levels is beyond the remit and capacities of the European Commission. It is however foreseen that the EC can contribute to foster the development of initiatives and support them in several manners.

The present report is providing several contributions and tools that may enhance the existing or planned initiatives. It is providing:

¹⁸ The notion of change operator is derived from the analysis of the COWAM In Practice cooperative research process carried out by S. Lavelle, G. Hériard Dubreuil, S. Gadbois, C. Mays and T Schneider in “Constructive democracy and the governance of technology: conditions of democratic governance in a complex social and technical process: the example of the European project Cowam-in-Practice in the field of radioactive waste management” (Gouvernance, vol. 7, n°2, février 2011, page 2)

- methodological guidelines in the perspective of managing a transition towards improved public information & participation in a given (local, national, European) context of a selected nuclear activity,
- analytical sheets, mapping the public information and participation stakes in the specific context of the six considered nuclear activity contexts (see the list above and the sheets in the next section). Analytical sheets are based on meaningful practices and experimentations in the specific contexts of each area of nuclear activity.
- a set of draft reference criteria (Generic Inclusive Governance Patterns) for assessing governance patterns in the context of the 6 considered activities.

In order to facilitate dialogue and reframing of issues, Kick off interactions in the considered processes can be achieved by putting into discussion the proposed *analytical sheet* for the considered activity (see section 4). The function of these analytical sheets is to fuel discussions within a pluralist stakeholder group in the perspective of building a shared analysis and a common list of questions and concerns. Analytical sheets are prepared on the basis of a specific method of analysis, the IDPA method¹⁹ (developed by AGROPARISTECH see box section 4) involving experts in the field of nuclear governance.

The Generic Inclusive Governance Patterns (GIGP) are proposed as informal generic European guidelines to the involved groups of stakeholders. GIGP should not be regarded as a model or compulsory framework that would apply to any context since, as explained above, the (historical, social, political, legal, cultural, economic) specificities of each context as well as the capacity and willingness of the concerned actors makes it necessary to develop appropriate specific governance patterns.

It is suggested here that the proposed contributions and tools of this report would be discussed, completed and validated by a pluralistic group of stakeholders at EU level. A specific platform can be settled by the EC in order to hold this dialogue among stakeholders. Another option could be to examine with other interested parties at EU level (ENSREG, EESC, FORATOM, ETSO, EUROCLI, and major NGOs or federations involving civil society actors at EU levels such as ANCCLI or GMF together with initiatives such as Aarhus Convention and Nuclear – ACN and ENEF) the possibility of a joint initiative in order to achieve this validation process. The involvement of other interested international parties such as IAEA or the UNECE Secretariat of the Aarhus Convention should also be considered. Since on-going experimentation of the governance might bring new issues to be taken into account, the necessity of regular update should be considered.

¹⁹ For a more detailed description of the IDPA method, see Ollagnon, H., 2006, La gestion de la biodiversité : quelles stratégies patrimoniales ?, Annales des Mines n°44

For more detailed information about the use of the IDPA method in the nuclear field, see EURANOS, 2009, Sustainable rehabilitation of living conditions in contaminated territories after a nuclear accident or a radiological event – Revised framework for the elaboration of post-accident rehabilitation preparedness strategies. Deliverable Report for the EURANOS project. European Commission.

and EURANOS, 2005, Conclusion of the Pilot Study. Deliverable Report for the EURANOS project. European Commission.

Regarding the question of fostering the development of potential initiatives (processes) at national or European levels, as it is stated above, it is suggested to open dialogue with the above listed European organisations in order to examine with them the possible strategies in the perspective of further implementing public information and participation in the nuclear sector. Existing initiatives should be regarded as opportunities. The national ACN round tables, for instance, should be considered in this perspective together with more permanent forum of dialogue regarding nuclear governance (some of them being the autonomous continuation of research initiatives such as ARGONA in the Czech Republic).

Validation of the method during the IPPA European Workshop on Nuclear Waste Management, Aarhus and Cross-border Issues

The approach and method proposed in this report as well as the analytical sheet and GIGP in the field of radioactive waste management have been presented and discussed with a pluralistic group of European stakeholders during a European workshop organised by the IPPA (Implementing Public Participation Approaches in Radioactive Waste Disposal) European research project on “Nuclear Waste Management, Aarhus and Cross-border Issues” (Szentendre, Hungary, 20th-21st September 2012). This workshop gathered 52 participants from 12 European Member States and from European organisations: NGOs, operators, public authorities, regulators, technical support organisations, research organisations, representatives of local partnerships, the Regional Environmental Center for Central and Eastern Europe and a representative of European Commission – DG ENER.

The proposed approach, method and tools have been validated by the participants as elements of guidance for implementing transparency, information and participation of the public in general and, more specifically, in the framework of the implementation of the Directive 2011/70/EURATOM of 19th July 2011, establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste, which was presented during the workshop. The presentations and discussion of the PIPNA proposals regarding RWM has raised several issues regarding the PIPNA study, its relevance and accessibility on the one hand. It has also raised several issues regarding the potential of transition in the national context of the participants and the conditions for such change. The perspective of the implementation of the Radioactive Waste directive has been also discussed as a major incentive for the various concerned categories of stakeholders to contribute to raise the current level of PIP in the context of RWM.

Relevance of the PIPNA analysis and proposals (AS & GIGP) regarding RWM

It was noted by the participants that a lot of research and experimentation has been achieved in recent years in the area of RWM governance. Newcomers can hardly enter the subject and grasp the available materials. Some kind of synthesis of all this research is obviously needed. The PIPNA study is perceived as a good step in this direction.

Participants also underlined that the willingness of the CSOs to enter in the RWM decision-making has nothing to do with the question of raising the acceptability of RWM, but in the perspective of the Aarhus Convention, they underlined that the PIP is linked with the objective of improving the quality of decisions and safety. The proposal of the PIPNA RWM Analytical regarding the overarching problematic of “building a long term shared responsibility and vigilance on radioactive waste management” is perceived as consistent in this perspective.

Regarding the PIPNA analysis, it is observed that the survey is by no mean describing an ideal situation (a fairy tale as a participant puts it) but a dynamic situation with diverse potential outcomes, negative or positive scenarios. The analysis does not foresee the future (be it bad or good regarding the PIP implementation), but a situation with many actors and various kinds of possible strategies for the actors to contribute to a transition towards more inclusive patterns of governance of RWM.

The IDPA method is aiming at creating the conditions for the stakeholders to identify a common perspective supporting the development of PIP as a mean to achieve it. In general terms, the PIPNA study provides some evidence that, in the nuclear area, the overarching goal of improving safety is supported by all the different categories of actors. In this perspective, the involvement of civil society becomes a common goal as soon as it is clearly identified as a contribution to the quality of decisions and to nuclear safety. In the specific area of RWM, this overarching goal is derived into the idea of “building a long term shared responsibility and vigilance on radioactive waste management”.

The accessibility of the PIPNA documents, communication, language

Some participants have carefully reviewed the extracts of the PIPNA report regarding RWM. They acknowledge the relevance of the document that is seen as a useful basis, notably in the perspective of the implementation of the transparency provisions of the RWM European directive. Some participants however noted that the document is comprehensive but its reading necessitates some efforts for them, as representatives of small organisations or non-experts. They suggested the development of communication tools presenting the approach (brochure) in order to support the diffusion of what is considered as a very rich and useful reference document. Some participants also asked the EC regarding its intention to translate the PIPNA report into other European languages in order to facilitate the diffusion of this work. It is understood from the participating EC representative that there is no present intention of translating the document but that it could be considered in the future when the work will be completed, as soon as this survey will be proved to be useful. A participant of the seminar also observed that it is worth to know that the PIPNA study encompasses 6 different fields of nuclear activities and not only RWM and therefore represents an important resource for all concerned categories of actors.

Transition towards PIP in the concerned national context: what is the willingness of the different stakeholders to achieve nuclear transparency?

Some participating NGOs expressed doubts about the willingness of their national government and safety authorities to implement the ambitious framework proposed by PIPNA. In some countries, national authorities deliberately reject the obligations resulting from the adhesion of their country to the Aarhus Convention, even when they have suffered remonstrance from the Aarhus Convention Compliance Committee. It is underlined that in some countries, the use of PIP processes are mainly instrumental with little if any impact on the actual decisions. Moreover, in some countries, the principle of PIP is set aside as soon as decisions are achieved. Some participants also underlined the ambiguity of the principle of “local” participation since in some cases, the local participation is understood as the participation of local mayors or community council while lay citizens of local NGOs and civil initiatives are not involved. The participants agreed on the idea that local participation should involve an equitable co-operation between the local elected officials, the population and the NGOs and civil initiatives. They however stated that a precondition for transition towards

improved PIP is that the different categories of stakeholders (notably the authorities) be convinced that further progress towards transparency will result in improved quality of decisions regarding RWM.

Creating a multi-stakeholder group

Whereas the PIPNA study suggests the creation of multi-stakeholder groups at national level to discuss the proposed analysis (the analytical sheet) and inclusive governance patterns (the GIGP), the participants have discussed the potential and the conditions for creating such groups in their own countries. It is understood by the participants that the goal of such groups is to create the conditions for a long-term cooperation between the different stakeholders (and not to create only temporary opportunities for PIP). Regarding the Public Authorities, it is noted that the cooperation should at first aim at the involvement of the representatives of the different administrations in order to avoid the difficulties created by the rapid rotation of elected representatives and governments officials. According to the participants, this cooperation should also involve a trans-boundary dimension. The goal of creating a long-term cooperation is considered as ambitious and necessitating support from outside the considered countries. An example is provided with the Aarhus Convention & Nuclear Roadmap (organised by ANCCLI and the EC DG ENER) that is providing national NGOs and civil initiatives with the opportunity to organise National Roundtables with the support of the respective Ministries of Environment (as the National Focal Points of the Aarhus Convention) as well as of European partners under the umbrella of a European initiative. Similar opportunities are provided by the European Cooperative Research initiatives such as COWAM in Practice and ARGONA in the past years and the present IPPA research project.

The participants have also questioned the influence of multi-stakeholders dialogue forums (recommended by the PIPNA study) on actual RWM decisions. The authors of the PIPNA study explain that, from the analysis of past experience, multi-stakeholders dialogues are not expected to have a direct influence on on-going decisions but to create favourable conditions for more inclusive governance patterns. It is expected for instance that civil society stakeholders would gain capacities and self-confidence while experimenting new patterns of relations with the institutional stakeholders. It is also expected that the dialogue would contribute to reframe the RWM issue, notably taking on board the concerns and questions of the civil society. As explained above, the most important result would be the identification of a common perspective among the different categories of stakeholders supporting the development of PIP as a mean to achieve it.

Who is in charge?

Having stated that a long-term cooperation is to be developed between the stakeholders concerned by RWM at the local and national levels, some participants are wondering who is responsible for undertaking actions in the perspective of this ambitious goal. Should they even be willing to do it, public authorities would not be able by themselves to impose partnership relations that can only result from the willingness to cooperate of the various concerned categories of stakeholders. In addition, in several cases, national authorities do not demonstrate willingness to create the conditions of such long-term cooperation. Some NGO participants of the seminar acknowledged the necessity to start initiatives in this perspective without waiting for an official mandate to do so. Some participants however underlined the weakness of local actors and communities in some EU Member States, but also the reluctance of some national NGOs to enter dialogue on nuclear matters. It is underlined that stakeholders

from the civil society have to raise their capacity and expertise in order to enter equitably nuclear decision-making processes, notably in the field of RWM.

What is the role of legal requirements in achieving PIP?

This discussion has however demonstrated the importance of the existence of legal obligations regarding the development of PIP. It is underlined that legal provisions regarding PIP are complementary to more cooperative approaches.

The Council Directive 2011/70/EURATOM on the responsible and safe management of spent fuel and radioactive waste of 19th July 2011 is to be implemented in the Member States by August 2013. However, it was underlined by a participant that the Member States have very little obligations, if any, regarding the modalities of the implementation of this directive, notably regarding PIP. The participants wondered if the EC is to issue guidelines and/or standards regarding the implementation of this directive.

It is understood, from the answer of the participating EC representative, that the EC does not intend to issue a binding document, neither legal obligation nor official recommendation on the way to implement the directive. As regard enforceability of transparency, it is however underlined that the Member States have to deliver national RWM programmes that necessarily include transparency provisions.

The EC is however frequently asked by the Member States about the availability of guidelines while they are confronted with the obligation to transpose the directive in their own legal framework. The European Nuclear Energy Forum (ENEF) Working Group “Risk” established a sub-working group (NAPRO, National Programmes) in order to draft Guidelines for the establishment and notification of national programmes under the Council directive. There are several provisions in this guide regarding the implementation of transparency. But there will be no legal obligations attached to this Guide.

It was acknowledged by the participants that the directive implementation constitutes an opportunity for creating a multi-stakeholders forum as suggested by the PIPNA study, in order to facilitate the implementation of the provisions regarding transparency. It is also acknowledged that official recommendations of the EC would represent a strong incentive for National Authorities.

The agenda of the implementation, with the soon coming deadline of August 2013, creates a momentum for this. The perspective of possible peer-reviews in order to evaluate the implementation of this directive in the coming years was also regarded as an opportunity for the NGOs to take initiative in order to assess the implementation such as recommended by PIPNA in their national context. It is underlined that, according to the EU treaties, the EC has now the obligation to review the effectiveness of the national implementation of the directives in each Member State. It is explained by the EC representative that no detailed provisions have been taken until now regarding peer-reviews, which would presumably be implemented by a body entrusted by the EC in this perspective. It is underlined by the participants that the peer reviews should by no mean be achieved without PIP and more specifically without the involvement of national NGOs in the corresponding countries. It is also noted that, according to the participants’ views, few international institutions have legitimacy for undertaking a peer review regarding transparency.

Conclusion, summary of the Szentendre discussions

Several conclusions can be drawn from the discussions of the session of the Szentendre IPPA workshop dedicated to the presentation of the PIPNA study. The PIPNA study proposes to stakeholders of nuclear activities (and notably RWM)

- a strategy in order to facilitate a transition towards more inclusive patterns of governance of nuclear activities at the local, national and European levels ;
- several tools in order to support the proposed strategy.

The PIPNA tools have been developed in the specific context of 6 different fields of nuclear activities, on the basis of significant results of European and national research projects and experimentations that have been achieved in the two past decades regarding governance of nuclear activities. The tools include for each of the 6 fields, an Analytical Sheet (developed on the basis of the IDPA methodology) and a Generic Inclusive Governance Pattern. However, the Szentendre presentations and discussions have been limited to the area of RWM.

The discussion first validated the quality and relevance of the proposed tools in the area of RWM. A translation of these tools into national languages would be, according to the participants, very useful in order to facilitate their appropriation by the stakeholders, notably from the civil society. The development of a communication tool such as a brochure in order to support the diffusion of the results of the PIPNA study was also suggested.

The discussion also contributed to clarify the purpose of the proposed scenarios. Whereas, some participants expressed scepticism about the feasibility of the proposed inclusive governance patterns, it was made clear that the PIPNA study is by no mean an attempt to foresee the future. It is providing a description of a dynamic situation with diverse potential evolution scenarios, with several categories of interacting stakeholders with different capacities and opportunities. This description is generic. The IDPA method is aiming at the identification of the conditions for the different stakeholders (including institutional ones) to develop a common perspective supporting the development of PIP as a means to achieve it.

The strategy in order to facilitate a transition towards more inclusive patterns governance of nuclear activities has to be implemented at the national level, taking into account the social political, legal, cultural and historical specificities of each country. This includes a range of possible negative or possible attitudes of the different stakeholders vis-à-vis the perspective of developing PIP in the context of nuclear activities. It is understood that the purpose is not necessarily to provoke immediate changes but to build a long-term partnership involving as much as possible all the concerned categories of stakeholders. It is however clear that starting a strategy of transition does not entail, as a precondition, the necessity that all the stakeholders would be convinced of the utility of raising transparency of nuclear activities and PIP. The discussions have also underlined the importance of external support to national initiatives such as European initiatives (e.g. the Aarhus Convention & Nuclear roadmap for instance), or the European participatory researches on RWM governance. The perspective of the implementation of the European Directive on RWM is perceived as an opportunity for national stakeholders to initiate strategies in order to raise PIP. A careful review of the RWM stakeholders positions regarding PIP and of the national or European opportunities and timing is necessary in each Member State in order to develop a strategy for raising Public Information and Participation in the context of Nuclear Activities.

6. ANALYTICAL SHEETS FOR THE CONSIDERED FIELDS OF ACTIVITY

These analytical sheets do not constitute a full diagnosis of the considered fields but are a tool to facilitate dialogue within a stakeholder group.

Analytical sheets for the 6 considered fields of activity have been prepared:

- Management of radioactive discharges and surveillance of radioactivity in the environment around nuclear facilities
- Radioactive waste management
- Nuclear emergency management, post-accident management and long term rehabilitation
- Nuclear safety management
- New build and siting of new nuclear facilities
- Decommissioning of nuclear facilities

These analytical sheets are presented following the specific grid of analysis (IDPA grid, see box below) that has been used to produce them. This particular method was chosen for two reasons:

- This method has been developed in order to address complex issues (involving multiple actors, dimensions, problems, time and space frames...) and identify strategies of change in the governance of the considered issue
- The method is not only a method of analysis; it is also a method of co-evaluation particularly suitable to be used within a pluralistic stakeholder group.

The IDPA method

The IDPA method is a structured multi-stakeholder dialogue method developed by AGROPARISTECH. This method structures a co-expertise process within a stakeholder group: each actor is considered both as a "micro-expert" (of his own situation, territory...) and as a "macro expert" (of the strategic issue addressed during the process). The IDPA method allows integrating different forms of expertise at stake (scientific and technical expertise, expert knowledge of the territory and local stakes and habits held by the territorial actors, strategic expertise...).

The participating stakeholders develop their analysis of the issue at stake according a specific grid of strategic analysis, the "IDPA grid", which is divided into 4 strategic items:

- Identification of the situation, the actors concerned and problems:
 - What are the main qualities identified?
 - Where does the issue develop (geographical, physical, political, human... entities)?
 - Who are the main concerned stakeholders?
 - What are the main identified problems? What is the main identified strategic problem?
- Diagnosis of the actions engaged:
 - Which stakeholders are active? What are their main actions?
 - How is the system of actors as a whole operating?
 - What is the result of the system of action?
- Prospects: future evolution of the situation, problem and actions
 - In what time and space frame does the issue develop?
 - Evolution scenarios: baseline scenario, negative scenario, positive scenario
 - Stakes, threats and assets
- Action proposals:
 - Proposed objectives
 - Proposed approach
 - Possible path of change and proposed actions

6.1. Management of radioactive discharges and surveillance of radioactivity in the environment around nuclear facilities

Key issue: What are the means and the conditions for public access to information and participation in the context of environmental surveillance of nuclear installations?

6.1.1. Identification of the situation, actors and issues at stake

6.1.1.1. What are the main qualities identified?

Operation of nuclear facilities leads to routine discharges of radionuclides in the environment. In order to deal with this situation, two means of surveillance have been developed. At first, national authorities establish discharge authorisations; these discharges being controlled by the operator and validated by the regulatory authority. The second means of surveillance is regular monitoring of the radioactivity in the environment by national institutions.

From the point of view of local stakeholders, the main dimensions at stake are:

- Gaining confidence in the monitoring surveillance system led by operator/national institutions by having access to reliable and understandable information;
- Ensuring that the quality of the environment and the quality of health are not affected by the presence of increased levels of radioactivity, especially around nuclear installations.

In this perspective, local stakeholders generally consider the environmental quality in a global perspective, taking into account all sources of radioactivity including natural ones as well as the other pollutants.

6.1.1.2. Where does the issue develop (geographical, physical, political, human ... entities)?

The issue of environmental monitoring concerns three geographical scales:

- At the territorial scale, where stakeholders know and are concerned with the specific vulnerabilities of their living conditions in their territory (vulnerability of environment, health, living conditions, economic and other activities).
- At the national scale for ensuring the monitoring of radioactivity in the environment both in routine and accidental conditions.
- At the European and international scale, regarding the detection and reporting of radiological events and crisis management.

To monitor the environment, a set of electronic detectors is deployed in different compartments of the environment, complemented with a programme of sampling of environmental media, including food products. On the one hand, this system constitutes a means to monitor environmental quality contributing in some cases to the assessment of public exposures, and on the other hand it confirms the absence of incidents in the facilities.

6.1.1.3. Who are the main concerned stakeholders?

The actors concerned by the management of radioactive discharges and environmental monitoring surveillance are the following:

- Nuclear installation operators

- National nuclear safety and radiation protection authorities
- Public expert bodies and Technical Support Organisations
- National network of environmental radiological measurements
- Environmental NGOs, laboratories from universities or from local organisations, independent experts
- Farmers, transforming agricultural products companies, consumers of agricultural products
- More generally, producers for whom the quality of inputs depends on the quality of the environment (sea or river fishermen, aquaculturists, foresters, current water producers...)
- Public organisms responsible for environmental monitoring (water agencies, national forest organizations...)
- Health actors: Public health institutes, research institutes, health professionals
- Local liaison committees around nuclear installations
- Territorial elected representatives
- Governments (with trans border dimensions for nuclear installation located near borders), notably through international conventions (OSPAR, ESPOO)
- International organizations (e.g. ICRP), European Commission (in particular Article 37²⁰ commission referring to fundamental rights convention from Euratom Treaty commission)

6.1.1.4. What are the main identified problems?

The monitoring of radioactive discharges into the environment represents an increasing interest at European level. Notably, Article 35 of the Euratom Treaty requires that each Member State shall establish facilities necessary to carry out continuous monitoring of the levels of radioactivity in air, water and soil and to ensure compliance with the basic safety standards.

It is to be noted that for 15 years, radioactive discharges in the environment from nuclear installations have been sharply reduced due to the introduction of different techniques to filter and manage the discharges. With regard to tritium and carbon 14 (C-14), there is technically little or no room for reducing the discharges however. Virtually all tritium and C-14 that are produced in the reactor are effectively discharged. According to the current techniques, retention of tritiated wastewater on-site would generally cause a higher exposure of workers than in terms of public exposure. Due to recent evolution in the management of fuel for some nuclear power plants (NPPs) in Europe, tritium releases have tended to slightly increase, and correspondingly new licences have to include a higher discharge authorisation for tritium. The radiological impact of tritium on environment is very small, the dose coefficients for intake being far below those for other nuclides. Nevertheless, the fact that the activity amounts are expressed with very large numbers, and the fact that tritium can be monitored in the environment, may be cause of concern. It is to note that tritium and C-14 are also topics of

²⁰ Article 37: « A high level of environmental protection and improvement of environmental quality have to be integrated in the European Union policy and ensured according the principle of sustainable development »

research regarding their behaviour in the environment, the modelling of their transfer and their possible biological impacts.

Although the primary aim of discharges authorisations is to ensure that exposures to workers and to members of the public are maintained as low as reasonably achievable, they are mainly driven by the best available techniques regarding the management of discharges in nuclear installations. Therefore, the set of discharges authorisations is the result of a technical discussion between operators, authorities and experts, taking also into account international comparison. This debate is not straightforward for citizens: how can they gain confidence in this process and have access to it?

When it comes to local environmental monitoring surveillance, the issue at stake is to address the quality of the environment in a global perspective (including all sources of radionuclides and other pollutants in an historical perspective). The stakeholders could ask themselves: How to get access to the information? Which plurality of information is available? How to interpret the results in terms of quality of the environment?

At the national level, the main issue is to organise the collection and access of information on environmental surveillance and to favour the dialogue between the different stakeholders, notably NGOs involved in environmental issues.

At the international level, two issues are specifically at stake for environmental surveillance:

- The organisation of the sharing of reliable information in case of emergency situation.
- The identification of a common objective on environmental quality regarding trans-boundary transfers of radionuclides.

The possible health impacts associated with exposure to ionising radiation is a primary concern for the citizens, more specifically around nuclear installations. Nevertheless, the relationship between the observation of health effects and the contribution of exposure to ionizing radiation is not trivial. Radiological factors interact with various other biological factors and the level of exposure is generally very low. Different epidemiological and radioecological studies around nuclear installations (Radiological Nord-Cotentin Group in France, KiKK in Germany, COMARE in the United Kingdom) identified pathologies clusters but are generally not able to establish a correlation/relationship with activities of nuclear installations on the territory. This issue is scientifically difficult to analyse but, at the same time, is really sensitive for local populations around nuclear installations.

In this context, at the local level, the key issues are:

- How to get confidence in the assessment of the risk associated with exposure to ionising radiation?
- How to deal with low and very low probability of occurrence of radiation-induced health effects and to set up a follow-up of health status of the population around nuclear installations?

At the national level, the publication of epidemiological studies generally creates political debates and calls for the organisation of expert groups (notably with plurality of origins and disciplines) to address this issue. This also reinforces the need for international scientific cooperation and stakeholder's dialogue to improve the knowledge and the understanding of the causalities of health effects, their link with exposure and the organisation of the health surveillance.

6.1.1.4.1. What is the central strategic problem as regards access to information and participation of the public?

The traditional governance of radioactive discharges is based on the setting of standards by the public authorities as well as on the control of their implementation by relevant public bodies. A normal situation (where the radioactive releases remain within the discharge authorisations) entails public and environmental radioactive exposures at low level. The assessment of the impact of this exposure is complex and characterised by uncertainties and inherent scientific debates (and sometime controversies with associated public debates) as the development of scientific knowledge unfolds. In this perspective, the strategic core of the problem lies in the necessity to move from conventional governance (where the public trust is essentially based on the respect of the discharge authorisations by operators) to more inclusive patterns of governance of decisions-making processes on radioactive discharges management and environmental surveillance. This governance is characterised by creating the conditions for comprehensive and pluralistic debates on the actual impact of radioactive releases and monitoring of the radioactivity in the environment at territorial level but also at national and international levels (where most of experts & scientific debates take place).

The strategic core of the issue concerning the management of radioactive discharges and environmental surveillance then relies on:

- The development of trust in the whole system of regulation and access to the debates associated with decision-making processes for radioactive discharges,
- The design of a monitoring system in a fair and pluralistic process, responding to regulatory, operational and public requirements, including quality indicators meaningful for local stakeholders, and contributing to the health surveillance of the population living around nuclear installations,
- The development of a pluralistic information system and involvement of local stakeholders in the follow-up of the environment monitoring in a global perspective,
- The development of pluralistic expert groups to deal with specific issues and development of places of dialogue for sharing the information and the assessment of the quality of the environment at the different levels (local, national and international).

6.1.2. Diagnosis of the actions taken

6.1.2.1. Which stakeholders are active regarding the issue of environmental monitoring of nuclear facilities? What is their action?

- The operators evaluate the quality of the nuclear installation regarding its impact on the environment and its compliance with discharge authorisations established by the regulator. For the operator however, the control of discharges is also driven by a perspective of continuous improvements that is attached to the implementation of the “ALARA” principle

- The regulator is in charge of controlling discharges and setting the standards. Its objectives are to adequately protect members of the public and to force the operator to pursue the best available techniques to reduce the discharges.
- At the local level:
 - At the initiative of elected people around nuclear installations or NGOs, environmental measurements are performed by independent organisations: universities, NGOs, laboratories set up by local authorities, professional laboratories...
 - Local liaison committees around nuclear installations, NGOs, elected representatives, media... are playing a key role in the diffusion of the information and in the integration of this information in the perspective of the local sustainable development.
- At the national level:
 - National environmental measurements networks are set up in different countries, involving public expert bodies, universities, local authorities, NGOs and enabling to share environmental measurements.
 - In some specific situations, notably to deal with health issues around nuclear installations, independent expert committees have been set up (e.g. members of North Cotentin Radioecology Group (GRNC) in France, scientists from different organisations in COMARE in the United Kingdom, and in the KiKK studies in Germany).
- At the international level:
 - Expert committees have been set up at the European Commission (EC) level and in international organisations such as Nuclear Energy Agency (NEA) or International Atomic Energy Agency (IAEA) to deal with scientific debates on transfer of radionuclides in the environment and possible health effects associated with exposure to ionizing radiation.
 - International dialogue on the common goal on the quality of the environment is a matter of debate within the OSPAR Convention and the ESPOO and Aarhus Conventions.
 - Scientific research on the effect of low doses is still going on, partly funded by the EC, with the setting up of forum of dialogue with citizens (essentially MELODI project).

6.1.2.2. How is the system of actors as a whole operating?

The monitoring of the quality of the environment spreads over three scales, as mentioned above:

- At the territorial level: the system is focused on one side on monitoring discharges of the facility in the perspective of normative control and on the other side on monitoring different compartments of the environment.
- At the national level: for ensuring the monitoring of radioactivity in the environment both in case of crisis or routine situations, the current system allows to control and to monitor the liquid and gaseous radioactive discharges from the installation into the environment

(Article 35 of the Euratom Treaty). The access to information is largely facilitated when environmental measurement networks are in place.

- At the European and international levels: systems aiming to share information in case of crisis are implemented between countries and between authorities and experts of radiation protection and nuclear safety. According to Article 37 of the Euratom Treaty plans for the release of radioactive materials shall be submitted to the European Commission for comment.

It is to be noted that the network of environmental measurements requires the development of qualification procedures allowing the aggregation of measures coming from different sources. In this perspective, certification processes and inter-comparison campaigns are developed by authorities and public expert bodies to ensure the quality of the measurements and harmonize the processes. However, the certification requirement entails costs and necessitates specific organisations that generally restrict the access to the system. Notably, small-scale laboratories have no access to the system.

6.1.2.3. What is the result of the system of action?

The result of the present system is a certain trust deficit within the population due to:

- Information deficit of citizens concerning environmental monitoring and environmental health issues,
- Information limited to achievements of limits (above or under) without possibility to judge the limits and evaluate their impacts on health,
- Complex use of measurement units (e.g. the use of Becquerel (Bq) implies high numbers and are related to weights (Bq/kg), volumes (Bq/m³) or space (Bq/m²) which is confusing).

The result of the system is also characterised by a deficit of participatory processes for local stakeholders:

- Absence or limitation of places of dialogue to cope with the quality of the environment in a global perspective,
- Lack of pluralistic expertise involving local stakeholders to address health issues associated with radioactivity in the environment.

Processes have been experimented to favour the sharing of environmental quality assessment (e.g. monitoring by NGOs, APEL process in the Loire Valley developed by IRSN and Local Liaison Committees around nuclear power plants, GRNC, in France, radioecological study following the KiKK study in Germany, COMARE in the United Kingdom...). These processes proved to be key elements of environmental monitoring quality in terms of:

- reliability of the information produced for all stakeholders (possibility to have access to information from different sources, to compare, to get an idea of the situation);
- quality of the environment when the measures are not strictly limited to the releases coming from nuclear installations, but also take into account legacy (past management of the discharges of the installations).

6.1.3. Prospects: future evolution of the situation, problem and actions

6.1.3.1. In what time and space frame does the issue develop?

The issues, associated with the management of radioactive discharges and the environmental monitoring surveillance, develop on the short, medium and long term according to the half-life of radionuclides concerned. They link the past (through the influence of past discharges in the environment depending on the history of nuclear industry and evolution of discharges management techniques and strategies), the present (influenced by the choice of fuel cycle (i.e. reprocessing, burn-up of fuel, types of nuclear power plant with different characteristics for discharges) and also depending on the evolution of the best available techniques), and the future (according to the evolution of the energy policy and the place of nuclear energy in Europe). In this context, there is also an evolution in time of the environmental monitoring to cope with the residual level of radioactivity present in the different compartments of the environment.

The management of radioactive discharges and the environmental monitoring surveillance entail stakes associated with multiple space frames, from the local to the European level. The first stakes concern the local environment around nuclear installations with the follow-up of the different compartments. At this level, stakeholders are concerned with the global quality of their living conditions in their territory and their evolutions. There are also stakes at the regional level due to the dispersion of radionuclides. This is particularly the case for trans-boundary issues notably concerning the dispersion of radionuclide through rivers and marine environment.

The elaboration of the policy in this field is mainly driven at the national level for the follow-up of discharges and the organisation of the environmental monitoring, but there are also issues at stake at the European and international levels, for identifying the best available techniques for the management of discharges and for organising the exchange of information on monitoring, notably in a crisis situation. The issue of elaboration of common objective for the quality of the environment is also a matter of discussion at the international level through international conventions involving different member States.

6.1.3.2. Evolution scenarios

Baseline scenario

In Europe, within the perspective of the ALARA principle, operators of nuclear installations have continuously undertaken efforts to reduce radionuclides discharges in the environment. As a consequence, the related requests for discharge authorisations could be reduced, except for tritium and C-14 because of technical limitations to filter and retain these radionuclides. Due to the evolution in the management of fuel for some NPPs in Europe, tritium releases have however tended to increase and request for discharge authorisations have accordingly tended to increase.

In addition, because of the low residual level of radioactivity in the environment, more sophisticated monitoring system may be needed for some compartments and therefore the financial constraints could lead to reduce the renewal of the existing monitoring system.

Local stakeholders will call for access to reliable information to assess the quality of their environment, but will have difficulties to elaborate relevant indicators concerning the evolution of the residual radioactivity in the different compartment of the environment. Their main concern will be to evaluate the potential effect on health in their region and to gain confidence that the current management is safe. Currently, their involvement in this type of

evaluation is limited and generally not easy to achieve notably due to the complexity of the scientific aspects. In addition, tritium and C-14 discharges and their presence in the environment will continue to be a matter of debate notably regarding their transfer in the environment, their contribution to exposure and their potential effect on human health and biota.

Negative scenario

A negative evolution of the situation could occur with the publication of new epidemiological studies indicating the existence of an excess of cancers or leukaemia around nuclear installations. Even if such studies would not provide evidence of a direct relationship with discharges of the nuclear installations, their results could create concerns among the populations living around nuclear installations and lead to a lack of confidence in the quality of the surveillance of the environment for these populations. Even if experts explain that the data are not sufficient to derive a relationship between exposure and the effects, the suspicion could evolve rapidly and threaten the credibility of the governance system.

In this context, a response of public authorities to health concerns of the public that would be limited to epidemiological studies could not address the concerns of the population, due to the limited capacities of the epidemiological studies to assess with certainty the contribution or the absence of contribution to the occurrence of health effects of exposure to ionising radiation at low or very low doses. This could then lead to a rise in mistrust about a controversy over the potential toxic risks of the considered installations. Current tools will also be inappropriate to respond to the stakes especially at the territorial level (fulfilling the standards would not restore public confidence since the existing standards of radioactive discharges would be questioned by scientific controversies). Therefore a doubt would be settled despite the efforts deployed by operators to reduce or maintain discharges of their installations. The absence of constructive and pluralistic dialogue at the national level between operators, authorities, experts and stakeholders would contribute to the lack of confidence.

Positive scenario

A positive evolution would be to favour the involvement of local stakeholders in the follow-up of the discharges of the nuclear installations and to the monitoring of the concentration in their local environment. This approach is built with a precautionary approach to address health concerns while taking into account the existing state of knowledge and the possible uncertainties at low and very low doses. The participation of local stakeholders would allow sharing the evaluation of the quality of the territorial environment in a global perspective and would create a place of dialogue for addressing the meaning of the different indicators and could call for the elaboration of dedicated indicators and measurements to cope with the concern of the local stakeholders. In this context, the development of the surveillance could also address health issues to cope with the concern of the local stakeholders.

6.1.3.3. Stakes, threats and assets

Stakes

The sustainability of local stakeholder's involvement in monitoring will be questioned: how to avoid loss of interest of local stakeholders in the long term? In particular, how is it possible to prevent that the system of quality of the environmental monitoring will be limited to an observation of the conformity of monitoring of facilities discharges?

Therefore, the main stakes are:

- Definition of quality indicators allowing the local stakeholders to follow the evolution of their territory with regard to radionuclide discharges,
- Existence of processes for sharing the available information and assessing the quality of the environment and able to cope with health surveillance,
- Development of capacity building for local stakeholders to cope with this issue and providing access to pluralistic expertise.

Threats

The current system could be managed properly by the operators and the authorities without involvement of the population and therefore without capability for the population to appreciate its efficiency.

In addition, the difficulty to elaborate a follow-up of health issues meaningful for local populations could create disturbance among people living around nuclear installations and contribute to the lack of confidence in the management of discharges and environmental monitoring.

The very low residual level of radioactivity in different compartments of the environment around nuclear installations necessitates in some cases to deploy sophisticated monitoring systems. Financial constraints, in a context of economic crisis, could limit the future development of such equipment and therefore even question the interest of some monitoring systems.

Assets

Integration of radiological monitoring in the framework of a larger system of environmental monitoring, as experimented by different municipalities and regional environment agencies around nuclear installations, leads to cost reduction.

Different studies performed around nuclear installations show that complementing the national monitoring system with local measurements in the local environment contributes to better cope with the concern of local stakeholders. Notably, an historical perspective of the radionuclides concentration in the environment would improve the capacity of the population to address the issue of environmental quality.

Currently, feedback experience on environmental monitoring and especially radiological monitoring are already available and could provide useful information for addressing this issue.

6.1.4. Action proposals

The following proposals are grounded on the available feedback experience and European research in the field of radiation protection. They are not intended to be directly used as recommendations for decision-makers but are rather a first ground for discussion within a pluralistic stakeholder group at the local, national or European level.

6.1.4.1. Proposed approach

Actions to be taken should enable:

- identifying common indicators between the national community and local communities for the follow-up of the quality of the environment associated with the management of radioactive discharges from nuclear installations,
- promoting the development to national networks collecting and sharing the different environmental measurements,
- introducing a plurality of expertise for the environmental monitoring and for the assessing the quality of the environment and the health issues,
- facilitating international share of experiences for stakeholders from civil society among European Union Member States.

6.1.4.2. Proposed objectives

At the European level, the following objectives can be proposed:

- Favour a shared understanding between the different stakeholders of the assessment of the quality of the environment regarding presence of radioactivity in the different compartments of the environment,
- Promote the access for all stakeholders to scientific studies on health issues associated with low doses exposures and favour a pluralistic dialogue on health surveillance around nuclear installations.

At the national level, the following objectives can be proposed:

- Develop national networks for collecting and sharing information on monitoring surveillance with a pluralistic participation,
- Develop processes allowing a common elaboration of the monitoring strategy between national and local stakeholders,
- Provide access to expertise for the different stakeholders to address the environmental and health surveillance around nuclear installations.

At the local level, the following objectives can be proposed:

- Favour the involvement of local laboratories in the environmental monitoring to complement the national environmental surveillance,
- Set up processes to address the issue of the quality of the environment in a global perspective,

- Facilitate the development of competences for the different local stakeholders to favour their involvement in the follow-up of the environmental and health surveillance around nuclear installations.

6.1.4.3. Possible path of change and proposed actions

The key issue to be addressed for improving the access to information and participation of local stakeholders to the environmental surveillance is to adapt the current system to better cope with the concerns of local stakeholders concerning the quality of their environment. For this purpose, additional indicators and measurements should be developed to complement the current monitoring system. In addition, common assessment of the quality of the environment should be promoted, including health surveillance.

Pluralistic experiences have been experimented in different contexts in France (GRNC and APEL), the United Kingdom (COMARE) and Germany (radioecological studies around nuclear installations). There is also a need to enlarge these approaches to cope with the quality of the environment in a global perspective that is not limited to radioactivity.

6.2. Radioactive waste management (RWM)

Key issue: What are the means and conditions for public access to information and participation in the context of radioactive waste management?

6.2.1. Identification of the situation, actors and issues at stake

6.2.1.1. What are the main qualities identified?

The issue of radioactive waste is not limited to the high-level waste but also includes waste of low and very low activity, not only from the nuclear industry but also from other activities and installation (e.g. radioactive waste from medical activities).

Attention should also be paid to the waste sources, the energy production system and its future (based on energy choices in the future), research programmes (forecasts on the long and very long term) and the system of development and provision of expertise and scientific knowledge.

As regards RWM sites, a first quality at stake is the safety of radioactive waste management. This encompasses technical and physical dimensions (e.g. geology) of safety. Experts, operators and safety authorities bring a key contribution to safety, which may be complemented by a contribution of local communities to vigilance and surveillance of RWM sites on the long term. Local vigilance is thus recognised as a contribution to the quality of safety in the French fundamental safety rules or in the outcomes of COWAM 2 European project.

Also at stake is the future of the local communities surrounding RWM sites at a mid and long term horizon. This includes environmental surveillance as well as long-term sustainable development considerations.

6.2.1.2. Where does the issue develop (geographical, physical, political, human ... entities)?

In the European context, RWM is a national issue with a localised technical management option, on the one hand, and with involvement of a supranational dimension (e.g. European policies, European research projects...). It includes a political dimension with the positioning of political actors in this field at these different governance levels. Electoral mandates play a regular role in this process.

At a local level, identifying a local site for a RWM facility is a sensitive issue and requires taking into account economic dimensions (employment, tourism and all activities that can be directly or indirectly impacted by the siting and operation of a RWM facility), geographical entities (e.g. hydrological basins) and social and cultural definitions of communities in the considered territories.

At the crossroads of the local and the national level, RWM also has a trans-territorial dimension, as it builds a relation between territories and actors which are in demand of a RWM solution (the national community as well as the waste-producers) and local communities that are in a position to propose to these communities their contribution by making available resources of their territory (geological qualities but also human qualities as local communities can play a role in safety, vigilance and memory over RWM sites).

The national level is a key level of decision, in particular for defining the governance framework for the decision-making process (at the local as well as at the national level).

The European level also plays an important role through European policies and regulations and European research projects.

6.2.1.3. Who are the main concerned stakeholders?

The stakeholders concerned by RWM issue are the following:

Local stakeholders:

- Local communities around the waste producing sites
- Local governments, populations, citizen groups, local NGOs and economic actors around potential or actual RWM sites
- Local Commissions or local partnerships attached to actual or potential RWM sites

National stakeholders:

- RWM operators
- Operators of waste producing facilities
- National parliaments and governments (and regional/State parliaments and governments in countries in which such jurisdictions have responsibilities for RWM)
- Nuclear safety authorities
- Research organisations active in RWM-related research fields
- National population (nuclear energy consumers)
- National civil society organisations (NGOs, trade unions...)

European and supranational stakeholders:

- Supranational actors engaged in the RWM issue, in particular the European Commission, the Nuclear Energy Agency (NEA), the International Atomic Energy Agency (IAEA) and European networks of nuclear regulators (e.g. WENRA, ENSREG) and of technical support organisations (e.g. ETSON)
- European NGOs
- Population of countries bordering a RWM site (for RWL sites close to a national border)

Finally, future generations can be considered as stakeholders, as they will be impacted by the choices of current generations in RWM.

6.2.1.4. What are the main identified problems?

At the local level

- Enabling access of local stakeholders to expertise: RWM entails highly technical dimensions in which experts play a key role. Local communities hosting (or potentially hosting) a RWM site will have to develop sufficient skills to address technical issues while they are often not familiar with nuclear matters (as soon as nuclear activities are

new in the considered contexts). How can capacity building and access to expertise be enabled for local communities? Do arrangements for access of local communities to expertise allow them to build autonomous understanding and assessment of the issues at stake? How can expertise be maintained (and corresponding public awareness) on the long term at both national and local levels?

- Building a sustainable project for the long-term development of the potential host territory: RWM is about managing in the long term a negative legacy (the waste) and RWM activities are not generating profits. How can local communities identify positive stakes in RWM activities linked to a sustainable development project for their future? How can financial incentives be arranged in a way that preserves the autonomy and freedom of choice of local communities? How can the different options for the future of the local community fairly, reliably and democratically assessed by the community (including both development projects including RWM activities and alternative development projects)?

At the crossroads between the local level and the national level

- Defining the local communities and their role in the decision-making process: although municipalities have often had a key role in RWM decision-making processes, the geographical scope of the potentially affected territory goes beyond the limits of a sole municipality. Defining what is the “affected territory” is therefore a key stake in order not to exclude some affected local actors from the decision-making process. This definition of the affected territory is therefore an important issue, which mixes administrative, economic, social, cultural, geographic, hydrographical... aspects.
- Defining equitable conditions for long-term solidarity between host territories and the national community: RWM is a national issue with local solutions, which raises ethical issues of solidarity in the long term between those who benefited from nuclear activities and the community who will host RWM facilities. How can links between the territory and the national level be organised in a relevant and sustainable way not only during the siting process but also during the operation of the site and after a possible closure? How can the long-term nature of RWM issues be articulated with the short-term nature of political mandates?

At the national level

- Defining the framework for decision-making and stakeholder engagement: national authorities have a responsibility not only for finding long-term solutions for RWM issues but also for establishing clear, fair, transparent and democratic rules for decision-making in the RWM field. This notably includes defining a framework for engagement of local, national (and in some times foreign) stakeholders in the decision-making process. One key issue here is how to ensure and assess the fair and democratic character of the decision-making process and how stakeholders can contribute to the definition of the decision-making framework.
- Establishing transparency on economic and financial long-term issues: RWM is a long-term issue, which entails uncertainties, notably in terms of safety in relation with the conditions of reversibility or irreversibility of RWM options and of RWM facilities operation. It also raises questions in the field of economy and finance: who will pay? Are national radioactive waste funds sufficiently funded or, in the absence of such funds, have

waste producers included sufficient provisions in their accounts (in particular nuclear power plants operators)? What are the uncertainties as regards future costs of RWM on the long term, notably in case of potential unforeseen consequences?

- Building bridges between RWM debates and energy policy debates: As the production of waste is linked with choices made in the energy policy (possible extension of the operation period of existing nuclear power plants, possible building of new power plants), what are the links between the decision-making process for RWM and the energy policy choices?

At the European and supra-national levels

- Contribution of supra-national levels to quality and transparency of RWM: as supranational actors are engaged in RWM issues (European Union, IAEA), what could be their relevant contribution to RWM quality, in particular as regards the issue of information and participation of the public?
- Engagement of foreign and supra-national stakeholders in the decision-making process: stakeholders in national RWM decision-making processes may also include foreign or supra-national actors (e.g. in the case of potential or actual waste sites having possible environmental consequences abroad or in the case of waste originating from nuclear facilities shared between several countries). The issue here is how to ensure the fair and democratic character of the decision-making process including these trans-national and supra-national dimensions. Notably, what can be the role of European or supranational levels in ensuring trans-national and supra-national participation to decision-making processes?

Intergenerational issues

The long-term dimension of RWM raises issues of intergenerational ethics and responsibility. How can the RWM activities be passed to the future generation in an equitable way? This raises the question of what is passed to the next generations in terms of both liabilities and resources. The question of the preservation of the freedom of choice of future generations as regards RWM is also raised.

6.2.1.5. What is the strategic core of the RWM issue as regards access to information and participation of the public?

Available technical solutions for RWM all go through a re-localisation of RWM (from waste produced in various locations to one or several RWM sites), in which a territory takes over a burden resulting from a technology all citizens in the country have benefited from, creating national obligations towards that territory as regards to a fair decision-making process and appropriate benefits.

The answer to the question of RWM is not limited to the provision of technical solutions but necessarily includes a political dimension, in which choices are informed by scientific and technical elements. In effect, resorting to the best available scientific knowledge and technical expertise allows to reduce uncertainties but not to eliminate totally uncertainty from the decision-making process (notably as regards long-term management and safety and to the associated costs today and in the future). In this context, stakeholders, notably at the territorial level, play a key role in RWM as their choices are of foremost importance: applying to

participate in the decision making process or not, deciding to enter into new steps of the decision making process, making the final choice of hosting a RWM facility, but also providing long term vigilance during and after operation of the RWM facility.

The issue at stake in information and participation is therefore not only to provide information but also to set up the conditions for building a shared long term responsibility and vigilance on radioactive waste management and surveillance among the national community and to maintain solidarity between the national community and the local communities that will be engaged in RWM activities. This includes:

- At the national level: establishing a national framework defining rules for the decision-making process for the management of all types of waste, including engagement of local, national and supra-national stakeholders throughout the whole decision-making process (in all phases from the initial choices on general technical options to post-closure surveillance). This very rulemaking poses the question of how stakeholders would take part to the definition of rules but also to the assessment of the fairness and democratic character of both the rules and their implementation.
- At the local level: establishing conditions and means for effective democratic engagement of concerned local communities in the decision-making (including assessment of the quality of the decision-making process).
- At supra-national levels (in particular the European level): identifying the conditions and means for effective and legitimate contribution of supra-national levels to the quality of decision-making in the RWM field, notably as regards transparency and stakeholder engagement.

6.2.2. Diagnosis of the actions taken

6.2.2.1. Which actors are active regarding the issue of RWM? What is their action?

At the national level, political actors (in particular the Parliament and the Government) play a key role in the decision making process especially for high-level waste.

Radioactive waste operators are at the centre of the technical design of facilities. Experts and expert organisations in the field of nuclear safety, radiation protection and RWM play a key role in the evaluation of technical arrangements. Beyond the field of nuclear expertise, scientific expertise is also mobilised in fields that are not nuclear-specific (for instance geology).

The European Union has taken steps in 2011 to set up a European framework for RWM in Europe through the DIRECTIVE 2011/70/EURATOM of 19th July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste. The Directive stresses that RWM fall under the responsibility of Member States and establishes obligations for each Member State to define a national framework for RWM as well as a national programme “covering all types of spent fuel and radioactive waste under its jurisdiction and all stages of spent fuel and radioactive waste management from generation to

disposal”²¹. The Directive also establishes general obligations of transparency and public participation.

As regards engagement of stakeholders in RWM decision-making processes, different initiatives have been taken in Europe at different governance levels. These initiatives concern rulemaking at the national level, definition of general RWM options with stakeholders, siting approaches and reflections on methodologies and governance of RWM. While some of these initiatives took place at the national level or at the crossroads between the national and the local level, numerous initiatives were developed at the European or international level via projects of the European Union, the NEA or the IAEA. In some cases, these methodologies were or are being tested in practice as part of supranational projects. A small number of countries have taken concrete steps to implement these methodologies.

These initiatives include notably:

- Siting approaches involving new role for local communities and stakeholders (see details in annex of this analytical sheet): such approaches have notably been developed in Sweden, the United Kingdom, Belgium and Slovenia (so-called “partnership approach” in the case of Belgium and Slovenia)
- Rulemaking and definition of general options at the national level (see details in annex of this analytical sheet):
 - in Spain, the COWAM Spain dialogue process initiated in 2004 by the association of local communities hosting nuclear facilities (AMAC) to identify conditions for setting up a democratic decision-making process (see details in annex of this analytical sheet).
 - In the UK, the Committee on Radioactive Waste Management (CoRWM) assessed the possible general options for RWM in a participatory way (see details in annex of this analytical sheet).
 - In France (see details in annex of this analytical sheet), the 2006 national public debate on RWM, the pluralistic working group for defining and updating the National Plan for Management of Radioactive Waste and Management (from 2007) and the works of the National Association of Local Information Committees²² (ANCCLI) on RWM issues from 2006 to now.
- At the European level (see details in annex), different research projects (RISCOM, IGNA, the three COWAM projects, ARGONA, IPPA) as well as the “Aarhus convention & Nuclear” European Round Table²³ enabled the different types of stakeholders in Europe to

²¹ The Directive defines the term "disposal" in the following way: "disposal" means the emplacement of spent fuel or radioactive waste in a facility without the intention of retrieval.

²² Local Information Committees in France are local forums attached to nuclear sites which gather a wide range of territorial actors: elected representatives, civil society organisations and qualified personalities. They exert a follow-up of the activity of the site and inform the local population on this basis.

²³ The outcomes of the roundtable are available on the ANCCLI website: <http://www.anccli.fr/Europe-International/Aarhus-Convention-Nuclear/European-round-tables-Tables-roudes-europeennes/First-European-round-table-Application-of-the-Aarhus-Convention-to-the-field-of-radioactive-waste-management>

network and reflect about RWM governance and identify conditions for this . Some of these projects also include national forums.

- At the supranational level, the NEA has notably developed since 2000 the Forum on Stakeholder Confidence (FSC), which aims to facilitate the sharing of experience in addressing the societal dimension of RWM.

6.2.2.2. How is the system of actors as a whole operating?

The European Union includes diversified national situations as regards RWM, with both experiences of progresses and blockades, as well as situations in which little initiative has been taken in this field at the local and/or at the national level. However, one can generally note a very strong focus of decision-making processes on the issue of siting of radioactive waste storage or disposal facilities in the European context. After a period marked by failures of approaches driven essentially by technical factors, siting approaches involving new roles for local communities and stakeholders have been developed in various European countries (notably in Sweden, Belgium, Slovenia and the United Kingdom – see annex). In these approaches, local communities become key players in the decision-making process for the siting phase. The above-mentioned approaches differ between countries but they share some common features:

- Voluntary engagement of local communities into the decision-making process within limits given by their policies of independence and autonomy;
- Stepwise decision-making process allowing local communities to withdraw at different steps of the process according to defined procedures;
- Organized forms of knowledge building and clarification of issues between waste various actors including management organisations, NGOs, sometimes regulators, and local communities and with resources to support local empowerment in RWM issues;
- Separation (to an extent varying according to the national contexts) between engagement package on the one hand and, on the other hand, community benefit package aiming to support the development of host local communities.

Trends in European initiatives in the field of RWM governance progressively moved from general analysis involving case studies from different national contexts to more experimental approaches. In these experimental approaches, implementation of principles and approaches for engagement of stakeholders in decision-making processes is embedded in the very research project. For instance, the COWAM in Practice European Research Project included establishment of National Stakeholder Groups in 5 EU countries (France, Romania, Spain, Slovenia and the UK) in which all types of stakeholders (including local stakeholders) could meet and discuss issues of common interest with the support of targeted researches carried out by the project team. In the framework of the IPPA project, stakeholder engagement approaches are implemented in five radioactive waste management programmes in Central and Eastern European countries (Czech Republic, Poland, Slovakia, Romania and Slovenia). A core objective of the project is to establish *safe spaces*²⁴ for discussion of common, and sometimes highly controversial, issues in the considered national contexts but also in a trans-

²⁴ see definition of the concept of safe spaces in section 4.1. page 26

boundary perspective (e.g. for discussing issues such as trans-boundary Environmental Impact Assessment). Safe space approaches are of a different nature from the previously mentioned approaches of inclusion of local communities in the decision-making process: they aim to enable discussion and common framing of issues between all types of stakeholders in a space that is outside of the formal decision-making process, while in the local communities inclusion approaches, the local dialogue spaces are included in the decision-making process with an advisory or with a decision-taking capacity. However, the two approaches are not exclusive one from the other and can be implemented at the same time in a given context.

These initiatives in the field of RWM governance are developed in a more general context of development of European cooperation in RWM issues (and more generally in the nuclear field), which includes:

- Establishment of a European framework for RWM through the DIRECTIVE 2011/70/EURATOM of 19th July 2011
- Reinforcement of cooperation of RWM agencies in the field of research on geological disposals through the Technology Platform for Implementing Geological Disposal (IGD-TP) created in 2009.
- In the nuclear field in general, development of European networks of nuclear regulators (e.g. WENRA, ENSREG, HERCA) or of technical support organisations (e.g. ETSON)
- In the nuclear field in general, reinforcement of transnational cooperation in Europe in the field of research through other Technology Platforms like SNETP (Sustainable Nuclear Energy Technology Platform) or MELODI (Multidisciplinary European Low Dose Initiative).

6.2.2.3. What is the result of this system of action?

Across Europe, siting approaches essentially driven by technical factors have most often resulted in blockades and failures, which led national governments in various EU countries to develop approaches giving a greater role to local communities. In the countries where they were implemented, approaches of inclusion of local communities in the decision-making process have allowed successfully identifying sites for RWM facilities in most cases. Most often, this approach has also enabled local stakeholders to develop their understanding of RWM issues and engage in the decision-making process. However, different European initiatives (COWAM projects, Aarhus & Nuclear European roundtable on RWM) also pointed out some difficulties experienced:

- In most cases, these approaches strongly focuses on the municipal level, while the territory affected by a possible RWM site is larger than the limits of one municipality;
- These approaches favour competition between candidate municipalities, and in some cases neighbouring municipalities (e.g. Mol and Dessel in Belgium, Krško and Brežice in Slovenia), while the potentially affected territory includes both municipalities
- Frustration of some stakeholders regarding the balance between national and local dimensions of debates has been identified in COWAM in Practice. In effect, in some cases, the approach resulted in focusing the decision-making process and the stakeholder engagement process on a negotiation between a local community (including the various local stakeholders) and the national government;

- In some EU countries (e.g. Slovenia) the local dialogue bodies stopped their operations after the decision of the national government on the host local community, which constituted an issue for local stakeholders in the chosen municipality and in neighbouring municipalities.
- The local dialogue body constitutes an independent body alongside the municipal council, which may entail authority conflicts (e.g. for the management of a possible local development fund);

It should also be noted that financial arrangements facilitating the integration of the RWM activity in the territorial sustainable planning might have pernicious effects for it can hamper the capacity of the local community to freely stretch the operator, impeding the development of an autonomous and critical assessment of the project.

The initiatives developed at the European level in the field of RWM governance resulted in

- organising a collective learning process at the national level between all types of stakeholders in different EU countries (e.g. through the safe space approach developed in the ARGONA and IPPA projects or the National Stakeholder Groups of COWAM in Practice); these collective learning processes do not necessarily result in consensus building on all addressed issues;
- helping all types of stakeholders (notably local actors) to have reflexive thinking on their own process and to compare it with processes in other European countries;
- reinforcing the comprehension by local actors of the multilevel (local-national-European) governance process they are in;
- identifying conditions for this multilevel governance to be inclusive (e.g. open to all types of stakeholders and to evolution of the framing of the addressed issues as a result of the interaction process);
- enabling local actors to be engaged not only at the local level, but also at the national and European levels.

6.2.3. Prospects: future evolutions of the situation, problem and actions

6.2.3.1. In what time and space frame does the issue develop?

Time frame

The RWM issue develops on the short, medium, long and very long term. It also links the past (past choices for energy policies), present (choices for RWM and choices for the future energy policy of each country in Europe) and future (what legacy do we leave to future generations in terms of liabilities and of resources to fulfil them?) in an intergenerational time frame. As regards the lifecycle of a facility for long-lived waste, several periods can be identified: the siting process, the construction phase of the facility, the operation phase, the closure and post-closure phases and the very long term. The decisions taken concerning the facility are integrated into a broader national decision-making process on RWM options and policies.

Space frame

RWM issues develop within multiple space frames, from the local to the European level. As regards engagement of local communities in siting processes, the decision is often taken at the

municipality level. However, hosting a RWM facility has impacts on populations and local communities beyond the mere borders of the candidate municipality. Defining affected communities is also involving broader territorial levels. Moreover, local communities hosting nuclear facilities producing RW are also accountable on the basis of an ethic of responsibility.

The national community is also accountable as it benefited from activities generating waste. National governments are responsible for defining a national RWM policy and to develop a national programme for its concrete technical implementation.

However, RWM may also have a transnational dimension (in case of waste originating from nuclear installations providing energy for several countries, of waste facilities situated near a national border, or of RWM facilities shared between several countries).

RWM is also engaging European and international levels as stakeholder engagement processes, participatory research projects, processes of exchange of information and stakeholder networks develop at these levels. The European and international level is also the place for international peer reviews of national RWM programmes (notably in the framework of the OECD NEA).

6.2.3.2. Evolution scenarios

Baseline scenario

There is no unique baseline scenario as there is a great disparity of national situations as regards RWM in Europe. DIRECTIVE 2011/70/EURATOM of 19th July 2011 specifies that EU Member States shall establish national RWM programmes “covering all types of spent fuel and radioactive waste under its jurisdiction and all stages of spent fuel and radioactive waste management from generation to disposal”. Within this framework, each EU Member State shall define the technical options for long-term management of radioactive waste (forms of interim storage, type of disposal, existence or absence of a period of reversibility for the disposal...). RWM is therefore likely to take a diversity of paths in the different EU countries depending on the national context.

However, there is a common trend on localising the issue of RWM and focussing dialogue (and associated information and participation arrangements) on the siting issue once general technical options have been decided at a political level. As a consequence, the national dimension of public engagement on RWM issues tends to diminish, while public participation on this issue tends to be more and more confined to the local level as the decision-making process unfolds.

Stakeholders from civil society engage at the national or European levels either inside the institutional and formal decision-making process (e.g. the review and update of the National Plan for Management of radioactive Waste and Materials in France) or outside the institutional and formal decision-making process (through European research projects or dialogue forums or through national initiative of civil society actors or networks of local communities). However, unless the connection between local and national debate is addressed by institutional actors, public engagement at the national and at the local level may be disconnected or even enter into conflict (see for instance actions taken at local level by national NGOs that resulted in local tensions and scapegoat processes directed towards local elected representatives).

Negative scenario

A negative scenario would be the rise of high tensions in some European countries on RWM issues and blockades resulting from decision making processes where public consultations are purely formal, is organised too late in the decision making process and do not have actual influence over the decision making process (for instance, organisation of a public debate on radioactive waste management when the decision on the technical option and localisation of the site is already taken). Another element of distrust in this scenario would be the disconnection between the public debate and policy making in the RWM field and the evolutions of the energy public policies (and the associated information and public participation). On the medium and long term, potential depletion of public information & participation can be expected as soon as decisions on siting are taken, both at local and national levels, while national solidarity with RWM hosting local communities would decrease.

In this scenario, the debate on RWM makes no progress but becomes more and more radical and polarised, especially at the local level and no consensus can be found on RWM options. As there is a long time frame between siting and closing, political or societal changes at the national level can also jeopardise some options and entail tensions at the local level.

Positive scenario

In the positive scenario, conditions are created for addressing RWM simultaneously at the national and local level and to maintain long-term vigilance while preserving local/national solidarity. In this scenario, the decision-making process for RWM is ‘clearly defined by a legal and institutional framework’ and giving ‘early and effective opportunities for the public to participate into the decision-making’ process. An ‘explicit time schedule’ of the decision-making process as well as the arrangements to support stakeholder engagement (access to expertise, financial support ...) ‘enables stakeholders to prepare and participate effectively in the decision-making process. The decision making process identifies clearly progressive steps as well as procedures (including public information and participation processes) and criteria for moving from one step to another. The decision of authorities ‘are well founded’ and take ‘due account of the public participation process’. Finally, ‘procedures [are] available to enable the public to challenge [public] decision as well as a denial of access to information and public participation’²⁵.

As conditions for building a ‘safe space’ for stakeholder engagement are not limited to the procedural quality of the decision-making process for RWM, two other aspects that constitute background conditions for sustained stakeholder engagement are included in the positive scenario. At first, forums for dialogue on the future of energy policies are set up and the public participation process for RWM issues is organised in a way that allows connecting energy and RWM debates. Conditions for access of stakeholders to expertise and skills and capacity building are also established to enable them to enter a debate with highly technical dimensions.

As a result of the decision-making process (including public participation process) and of the continuity of local and national agenda on RWM and energy issues, forms of solidarity are

²⁵ Quoted text is extracted from the recommendations on decision-making of the ENEF Working group on Transparency

built between the different concerned actors, local communities and among successive present and future generations.

While each national community makes its own choices for RWM according to its particular energetic, technical, social and political context (repository, disposal, other solutions), the European level brings two key contributions to RWM. The first one is to facilitate exchange of experience between institutional actors as well as between stakeholders to build a common understanding of the quality criteria for RWM in terms of decision making, information and participation of the public and more generally RWM governance. The second contribution is a contribution to long-term vigilance & memory of RWM choices and sites, as a complement to local and national arrangements (e.g. inspired by the UNESCO World Heritage²⁶).

6.2.3.3. Stakes, Threats and assets

Stakes

An overarching stake is the identification and implementation of the conditions to share a common understanding and framing of RWM issues and a common accountability over these activities among the national community. Another important stake, depending of the first one is to set up conditions for shared long term responsibility on radioactive waste management and surveillance both between local and supra-local levels and between present and future generations. This supposes that RWM remains on the agenda of both institutional actors and stakeholders at local, national and European levels.

Another key stake is the short, medium and long-term safety of RWM. Experts, operators and safety authorities bring a key contribution to safety. As a complement, local communities hosting RWM facilities can also contribute to safety by exerting territorial vigilance over the site and its possible impacts.

A third stake is the integration of RWM activities in long-term sustainable development strategies of the local communities. This supposes forms of solidarity and partnership between the national community and the local communities hosting the RWM facilities. This also supposes integrating in this strategy the lifecycle of the facility and the variation of activity of the facility in its different phases (building, operation, pre-closure and post-closure surveillance). This also requires avoiding excessive dependency of the local community on RWM activities that would hamper the capacity of local actors to contribute to vigilance over these activities.

A last stake is the access of stakeholders to expertise and skills building, in particular for local actors who may not be used to dealing with nuclear issues. A key aspect in this is the availability of a plurality of expertise sources, which is a necessary condition for reliability of information for stakeholders.

Threats

Two key threats for the quality and sustainability of RWM are the disconnection

²⁶ The importance of multi-level approaches for the conservation of memory in the long term is stressed in other fields of activities dealing with long-term issues. For instance, the UNESCO World Heritage approach is based on a multi-level framework for conservation of the memory of UNESCO sites. In this framework, the international level brings a contribution in terms of expertise, archives and vigilance over UNESCO sites.

- between the local and the national level in the RWM decision process and governance arrangements
- between debates and decision-making process concerning energy policies and RWM, which should diminish the legitimacy of decisions in the RWM field. In effect, a condition of trust in the decision-making process is clearness about the quantity of waste that is going to be managed in a given facility.

In particular, major changes in energy policies can jeopardise past choices in the RWM field.

If the local communities were expected to contribute to vigilance, accountability and memory, a lack of long-term engagement of local actors into RWM activities would threaten their capacity to develop and maintain the necessary local knowledge and memory of the RWM activities. Conversely, a strong dependence of the territory on RWM activities may hamper the capacity of the local communities to exert vigilance at territorial level in an unbiased way.

Assets

In Europe, a first asset is the diversity and richness of available experiences of stakeholder engagement processes both at the local level (notably in Finland, Sweden, Belgium and Slovenia) and at the national level. There is also wide recognition that civil society should play a role in the decision-making process.

The various initiatives taken at the European level in the field of RWM governance constitutes an asset insofar as

- they developed approaches and methods for facilitating engagement of all types of stakeholders in the decision-making process;
- some projects have developed and still develop national multi-stakeholder spaces of dialogue in different EU countries;
- they support exchange of experience actors from different countries (both institutional actors and civil society actors).

However, as the European union shows a wide diversity of national contexts, taking benefits of the different experiences in Europe is not only a matter of experience transfer but requires pluralistic engagement of the concerned stakeholders and necessitates to take into account the (historical, social, cultural, legal, political, economical) specificities of each local, national context.

6.2.4. Action proposals

The following proposals are grounded on the available return of experience and European research in the field of RWM. They are not meant to be directly used as recommendations for decision-makers but are rather a first ground for discussion within a pluralistic stakeholder group (including institutional actors of RWM) at the local, national or European level.

6.2.4.1. Proposed approach

Actions to be taken should enable

- identifying common stakes and framing of the RWM issues at the national level with all concerned stakeholders;

- identifying common grounds and understanding of the issue between the national community and local communities (actually or potentially hosting RWM facilities in the perspective of shared accountability and memory on the long term);
- articulating energy policy debate and RWM debate
- introducing a plurality of expertise sources in the debate on RWM issues (including for economic and social issues)
- facilitating international exchange of stakeholders from the civil society among European Union Member States

6.2.4.2. Proposed objectives

Objectives can be proposed at four levels: at the European level, at the national level, at the crossing of local and national levels and at the local level.

At the European level, two objectives can be proposed. The first one is to build a shared understanding between stakeholders (including institutional actors of RWM) of quality criteria for RWM decision-making processes. However, this does not imply consensus building on a particular technical solution at the European level. The second objective that can be proposed is to identify conditions and means for a legitimate and efficient contribution of the European level to the long-term accountability and memory of the “nuclear legacy” of radioactive waste complementarily to the contribution of the national and local levels.

At the national level, an objective would be to build spaces for trusted and balanced dialogue between institutional actors and local and national stakeholders in order to identify common stakes and conditions of multilevel inclusive governance of RWM. As a condition for this, conditions should be set up for opening expert systems to stakeholders and building dialogue around the research agenda with a pluralistic participation. National multi-stakeholder debates on RWM necessitate the availability of alternative scenarios and technical options for RWM (inclusive governance of RWM is also an issue at European level).

At the crossing of national and local levels, three general objectives can be proposed. The first one is to combine the perspectives of territorial development and the delivery of RWM services to the national community in an intergenerational time frame. The second objective is to build a common understanding of the long-term issues shared by national and local actors. The third objective at the crossings of national and local levels is to take into charge the legacy of the waste in a responsible way (from the present perspective and from an inter-generation perspective). This can be done by building a long-term intergenerational ‘contract’ between the host local communities and the national level. This contract should include territorial development, a system of vigilance shared and co-owned by the national and the local level, a system of memory of the RWM sites shared between the national and the local level and articulated with the European level as well as resources to preserve expertise and skills at these two levels.

At the local level, two objectives can be proposed. The first one is to set up the conditions for an active and sustainable engagement of territorial actors in the vigilance and memory conservation regarding the RWM facilities. The second one is to maintain the engagement of local stakeholders hosting RWM at the national level

6.2.4.3. Conditions for cooperative action of the concerned actors

Stakeholders can be gathered around an objective of identification of the conditions of shared accountability vis-à-vis RWM.

This necessitates to put into discussion and share the technical and scientific elements of the issue, by resorting to pluralistic sources of expertise, which is a necessary condition for stakeholder trust. The expertise mobilised should not be only of a technical nature as economic, social and ethical dimensions are at stake in RWM.

6.2.4.4. Possible paths of change

Different possible actions and processes that can facilitate increased public information & participation in RWM governance at the local, national and European level were identified:

- Setting up pluralistic spaces of dialogue at the national level (like CoRWM in the UK, COWAM Spain, the COWAM In Practice or ARGONA stakeholder groups, the permanent stakeholder group set up by the ANCCLI on Radioactive waste and materials management in France, the ACN European roundtable on RWM and the ACN national roundtables which have dealt with RWM – in France and Bulgaria...) with a pluralistic steering committee.
- Pluralistic dialogue and advisory forums created by the administration and attached to public policies (e.g. the National Plan for Radioactive Waste and Materials Management in France)
- Creating a ‘library’ of available experiences to identify good practices with stakeholders.
- Providing support to stakeholder engagement at the national and local level (in terms of methodological support, information, access to expertise, money...) in ways that does not jeopardise their capacity to engage in a free and autonomous way.

Annex - Initiatives for stakeholder engagement in Europe in the field of RWM

At the national level

In some cases, independent expert committees have been set up to provide independent advice to the government, for instance, the Committee on Radioactive Waste Management (CoRWM) in the UK, which commissioned and reviewed studies and provided independent advice to the Government and devolved administration Ministers on the program of long-term management of radioactive waste (including storage and disposal). CoRWM has sought to conduct its business openly and in consultation with relevant stakeholders. The Committee has paid particular attention in its publications to be intelligible for non-specialists.

In some European countries, several processes of mobilisation of civil society at national level on RWM issues have taken place and were initiated by different actors. In Spain, the association of local communities hosting nuclear facilities, AMAC, has set up in 2004 a dialogue process (COWAM Spain) with various municipalities, regional governments, institutions, universities, the operator and the regulator to identify conditions for setting up a democratic decision-making process for the identification of radioactive waste management sites. In France, a national public debate on RWM has been organised in 2006 by the National Commission for Public Debate on the request of the Government. From 2007, a National Plan for Management of Radioactive Waste and Management has been developed then updated

with a pluralistic working group co-chaired by the Government and the Nuclear Safety Authority, thus giving visibility and allowing dialogue on the whole RWM policy. A second public debate shall be organised by the National Commission in 2013. In parallel to this the National Association of Local Information Committees²⁷ (ANCCLI) issued a White Paper on RWM governance in 2006 then formed a national permanent stakeholder group on RWM issues the same year.

At the European level, different research projects (RISCOM, IGNA, the three COWAM projects, ARGONA, IPPA) as well as the “Aarhus convention & Nuclear” European Round Table²⁸ allowed networking between different actors at a European level. Moreover, some of these projects also include national forums. The 3rd COWAM project (COWAM In Practice, 2007-2009) has set up for the duration of the project National Stakeholder Groups in France, Spain, Romania, United Kingdom and Slovenia. The ARGONA project (2006-2009) has set up a reference stakeholder group in several western EU member states. The IPPA project (Implementing Public Participation Approaches in Radioactive Waste Disposal – 2011-2013) is implementing novel approaches to public involvement developed in the above-mentioned research projects in Czech Republic, Slovakia, Poland, Slovenia and Romania. A key goal is to establish a “safe space” for stakeholder interactions.

At the crossroads of the national and the local level: siting approaches involving new roles for local communities and local stakeholders

In Sweden, SKB, the nuclear fuel and waste management company, began in the early 1990s a voluntary process for siting a spent-fuel repository. Initial attempts to site the repository in the north of the country were ended by the results of local referenda. SKB then moved on an open voluntary approach with a step-wise decision-making process and arrangements for supporting local democracy and knowledge and capacity building of local stakeholders. Two sites remained at the last stages of the process and were offered financial compensation for their willingness to host the repository. Finally, the Forsmark site, which already hosts a nuclear power plant, was selected with the support of 80% of the local population.

In Belgium, collaboration between ONDRAF and several local communities was established in order to identify long-term management options. This has led to the creation of three local partnerships (STOLA-Dessel, MONA and PaLoFF), which served as local platforms of discussion and work (transparent, open, representative and independent). The RWM facility siting has been integrated into a broader societal project, consisting in a set of conditions associated with added value for the municipality and region, so that the integrated disposal project as a whole can gather a broad consensus within the local population.

In Slovenia, the Government and the waste operator, ARAO adopted a similar approach for siting a low-and intermediate-level radioactive waste facility. This has led to the formation of 3 local partnerships in 2006 (in the municipalities of Sevnica, Brežice and Krško). The

²⁷ Local Information Committees in France are local forums attached to nuclear sites which gather a wide range of territorial actors : elected representatives, civil society organisations and qualified personalities. They exert a follow-up of the activity of the site and inform the local population on this basis.

²⁸ The outcomes of the roundtable are available on the ANCCLI website: <http://www.anccli.fr/Europe-International/Aarhus-Convention-Nuclear/European-round-tables-Tables-rondes-europeennes/First-European-round-table-Application-of-the-Aarhus-Convention-to-the-field-of-radioactive-waste-management>

municipality of Sevnica soon withdrew from the process and the partnership was cancelled. The two remaining partnerships, in the neighbouring municipalities of Krško and Brežice, remained until the end of the siting process, which ended up with the choice of Krško site. However, this process generated frustration as the Brežice community is no more able to take part in the decision making process after the choice of the host municipality.

This approach is also reflected in the UK as CoRWM proposed to the Government a stepwise decision-making process based on voluntary engagement of local communities and local democracy for building choices to engage further in the different steps of the decision making process. This included two clearly separated support packages of measures to support the engagement of the local communities. The ‘engagement package’ is meant to provide necessary resources for the community to engage (support to local democracy through community siting partnerships, access to expertise and capacity building) and is made available at the beginning of the process. The ‘community benefit package’ is associated with the facility and will benefit to the communities who will actually host the site.

6.3. Nuclear emergency, post-accident and long term management

Key issue: What are the means and the conditions for public access to information and participation in the context of Nuclear emergency, post-accident and long term management?

6.3.1. Identification of the situation, actors and issues at stake

6.3.1.1. What are the main qualities identified?

Emergency situations involving radioactivity are particularly complex in that radioactivity is invisible and invades everyday life. Severe accidents disrupt the lifestyle of a large number of people and territory's activities. However, even in less severe situations in which little or no radioactivity is released, the life and activities of various actors on the concerned territory can be impacted, although in that case the duration of the disturbances may be more limited.

The issues to be dealt with concern both an emergency situation following a nuclear accident, as mentioned below for several types of severity, as well as preparedness for emergency and post-accident situation.

6.3.1.2. Where does the issue develop (geographical, physical, political, human ... entities)?

Accidental situations in nuclear installations have impacts in different geographical scale, starting by the local areas around the nuclear installations impacted by possible evacuation, sheltering or even relocation countermeasures, but have also consequences on larger scales due to the long range dispersion of the radionuclides. The nuclear accident of Chernobyl as well as the accident of Fukushima (to a lesser extent) have shown that a large number of countries are concerned by the dispersion of the radionuclides even if the level of radioactivity decreases with long distance. Accidental situations also create disturbances for a large number of countries notably due to the national and international trade of products coming from contaminated areas. At the local level, the first concern is focussed on the protection of the population impacted by the plume and then a large concern emerges for the management of agricultural products. In addition, this is the whole industrial production that could be concerned in the affected territories and has to be reconsidered after a nuclear accident. In the long term, this is the possible future of the territories and the daily life that is at stake.

As accidental situations can entail consequences for territories located away from the place of the accident, preparation to post-accident situation is an issue that concerns all countries in Europe, including non-nuclear countries, as well as all regions and local communities.

Preparation to post-accident situations develops at the national level (for emergency and post-emergency planning strategy), and at the territory level (through local emergency and post-accident plans). EU and supranational levels are also involved for research and development as well as for exchange of experience.

Finally, preparation and management of post-accident situations may also develop in specific sectors of activity (e.g. agriculture, wood production, that are more likely to be impacted by a post-accident situation).

6.3.1.3. Who are the main concerned stakeholders?

Emergency management relies primarily on decisions taken by the responsible national or regional authorities in charge of nuclear safety and radiation protection, the operator of the concerned nuclear facility, civil security, health and environmental authorities, and public authorities at the regional and local levels.

The situation is also characterised by the involvement of producers of information for the decision making process and public information: public experts, independent experts and universities, foreign experts who could play a significant role as far as they do not have to manage directly the situation and thus could provide "independent" point of view on the situation.

Producers, food processing industries, traders of agricultural products on the affected territories are directly concerned by the control of their products and the possible reorganisation of the production. A situation of contamination may also affect producers outside the affected territories who could have to bear the consequences of an evolution of the demand due to the disturbances in the affected areas.

Populations living on affected territories are concerned as well as people living in areas that could be potentially affected by the future releases depending on the evolution of the accident. Among this population, elected people, local liaison committees of the nuclear installations, NGOs, health professionals are particularly concerned with the production, and diffusion of information to the public.

Finally, it has to be noticed that population and consumers living far away from the affected areas are also concerned and their access to information, their capacity to participate to the discussion and their attitudes could influence the future of the territories.

All the above-mentioned actors are also concerned by emergency and post-accident preparation.

6.3.1.4. What are the main identified problems?

A key issue for the various concerned stakeholders is to access reliable information (according to their own criteria) enabling them to take decisions and implement protective actions (for themselves or for others) in their particular context and according to their (professional, personal, familial) responsibilities. For this purpose, a first concern is ensuring experts' access to the source term in order to be able to estimate the possible consequences along the development of the accident.

Another characteristic is the fact that institutional experts and authorities need to validate their information before diffusing it. In accidental situation, this could take time. At the same time, other stakeholders may produce preliminary information and local stakeholders would expect to get information as soon as possible. It is therefore a sensitive issue for the institutional experts to produce reliable information although they are mainly producing information first for the decision-makers before being in a position to give a larger access to this information.

Beyond the production of reliable information, what is at stake is the capacity of each stakeholder to understand and interpret this information as a resource for action. For this, they also need references and interpretation elements as well as information on possible actions and their consequences and elements of justification of actions. Notably, the standard and reference values for action levels adopted by national and international organisations are key

parameters for the management of the situation. The way to share these references is also a key issue as it could be prepared solely by experts or produced together with the concerned stakeholders (before a potential accident, or later on during the post-accident phase).

The information produced by different experts (public or independent) and the reference levels for judging the actions to be implemented are subject to debate or controversy and not necessary understandable nor shared by the various stakeholders. Notably, large uncertainties may exist in some models and assumptions that could be re-assessed with time. This of course could create strong disturbances between the different stakeholders.

Decisions adopted for managing the emergency situation will significantly influence the medium and long-term consequences and management of the post-accidental situation.

Finally, it is necessary to mention that the situation would involve a large number of responsibilities beyond the persons involved in the emergency management, with different types of responsibilities notably for the economic and social activities. To cope with the emergency and post-accidental situation a flexible and evolutionary approach has to be implemented to respond to the issues at stake. Therefore, it is necessary to develop with all concerned stakeholders a shared understanding of the issues and stakes of a post-accident situation, taking into account all concerned dimensions and their interrelations (health, radiation protection, but also sustainability and/or redeployment of economic activities, social dimensions and community cohesion, impacts on local culture, links between generations...), which should be integrated into a sustainable response to the post-accident situation.

All the above-mentioned issues are also to be taken into account in the development of emergency and post-accident preparedness strategies at the supranational, national and territorial level.

A particular issue in preparation to post-accident situation is to create conditions for territorial stakeholders to take on board post-accident issues and develop preparation strategies. This is particularly acute in areas that are not in the immediate vicinity of a nuclear facility and have low awareness of nuclear risks in general.

6.3.1.5. What is the central strategic problem as regards access to information and participation of the public?

All these characteristics of the emergency situation and post-accidental situation put the expertise production system (TSOs, nuclear safety authorities, but also universities, foreign experts, NGO experts and other independent experts) at the core of the production of reliable information and influence the capacity of the different stakeholders to take actions. However, the complexity of the situation calls for opening the management process beyond nuclear safety and radiation protection issues in order to favour the capacity of the stakeholders to address all the affected dimensions of their living conditions in this situation. This is also true for preparation processes.

In this context, a core issue is to set up conditions for a shared evaluation of the situation between the various concerned actors (in particular territorial actors) in a situation marked by uncertainties, time pressure, possibility of quick evolutions and controversies). In the long term, the involvement of the local stakeholders would increase and the role of experts would differ. They would have to produce the means and conditions for allowing local stakeholders to participate to their own protection and to be directly involved in the decision making process concerning the future of their territories.

As regards preparation to post-accident situations, the central problem is to develop not only plans but also practical conditions for all concerned stakeholders to effectively develop preparation strategies and improve their resilience capacities.

6.3.2. Diagnosis of the actions taken

6.3.2.1. Which stakeholders are active regarding the issue of emergency and post-accident management? What is their action?

A variety of stakeholders would be providing information and expertise during the emergency situation and post-accidental situation. They fall into 3 different categories:

- Institutional actors engaged in emergency management (including nuclear safety and radiation protection authorities, the operator, civil security authorities, national expert organisations...) and who are the first actors involved in the production of information due to their responsibilities,
- Other expert actors not directly engaged in the response to the situation (e.g. foreign radiation protection organisations, independent experts including experts from NGOs...) but who can favour the diffusion of information to a larger public and who can give independent advices and interpretations on the situation and its evolution. This leads to question the existing validation process concerning the production of their information.
- A wide range of actors whose responsibilities (as elected representatives, enterprises, producers, media, parents, local and national NGOs ...) are impacted by the situation. This last category of actors depends on the two first ones to produce reliable information that will ground their decisions.

6.3.2.2. How is the system of actors as a whole operating?

The different types of actions according the concerned stakeholders are characterised as follows in a post-accident situation:

- For the operators and the national and local authorities, the first concern is to set up the emergency centre of crisis and identify the urgent actions to be taken. The operator and the safety authorities are first of all focussed in the actions to be implemented to secure as much as possible the installations to prevent or reduce the consequences of the accident.
- For the institutional experts, their first role is dedicated to understand the situation in the nuclear installation and on this basis to estimate the possible consequences on the environment and the population in order to identify and propose a set of possible countermeasures for different geographical and time scales.
- Independent experts as well as foreign experts (including foreign nuclear safety and radiation protection organisations) play a role of information production, notably through measurements of the radioactivity in the environment or production of alternative assessment of the possible consequences and their evolution.
- Regional and local authorities would be in charge of implementing the countermeasures concerning the evacuation, sheltering and relocation of population as well as organising the diffusion of information for their population and providing

support to the different local stakeholders, notably in the social and economic sectors.

As regards preparation to a post-emergency situation, supranational, national and local actors are active in 5 types of directions:

- Regulations, cooperation frameworks and international guidance are developed at the international or European level in the field of emergency and post-accident preparedness and management. This includes:
 - o The IAEA Convention on Early Notification of a Nuclear Accident and the IAEA Convention on Assistance in the case of a Nuclear Accident or Radiological Emergency (both adopted in Vienna in September 1986 after the Chernobyl accident). The first convention gives provisions for information exchange between IAEA State Parties in case of a nuclear accident. The second convention gives provision for assistance to IAEA State Parties to a State Party experiencing a nuclear accident or radiological emergency, including provision of experts and equipment. However, none of these two conventions give provisions for information or participation of the public. At the European level, Commission Decisions of 25th November 2005 (2005/844/EURATOM and 2005/845/EURATOM) gave provision for accession of the European Atomic Energy Community to these Conventions.
 - o The International Commission for Radiation Protection (ICRP) has issued 'Recommendations to the Protection of Individuals Living in Long Term Contaminated Areas after a Nuclear Accident or a Radiation Emergency' and guidance on their implementation (ICRP publication 111). They emphasise the effectiveness of involving directly the affected population and the local professionals in the management of the situation and the responsibility of authorities at both national and local levels to create the conditions and provide the means favouring the involvement and empowerment of the population.
 - o The European Community Urgent Radiological Information Exchange (ECURIE) system that has been created to implement the Council Decision Council Decision of 14th December 1987 (87/600/EURATOM) on Community arrangements for the early exchange of information in the event of a radiological emergency. This Council directive gives provision for information exchange between Member States and the European Commission on counter-measures in order to protect their population against the effects of a radiological or nuclear accident.
 - o The Council Decision of 27th November 1989 (89/618/EURATOM) on informing the general public about health protection measures to be applied and steps to be taken in the event of a radiological emergency defines 'common objectives with regard to measures and procedures for informing the general public for the purpose of improving the operational health protection provided in the event of a radiological emergency'. It is complemented by the Commission Communication on the implementation of Council Directive 89/618/EURATOM (reference number: 91/C103/03)
 - o The Council Directive of 13th May 1996 (96/29/EURATOM) laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation. This

Directive includes requirements for emergency preparedness and response in a specific title IX: 'Intervention'. It required emergency preparedness to be provided for at national level, and encouraged the coordination of preparedness and response between neighbouring Member States.

- Exchange of experience is developed at the international levels either by institutional actors like the OECD NEA (through the Working Party on Nuclear Emergency Management and the Committee on Radiation Protection and Public Health) or jointly by institutional actors and civil society actors (e.g. the European Roundtable on post-accident issues organised in February 2011 by the European Commission DG ENER and the National Association of Local Information Commissions and Committees – ANCCLI in the framework of the “Aarhus Convention and Nuclear” European dialogue process)
- Research and development is carried out both at the national level (by universities, research centres and public expert organisations) and at the European level (through European research projects like EURANOS, NERIS-TP and PREPARE – from 2013 – supported by the European Commission)
- Post-accident planning can be developed both at the national level (e.g. the preparation process in France coordinated by the Steering committee for the management of the post-accident phase of a nuclear or radiological accident – CODIRPA), at the local level in some territories that have engaged post-accident preparedness strategies and in specific industrial sectors (e.g. in Finland, where public authorities and industries are jointly responsible for multi-risk preparedness in different key sectors of activities)
- Concrete projects of preparation of territorial actors are engaged in different territories in Europe (e.g. in France, Spain, Slovakia, Norway...). These projects usually involve cooperation between local communities, research and expertise institutions and in some cases national authorities. They aim to gather conditions for territorial stakeholders to address post-accident preparedness issues through dialogue and collective learning processes, in some cases supported by technical tools (e.g. simulation tools) to inform debates, dialogue and deliberations (TIDDDs). However, only few territories in Europe are engaged in such projects.

6.3.2.3. What is the result of the system of action?

Facing a new situation where the decisions to be made would affect the different facets of the daily-life and the economic and social activities, the traditional decision-making processes are challenged as far as they are generally focussed on the reduction of the complexity to deal with the situation, focussing on safety and radiation protection issues, which may not give an adequate answer to the complex and multidimensional issues to which territorial actors are confronted.

Facing the urgency of the situation, there is generally a lack of shared evaluation of the situation in order to provide common understanding of the situation. This may lead to controversies and blockades and may hamper the involvement of the various stakeholders for managing efficiently the situation.

It has to be noticed that the Fukushima accident highlights the key role of the production and diffusion of information through different channels, notably via social networks and the Internet. In this context, the role of the different stakeholders widens and this new situation could favour the involvement of a broader set of stakeholders (e.g. citizens, local and national NGOs, local communities) in the information and participation processes in emergency and post-accidental situation.

An efficient management of the information and participation process relies on the access to reliable information and to give access to the capacity of interpreting the information in order to be in position to take action. Nevertheless, the places of dialogue on this issue allowing a shared evaluation and interpretation are rather limited or do not exist in the different EU countries.

6.3.3. Prospects: future evolution of the situation, problem and actions

6.3.3.1. In what time and space frame does the issue develop?

Emergency situation can be of different severity and could extend from the declaration of an accident to the period when the contamination of the environment is characterised after releases from the installation.

It is important to notice that the decision to be made even during the emergency phase would influence the decisions and the consequences for the medium and long term. In addition, the involvement of the different categories of stakeholders in the preparedness of emergency and post-accident situations could favour their capacities to have access to information and to participate actively to the management of the situation in the short, medium and long term.

Post-accident preparation develops in the middle and long term. Post-accident planning is a process lasting several years and involving the engagement of all categories of concerned stakeholders to address the complexity of post-accident issues. The progressive development of preparation strategies by the different concerned stakeholders is a long-term process of progressive awareness rising, access to expertise and development of territorial projects.

6.3.3.2. Evolution scenarios

Baseline scenario

In case of such an event, the different stakeholders, notably the authorities, might have difficulties to deal with the complexity of the situation. There would be a concern for the authorities to get enough information in order to be able to decide on protective actions and to inform the population on the protective actions to be adopted. This incapacity to produce quickly reliable information would affect the population and would induce a feeling of uncertainty and/or concern among them. In addition, the management of the situation by the authorities and the experts would lead to focus the management on the basis of safety and radiation protection criteria and would not be able to cope with the local day-to-day concerns of the population (e.g. housing, food, health of families and children, possible continuation of professional activities...) due the lack of places of dialogue for this purpose. Local stakeholders would have the feeling to be kept out of the decision processes.

Negative scenario

A worse evolution of the situation would be the emergence of controversies on the information and interpretation of the situation and its evolution among experts from different origins and also from abroad. The absence of capacity to debate and promote a shared evaluation of the situation after the immediate short-term response²⁹ would lead to adoption of extreme positions for each category of actors and would create a feeling of an unmanaged situation for the population concerned by the situation. This would lead to social distrust regarding the authorities and public experts and would create difficulties for establishing an efficient protection programme adapted to the need of the local populations in the medium and long term. This would affect on the long term all the facets of the economic and social activities of the affected territories.

Positive scenario

At the opposite, a positive evolution would be to promote the construction of reliable information involving experts from different origins and favouring the debate and opening the various possible interpretations of the situation. Based on this information, the authorities would be in position to take their own decisions and to explain their rationality. In addition, the construction of strategies to cope with the complexity of the situation would have to be elaborated with the different concerned stakeholders and are not limited to nuclear safety and radiation protection issues. Such a process, based on a principle of subsidiarity in the governance, would favour the involvement of the local stakeholders to the management of the situation in the different phases, including the long term. It would create the conditions for the involvement of the local stakeholders to the management their own protection and to define together the means and conditions for the future of the life in the affected territories.

6.3.3.3. Stakes, threats and assets

Stakes

The key issue for the different categories of stakeholders is to be in position to get enough reliable information in order to be able to take decision for their own protection and to be in capacity to participate actively to the decision making process.

Thus, there is a need for reliable and easily accessible information in the different phases of the accidental and post-accidental situation that could not result from a single source of information. It is also necessary to set up place of dialogue for favouring shared evaluation of the situation and identification of common strategies for the protection and the re-organisation of economic and social activities in the medium and long term.

²⁹ In situations, like the Fukushima accident, where the duration between the beginning of the accident and the end of release can be of weeks or months, building shared elements of information and evaluation of the situation before the end of release should be considered.

Threats

Limitation of the diffusion of information could create difficulties as well as the focus on radiation protection and safety issues without taking into account the other dimensions of the problem. Managing the situation essentially by standards decided by national and international organisation for the long term could also induce adverse effects by setting heavy constraints and strongly reducing the room for manoeuvre for the various concerned actors at the territorial level to develop recovery strategies adapted to their particular situation.

Insufficient cooperation with all concerned stakeholders in the preparation of emergency and post-accident preparedness strategies may result in planning, tools, and policies that are not adapted to the complexity of a post-accident situation and lack applicability and sustainability.

Assets

In some national and local contexts in Europe, experiences such as local and/or national forum already exist, gathering different categories of stakeholders

- On post-accident issues (e.g. the CODIRPA at the national level)
- Specific skills and knowledge regarding nuclear safety and radiation protection developed by local communities hosting nuclear activities would represent an asset in post-accident contexts or in the perspective of nuclear emergency and post-accident preparation (e.g. the Local Information Commissions – CLI – in France or the Site Stakeholder Groups in the UK)
- Local skills and capacities regarding industrial hazards management could also represent an important resource in the perspective of a nuclear accident (e.g. the Permanent Secretariats for Prevention of Industrial Pollutions – SPPPI – in France) or in a given sector of activity (e.g. the public-private sector-wise industrial pools organised in the framework of the National emergency Supply Organisation – NESO – in Finland)

The existence of networks of territorial actors engaged in post-accident preparation (e.g. the permanent group “Territories and post-nuclear accidents” of the National Association of Local Information Commissions and Committees in France) should also be considered as an asset

The actual engagement of post-accident preparedness initiatives by some local communities in Europe, in cooperation with national or regional authorities and research and expertise organisations is also an asset.

At the European level, the development of research and experience sharing in the field of emergency and post-accident management and preparation through European research projects (EURANOS, NERIS-TP, PREPARE) or through European networks (like the NERIS platform) is also an asset.

Finally, the Fukushima accident has contributed to put post-accident preparedness on the agenda of public authorities and favoured awareness rising of post-accident issues.

6.3.4. Action proposals

6.3.4.1. Proposed objectives

Grounding on the analysis of the situations and the experiences already performed in this domain, the proposed objectives (both for management and preparation) are the following:

- Set up (or prepare) at the national and territory level a system of production and access to information which could cope with the complexity of the situation including the different categories of stakeholders, the different jurisdiction levels (from local to supranational) and addressing the different issues at stake;
- Ensure a pluralism of information production as well as a variety of stakeholders to cope with the different facets of the problem;
- Favour the emergence and the participation of local experts in preparation or in management of a post-accident situation at the national and territorial level;
- Set up favourable conditions for dialogue between the different producers of information to share common views on the primary information situation although each stakeholder could have a different interpretation;
- Allow the flexibility and adaptability of the process for producing information and involving the different categories of stakeholders at the national and territorial level according to the evolution of the situation in the short, medium and long term;
- Set up favourable conditions for exchange of information and experiences between territories (in a national or supranational framework) engaged in post-accident preparation or management;
- Set up favourable conditions for exchange of information and experience between territorial, national and supranational actors engaged in post-accident preparation or management;

One specific objective is linked to preparation to post-accident situation: set up favourable conditions for local stakeholders to address post-accident issues and build a shared understanding of the specific post-accident stakes of their territory (for instance by initiating dialogue on the basis of geographical representations of the consequences of possible contamination scenario and assessing the vulnerability of their territory and its activities to possible situations of contamination).

6.3.4.2. Proposed approach

In order to favour the production of reliable and shared information and to allow the different concerned stakeholders to cope with the complexity of the situation in case of an accident (for emergency and post-accident phases), it is proposed to put emphasis on the development of preparedness processes.

Different experiences and researches already exist in this domain, which could be shared with the various concerned stakeholders:

- The EURANOS European research project (2004-2009) included an activity dedicated to “Rehabilitation strategies and guidance for contaminated territories” which developed

tools for engaging cooperation with stakeholders in the preparedness or management of situations of long-lasting radioactive contamination³⁰.

- The OECD Nuclear Energy Agency Expert Group on Stakeholder Involvement and Organisational Structures (EGSIOS) has developed in 2010 a survey on “institute’s adaptation to stakeholder involvement in the field of preparedness and post-emergency management”³¹. This survey examined how emergency management organisations have adapted to the opportunities and challenges presented by stakeholder engagement in the fields of post-emergency preparedness and response in 5 OECD countries: Finland, France, Norway, the United Kingdom and the USA.
- The NERIS³² European platform and NERIS-TP³³ European research project (work in progress) are notably elaborating information resources on cooperation with stakeholders on emergency and post-emergency preparedness and management in Europe.
- In the framework of the “Aarhus and Nuclear” European dialogue process initiated by the European Commission and the French National Associations of Local Information Commissions and Committees (ANCCLI), a European roundtable have been organised in Luxemburg (15th and 16th February 2012) on the theme “Aarhus Convention implementation in the context of a nuclear accident with durable consequences – new challenges after Fukushima”³⁴.

6.3.4.3. Possible path of change and proposed actions

To allow the development of preparedness to emergency and post-accident situations, some categories of stakeholders are more concerned to be involved, notably the elected people around nuclear installations and the local liaison committees. For their involvement, there is a

³⁰ See Hériard Dubreuil G., Baudé S., Lochard J., Ollagnon H., Liland A. (2010) The EURANOS cooperative framework for preparedness and management strategies of the long-term consequences of a radiological event, Radioprotection 45, S199-S213. See also

EURANOS (2009), Sustainable rehabilitation of living conditions in contaminated territories after a nuclear accident or a radiological event – Revised framework for the elaboration of post-accident rehabilitation preparedness strategies. Deliverable Report for the EURANOS project. European Commission.

Liland A., Lochard J., Skuterud L. (2009) How long is long-term? Reflections based on over 20 years of post-Chernobyl management in Norway, J. Environ. Radioact. 100, 581-584.

Oughton D., Liland A., Bay I., Eikermann I.M., Solheim-Hansen H., Skuterud L. (2008), Long-term rehabilitation of Contaminated Areas in Norway: outcomes of co-expertise meetings. Deliverable report D8C3R1 for the European Commission.

³¹ See Nuclear Energy Agency Committee on Radiation Protection and Public Health Expert Group on Stakeholder Involvement and Organisational Structures Survey on institute’s adaptation to stakeholder involvement in the field of preparedness and post-emergency management (OECD/NEA, 2010)

³² See NERIS platform website: <http://www.eu-neris.net>

³³ See NERIS-TP website : <http://resy5.fzk.de/NERIS-TP>

³⁴ The outcomes of the roundtables are available on the ANCCLI’s website: <http://www.anccli.fr/Europe-International/Aarhus-Convention-Nuclear/European-round-tables-Tables-rondes-europeennes>

need to favour their access to different information and tools adapted to their role in the decision making process for the short, medium and long term.

The exchange of experiences through national and European networks could provide useful processes for engaging the reflections with the different categories of actors and create the necessary shared evaluation of the possible strategies as well as to identify the possible ways for producing reliable information and promoting place of dialogue and debate to cope with the complexity induced by an emergency situation.

Cooperation (exchange of experience, common research activities, visit to contaminated areas, etc.) of European stakeholders (notably local actors and the civil society) with countries affected by nuclear accidents of long term radioactive contamination is also an important factor of awareness that should be supported by national and European institutions in this perspective.

6.4. Nuclear safety management

Key issue: What are the means and conditions for public access to information and participation in the context of nuclear safety?

6.4.1. Identification of the situation, actors and issues at stake

6.4.1.1. What are the main qualities identified?

As regards public information and participation in nuclear safety, the whole lifecycle of a nuclear facility should be considered, from the choice of the design of the facility to its decommissioning. This lifecycle is regularly marked by specific moments and decision-making processes (choice of the design, choice of the site, process of authorisation for building a new facility³⁵, decennial inspections, decisions on whether to extend the lifespan of the facility or closing it...), which can require specific processes of public information and participation. However, the regular operation of a nuclear site, outside of these particular moments, is also a matter of concern for citizens, who may wish to exert vigilance over the safety conditions of the site.

Choices that condition the safety of a nuclear site do not find their rationales in the sole field of nuclear safety, but also depend on trade-offs made between safety concerns and other dimensions (in particular economic dimensions). Therefore, trusted public information and participation in the field of safety cannot be limited to the sole dimension of risks and safety but also necessarily includes the different rationales on which choices influencing safety are grounded³⁶ (e.g. balance between safety investments and nuclear energy cost or justification of the choice to resort to nuclear energy).

As a result of the 11th September 2001 attacks and of the Fukushima catastrophe, the range of parameters that are subject to a particular attention in nuclear safety, for institutional actors of nuclear safety as well as for civil society, have extended to external events (malevolent acts, natural events).

In this context, transparency and public information and participation has become a key concern in the field of safety. We can distinguish three key qualities related to public information and participation. The first one is trust of the public in the safety of nuclear activities. This trust is directly linked to a second quality: the capacity of stakeholders (in particular elected representatives and civil society actors at the local and national level) to make sure of the quality of nuclear safety of nuclear sites. Finally, the third quality at stake is the capacity of stakeholders to contribute to nuclear safety. In this regards, the importance of

³⁵ Specific stakes and issues associated to nuclear new build and facility siting are subject to a specific analytical sheet (see section 6.5).

³⁶ European research project like the TRUSTNET, TRUSTNET 2 and TRUSTNET IN ACTION projects have shown that in order to establish trustworthy public engagement in governance of hazardous activities, issues of risks and safety cannot be dealt with separately from the issues of justification of the activities entailing risks. See in particular the TRUSTNET 2 report:
http://www.trustnetinaction.com/IMG/pdf/TRUSTNET2_Report-2.pdf

the function of stretching played by stakeholders, notably civil society actors, is internationally acknowledged³⁷.

6.4.1.2. Where does the issue develop (geographical, physical, political, human ... entities)?

Nuclear safety encompasses both general issues (design of facilities, site operation rules...) and site-related issues related to the internal and external factors influencing the safety of a particular site.

A first space frame for addressing safety issue is the nuclear site itself, as its characteristics and operation condition safety (the operator of a nuclear site is the first actor responsible of safety). As regards public information and participation three different concentric spaces can be identified. The first one is the territory hosting the nuclear site, on which (at least some) local actors can be expected to be more specifically aware of nuclear safety issues. The second space is the territories that are potentially affected by the consequences of a nuclear incident or accident on the nuclear site, beyond the perimeter of emergency intervention plans. These actors are in most cases not particularly aware of nuclear issues.

National level is a key level for nuclear safety as nuclear safety regulation, control and enforcement is in most cases under the responsibility of national actors (in particular nuclear safety authorities). Therefore, public information and participation in this field is an issue for national relevance.

The European level is also of relevance in nuclear safety, both as a source of legislation and regulation but also as a privileged space for coordination and cooperation between Member States (see e.g. the process of stress tests organised at the national and European level after the Fukushima accident).

Finally, the international level is also at stake in safety issues, as a place for multilateral coordination and cooperation through multilateral institutions such as IAEA, NEA, or through ad hoc cooperation processes (e.g. the recent cooperation process between the countries³⁸ concerned by the issue of cracks in the reactor vessels produced by Rotterdamsche Droogdok Maatschappij, detected for the first time in the Doel 3 reactor in Belgium).

6.4.1.3. Who are the main concerned stakeholders?

The actors concerned by the issue of public participation in nuclear safety issues are the following:

- Operators of nuclear sites, which are most often international firms;
- National nuclear safety authorities;
- Technical support organisations and expert bodies supporting national safety authorities;

³⁷ The report of the IAEA International Nuclear Safety Group on “stakeholder involvement in nuclear issues” (INSAG 20 report) points out that “stakeholder involvement may enhance safety and certainly can encourage public confidence. Stakeholder involvement may result in attention to issues that otherwise might escape scrutiny.” (see INSAG 20 report section 2.1. paragraph 8, page 3). The report is available at http://www-pub.iaea.org/MTCD/publications/PDF/Pub1276_web.pdf

³⁸ including the United States, France, Switzerland, Sweden, the Netherlands, Germany, Spain and the United Kingdom.

- National parliaments and governments (as well as regional/State parliaments and governments in some countries) having, according to national legal frameworks, decision-making power as regards energy policies, authorisation of new nuclear facilities and continuation of operation of existing ones;
- Local governments, populations, citizen groups, local NGOs and economic actors in the vicinity of nuclear sites, local Committees attached to nuclear sites and their national federations (when existing);
- Populations and local actors in territories potentially affected by the consequences of a nuclear incident or accident;
- The European Union institutions;
- European and international networks involving national nuclear safety Authorities, in particular ENSREG³⁹ (European Nuclear Safety Regulators Group) and WENRA⁴⁰ (Western European Nuclear Regulators Association);
- International institutions involved in nuclear safety issues: IAEA, NEA;
- European research networks or technological platforms involved in nuclear safety issues: SNE-TP, SARNET, NUGENIA, ...

6.4.1.4. What are the main identified problems?

At the local level

At the local level, a key issue is the conditions and means for local stakeholders to develop their own understanding of safety issues related to a particular nuclear site. This includes capacity building, access to expertise and technical mediation in order to develop autonomous understanding of highly technical issues.

This also includes issues of local organisation and governance in order to enable a variety of local actors (e.g. elected representatives, NGOs, local experts and qualified personalities, workers of the nuclear site...) to cooperate and investigate jointly safety issues in a way that is reliable and relevant for local actors.

Finally, as this requires resources, the issue of financial support to local dialogue and engagement is also of relevance, both concerning the existence and relevance of funding but also the modalities of funding schemes, which can have an impact on the degree of autonomy of local actors while engaging in safety issues.

At the national level

³⁹ The general objective of ENSREG is to “establish the conditions for continuous improvement and to reach a common understanding in [nuclear] areas”. ENSREG notably includes in its objectives: to “improve the cooperation and openness between Member States on nuclear safety and radioactive waste issues”, to “improve the overall transparency on nuclear safety and radioactive waste issues”, and “as appropriate, advise the European Commission on additional European rules in the fields of the safety of nuclear installations and the safety of the management of spent fuel and radioactive waste”.

⁴⁰ According to its terms of reference, “the main objectives of WENRA are to develop a common approach to nuclear safety, to provide an independent capability to examine nuclear safety in applicant countries and to be a network of chief nuclear safety regulators in Europe exchanging experience and discussing significant safety issues.”

Nuclear safety entails highly technical dimensions in which experts play a key role. This represents a key constraint for stakeholders who want to build autonomous understanding and assessment of safety issues. A key issue here is to identify the conditions under which non-expert citizens can exert a stretching role as regards safety issue.

Defence, public security or commercial and industrial confidentiality can also represent a serious obstacle to information and participation of the public, as they may be opposed to requests for information from the public (e.g. concerning the vulnerability of a nuclear facility to malevolent acts). In these conditions a key issue is to identify conditions in which civil society can build an assessment of safety issues without endangering secrecy of classified information (see Aarhus Convention, Article 4, 4th paragraph).

The Fukushima accident poses the issue of how to identify and take into account rare events. The OECD Nuclear Energy Agency thus stresses that the Fukushima accident "raises many issues related to the treatment of rare events, combinations of events, human factors, severe accidents, severe accident management, training of personnel..."⁴¹. In this domain also, stakeholders, including civil society actors and local actor, can contribute to safety by helping identifying rare events to be taken into account on the basis of their particular knowledge of their territory (e.g. precise knowledge of the local environment, of the local natural hazards and of the history of natural events).

In general, the hypothesis of the extension of the duration of operation of nuclear facilities in different European Member States entails questions on the new arrangements necessary to maintain safety, including conservation of expertise and know-how over a long period of time⁴². This is likely to entail new investments in safety in a constrained context of economic crisis that reduces investment capacities. A key condition for trust in the safety of nuclear facilities possibly operating beyond their initial lifespan is the transparency on the decisions on new safety arrangement and their rationales and the participation of stakeholders in the decision making process.

There is now a wide range of public and governmental attitudes towards the role of nuclear power. However, vigilance on nuclear safety will remain a topical issue whatever is the position of each Member State vis-à-vis the nuclear energy, even in the countries having decided to phase out for they will have to undertake decommissioning activities during decades and radioactive waste management on the long term. The context of declining nuclear industry in the countries having decided to phase out nuclear could be at the origin of lack of investment in nuclear safety that justifies reinforced scrutiny.

At a supranational level

Information and participation issues in the context of extension of the duration of operation of nuclear facilities also include a trans-boundary dimension. In effect, for nuclear facilities which may affect territories beyond the national borders, the Espoo Convention and the European Directive 2011/92/EU of 13th December 2011 on the assessment of the effects of

⁴¹ see OECD-NEA report "Main benefits from 30 years of joint projects in nuclear safety", 2012, p 8

⁴² in the previously-quoted report, the OECD-NEA stresses that "with the industry push to reduce conservatism in decisions, to extend the operational period of nuclear power plant and increased interest in building new nuclear power plants, it becomes imperative that additional mechanisms be developed to make available both the tacit and the explicit knowledge to the new generation of engineers and scientists for safety and technology decisions" (see OECD-NEA report "Main benefits from 30 years of joint projects in nuclear safety", 2012, pp 7-8)

certain public and private projects on the environment sets obligations for inclusion of foreign stakeholders in the environmental impact assessment (EIA) procedure in case of “major changes” in project with possible environmental impacts, including nuclear facilities. However, there is no clear consensus at the European level whether the extension of the duration of operation of a nuclear facility constitutes a major change or not.

In addition, the post-Fukushima context calls for a development of the European and international dimension of nuclear safety, as it has notably been the case with the recent process of national and European stress tests. Transparency and trust building in the field of nuclear safety is therefore not only a national issue but also has a European and international dimension. Notably, European cooperation and cross-country engagement of experts in safety assessment is clearly a factor of transparency and trust building in the safety of nuclear activities in Europe. However, if this European and trans-border dimension of safety assessment has been successfully developed in the context of the stress tests, it is not clear yet how this cooperation would develop on the longer term in a continuous way.

6.4.1.5. What is the strategic core of the problem as regards access to information and participation of the public?

Nuclear safety has traditionally relied on a governance system essentially relying on three pillars: operators of nuclear sites, nuclear safety authorities and their technical support organisations, which notably provide expertise resources for safety assessment.

In the European context, the Fukushima accident has reinforced awareness that a major accident in a nuclear facility in Europe cannot be excluded and that European Member States are vulnerable to accidents that may happen in another Member State. It has notably demonstrated the relevance of external events and emergency management.

The Aarhus Convention is underlining the importance of public information and participation in the decision-making processes regarding the protection of environment and health. Decisions on nuclear safety are highly relevant in this perspective and the contribution of the public entails local, national and international dimensions, since the scale of the risks entailed by nuclear activities definitively overcomes the local and national boundaries. Creating the conditions for the public to contribute effectively to nuclear safety remains an ambitious goal since the public is confronted with many obstacles (e.g. access to information, conflicts between right to information and participation and defence and industrial secret, access to expertise in nuclear safety issues...).

The key issue is therefore to define the conditions and means for effective contribution of the public to nuclear safety and to facilitate interactions between the public and the traditional actors of nuclear safety governance while there are no precise European or international guidelines for such interactions in the field of safety. In addition, public debates on nuclear safety issues in Europe have been historically marked by a polarisation between pro and anti-nuclear actors that often impedes actual and effective societal engagement in the effective follow-up of nuclear safety. A key stake here is to overcome this polarisation and to create conditions for the various concerned stakeholders to contribute to nuclear safety improvements, whatever is their position regarding nuclear energy.

The post-Fukushima context is also a driver towards improved transparency, information and participation of the public. The key stake here is to create the conditions for the different concerned categories of the public at local, national and international levels, to share and

update on a regular basis, the assessment of the safety of nuclear facilities, taking into account the possible natural, human and technical events, the quality of the nuclear facility and its design and the resilience of safety arrangements to possible failures or unexpected events. This cannot be achieved through sole improvement of information and communication channels within the current governance system, but requires an evolution of nuclear safety governance to include civil society as a fourth pillar, complementary to operators, nuclear safety authorities and technical support organisations.

6.4.2. Diagnosis of the actions taken

6.4.2.1. Which actors are active regarding the issue of RWM? What is their action?

At the national level

Operators of nuclear sites are the primary responsible of nuclear of nuclear safety, as safety largely relies at first on the way they operate nuclear facilities.

Nuclear safety authorities develop the regulatory framework and assess the safety resulting from the design, build and operation of nuclear facilities. They are supported in their safety assessment by public experts and technical support organisations.

National governments (and regional governments in some countries) have decision power as regards authorisation of new nuclear facilities and of extension of the period of operation of existing nuclear facilities.

European and international authorities establish regulatory frameworks (e.g. European Directive 2009/71/EURATOM of 25th June 2009 establishing a Community framework for the nuclear safety of nuclear installations) as well as guidance on nuclear safety approaches, policies and principles (e.g. the publications of the IAEA International Nuclear Safety Advisory Group – INSAG). Following the Fukushima accident, the European Commission has initiated together with ENSREG (European Network of Safety REGulators) a national and European process of stress tests for all nuclear power plants in Europe.

At the national level, NGOs play a role of stretching of the operators and nuclear safety authorities. This includes national NGOs & federations of local actors (national federation of local elected representatives, of Local Committees, ...). These federations facilitate exchange of experience between local actors concerned by similar safety issues in different nuclear sites and enables them to play a role of vigilance and stretching at the national level for safety issues which scope is not limited to a particular nuclear site.

In some Member States of the European Union, processes of engagement of citizens and NGOs in nuclear safety issues have developed at the local and the national level with the support of their national TSO and nuclear safety authority (see e.g. the case of France in annex).

At the local level

Local actors in the vicinity of nuclear sites (in particular local associations and citizen initiatives) have sometimes the capacity to exert vigilance over the safety level of the site. They are in position to question safety in different terms than nuclear safety authorities and bring about issues related to the local context that institutional actors may have missed. The way this stretching function is exerted depends in particular on the governance arrangements at the local level (is there a Local Committees? Is the chair independent from the operator of

the site and of the national authorities? What are the available resources to support investigations of local actors?). In national contexts where they exist, Local Committees play a double role. They are a privileged place for local dialogue between local actors and the operator of the site, nuclear safety authorities and technical support organisations. They also play a role of diffusion of information to the local public about the nuclear site, its operation and its safety level as well as about emergency management.

At a supranational level

At the European level, supranational NGOs have been active in the consultations organised in the framework of the nuclear stress tests. Some NGOs (e.g. Greenpeace, Friends of the Earth) have issued public reports to express their views on this process. NGOs are also active through the Aarhus Convention and Nuclear initiative⁴³.

As regards research, research in nuclear fission, including safety issues, has undergone in recent years a process of coordination and integration at the European level through the setting up of different European technological platforms and excellence networks: SNETP, IGD-TP, SARNET, NUGENIA. Universities and research institutions are also engaged in research programmes. As the scope of nuclear safety issues extends to human and natural events (tsunami, storm and other climatic events, plane crashes and other terrorist acts) external to nuclear sites, non-nuclear expertise and research capacity is needed for nuclear safety assessment.

European networks of nuclear safety authorities (e.g. ENSREG, WENRA ...) or technical support organisations (e.g. ETSON) in the nuclear field contribute to exchange of experience at the European level and thus facilitate some degree of harmonisation between national safety authorities in Europe. WENRA and ENSREG have played a direct and key role in the process of European and national stress tests carried out after the Fukushima accident: WENRA has proposed the methodology for the whole process and ENSREG has been entrusted with the task of coordinating the European peer review of the national stress test reports.

Finally, at the international level, the IAEA plays the role of a forum of exchange between countries as well as of a provider of international standards and guidance documents.

6.4.2.2. How is the system of actors as a whole operating?

The current organisation of nuclear safety in Europe is centred on the relationships between nuclear safety institutions (nuclear safety authorities and technical support organisations) and operators of nuclear sites. The centre of gravity of this system is situated at the national level, as nuclear safety is a national responsibility. This national dimension is complemented at the international level by the works of the IAEA and the OECD NEA.

In Europe, civil society actors and CSOs at the national or local level have various levels of mobilisation and competence in the nuclear safety field and are in some cases capable of raising safety issues and performing counter-expertise. However, notably due to the high level of technical skills necessary to have a critical view over nuclear safety issues, there are

⁴³ ACN is developed by the French National Association of Local Information Commissions and Committees (ANCCLI) and the European Commission. In this framework a European roundtable on nuclear safety will be organised in Brussels on 4th-5th December 2012

relatively few civil society actors that are actively engaged in this field. Especially in small European countries, it can be difficult to find independent experts. In some countries, processes of engagement of citizens and CSOs in nuclear safety issues have developed (see previous subsection), on the ground of inclusive governance, legal and regulatory frameworks of nuclear safety.

For a few years, and especially since the Fukushima accident, a movement of reinforcement of a European dimension in nuclear safety has been initiated. This movement has been threefold:

- Development of a community framework for nuclear safety with the European Directive 2009/71/EURATOM of 25th June 2009, involving specific dispositions regarding the information of the public.
- Intensification of exchanges between nuclear safety authorities and between TSOs and creation of European networks (WENRA, ENSREG, ETSO...). This notably enabled nuclear safety authorities together with the European Commission to develop the process of stress tests at the national and the European level after the Fukushima accident. This also enables developing proposals for harmonising safety requirements for new nuclear facilities. It is also an opportunity for reinforcing transparency and raising societal participation at EU level.

Recent structuring of European initiatives of CSOs for assessing and improving the implementation of the Aarhus convention in the nuclear field (notably in the field of nuclear safety) through the Aarhus Convention and Nuclear initiative.

6.4.2.3. What is the result of this system of action?

Prior to the Fukushima accident, there has already been a dynamics of harmonisation of safety levels between New Member States and acceding Member States in the framework of the European enlargement process.

The Fukushima accident has triggered an evolution on the way nuclear safety issues are considered in Europe.

In this context, nuclear safety remains a national competence, even if harmonisation of safety levels across Europe is expected both by institutional actors and by the civil society. However, it is unclear that the conditions or this harmonisation are yet gathered.

The development of a societal capacity to exert vigilance over safety of nuclear facilities and stretch institutional actors is only at a beginning. This brings about issues of actual conditions and means for civil society engagement:

- What are the institutional and organisational conditions that can facilitate this engagement?
- What should be the evolutions of decision-making processes in the field of nuclear safety to take benefit from this emerging engagement?
- What are the conditions, means and processes that could raise the capacity of the public to contribute to the quality of decisions on nuclear safety, along the lifetime of nuclear installations?

6.4.3. Prospects: future evolutions of the situation, problem and actions

6.4.3.1. In what time and space frame does the issue develop?

Information and participation of the public in the field of nuclear safety develop in a time frame that is the lifecycle of the installation, from conception of the design to decommissioning. When appropriate conditions are gathered (notably access to information, resources and expertise), vigilance of civil society actors over safety of nuclear installations is to be exerted in a continuous way. In addition, information and participation of the public is an issue of particular acuity along the milestones of the lifecycle of nuclear facilities: decision on the design (see e.g. the public debate on the EPR reactor in France), authorisation procedures, decennial inspections, incidents, decision process for authorising or not the extension of the duration of operation of a nuclear facility ... It should be noted that the considered time frame differs if we consider already existing nuclear facilities of possible new ones.

As regards space frames, nuclear safety issues develop from the local level to the international level. The first place where nuclear safety issues develop is the nuclear facility itself. It also develops in the territory hosting the nuclear facility, notably as regards engagement of local actors in vigilance over nuclear safety. For nuclear safety, local level is not limited to host sites; it also includes territories potentially affected by the consequences of an accident in the considered facility. Nuclear safety then unfolds at the national level, which is the key level for regulation and authorisation of nuclear activities. The national level is also involved for trans-boundary issues (participation of foreign stakeholders to decision making processes in the framework of the Espoo convention and the European Directive 2011/92/EU of 13th December 2011). Nuclear safety finally concerns the European level (European directives, harmonisation, stress tests) and the international level (international standards, exchange of experience between nuclear safety authorities).

6.4.3.2. Evolution scenarios

Baseline scenario

As regards information and participation of the public, there is some degree of consensus in Europe on the necessity to enable civil society engagement in safety issues. It is likely that efforts will be done in answering on a case-by-case basis to the questions asked by civil society actors as regards safety. Some countries are engaging, with varying degree of intensity, in cooperation processes with civil society organisations on safety issues. However, this may not be sufficient to ensure that a European dynamics of investment of public and private actors at the local, national and European level in the capacity of civil society to contribute to safety of nuclear activities would develop (e.g. through widespread investment across Europe in capacity building and access to expertise of NGOs, local committees...).

Following the stress tests, there is a will at the European level to continue to some extent a transparent process of European cooperation on safety issues. However, as the stress test represented a very significant investment of human resources, future European cooperation in this field normally will be less intense. As a result, nuclear safety would remain a national competence with limited harmonisation between European Member States (e.g. as regards safety standards) and limited contribution of the European level as regards transparency and participation of civil society.

Negative scenario

A negative scenario would be characterised by a lack of capacity of institutional actors to share technical issues with civil society actors in the field of safety. In European Member States facing economic difficulties, there could be a risk that safety investments would be delayed or postponed and priority could be given to economic considerations (notably in the countries having decided to phase out nuclear activities).

Civil society would then be facing decisions taken with some degree of opacity, which would reinforce crispation between civil society and institutional actors. This would entail a reinforcement of polarisation of nuclear safety debates on pro / anti-nuclear positions which would jeopardize actual dialogue on safety issues.

Positive scenario

The trend of European cooperation between nuclear safety authorities develops and a European community of regulators and TSOs progressively emerges, resulting in harmonisation of practices, frameworks, evaluation criteria and procedure ...

Resources are invested at the local, regional, national and European levels for developing the capacity of civil society actors to engage on a permanent basis into well-informed and knowledgeable dialogue on safety issues with operators, nuclear safety authorities and TSOs and exert a stretching function. This notably includes

- The development of safe dialogue spaces at the local level (e.g. Local Committees), national level (e.g. national Committees with a mandate to develop information and participation of the public like the High Committee on Transparency and Information on Nuclear Safety in France) and the European level (e.g. the Aarhus and Nuclear process);
- The sustainable allocation of resources to support skills and capacity building of civil society on nuclear safety issues;
- The development of access of civil society to expertise at the local, regional, national and European level.
- A continuous contribution of the public to the vigilance on nuclear safety, at local, national and international levels, along the lifecycle of nuclear activities.

6.4.3.3. Stakes, Threats and assets

Stakes

- A first stake is skills building and empowerment of civil society actors in order to enable them to bring a complementary and specific citizen contribution, on a continuous basis, to nuclear safety (without necessarily becoming themselves experts of nuclear safety);
- Access to expertise is a key condition for actual and efficient contribution of civil society to safety. This includes access to institutional expertise of TSOs, nuclear safety authorities and operators. However, autonomous societal capacities to evaluate nuclear safety also requires availability of experts that do not only belong to the institutional triangle composed of operators – nuclear safety authorities – TSOs and that are in position to support civil society initiatives in the field of nuclear safety.
- Another stake is the capacity of the institutional system to welcome and take benefit from civil society contribution to safety, on a continuous basis.

- Harmonisation of reference frameworks, quality criteria and procedures in Europe for Public Information and Participation in nuclear safety decision-making is also a stake, as it constitutes a factor of readability and benchmarking for the different concerned categories of actors addressing nuclear safety issues (regulators, experts, operators, and the civil society).
- Eventually, an additional stake is to create the conditions for the public engaged in nuclear safety decisions to follow up and to contribute to the orientations of National and European Research program on Nuclear Safety.

Threats

- A first threat is the current economic crisis, which might give increased trend of cutting production costs and investment in nuclear safety without clear societal debate. This threat is particularly acute for private operators for which public shareholders own minor parts of the capital and have low decision powers over investment priorities.
- A potential threat is that this dynamics of cooperation, transparency and participation of the civil society would vanish after the end of the stress test process.
- Inertia of the current governance system is another threat. There is a risk that no significant evolution of the governance system would occur if there would be no critical mass of institutional actors of safety in different member States who are convinced that civil society can bring an effective contribution to nuclear safety.
- Another threat would be a progressive disengagement of the public from nuclear safety issues in the countries having decided to phase out nuclear energy.

Assets

- A first asset is the fact that, after the Fukushima accident, reinforcement of nuclear safety and public transparency is at the agenda at the national and European levels as well as in many nuclear countries in the world.
- Another asset is the existence of an emerging European legal framework for the transparency of nuclear safety (Directive 2009/71/EURATOM establishing a Community framework for the nuclear safety of nuclear installations, with article 8 on public information to be updated in the coming months, notably regarding public participation) together with the creation in 2007 of the European Nuclear Safety Regulators Group (ENSREG) that is in charge of achieving continuous improvements of nuclear safety notably on transparency issues (with the creation of the ENSREG WG on Transparency),
- From the point of view of civil society one can observe dynamics of mobilisation on nuclear safety issues and the potential of European network of CSOs involved in the implementation of the Aarhus Convention in the nuclear sector..
- The availability of experience of public engagement in the field of nuclear safety (be it successful or not) is also an asset.

6.4.4. Action proposals

The following proposals are grounded on the available return of experience and European research in the field of nuclear safety. They are not meant to be directly used as

recommendations for decision-makers but are rather a first ground for discussion within a pluralistic stakeholder group (including institutional actors of nuclear safety) at the local, national or European level.

6.4.4.1. Proposed approach

Actions to be taken should enable

- Experimentation of new approaches, processes, ... for engagement of civil society actors in the field of nuclear safety at the local, regional, national and European levels;
- Transformation of the current governance of nuclear safety in order to include and take benefit of the contribution of civil society (and the development of inclusive legal and regulatory frameworks for nuclear safety management). Building shared understanding of the safety level of nuclear facilities between civil society actors and institutional actors at the local level, regional national and European level.

6.4.4.2. Proposed objectives

- Updating the existing legal frameworks and guidelines for implementing Public Information & Participation (PIP) in the context of nuclear safety, notably taking advantage of the result of experiments and new practices,
- Developing at EU level common quality criteria, principles, and methodologies in order to assess the implementation of PIP in the context of nuclear safety in the Member States
- Developing comparative assessment among member states of PIP practices in the context of nuclear safety, notably in the perspective of the implementation of the European directive on nuclear safety,
- Facilitating the emergence of networks of experts able to support civil society engagement in the field of nuclear safety,
- Supporting the development of European cooperation among civil society organisations involved in the field of nuclear safety, encouraging the development of coordinated civil society contributions to the assessment of nuclear safety at EU level (e.g. in the upcoming follow up of the post-Fukushima stress tests recommendations)

6.4.4.3. Conditions for cooperative action of the concerned actors

Safety of existing nuclear facilities is an issue of common interest for all types of stakeholders. However, gathering conditions for civil society to engage into safety issues requires setting up favourable conditions including

- Facilitating access of civil society actors to a variety of sources of expertise, including TSOs but also independent expertise. The expertise mobilised should include nuclear-specific fields (including human factors and safety culture) as well as other fields of expertise (e.g. for the evaluation of possible external factors impacting safety)

- Setting up tools for civil society actors (including local elected representatives) to share concerns and investigate together nuclear safety issues before interacting with institutional stakeholders like operators, nuclear safety authorities or TSOs.
- Setting up safe spaces of dialogue between civil society actors and institutional stakeholders at the local (site-specific issues), national and European levels. This notably includes resources to facilitate participation of stakeholders (e.g. reimbursement of travel and subsistence fees), sufficient time to examine documents. A key condition for safety of dialogue space is the absence of obligation of reaching a consensus between the participants, together with an explicit account of the points of consensus and disagreement.

Dialogue on safety of new nuclear facilities (or extension of duration of operation of existing ones) would also require, in addition to the above-mentioned conditions, connection between dialogue on safety issues and dialogue on the opportunity of developing a new facility (or on the opportunity of extending the duration of operation of an existing one).

6.4.4.4. Possible paths of change

Different possible actions and processes that can facilitate increased public information and participation in nuclear safety at the local, national and European level were identified:

- Facilitating exchange of information and experience between stakeholders (in particular civil society actors) at the European level on the conditions of information and participation of the public (like for instance the Aarhus and Nuclear roundtable on safety that will be organised in Brussels on 4th and 5th December 2012);
- Facilitating access to expertise through cooperation between civil society actors and nuclear safety authority or TSOs with the objective of setting up favourable conditions for these actors to contribute to safety;
- Having an independent organisation responsible of Setting up ‘safe spaces’ of dialogue at the national level (like the High Committee for Information and Transparency on Nuclear Safety in France) with a pluralistic steering committee;
- Developing Local Liaison Committees around existing nuclear sites in order to provide local actors with a local organisation enabling them to investigate nuclear safety issues related to the considered site;
- Facilitating exchanges of information and experience and mutualisation of resources between Local Liaison Committees and NGOs, e.g. through a national network or federation of Local Liaison Committees, or through a European network;
- Providing support to stakeholder engagement at the national and local level (in terms of methodological support, information, access to expertise, money...) in ways that does not jeopardise their capacity to engage in a free and autonomous way.

Annex: processes of engagement of citizens and NGOs in nuclear safety issues at the local and the national level in France

In France, the following initiatives have been developed since 2006:

- In the framework of the French public debate on the new pressurized water reactor (EPR) in Flamanville, new modalities of access of civil society actors to classified confidential information have been developed involving a group of appointed experts from NGOs.
- The Institute for Radiation Protection and Nuclear Safety (IRSN) and the National Association of Local Information Commissions and Committees (ANCCLI) have developed cooperation to facilitate the engagement of Local Information Commissions in the follow up of the decennial inspection of nuclear reactors.
- The Nuclear Safety Authority (ASN) also supports the Local Information Commissions (CLIs) and their national federation ANCCLI in order to favour the engagement of the CLIs in nuclear safety issues. Funding of the CLIs is provided for by the 2006 Law on Transparency and Safety in the nuclear field.
- In the context of a public inquiry including safety dimension (decommissioning of a facility in the reprocessing site of La Hague), cooperation has been developed between the IRSN and the Local Information Commission, which performed a specific safety analysis with the support of the IRSN.

6.5. Nuclear new build and facility siting

Key issue: What are the means and the conditions for public access to information and participation to a decision on siting and/or building a new nuclear installation?

6.5.1. Identification of the situation, actors and issues at stake

6.5.1.1. What are the main qualities identified?

The main issue at stake with the siting and/or the building of a new nuclear installation concerns the decision to be made regarding the future of the territory. Key economic, social and environmental dimensions are associated with this decision. In the case of the siting of a new installation, the main focus will be on the site selection process and the elaboration of the project for the territory. In the case of the building of a new installation on a site already comprising nuclear installations, the information and participation processes will be focussed on the evolution of the industrial context and its potential impacts on the environment. In both cases, the main challenge will be to address the future of the territory related to economic, social, health and environmental aspects.

In this context, access to information and participation of the different stakeholders to the decision making process (at the local, national and international levels) are sensitive issues to favour the quality and sustainability of the decision to be made.

Due to the different dimensions at stake (economic, social and environmental dimensions), the quality of the decision will be associated with the evaluation of the impacts and their influence on the future of the territory. In this perspective, access to detailed information and the possibility to develop a pluralistic expertise are key components.

6.5.1.2. Where does the issue develop (geographical, physical, political, human ... entities)?

In the European context, the issue of siting and/or building new nuclear installations concerns the national community, the local authorities and local actors of the territories which may host this new installation but also the neighbouring countries and the European and supranational organisations.

At the local level, the decision of siting a new nuclear installation will modify the environment and will influence local economic and social development. In this context, the organisation of a well-informed and equitable democratic process for taking the decision will be at the core of the issue at stake for the different stakeholders. In the case of a new nuclear installation on a site with pre-existing nuclear installations, the decision will be an opportunity to re-assess local economic and social development, taking into account the past experience and the possible future for the territory. Existing dialogue processes such as a local liaison committee could favour the information and participation processes in such a situation.

At the national level, this decision will be associated with energy policy issues, and with the spatial organisation of the electricity production on the territory in a medium and long-term perspective. It will also interact with the national framework and strategy for the economic and social development of the territories.

The national, European and supranational levels also play a role through the elaboration and follow-up of generic safety rules regarding nuclear installations as well as principles for the consultation processes and for managing the trans-boundary issues.

6.5.1.3. Who are the concerned stakeholders?

The stakeholders concerned by the issues associated with the siting and/or the building of new nuclear installations are:

Local stakeholders:

- local elected representatives concerned by this new installation
- economic and social actors of the territory concerned by this new installation
- population of the territory that hosts the installation
- local liaison committees around nuclear installations
- regional and local administrations which are consulted on this project

National stakeholders:

- the operator willing to set up a new nuclear installation
- the ministries in charge of energy, research and environmental issues
- the government and/or the Parliament involved in the decision making process
- the national community (especially the population) concerned by the energy policy

European and supranational stakeholders:

- the European Commission and international organisations (notably UNECE, IAEA) involved in the elaboration and follow-up of recommendations and regulations concerning the safety rules and decision-making processes
- european and transnational associations of national regulators and TSOs (notably WENRA)

6.5.1.4. What are the main identified problems?

The decision to build a new nuclear installation is a long process that generally extends over several years. Consultation processes have to be put in place as soon as possible in order to give the possibility to the different stakeholders to participate actively to and to influence the decision making process.

At the local level:

As the siting and/or building of a new nuclear installation has an impact on the economic and social development of the territory, it requires to be assessed as a whole. For the local stakeholders, the issue at stake is to get access to the various fields of expertise to be mobilized for assessing the potential impacts.

This decision to build a new installation has to be considered in the perspective of the sustainable development of the territory. This issue will be addressed differently if the territory is already hosting a nuclear installation or if it is a new location for a nuclear site. In

the first case, the local stakeholders will be able to share their experience. Of course, the existence of a tradition of dialogue and stakeholder participation will favour the preparation of the decision, while a climate of conflict between the different stakeholders will be reinforced at the occasion of the decision to build a new nuclear installation. In the second case, local stakeholders will have to gain experience and mobilise expertise to address the features of this new project on their territory. In both cases, the capacity to cope with alternative economic and social development is a key issue for addressing the sustainability of the project.

The local decision also entails aspects of nuclear safety and radiation protection. Nuclear safety issues are generic and concern national or international arenas (see below) or site-specific issues (e.g. seismicity, urban proximity, etc.).

At the national level:

The major issue at the national level is the elaboration of a consultation framework on the energy policy and on the economic and social development of the territories.

Due to the time frame between the decision itself and the implementation of the new installation, different external events could occur with significant influence on economic, energy or environmental issues. External events such as the Fukushima nuclear accident can also impact decision making on siting. This dimension has to be considered when establishing decision-making process and its evolution according to different contexts over time.

Another key issue for the various concerned stakeholders is the possible restriction of the access to information for defence or industrial/commercial secrets, limiting the capacity to address the different issues at stake in terms of potential impacts on the environment.

At the European and supranational levels:

The key role of European and supranational organisations is to contribute to the development of guidelines and regulations for the quality of consultation processes regarding safety and environmental issues. European Treaty and Directives and international conventions contribute to promote good practices and to provide a framework for the concerned stakeholders at the different levels to engage themselves in the decision-making processes. It is also essential for providing the baseline for the exchange of information and consultation of the neighbouring countries on environmental and safety issues.

6.5.1.5. What is the strategic core of the issue as regards access to information and participation of the public?

The strategic core of the issue concerning the public access to information and participation to the decision-making process on the siting and/or the building of a new nuclear facility is to ensure the three following main conditions:

1. Relevance and transparency of the strategic decision linked with nuclear installations as part of a sustainable national energy mix,
2. Quality and transparency of safety options (technical options and site specificity, conditions of long term monitoring of these facilities involving local stakeholders),
3. Relevance of the implementation and/or the building of a new nuclear installation in a specific territorial context and the transparency of the decision-making process, notably regarding issues like nuclear safety, local incomes (taxes, local development, local investment, compensations) associated with siting.

Due to the importance of the economic dimension in such decisions, particular attention has to be devoted to the organisation of the decision-making process and to the capacity of the process to address in a transparent manner the environmental, social and economic issues and to cope with the different spatial and temporal dimensions at stake.

It is essential to provide accessible and understandable information to the various categories of stakeholders, covering the different dimensions of the impacts associated with the implementation and/or building of a new installation. A specific device must be put in place early enough before the final decision in order to open room for manoeuvre for the participants to effectively contribute to the quality of the decision.

Existing obligation, rules, guidelines and available good practices regarding public information and participation in the context of nuclear safety at International, European and National levels are to be considered and duly taken into account.

6.5.2. Diagnosis of the actions taken

6.5.2.1. Which actors are active regarding the issue of siting and/or building a new nuclear installation? What is their action?

The initiative of siting or/and building a new nuclear installation belongs to the operators. In this perspective, the operators are expected to design and defend their project and also to perform an impact analysis (including economic and environmental issues).

At the national level, this decision will be connected to the energy policy defined by the Ministry of energy. Research installations could also be concerned by such a decision with the involvement of the Ministry of research.

According to the importance of the decision (in terms of evolution of the national strategy on energy issues and/or in terms of potential environmental and economic impacts of the project), as well as according to the legal framework, national debates are to be organised under the responsibilities of different instances:

- the Government or the Parliament in charge of taking the final decision,
- the "administrative" instances or committees on public debate in charge of the consultation process (different status exist according to the countries), aiming at promoting the expression of the different point of views.

Safety Authorities providing advices on the licencing authorisations, based on expert investigations and consultations are also expected to play a key role. The European Commission is also to be consulted on the project. In addition, environmental NGOs at national level will actively take part in the consultation processes.

At the local level, elected representatives will predominantly be concerned by economic and social considerations associated with this decision. In addition, other economic operators in the territory will also consider possible positive or negative impacts of the project on their activity.

Local citizens should have the opportunity to express their views during the public enquiries. Local citizens can engage themselves as a result of their own initiative or in the context of institutional processes of participation. International or national NGOs can also play a key role in supporting their engagement, providing them for instance with independent expertise on relevant matters on the consultations. When existing (for instance in the case of siting in the vicinity of existing NPPs) local liaison committees (when existing) would also play a key role.

Due to the difficulties encountered during the last decade for siting new nuclear installations in several countries, there is currently a tendency to propose the building of new installations on existing nuclear sites.

6.5.2.2. How is the system of actors as a whole operating?

In some countries, affected municipalities have a veto power regarding the decision to siting and/or building a new nuclear installation. This provides a guaranty and gives a key role to local stakeholders in the decision-making process.

National and European regulations (notably Euratom Treaty Article 41/43, EIA and SEA directives) and the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention) set out the basis for the consultation process concerning the siting and/or the building of a new nuclear installation. A specific role is dedicated to the European Commission through the consultation process under Article 41/43 of the Euratom Treaty: the Commission formulates an opinion on the project, which is not binding, but is in practice of extreme importance in the decision process notably concerning the compliance with Euratom Treaty requirements and financing rules.

Although the principles for public consultation and participation to the decision-making processes for the siting and/or the building of a new nuclear installation promote active involvement of the different categories of stakeholders, many difficulties were encountered in the past in different countries:

- It is difficult for national and local stakeholders who are not experts in nuclear issues to enter into the technical debates. In this context, there is generally a feeling of exclusion from the debate and difficulties to trust the information provided by operators, but also by national public experts and authorities. Nevertheless, different initiatives have been experimented in the recent years to favour the development of stakeholders' competences on nuclear issues as well as to develop pluralistic expertise, enlarging the debates on technical issues.
- Another difficulty concerns the interaction between the consultation process and the political debate on energy issues. In some cases, official public consultation processes are going on, while political decisions are already taken.
- The public capacity to influence the process through consultation processes is also a difficult matter. On the one hand, when the design of the nuclear installation is already done, while the public consultation takes place at a later stage of the process, only marginal adaptations are considered. On the other hand, the site selection issue could however lead to the cancellation of the project should local or national stakeholders be against the project. Proposing and discussing with the public actual technical alternatives

should be regarded as a key dimension of the quality of the public information and participation process.

- The perimeter of the consultation processes is generally limited to the local communities around the nuclear installation while the affected communities could be much larger. It is to note that neighbouring countries are to be consulted according to European and international regulations and conventions, and notably according to the Aarhus Convention.

6.5.2.3. What is the result of this system of action?

At the local level, the economic stakes associated with the siting and/or building of a new nuclear installations are generally at the core of the debate for local elected representatives. In this context, the debate on possible environmental and health impacts remains limited while local citizens and local NGOs have little capacity to raise this issue. Nevertheless, different initiatives have been experimented to favour development of competences and access to technical information for local and national stakeholders facilitating their participation to the debate on these issues.

Taking into account the various dimensions at stake (mainly economic, social and environmental) and the time and space scales to be considered for the project, the public information and participation processes require good articulation with the political debate on energy, economic and environmental issues in order to avoid a feeling of exclusion among the local and national stakeholders. In some cases, stakeholders may boycott the consultation process considering that the decision is already made.

The development of participatory processes in different European countries and the exchange of experiences among stakeholders favour the emergence of good practices to reinforce the role of public information and participation on these issues. The development of veto right at community level together with the public access to expertise could be considered as a means to reinforce public information & participation.

Generally, there is a focus on the decision to site and/or build the new installation, while this decision leads to medium or long-term impacts that are not necessarily taken into account in the debates. At the time of the consultation process, it might be rather difficult to address the issues associated with the societal follow-up of the nuclear installation along its lifecycle.

6.5.3. Prospects: future evolutions of the situation, problem and actions

6.5.3.1. In what time and space frame does the issue develop?

The evaluation and decision processes generally last several years if not decades. These processes include political issues associated with energy policy as well as economic, social and environmental strategies at the international, national and local levels.

The first concerned actors are the operator (in terms of economic actor) and the local stakeholders, but a national dimension has to be taken into account due to the interaction with the national energy policy and the national economic development framework. Neighbouring

countries are also concerned with the possible impacts on their own environment of the new nuclear installation.

6.5.3.2. Evolution scenarios

Baseline scenario

The development of participatory processes on the siting and/or the building of new nuclear installations involves difficulties for the local stakeholders to address technical issues. Access to expertise is limited and time consuming. The debates tend to focus on general considerations leaving aside an in depth debate on the actual stakes of the decision.

In this context, local stakeholders are frequently suspicious regarding the information provided by national experts and by the operator himself.

This situation is resulting in a confrontation at the local level between two types of views. One is focussing on economic benefit for the territory and the other on the possible negative impacts associated with the siting of the nuclear activity and on the risks involved.

Beyond the difficulties for local stakeholders to address technical issues, the access to information is impeded by claims of confidentiality.

The decision on siting is interacting with energy policies. Nevertheless, the articulation of the local consultation (at territorial level) with the national political debate (on energy policy) is dealt with in a separate manner, thus creating ambiguities and frustrations in the public.

Negative scenario

After initiating a consultation process, the government doesn't wait for the end of this process to decide on the siting and/or building of the new nuclear installation.

The scope of the debate is limited regarding safety issues: defence/commercial/industrial secrets impede the public access to information.

At the local level, there is a severe conflict between the local elected representatives and the civil society opponents to the project. The elected people tend to focus the debate on the economic benefits brought by the new installation in their territory, while the opponents request the phase out of nuclear energy.

In the absence of the required conditions for a meaningful participation, the actual issues are not addressed (issues such as: the opportunity of an additional nuclear unit in the national energy mix, the quality of technical design and safety options (and site characteristics), the opportunity of siting the potential plant in the context of the considered territorial context, the impact on the economic and social development of the territory). The decision process goes on. The situation tends to polarize on anti/pro nuclear interactions. The debates cannot take place while the actual decisions are taken outside of any participation framework.

Positive scenario

A process of consultation is organised prior to any decision to siting and/or building a new nuclear installation at the local and national levels. The process of consultation is well

integrated in the decision-making process and enables discussing on how this proposal fits with the future of the energy policy. Pluralistic expertise processes are settled, notably on issues linked with territorial development and the future of energy policy as well as on nuclear safety. Those expertise processes also encompass the stakes in terms of economic and social development for the territory where the site and/or the new installation would be settled.

The government and/or operator provide national and local stakeholders with appropriate resources and means in order to facilitate their involvement in the process.

Pluralistic expertise processes are organised, while appropriate procedures make it possible to remove the barriers of confidentiality for at least a sample of participants from the civil society. The public is therefore provided with various sources of information on the robustness of the installation in terms of safety.

Depending on the final decision, a follow-up process is settled, involving different concerned actors and the local stakeholders to ensure the monitoring of the installation after the decision phase.

The outcomes of the information and participation process can contribute to improve the quality and the transparency of the decisions regarding the following issues. The process has:

- influenced the decision on building or not a new nuclear unit in the perspective of the national energy mix including a long-term perspective;
- contributed to the definition and/or the reinforcement of the local development project of the territory, including the different dimensions at stake (economic, social and environmental);
- favoured a shared evaluation of the nuclear safety and identified the strengths and weaknesses of the proposed new installation (technical concept, quality of the site), possible improvements have been suggested.

6.5.3.3. Stakes, threats and assets

Stakes

Regarding the safety of the planned nuclear installation, an important stake is to provide the means and conditions for the participation of the different stakeholders at the local, national and even international levels, contributing to the robustness of the safety evaluation. In this perspective, it is necessary to favour a pluralistic expertise process enabling the expression of the different points of view on the safety issues.

Siting and/or building a new nuclear installation is obviously linked with energy policy. A challenge at the national level is to properly articulate the siting decision with the debate on the future of the energy policy. The adoption of adequate timescales for the different debates and the development of expertise on energy issues are key components for the ensuring the quality of the decision process.

At the territorial level, a key stake is the consistency of the siting decision with a sustainable development project for the territory, shared by the different concerned actors. Public information and participation processes are to promote a common evaluation of the opportunity of the siting regarding the economic, social and environmental quality of the living conditions in the considered territory.

Threats

An important threat would be the resignation of public authorities regarding their mission of creating the conditions for a meaningful public information and participation process (or even transferring this mission on the operators). This situation would certainly result in strong frustrations and distrust among the public and impede the capacity of the public to contribute to the quality of the decisions.

Assets

The existence of national and European legislation and guidelines offering a well-designed framework for public information and participation and early involvement in the context of siting is a key asset. Available experiences in Europe on public participation processes are also a ground for improving future decision-making processes and avoiding unsustainable practices and pitfalls. Among these experiences, pluralistic expertise processes dealing with the impact assessment associated with nuclear installations in some European countries should also contribute to the framing of improved processes (see the analytical sheet on safety).

6.5.4. Action proposals

The following proposals are grounded on the available feedback experiences and research in the field of participation processes in nuclear issues. They are not meant to be directly used as recommendations for decision-makers but rather as a first ground for discussion within a pluralistic stakeholder group (including institutional actors) at the local, national or European level.

6.5.4.1. Proposed approach

Actions to be taken should enable:

- identifying common stakes and framing a local sustainable development project of the territory involving the different stakeholders
- introducing a plurality of expertise sources in the debate on siting and/or building a new nuclear installation (including economic, social and environmental issues)
- articulating energy policy debate and decision on siting and/or building a new nuclear installation
- facilitating the international exchange of stakeholders from civil society among European Union Member States

6.5.4.2. Proposed objectives

One objective is to set up spaces of dialogue at national level, involving the different stakeholders, for articulating the nuclear siting decision with energy policy issues.

A second objective is to create the conditions for public information and participation at national/local levels regarding the assessment of nuclear safety. The access of the public and NGOs at a relevant and pluralist expertise is a significant means, in this perspective.

Another objective, at local level, is to set up the conditions for an active and sustainable engagement of territorial actors

- 1) in the evaluation of the consistency of the siting decision vis-à-vis the characteristics of the territory and its sustainable development perspective and
- 2) in the assessment of the radiological and nuclear safety of the proposed installation in its territorial context.

An additional objective is to build a shared understanding at the EU level of the necessary conditions and means for the public and the NGOs to effectively contribute to the quality of decisions in this context and to coordinate actions in the EU in order to favour public information & participation in the context of nuclear siting.

6.5.4.3. Conditions for the cooperative action of the concerned actors

The process of siting and/or building a new nuclear installation requires both national and territorial participation while national and local levels should be connected in order to optimize the articulation of the different dimensions involved.

In addition to the participation processes, there is a need for developing competences for local stakeholders on the different issues at stake as well as to promote pluralistic expertise favouring the expression of the different points of view on the decision to be made.

6.5.4.4. Possible paths of change

To facilitate increased public information and participation in the decision making on siting and/or building a new nuclear installation, possible actions and processes can be envisaged:

- Setting-up of a national consultative committee gathering the various involved parties under the aegis of a neutral institution (and chaired by a qualified independent personality accepted by the different parties involved) in order to ensure the follow up and quality of the participatory process along the different steps of the decision-making process;
- Similar structures at territorial level in order to support the engagement of local actors in the process of examining the opportunity of the siting and/or building a new nuclear installation in their local context while reviewing the quality and safety of the technical options proposed.

Different experiences and researches already exist in this domain, which could be shared with the various concerned stakeholders:

- The Finnish public participation process on EPR building;
- The French public debate associated with ITER and EPR;
- The British public participation process with consultation on the white paper on nuclear energy led by the Department of Energy and Climate Change.

6.6. Decommissioning of nuclear facilities

Key issue: What are the means and the conditions for public access to information and participation to the dismantling of the installations and the future of the site and the economic activities?

6.6.1. Identification of the situation, actors and issues at stake

6.6.1.1. What are the main qualities identified?

The stakes linked with the decommissioning of nuclear facilities concern two main categories of issues: safety and waste management associated with this operation on one hand, and the future of economic and social activities on the site and in the region on the other hand.

The decommissioning of a nuclear installation is characterised by a transition to new activities on the site that will be shaped by constraints resulting from past nuclear activities and existing installations to be dismantled. Decommissioning activities involve multiple issues (technical, financial, economic, environmental, health, social, culture and heritage of the communities) that need to be considered altogether.

In this context, the safety authorities, in accordance with the supranational regulation, will bring a key contribution to the safety of the operation and will provide guarantees on the level of decontamination achieved and on the destination of the contaminated materials. Therefore, the operators in consultation with the regulators and the policy makers have to establish a balance between the costs of decontamination (how far to decontaminate the material and the soil on the site?) and waste management strategies (including the agreement on the clearance of dismantled material). Different criteria have to be considered in this balance including the associated exposure for the workers and the availability of waste storage.

For the local stakeholders, a key issue is the consistency of the objectives of the remediation with territorial development perspectives. For this purpose, access to information and participation to the decision making process of the local stakeholders will contribute to frame a sustainable development project of the territory, providing trust and creating the conditions for a constructive dialogue with the different categories of stakeholders on both the safety of the decommissioning operations and the future activities at the local level.

6.6.1.2. Where does the issue develop (geographical, physical, political, human ... entities)?

Regarding safety issues, rules and strategies for the decommissioning of nuclear facilities are established at the national, European and supranational levels, involving mainly the safety authorities, the operators and the experts in the fields of nuclear safety and radiation protection.

At the territorial level, the decommissioning of the nuclear installation encompasses the safety of the operations and the follow-up of the dismantled material, on the one hand, as well as the project for the future economic and social activities of the territory on the other hand. Depending on the size of the facilities to be dismantled, employment and economic activities of the territory could be affected. Therefore, a key issue for the local stakeholders in cooperation with national decision makers is to negotiate a sustainable development project for their territory.

The time dimensions involved are multiple: short term, medium and long term. In this perspective, the contribution of the economic and social activities associated with the nuclear installation in the historical development of the territory is a key factor to be taken into account in the discussion between the different stakeholders for elaborating the future of the territory including environmental, economic and social issues.

In addition, the management of the radioactive wastes is an issue to be addressed at the national and potentially international levels.

6.6.1.3. Who are the concerned stakeholders?

The stakeholders concerned by the issues associated with the decommissioning of nuclear facilities are:

Local stakeholders:

- Operator of the nuclear facility;
- Local and regional authorities involved in the licensing process of the decommissioning activities and in charge of territorial planning, development and land use;
- Local elected representatives concerned with the economic and environmental development of their territory;
- Population of the territory which hosts the installation;
- The local information committee (when existing);
- NGOs dealing with environmental protection;
- Building professionals to be involved in the dismantling of the facility (not necessarily having skills in radiation protection).

National stakeholders:

- Safety authorities;
- Safety experts evaluating the impact assessment studies;
- Nuclear company in charge of the local installation;
- Waste managers.

European and supra-national stakeholders:

- The European Commission and the international organisations (notably IAEA) involved in the elaboration and the follow-up of recommendations and regulations concerning the safety rules and decision-making processes;
- European Networks or Instances dealing with nuclear safety (notably WENRA, ENSREG).

6.6.1.4. What are the main identified problems?

For the operator of the facility to be decommissioned:

The decommissioning of a nuclear facility requires first of all establishing a detailed inventory of the actual radiological situation of the buildings and the site. For this purpose, it is sometimes necessary to collect further information on the past activities performed on the site to reach a good radiological characterisation of the facility to be dismantled. In order to

access the memory of these activities, the involvement of former workers is often necessary. On this basis, the planning for decontaminating the facility can be defined, including the identification of the volume of waste and a preliminary time-schedule.

For the operator, it is necessary to set up a programme for the decontamination of the building and the site in agreement with the regulation and the ALARA principle (As Low As Reasonably Achievable) taking into account the economic and social factors. This programme will notably depend on the national waste management framework. Depending on the national regulation framework, discussion could also take place with the regulators in order to identify the possibilities for unconditional or conditional clearance of materials. This issue will also be of concern for some local stakeholders.

At the local level:

As mentioned above, local stakeholders will review the decommissioning programme elaborated by the operator, notably to evaluate the level of decontamination achieved and the follow-up of waste issued from these operations. The existence of spaces of dialogue on this issue and the participation of local stakeholders in the decision-making processes associated with the decommissioning of the nuclear facility are key factors in this perspective.

The other important concern for local stakeholders is the future socio-economic activities in the territory. Notably, due to the evolution of the role of the operator after the dismantling of the nuclear installation, the transfer of responsibility to public authorities or other operators is an issue at stake. This transfer of responsibility is an important issue involving cooperation and negotiation between different categories of stakeholders.

At the national level:

The regulator has first of all to set up the rules for the dismantling of nuclear installations and to establish a waste management framework for the different types of radioactive and non-radioactive material issued from these operations.

The safety authorities have to check that the programme is in line with the safety objectives and the regulation. There is a need to set up monitoring systems to control the level of decontamination reached at the different stages of the decommissioning operations.

Beyond the safety issues, the national decision-makers have to identify strategies for the economic and social development of the territories concerned by the decommissioning of nuclear facilities.

At the European and supra-national level:

A key role of European and supra-national organisations is first of all to provide guidelines and regulations on the safety issues at stake. In addition, they can promote framework for improving the access to information and for the development of participatory processes related to decommissioning.

6.6.1.5. What is the strategic core of the issue as regards access to information and participation of the public?

The strategic core of the issue concerning the decommissioning of nuclear installations is to create the conditions for a constructive participation of the local stakeholders in the follow-up of these operations in the perspective of elaborating a sustainable economic and social sustainable development project for their territory.

For this purpose, it is of prime importance to favour access to information on the risks associated with the nuclear site (before and after decommissioning activities) in order to promote a shared evaluation of the situation.

6.6.2. Diagnosis of the actions taken

6.6.2.1. Which actors are active regarding the issue of dismantling? What is their action?

A variety of stakeholders would have access to information and expertise:

- The nuclear safety authority plays a key role in the control of safety issues and waste management associated with decommissioning. At the very beginning of the process, the nuclear safety authority develops regulation and guidance to assist the operators and set up the requirements for the future use of radioactive materials from decommissioning. In that perspective, the development of a decommissioning plan before the closure of the installation provided by the operator will give the possibility for the public to be informed and to comment on the envisaged operations. This decommissioning plan will have to get the agreement of the authority, taking into account the comments from the public. Then the authority intervenes to inspect facilities undergoing decontamination and to give discharge authorisations or clearance of materials. At the end of the decommissioning process, the authority conducts a confirmatory survey to check the achievement of the decontamination of the installation, including the verification of the level of residual radioactivity on the site.
- Local stakeholders, notably local elected people, and NGOs are mobilized, particularly through ad-hoc local committees (when existing), in order to have access to reliable information on the residual and “historical” contamination of the site and the materials. NGOs may also contribute to carry out additional measures to characterize the radioactivity in the environment around the site and to address the historical use of the site, which could be at the origin of specific radioactive contamination.
- Some local stakeholders are likely to engage in the perspective of following up the safety associated with the dismantling actions in order to avoid accidental radioactive releases. Others are mainly concerned with the remediation of the site for the deployment of future activities and, for this purpose, request the operator to fulfil his duty of providing good economic and environmental conditions for these future local activities. It is however not sure whether these two logics will develop in a compatible way and result in solutions compatible with the objectives of the various parties involved.
- Operators have a clear objective to safely remove their facility from service while avoiding environmental impact. As the decommissioning and the associated radioactive waste management normally entails significant costs, the operators will try to optimise the overall decommissioning activities to achieve a minimisation of cost while still complying with the regulatory constraints.

6.6.2.2. How is the system of actors as a whole operating?

The process of decommissioning may be longer than initially expected given the technical or administrative problems that may emerge over time, as well as given the potential debates between the different actors:

- The authority will ensure that residual radioactivity is reduced to a level that permits the release of the site for unrestricted use or will define the conditions for the use of the site if necessary.
- Local stakeholders do not always have the means to know what is the achieved level of decontamination (and the meaning and consequences of the remaining contamination) and may have a doubt concerning the maintenance of long-term safety.
- Local and even national stakeholders are concerned with the change of economic activity and transfers of the property and responsibilities when the operator leaves the site. From the economic point of view, a nuclear site could be seen as an employment source and its closing is a real challenge for the local development.

6.6.2.3. What is the result of this system of action?

The system of action for the authorities in the context of decommissioning is now well structured by a standardised approach. This helps the operator to take decisions when it comes to decommissioning operations. However, the implementation of realistic and sustainable remediation solutions contributing to the sustainable development of the area and favourable to maintaining the memory of the site requires effective cooperation between the authorities, elected people, stakeholders from civil society and operators, beyond the scope of coordination focussed on the respect of the regulation and technical standards. The analysis of different experiences allows pointing out some difficulties:

- Technical and administrative issues could be a matter of debate between the authority, NGOs and operator, resulting in blockade of the work of decommissioning for years (see e.g. the dismantling process of Brennilis NPP in France where the debate is focussed on the residual level of contamination in soil and materials to be achieved);
- Local representatives are particularly concerned with the closing of a nuclear site. They have to manage the departure of the former workers, the disappearance of the land tax and the future of the released territory altogether. It should be noted that the scenario strongly depends on many factors such as the size and the former purposes (civil or military, ...) of the facility to name but two.
- Local stakeholders and NGOs are sometimes mistrustful regarding the level of residual radioactivity on the released sites and can conduct, years after, their own monitoring (e.g. on uranium mill tailing).

The development of the required cooperation necessitates a strong commitment of public authorities and operators to engage public participation and to ensure adequate mediation and expertise skills.

6.6.3. Prospects: future evolutions of the situation, problem and actions

6.6.3.1. In what time and space frame does the issue develop?

The decommissioning programmes concerning nuclear installations, even for "immediate dismantling" after cessation of the activity, are spread over several decades, raising the question of memory conservation and of the continual involvement of the stakeholders in the evaluation process as well as in the surveillance of the remaining remediated site.

In terms of space, it is often an issue that affects the locality or region, especially economically. Moreover, the question of the destination of the materials or waste may have implications for other territories and might involve the national and even international level as in the case of the recycling of materials.

The dismantling of nuclear installations is at the crossroads of short, medium and long term issues, depending on the nature of the radionuclides present on the site.

6.6.3.2. Evolution scenarios

Baseline scenario

With the ageing of many nuclear installations, the number of decommissioning programmes will increase in the coming years. Maintaining the legal statute of nuclear activity for closed installations is an option for postponing their complete decontamination. Some facilities will therefore be dismantled while their site itself will not necessarily be made available for non-nuclear activities, at least temporarily.

Nevertheless, many sites will be rendered to non-nuclear activities. In case the site is still hosting nuclear installations, local stakeholders will question the guarantees they may have regarding the remediation and their ability to monitor the evolution of the site in the future.

Economically, decontamination operations may be more costly than expected, due to unexpected requirements of the authorities and local stakeholders as to the residual contamination level.

In terms of the management of decommissioning waste, tensions will raise in the coming years with on one side the industry concern to optimise the whole system taking into account decontamination cost versus disposal cost and, on the other side, civil society stakeholders requesting extensive decontamination of the materials and soil even beyond the regulatory requirements.

Negative scenario

The authorities address the dismantling process as a technical issue that could be appropriately resolved by a generic compliance to standards.

Given the economic constraints, operators manage the decommissioning processes with a limited involvement of local stakeholders and focus on the strict application of regulations.

The difficulties to involving local stakeholders in the assessment and monitoring of the radiation situation of the site are causing a social concern and controversies. This is combined with doubts about the clean-up levels among some stakeholders considering notably that this assessment is based primarily on the technical means of the operator.

NGOs on environmental protection are seeking to demonstrate that the environment is polluted searching for traces of radioactivity and highlighting the perceived mismanagement of the operator and their presumed connivance with the authorities whose requirements are perceived as insufficient by local stakeholders.

Local authorities are faced with a deadlock over the future of the site and some stakeholders are questioning its environmental quality. Some of them also initiate legal processes against the operator in order to request additional decontamination of the soil while battle of experts and controversies take place without sustainable solutions emerging for the long term.

Positive scenario

A participatory process is engaging the various concerned stakeholders and notably the neighbouring public in the building of a shared vision of the future use of the site to be decommissioned. This process is characterized by:

- Requirements in terms of environmental quality. A pluralistic process of monitoring and evaluation is implemented.
- Provision of the local population with expertise resources and means for participating from the beginning of the decommissioning programme (local stakeholders have access to several independent sources of expertise). The dialogue between the stakeholders is encouraged.
- Negotiation, in a transparent and equitable manner, of the financing of decommissioning activities as well as socio-economic transition of the site.

6.6.3.3. Stakes, threats and assets

Stakes

The dismantling of nuclear installations involves appropriate legal provisions together with safety and radiation protection standards. It also involves an economic and social framework in order to manage a transition towards a sustainable and safe land-use and new activities compatible with the achieved level of decontamination. In this perspective, the following issues have to be addressed:

- a national legislation framing dismantling activities is to be created (including clearance procedures for materials and limits for site clearance);
- this framework should involve the planning of decommissioning activities as well as public information and participation along the development of the process, creating the conditions for a sound and transparent negotiation on decontamination targets and funding of socio-economic transition
- the follow-up of the remediation process until its completion

Threats

Given the complexity of the historical contamination of some facilities, unexpected residual contamination levels could jeopardize the future of the site and its potential for hosting new activities. To address this complexity, an open dialogue with the public will favour its participation to the decision making process.

Another threat is the potential release of radionuclides that would be caused by improper dismantling operations (even if the source term is far less important than during operation). This requires setting up processes for involving the public in the monitoring of discharges of nuclear installation in the environment.

The decommissioning funds can be threatened by financial crisis or even channelled by public authorities on other activities. Once again, involving the public in the commission in charge of following the funds is essential.

Assets

The regulatory framework designed by national authorities benefit from standards and good practices developed by international organisations such as IAEA or NEA. A robust process is a key asset for the operators involved in decommissioning activities. The public involvement in decommissioning activities is also a cornerstone of fair regulation and the participatory processes can help building the future activities for the site and develop a sound and shared assessment of the residual contamination.

6.6.4. Action proposals

The following proposals are grounded on the available feedback experiences and research in the field of participation processes in nuclear issues. They are not meant to be directly used as recommendations for decision-makers but rather as a first ground for discussion within a pluralistic stakeholder group (including institutional actors) at the local, national or European level.

6.6.4.1. Proposed approach

Actions to be taken should enable:

- establishing a pluralistic process in order to evaluate the decommissioning programme of the nuclear installation, favouring the emergence of a shared evaluation of the situation;
- introducing a plurality of expertise sources for the assessment of the decommissioning programme (including economic, social and environmental issues)
- creating the conditions for local stakeholders (and concerned populations) to design and implement future activities compatible with the negotiated targets of decontamination
- facilitating international exchange of experience between stakeholders from the civil society involved in decommissioning activities in European Union Member States

6.6.4.2. Proposed objectives

At the local level, the first proposed objective is to set up the conditions for an active and sustainable engagement of territorial actors in the elaboration and follow-up of the remediation process and the management of the (economic, social and environmental) transition towards new sustainable activities (compatible with the achieved level of decontamination) at the territorial level. The second objective is to create the conditions for the local population and NGOs to contribute to the follow up of the safety of the decommissioning programme as well as of the environmental quality of the site on the long term.

At the national level, the main objective to be proposed is to set up spaces of dialogue, involving the different stakeholders, for addressing decommissioning strategies and waste management issues. The development of the expertise of the different stakeholders (and notably the civil society) is a major issue in this perspective.

At the European level, the objective is to build between stakeholders a shared understanding of criteria for assessing the quality of decision-making processes related to the

decommissioning of nuclear installations, including the safety and waste management issues. In this perspective, the European Commission could contribute to create the conditions and means for sharing experiences on public participation processes among the different stakeholders.

6.6.4.3. Conditions for the cooperative action of the concerned actors

The involvement of local and national stakeholders in the building of the future of the site and the monitoring of the actions of decontamination is a necessary path to the preparation of a sustainable remediation process.

The public engagement must be implemented as soon as possible, notably for the elaboration of the decommissioning plan.

6.6.4.4. Possible paths of change

To facilitate increased public information about and participation in the decisions on decommissioning of nuclear installations, the following actions and processes can be considered:

- The creation of a national consultative committee gathering the various involved parties under the aegis of a neutral institution (and chaired by a qualified independent personality accepted by the different parties involved) in order to ensure the follow-up and quality of the participatory process along the different steps of the decision-making process related to the decommissioning programmes including waste management;
- Similar structures at territorial level in order to support the engagement of local actors in the process of following the decommissioning programme of the nuclear installation in their local context and addressing the future economic and social activities in the region.

Different experiences and research already exist in this domain, which could be shared with the various concerned stakeholders:

- The monitoring of the decommissioning actions at Harwell in the UK by local stakeholders;
- The role of local information commissions in France in the dismantling the EDF plants, facilities or sites of CEA (Fontenay-aux-Roses, Marcoule, Grenoble...) and Areva (La Hague);
- The involvement of local elected representatives in the monitoring of the decommissioning of the Vandellos nuclear power plant in Spain; (with the support of the National Association of Municipalities hosting nuclear installations -AMAC)
- The involvement of local liaison committee in Sweden for the decommissioning of the Barsebäck nuclear power plant.

7. THE GENERIC INCLUSIVE GOVERNANCE PATTERNS

The Generic Inclusive Governance Patterns are developed for each of the 6 areas of Nuclear activities. As indicated in the section 5:

The Generic Inclusive Governance Patterns (GIGP) are proposed as informal generic European guidelines to the involved groups of stakeholders. GIGP should not be regarded as a model or compulsory framework that would apply to any context since, as explained above, the (historical, social, political, legal, cultural, economic) specificities of each context as well as the capacity and willingness of the concerned actors makes it necessary to develop appropriate specific governance patterns.

For each activity, the development of the GIGP ground on the corresponding Analytical Sheets (see section 6) that are describing the specific features and stakes for the concerned categories of actors in the given (local, national or European) context of the considered activity.

The development of the GIGP will also ground on some regulatory frameworks or guidelines that exist at international or European levels (or even at national level). It is not foreseen to make an exhaustive review of the legislation (that does not fall into the scope of this contract) but to identify meaningful reference documents that will consolidate the proposed reflexion. Two types of documents will be considered:

- Generic documents regarding information and participation of the public (e.g. the Aarhus Convention, the ESPOO, Convention), on the one hand as well as regarding the specific activity, on the other hand.
- Specific documents regarding one considered activity, be it a legislative, regulatory and organisational framework or a kind of guidance, that include, most of the time some dispositions regarding public information and participation.
 - For instance, in the context of RWM, the GIGP will ground on the COUNCIL DIRECTIVE 2011/70/EURATOM of 19 July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste. Taking advantage of the description of the national framework (art. 5), and national programmes (art. 11) the GIGP will propose (on the basis of the RWM Analytical Sheet, and reference practices), a framework description of the way to implement the transparency principles (art. 10) of the Directive, at local, national and European levels, taking into account the specific long term and intergenerational dimensions of the RWM.
 - Regarding environmental monitoring of nuclear activities, the GIGP, while grounding on the Analytical Sheet will take advantage of several reference documents like the OSPAR convention (the Convention for the Protection of the marine Environment of the North-East Atlantic) management or the Article 36 of the Euratom Treaty. Directives Euratom 96/29 on the protection of populations and workers will also be taken into account as well as the 2003/4/EC (on public access to environmental information).

- The GIGP on Nuclear Emergency, post-accident and long-term management, will for instance ground on ICRP Publication 111 (2009) on the Protection of People Living in Long-term Contaminated Areas After a Nuclear Accident or a Radiation Emergency. Processes such as CODIRPA set up in France for the preparation of post-accidental situation will also be considered.
- Regarding Nuclear Safety the GIGP will ground on the Analytical Sheet (to be developed in the next stage of the project) as well as on existing EU regulations such as the Directive 2009/71/Euratom - nuclear safety of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations and will more specifically propose some guidance on the way to implement its article 8 on the « information of the public».

As soon as validated at EU within an appropriate pluralistic dialogue process, the 6 GIGP might be used as basis for a European reference framework regarding public information & participation in the nuclear sector. As explained in section 5, as soon as such standards (GIGP) are made available, the option of organising pluralistic national peer reviews should be considered in connection with the above listed European and international organisations and networks. Connections with the Aarhus implementation national reports (with a periodicity of three years) could also be established.

GIGP have been prepared for the 6 considered fields of activity:

- Environmental monitoring of nuclear facilities
- Radioactive waste management
- Nuclear emergency management, post-accident management and long term rehabilitation
- Nuclear safety management
- New build and siting of new nuclear facilities
- Decommissioning of nuclear facilities

7.1. Management of radioactive discharges and surveillance of radioactivity in the environment around nuclear facilities

The proposed Generic Inclusive Governance Patterns (GIGP) in the context of the management of radioactive discharges and surveillance of radioactivity in the environment around nuclear facilities are based on the corresponding Analytical Sheet (see section 6.1) describing the specific features and stakes for the concerned categories of actors in the local, national or European context of this field of activity.

The GIGP concerning "Management of radioactive discharges and surveillance of radioactivity in the environment around nuclear facilities" are describing good practices in the EU for public information and participation in the perspective of

- Creating the conditions for sharing the information on discharges and environmental measurements with the concerned stakeholders;
- Favouring the evaluation by the local stakeholders of the environmental quality in a global perspective, with particular emphasis on health issues, and for the future of their territory;
- Encouraging a European dynamics for a shared evaluation of the quality of the environment with regard to radioactivity (including the provisions for discharges authorisations) and allowing exchange of information notably in emergency situations.

This GIGP are proposing specific patterns for public information and participation at the national, local and European levels. The proposed generic patterns might be transposed into the actual local or national contexts when considered appropriate.

Management of radioactive discharges and surveillance of radioactivity in the environment around nuclear facilities are characterised by several sub-activities and phases that are necessary for achieving it:

- The establishment of a national legislative, regulatory and organisational framework
- The establishment of national networks for collecting and sharing the environmental measurements and discharges data;
- The elaboration and follow-up of quality indicators for the environment;
- The organisation of the long term environmental monitoring of nuclear facilities and their vicinity.

The considered activities are to be managed at the national and local levels. Regular update of the considered activities is to be achieved according to the needs and experience of the various concerned stakeholders in each context.

This GIGP offer guidance for:

- The identification of common stakes and framing of the environmental quality and protection issues (including management of discharges) at the national level with all concerned stakeholders;
- The identification of common indicators for the follow-up of discharges and environmental quality between the national community and local communities;
- The identification of a relevant cooperation framework at the European level in the perspective of exchanging information notably in case of an emergency situation;

- The availability of a plurality of measurements favouring the common understanding of the presence of radioactivity in the environment and contributing to a shared evaluation of the situation;
- The facilitation of international exchanges between stakeholders from the civil society among European Union Member States, notably regarding the application of international conventions, such as the OSPAR Convention.

Links with the International Recommendations and European legal framework of "Management of discharges and surveillance of radioactivity in the environment"

Within the European Union, the protection of the environment associated with discharges from nuclear installations has been adopted in the Euratom Treaty in 1957. Notably, the Article 35 requires that: "Each Member State shall establish the facilities necessary to carry out continuous monitoring of the level of radioactivity in the air, water and soil and to ensure compliance with the basic standards. The Commission shall have the right of access to such facilities: it may verify their operation and efficiency".

The Basic Safety Standards from Euratom⁴⁴ for radiation protection, currently under revision, also introduce specification for the environmental monitoring and provide requirements for public information. Notably, Article 69 stipulates that: "Member States shall ensure that an appropriate environmental monitoring programme is in place for estimating the exposure of members of the public."

Public information is also dealt with in the Council Directive 89/618/Euratom of 27 November 1989⁴⁵ on informing the general public about health protection measures to be applied and steps to be taken in the event of a radiological emergency. There is no specific requirement on public participation concerning environmental issues in this Directive but the Directive 2003/35/EC⁴⁶ of the European Parliament and of the Council of 26 May 2003 is dedicated to public participation in respect of the drawing up of certain plans and programmes related to the environment.

In the field of environmental protection, international agreements exist, dealing with trans-boundary issues, and a specific focus on the marine environment:

- Espoo Convention⁴⁷ on environmental impact assessment in a trans-boundary context;
- Barcelona Convention⁴⁸ for the protection of the marine environment and the coastal region in the Mediterranean;

⁴⁴ Draft EURATOM Basic Safety Standards Directive, Version 24 February 2010 (final)

⁴⁵ Council Directive 89/618/Euratom of 27 November 1989 on informing the general public about health protection measures to be applied and steps to be taken in the event of a radiological emergency, Official Journal L 357

⁴⁶ Directive 2003/35/EC of the European Parliament and of the Council of 26 May 2003 providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending with regard to public participation and access to justice Council Directives 85/337/EEC and 96/61/EC

⁴⁷ Convention on environmental impact assessment in a trans-boundary context, Espoo (Finland), in force 25 February 1991

- Helsinki Convention on the protection of the marine environment of the Baltic Sea area (HELCOM)⁴⁹;
- OSPAR Convention⁵⁰ for the protection of the marine environment of the North-East Atlantic. It has to be noticed that this Convention led to the establishment of a dedicated international participatory process involving representatives of different concerned parties and aiming at developing environmental quality criteria for the protection of the marine environment.

In addition, it is interesting to note the new recommendations of the International Commission on Radiological Protection adopted in 2007. This publication includes a specific chapter on environmental protection, suggesting the assessment of the potential impacts of radioactive substances on the biota and fauna themselves, while previously the system of protection was only relying on the assessment of human exposure⁵¹. Doing this, ICRP opens the process for defining criteria related to the protection of the environment.

Management of radioactive discharges and environmental surveillance GIGP at national level

The objective here is to build safe spaces for a permanent dialogue between a panel of actors (parliament, government, national authorities, operators, experts and local and national stakeholders from the public) in order to identify and update common stakes and conditions for multi-level inclusive governance.

In this perspective, the following tools might be considered:

- The creation of national networks for radioactive discharges and environmental monitoring involving the different stakeholders and allowing to share the available measurements and to open a dialogue on the assessment of the impacts on the population and on the environment;
- The setting up of consultation processes favouring the shared evaluations of the impacts on the population and on the environment for nuclear installations involving pluralistic expertise;
- The diffusion of the shared evaluations and the development of a culture of radiation protection favouring the understanding of the measurements and contributing to open a dialogue on the issue of management of radioactive discharges and environmental protection.

⁴⁸ Convention for the Protection of the Mediterranean Sea Against Pollution (Barcelona Convention), signed 16 February 1976, in force 12 February 1978 (revised in Barcelona, Spain, on 10 June 1995 as the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean)

⁴⁹ Convention on the protection of the marine environment of the baltic sea area, 1992 (HELSINKI CONVENTION), November 2008

⁵⁰ Convention for the protection of the marine environment of the north-east atlantic, text as amended on 24 July 1998, updated 9 May 2002, 7 February 2005 and 18 May 2006

⁵¹ ICRP, Publication 103, 2007 Recommendations of the International Commission on Radiological Protection.

As mentioned in section 6.1, it should be reminded that the existence of exchange and information sharing networks is a key element of radioactive discharges management and environmental monitoring quality in terms of:

- Reliability of the information produced for all stakeholders (possibility to have access to information from different sources and to compare the results)
- Heritage value of the quality of the environment in a global perspective including discharges from nuclear installations and from all industrial installations. The existence of international conventions (OSPAR, Helsinki, Espoo) and international recommendations (ICRP, IAEA) constitutes a framework for engaging the consultations and opening the dialogue between the different concerned parties. In addition, the conclusions of EC research programmes, such as RISKGOV⁵² and TRUSTNET⁵³, dealing with risk governance, and the recommendations of the ENEF Transparency Group⁵⁴ provide useful guidelines for favouring the development of dialogue processes in this domain. The main recommendations of these research projects for favouring risk-governance are to ensure:
 - Capacity to open participation to all concerned and interested stakeholders,
 - Autonomy of the affected individuals or groups who become "actors" involved in the context of these activities,
 - Establishment of rules allowing respect and mutual trust between the actors involved in the dialogue,
 - The necessary scientific knowledge by the various stakeholders to address the different stakes,
 - Feedback on the process and the decisions to the stakeholders involved in the dialogue process,
 - Recognition by the stakeholders that the decision making process is legitimate and fair,
 - Production of decisions actually feasible, with possible modification over time, and capacity to adapt to new problems,
 - Emergence of a democratic culture in the context of risk activities.

Management of radioactive discharges and environmental surveillance GIGP at the local level and interactions with the national level

Evolution of radionuclide concentrations in the environment and associated potential health impacts are key and legitimate questions for the population living around nuclear facilities. Although authorities, public experts and operators deliver this information in the public domain and develop communication strategies, notably in connection with Local Liaison Committees (LLC), the way it is usually formalized makes it difficult to meet non-expert

⁵² RISKGOV European project, comparative analysis of risk governance for radiological and chemical discharges of industrial installations, final report, November 2004, www.riskgov.com

⁵³ TRUSTNET Framework: A New Perspective in Risk Governance - TRUSTNET 1 Final Report, September 1999 / TRUSTNET 2 - Towards inclusive governance (full report) - TRUSTNET 2 Final Report, EUR 21024/1, 2004 / TRUSTNET In Action, Final report, European Commission, June 2007

⁵⁴ Recommendations of ENEF Transparency Group: Good Practices Guide on Transparency for nuclear projects in the European Union

expectations. Therefore, at the local level it could be of interest to develop dedicated processes aiming at:

- Identifying all the available information about discharges and environmental measurements related to the nuclear facilities in the region,
- Allowing the expression and the definition of local population expectations,
- Selecting adequate measurements values and presentational schemes, by the concerned stakeholders themselves,
- Providing recommendations on the environment monitoring strategy.

For addressing health issues, three levels of investigation have to be considered, having in mind the interests and limits of each of them: cancer registry, epidemiological study and risk assessment analysis. Different studies have been experimented in this domain at the local level (some of them are mentioned hereafter), mainly following strong concern expressed by local population on the potential impact on health:

- Cancer registry (for example: the experience of Local Liaison Committee – CLIGET associated with the Tricastin nuclear site in France⁵⁵);
- Epidemiological study (for example: study on incidence of leukaemia around German nuclear power plants - KiKK study⁵⁶);
- Risk assessment (for example: the experience of the GRNC⁵⁷ - North Cotentin Radioecological Group - around the La Hague reprocessing plant and the CoMARE⁵⁸ - Committee on Medical Aspects on Radiation in the Environment - experience in the UK)
- Monitoring of radioactivity in French rivers and health impact assessment (for example: APEL Project⁵⁹ – collaboration between French Institute of Radiation Protection and Nuclear Safety (IRSN) and local liaison committees in the Loire Valley to improve transparency of information concerning management of radioactive discharges and environmental radioactivity monitoring)

In this context, the aim of such studies is mainly for the different stakeholders to open a dialogue on the evaluation on the health issues and if possible to reach an agreement. It aims at addressing the potential impacts of exposure to ionizing radiation on health including the different assumptions adopted for this purpose and discussing the different uncertainties associated with this assessment. The existence of pluralistic approaches and the contribution

⁵⁵ Etude sanitaire sur les cancers autour du site nucléaire du Tricastin, Observatoire Régional de la Santé Rhône-Alpes, June 2010

⁵⁶ Assessment of the epidemiological study on childhood cancer in the vicinity of nuclear power plants (KIKK Study), Statement of the German Commission on Radiological Protection, September 2008

⁵⁷ Nord-Cotentin Radio-ecology Group: Estimation of exposure levels to ionizing radiation and associated risks of leukaemia for populations in the Nord Cotentin, July 1999

⁵⁸ Committee on Medical Aspects of Radiation in the Environment (COMARE) (2011). Fourteenth Report. Further consideration of the incidence of childhood leukaemia around nuclear power plants in Great Britain. Health Protection Agency, May 2011.

⁵⁹ Action Pilote Environnement Loire, Surveillance de la radioactivité dans l'environnement du bassin de la Loire, Rapport APEL, Décembre 2008

of local stakeholders for the assessment of the local specificities of exposure situations are key components to address these issues.

Management of radioactive discharges and environmental surveillance GIGP at EU level

The following objectives are proposed:

- To favour the sharing of information on radioactive discharges and environmental measurements at the European level to cope with emergency situations and to respond to concerns on the trans-boundary issues;
- To identify conditions and means for the emergence of a common assessment of the environmental quality in a global perspective, taking into account all sources of radioactivity including natural ones as well as the other pollutants;
- To identify conditions and means for the emergence of a dialogue between different stakeholders on the health quality in relation with radioactive discharges and presence of radioactive elements in the environment;
- To facilitate international exchanges and networking of stakeholders from the civil society among European Union Member States.

No identified reference in the field of management of radioactive discharges and environmental surveillance can be proposed here. It is suggested to further investigate the ICRP recommendations on the protection of the environment and the statements associated with the international conventions on this issue.

GIGP regarding expertise

Providing diversified sources of expertise to local and national stakeholders should be regarded as the cornerstone of public information and participation. This has been largely observed in the studies related to health issues. This diversity of expertise can be favoured at different levels:

- Sharing of available measurements in the environment involving not only the authorities and the operators but also university laboratories, NGOs, local laboratories...
- Assessment of the exposure and the potential impacts of discharges from nuclear installations involving pluralistic expertise and the different local stakeholders;

Enlarging the issue of management of radioactive discharges and environmental surveillance to cope with the quality of the environment in a global perspective that calls for the involvement of other stakeholders and additional expertise (on environmental issues, economic and social aspects...).

7.2. Radioactive waste management (RWM)

The proposed Generic Inclusive Governance Patterns (GIGP) in the context of RWM is grounding on the corresponding Analytical Sheet (see section 6.2) that is describing the specific features and stakes for the concerned categories of actors in the local, national or European context of RWM.

The RWM GIGP are describing good practices in the EU for public information and participation in the perspective of

- building at the European level a shared understanding between stakeholders (including institutional actors of RWM) of quality criteria for RWM decision-making processes;
- identifying conditions and means for a legitimate and efficient contribution of the European level to the long-term accountability and memory of the “nuclear legacy” of radioactive waste complementarily to the contribution of the national and local levels;
- building spaces at the national level for trusted and balanced dialogue between institutional actors and local and national stakeholders in order to
 - identify common stakes,
 - identify conditions of multi-level inclusive governance of RWM,
 - build at the national level a common understanding of the long-term issues shared by national and local actors;
- taking into charge the legacy of the waste in a responsible way (from the present perspective and from an inter-generation perspective) by building a long-term intergenerational ‘contract’ between the host local communities and the national level;
- setting up the conditions for an active and sustainable engagement of territorial actors in the vigilance and memory conservation regarding the RWM facilities;
- maintaining the engagement of local stakeholders hosting RWM at the national level;

The RWM GIGP are proposing specific patterns for public information and participation at the national, local and European levels. The proposed generic patterns might be transposed into the actual local or national contexts when considered appropriate.

RWM is characterised by several sub-activities and phases that are necessary for achieving it:

- The setting of a national framework for RWM
- The preparation and follow-up of national programmes for RWM
- The siting of RWM facilities
- The operation, closure and, if applicable, long term monitoring of RWM facilities

The considered activities are to be managed at the national and local levels. Regular update of the considered activities is to be achieved according to the needs and experience of the various concerned actors in each context.

The RWM GIGP are to create the conditions for:

- The identification of common stakes and framing of the RWM issues at the national level with all concerned stakeholders;

- The identification of common grounds and understanding of RWM issues between the national community and local communities (actually or potentially hosting RWM facilities or hosting waste-generating activities) in the perspective of shared accountability and memory on the long term;
- The identification of a relevant cooperation framework at the European level in the perspective of the long term accountability;
- The articulation of energy policy debate and RWM debate
- The availability of a plurality of expertise sources in the debate on RWM issues (including for economic and social issues)
- The facilitation of international exchanges between stakeholders from the civil society among European Union Member States

Links with the European legal framework of RWM

The DIRECTIVE 2011/70/EURATOM of 19th July 2011, establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste includes the creation of a national framework for RWM as well as a national programme. The proposed GIGP are to take into account the specifications of DIRECTIVE 2011/70/EURATOM regarding transparency:

- “Member States shall ensure that necessary information on the management of spent fuel and radioactive waste be made available to workers and the general public. This obligation includes ensuring that the competent regulatory authority informs the public in the fields of its competence. Information shall be made available to the public in accordance with national legislation and international obligations, provided that this does not jeopardise other interests such as, inter alia, security, recognised in national legislation or international obligations” (art. 10(1)).
- “Member States shall ensure that the public be given the necessary opportunities to participate effectively in the decision-making process regarding spent fuel and radioactive waste management in accordance with national legislation and international obligations” (art. 10(2)).
- “[National programmes shall include...] a transparency policy or process as referred to in Article 10” (art. 12(1)j).

RWM GIGP at national level

The objective here is to build safe spaces for a permanent dialogue between institutional actors (parliament, government, national authorities, operators, experts and local and national stakeholders from the public) in order to identify and update common stakes and conditions for multi-level inclusive governance of RWM.

In this perspective, the following points may be considered as a reference:

- The creation, as a part of the national framework, of a permanent reference committee at national level involving the various concerned categories of stakeholders and notably national NGOs, representatives of interested public at national and local levels. This

committee is to be created by law or attached to a public institution having a neutral position vis-à-vis RWM (ombudsman, parliamentary office...). It should be provided with appropriate resources for achieving its mandate.

- This national reference committee is to participate in the initial preparation of the national framework as described by DIRECTIVE 2011/70/EURATOM, art. 5⁶⁰.
- This national reference committee is also to participate in the preparation and corresponding update of the different sections of the national programme as described by DIRECTIVE 2011/70/EURATOM, art. 11⁶¹.
- Practical recommendations for the setting and operation of such national reference committee and for the successful engagement of representative categories of stakeholders

⁶⁰ According to Article 5 : “Member States shall establish and maintain a national legislative, regulatory and organisational framework (‘national framework’) for spent fuel and radioactive waste management that allocates responsibility and provides for coordination between relevant competent bodies. The national framework shall provide for all of the following:

- (a) a national programme for the implementation of spent fuel and radioactive waste management policy ...
[see below]
- (b) national arrangements for the safety of spent fuel and radioactive waste management...;
- (c) a system of licensing of spent fuel and radioactive waste management activities, facilities or both...;
- (d) a system of appropriate control, a management system, regulatory inspections, documentation and reporting obligations for radioactive waste and spent fuel management activities, facilities or both...;
- (e) enforcement actions, including the suspension of activities and the modification, expiration or revocation of a licence together with requirements, if appropriate, for alternative solutions that lead to improved safety;
- (f) the allocation of responsibility to the bodies involved in the different steps of spent fuel and radioactive waste management...;
- (g) national requirements for public information and participation;
- (h) the financing scheme(s) for spent fuel and radioactive waste management....

⁶¹ The national programmes shall set out how the Member States intend to implement their national policies referred to in Article 4 for the responsible and safe management of spent fuel and radioactive waste to secure the aims of this Directive, and shall include all of the following:

- the overall objectives of the Member State’s national policy in respect of spent fuel and radioactive waste management;
- the significant milestones and clear timeframes for the achievement of those milestones in light of the over- arching objectives of the national programme;
- an inventory of all spent fuel and radioactive waste and estimates for future quantities,
- the concepts or plans and technical solutions for spent fuel and radioactive waste management from generation to disposal;
- the concepts or plans for the post-closure period of a disposal facility’s lifetime,
- the research, development and demonstration activities that are needed in order to implement solutions for the management of spent fuel and radioactive waste;
- the responsibility for the implementation of the national programme and the key performance indicators to monitor progress towards implementation;
- an assessment of the national programme costs and the underlying basis and hypotheses for that assessment, which must include a profile over time;
- the financing scheme(s) in force;
- a transparency policy or process as referred to in Article 10;
- if any, the agreement(s) concluded with a Member State or a third country on management of spent fuel or radioactive waste, including on the use of disposal facilities.

are well documented and can be found in the outcome of European research⁶² such as COWAM In Practice and ARGONA. The following approaches can be considered as references:

- the CoRWM model where various stakeholders (including local actors from different territories in the UK) were associated with the definition of generic options for RWM;
- the French High Level Committee for Transparency and Information on Nuclear Safety⁶³ is a pluralistic permanent committee with a mission of information, dialogue and debate on risks linked to nuclear activities, on the impact of these activities on health and the environment, and on nuclear safety. It notably has the mission to periodically organise dialogue and debates on sustainable management of radioactive waste and materials⁶⁴.
- Regarding the siting phase, the reference committee is to participate in the preparation of the siting process before its implementation. During the siting phase, the reference committee is to be involved as a third party in order to guarantee the practical conditions for public information and participation at national and local levels⁶⁵.

For this purpose, conditions should be set up for providing engaged national and local stakeholders with relevant expertise from diversified sources in order to create ground for public trust in the available information. While access to the RWM operator's expertise should be provided to the public, other sources such as domestic or foreign public expertise or academic expertise should be made available to the engaged public together with appropriate resources to fund this expertise.

RWM GIGP at the local level and interactions with the national level

Several objectives can be proposed here:

- to combine the perspectives of territorial development and the delivery of RWM services to the national community in an intergenerational time frame.
- to build a common understanding of the long-term issues shared by national and local actors.
- to take in charge the legacy of the waste in a responsible way (from the present perspective and from an inter-generational perspective), at the crossings of national and local levels.
- to set up the conditions for an active and sustainable engagement of territorial actors in the vigilance and memory conservation regarding the RWM facilities.
- to maintain the engagement of local stakeholders hosting RWM at the national level.

⁶² See for instance the CIP EU Guidelines and the ARGONA Suggested guidelines for transparency and participation in nuclear waste management programmes

⁶³ This committee was created by the Law of 13th June 2006 on transparency and safety in nuclear activities

⁶⁴ This mission was given to the committee by the Law of 28th June 2006 on sustainable management of radioactive waste and materials.

⁶⁵ COWAM 2 European research project notably pointed out in its conclusions “[t]he need for a body independent of the government and the nuclear industry as guardian of policy processes.” (see COWAM 2 final report, page 25)

Regarding the siting phase, the following points may be considered as a reference:

- The siting approaches involving new roles for local communities and stakeholders (where concerned stakeholders are proposed to investigate the opportunity of community project involving the RWM activity, implemented in Belgium, Slovenia and also adopted by UK) with, among other characteristics:
 - voluntariness of candidate local communities as a principle (neighbour local communities being invited to join a common candidature, in the UK);
 - stepwise decision-making process enabling progressive engagement of local communities (with clear milestones and arrangements for supporting local democracy on RWM-related issues) and allowing local communities to withdraw at different steps of the process according to defined procedures
 - separating support to engagement (engagement package) from local development support and compensation after the decision of siting being taken (development package);
 - organized forms of knowledge building and clarification of issues between waste various actors including management organisations, NGOs, sometimes regulators, and local communities and with resources to support local empowerment in RWM issues.
 - providing local stakeholders with resources and appropriate expertise in order to enable them to investigate the relevant dimension of the project;
- The engagement of the local actors at national level in the reference committee

Regarding the operating and post-closure phase, the following points may be considered as a reference:

- The creation of a permanent Local Committee of Information attached to the RWM site, gathering local stakeholders (see the LCI model, in France, UK or Sweden for instance),
- The engagement of the local actors at national level in the national reference committee,
- The building a long-term intergenerational ‘contract’ between the host local communities and the national level. This contract should include territorial development, a system of vigilance and monitoring including contributions of the national and the local levels (involving intervention capacities and corresponding resources), a system of memory of the RWM sites shared between the national and the local level (and possibly with EU and/or international level) and articulated with the European level as well as resources to preserve expertise and skills at these two levels. The UNESCO World Heritage system can be a reference of such articulation of local and national level for vigilance over local sites and long-term preservation of their memory.

RWM GIGP at EU level

Two objectives are proposed

- to build shared quality criteria among stakeholders (including institutional actors of RWM) on public information and participation in the different sub-activities and phases of RWM.
- to identify conditions and means for a legitimate and efficient contribution of a European cooperation to the long-term accountability and memory of the “nuclear legacy” of radioactive waste. This European contribution is complementary to the contribution of the national and local levels. The UNESCO World Heritage system can be a reference of such a local, national, international governance framework.
- to facilitate international exchanges and networking of stakeholders from the civil society among European Union Member States.

The COWAM in Practice, ARGONA and IPPA European research projects as well as the “Aarhus & Nuclear” European and national dialogue process can be considered as first references of processes articulating the European and national dimensions for collective learning between all types of stakeholders and development and implementation of open approaches to decision-making.

It is also suggested to adopt the present RWM GIGP as a European Reference standard (for instance in the application guidelines of the DIRECTIVE 2011/70/EURATOM). In addition, it is suggested to further investigate the option of translating the UNESCO World Heritage system into the RWM area in the perspective of long-term accountability and memory of the “nuclear legacy”.

GIGP regarding expertise

Providing diversified sources of expertise to local and national stakeholders should be regarded as the cornerstone of public information and participation. The expertise mobilised should not be only of a technical nature as economic, social and ethical dimensions are also at stake in RWM. Public participation to the governance of RWM research at national and European levels is a complementary contribution to an efficient societal contribution to the quality of decisions in the field of RWM.

Although not specific to the RWM area, the Technical Support Organisation (TSO) practices of societal engagement (see for instance the French IRSN Charter for Openness to Society⁶⁶) should be considered as a reference. There are multiple available case of public engagement with experts in the context of RWM decision-making (see for instance the Cowam in Practice public inquiry on reversibility in France, the ARGONA Interaction Panel on Siting and safety case in the Czech Republic, the Citizen advisory group on the Closure of repository Asse II in Germany).

⁶⁶ www.irsn.org

7.3. Nuclear emergency management, post-accident and long-term management

The proposed Generic Inclusive Governance Patterns (GIGP) in the context of the management of nuclear emergency and post-accidental situations are grounding on the corresponding Analytical Sheet (see section 6.3) that is describing the specific features and stakes for the concerned categories of actors in the local, national or European context of emergency and post-accidental situations.

The "Emergency and Post-Accident" GIGP are describing good practices in the EU for public information and participation in the perspective of

- setting up conditions for a shared evaluation of the situation between the various concerned actors;
- favouring the involvement of the local stakeholders in the preparedness of emergency and post-accidental situations;
- developing national and European processes for improving the access of stakeholders to reliable information and expertise related to emergency and post-accidental situations;
- creating the means and conditions for allowing local stakeholders to participate to their own protection and to be directly involved in the decision making process concerning the future of affected territories.

The "Emergency and Post-Accident" GIGP are proposing specific patterns for public information and participation at the national, local and European levels. The proposed generic patterns might be transposed into the actual local or national contexts when considered appropriate.

The management of "Emergency and Post-accident" is characterised by several sub-activities and phases that are necessary for achieving it:

- The setting up of a system of production and access to information which could cope with the complexity of the situation including the different categories of stakeholders and addressing the different issues at stake;
- The setting up of a national framework for engaging local stakeholders in the preparedness of emergency and post-accidental situations;
- The development of local expertise and a radiation protection culture allowing local stakeholders to have a grip on the radiological and environmental impacts associated with accidental situations;
- The organisation of strategies including the identification of the role of the different stakeholders in emergency and post-accident situations and allowing to cope with the complexity of the situation.

The considered activities are to be managed at the national and local levels, in interaction with European frameworks. Regular update of the considered activities is to be achieved according to the needs and experience of the various concerned actors in each context.

The "Emergency and Post-Accident" GIGP are to create the conditions for:

- Providing easy access to reliable information for all stakeholders;
- Ensuring a pluralism of information production as well as a variety of stakeholders to cope with the different facets of the problem;
- Favours the emergence and the participation of local experts;
- Favours the dialogue between the different producers of information to share common views on the primary information situation although each stakeholder could have a different interpretation;
- Allowing the flexibility and adaptability of the process for producing information and involving the different categories of stakeholders according to the evolution of the situation in the short, medium and long term;
- The identification of a relevant cooperation framework at the European level in the perspective of exchanging information and elaborating strategies for emergency and post-accident preparedness.

Links with the International Recommendations and European legal framework on "Emergency and Post-Accident Management"

Under the Euratom Treaty (1957), the European Atomic Energy Community is required to lay down basic safety standards for the health protection of workers and members of the public.

The current Euratom Directive (96/29)⁶⁷ which was adopted in 1996 included requirements for emergency preparedness and response in a specific title IX: "Intervention". It required emergency preparedness to be provided for at national level, and encouraged the coordination of preparedness and response between neighbouring Member States. Relevant to emergency response is however just one Directive on informing the general public (EU 1989)⁶⁸.

In 2005 the Commission undertook a revision of the Basic Safety Standards aiming at consolidating all existing Directives and thus broaden the scope to all exposure situations and categories of exposure, including the protection of the environment⁶⁹. In addition, the accident in Fukushima prompted reflection on the Euratom legal framework, including the Basic Safety Standards, the arrangements for the early exchange of information (ECURIE) and legislation on the nuclear safety of nuclear installations⁷⁰. The new Directive will address

⁶⁷ EU (1996) Council Directive 96/29/EURATOM of 13 May 1996 laying down basic safety standards for the health protection of the general public and workers against the dangers of ionizing radiation (OJ L-159 of 29/06/96 page 1)

⁶⁸ EU (1989) Council Directive 89/618/EURATOM of 27 November 1989 on informing the general public about health protection measures to be applied and steps to be taken in the event of a radiological emergency (OJ L-357 of 07/12/89 page 31)

⁶⁹ EC (2011) Proposal for a Council Directive laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation [COM(2011)593]

⁷⁰ EU (1987) Council Decision 87/600/EURATOM of 14 December 1987 on Community arrangements for the early exchange of information in the event of a radiological emergency (OJ L-371 of 30/12/87 page 76)

emergency exposure situations in their own right, and require thorough emergency preparedness at national level. The requirements were inspired by ICRP Publication 109 (2009)⁷¹.

The concept of "reference level", as defined by ICRP Publication 109⁵ has allowed the European Commission in the framework of preparedness of the new Directive³ to give indication on the acceptable range of exposures in an emergency exposure situation and on annual exposures in an existing exposure situation. According to this forthcoming Directive, the "acceptability" is expressed in terms of societal criteria in the same way as ICRP recommendations. The establishment of appropriate reference levels is still a national responsibility, and requires stakeholder involvement in the preparation phase and the management of emergency and post-accidental situation.

Living in areas contaminated as a result of accidental releases of radioactive effluent is now regarded as an existing exposure situation. The principles for its management are inspired by ICRP Publication 111 (2009)⁷², and their implementation largely relies on the direct involvement of stakeholders. It is a national responsibility to decide on the transition from an emergency to an existing exposure situation and on the application of the corresponding reference levels in terms of annual effective dose.

The proposal for establishing the new Directive also strengthens the cooperation between Member States, and requires arrangements to be made with the emergency response organisations in a neighbouring country for facilities in the vicinity of a national border. In addition, the EU has made adequate arrangements for the prompt exchange of information between national authorities on the basis of Council Decision 87/600/Euratom (EU 1987).

Meanwhile, it is interesting to note that an informal coordination mechanism is being set up with the Heads of European Radiation Protection Competent Authorities (HERCA). Among the topics to be addressed by this network, it is interesting to mention the issue of exchange of information and the will for common expertise on the potential consequences of an accident.

In this field, the activities developed by the Committee on Radiation Protection and Public Health of the Nuclear Energy Agency from OECD (NEA-CRPPH) are also providing a cooperation framework between Member States on emergency and post-accident exercises within the INEX programme. Specific considerations on stakeholder involvements have been developed in the recent years.

Furthermore, in the framework of the "Aarhus and Nuclear" European dialogue process initiated by the European Commission and the French National Associations of Local Information Commissions and Committees (ANCCLI), a European roundtable was organised

⁷¹ ICRP Publication 109 (2009) Application of the Commission's Recommendations for the Protection of People in Emergency Exposure Situations, *Ann. ICRP 39 (1)*

⁷² ICRP Publication 111 (2009) Application of the Commission's Recommendations to the Protection of People Living in Long-term Contaminated Areas After a Nuclear Accident or a Radiation Emergency, *Ann. ICRP 39 (3)*

in Luxemburg in 2012 on the theme “Aarhus Convention implementation in the context of a nuclear accident with durable consequences – new challenges after Fukushima”⁷³.

Emergency and Post-Accident GIGP at national level

The objective here is to build national frameworks and processes for engaging local stakeholders in the preparedness of emergency and post-accident situations and in their management if an accident occurs.

In this perspective, might be considered as a reference:

- The organisation of the production and diffusion of reliable and easily accessible information in the different phases of the accidental and post-accidental situation;
- The creation of national frameworks for addressing the preparedness of emergency and post-accidental situation involving the different stakeholders and allowing them to identify the needed information, discuss and define the criteria to be applied in the decision-making processes and the share of responsibilities in the management of the situation;
- The setting up of places of dialogue for favouring shared evaluation of the situation and identification of common strategies for the protection and the re-organisation of economic and social activities in the medium and long term;
- The diffusion of the shared evaluations and the development of a culture of radiation protection favouring the understanding of the situation and contributing to engage a dialogue on the issue of emergency and post-accident protective actions.

In this perspective, the EURANOS European research project (2004-2009) developed tools for engaging cooperation with stakeholders in the preparedness or management of situations of long-lasting radioactive contamination⁷⁴.

At the European and national levels, the NERIS⁷⁵ European platform on emergency and post-accident situation and NERIS-TP⁷⁶ European research project (work in progress) constitute a

⁷³ The outcomes of the roundtables are available on the ANCCLI’s website: <http://www.anccli.fr/Europe-International/Aarhus-Convention-Nuclear/European-round-tables-Tables-rondes-europeennes>

⁷⁴ See Hériard Dubreuil G., Baudé S., Lochard J., Ollagnon H., Liland A. (2010) The EURANOS cooperative framework for preparedness and management strategies of the long-term consequences of a radiological event, Radioprotection 45, S199-S213. See also

EURANOS (2009), Sustainable rehabilitation of living conditions in contaminated territories after a nuclear accident or a radiological event – Revised framework for the elaboration of post-accident rehabilitation preparedness strategies. Deliverable Report for the EURANOS project. European Commission.

Liland A., Lochard J., Skuterud L. (2009) How long is long-term? Reflections based on over 20 years of post-Chernobyl management in Norway, J. Environ. Radioact. 100, 581-584.

Oughton D., Liland A., Bay I., Eikermann I.M., Solheim-Hansen H., Skuterud L.. (2008) Long-term rehabilitation of Contaminated Areas in Norway: outcomes of co-expertise meetings. Deliverable report D8C3R1 for the European Commission.

⁷⁵ See NERIS platform website: <http://www.eu-neris.net>

framework for developing exchanges and favouring the cooperation between the different categories of stakeholders including experts in the preparation phases and could provide basis for the engagement of local stakeholders if an accident occurs. NERIS is elaborating information resources on cooperation with stakeholders on emergency and post-accidental preparedness and management in Europe.

In addition, the OECD Nuclear Energy Agency survey on “institute’s adaptation to stakeholder involvement in the field of preparedness and post-emergency management”⁷⁷ developed in 2010 describes how emergency management organisations have adapted to the opportunities and challenges presented by stakeholder engagement in the fields of post-emergency preparedness and response in different countries among them: Finland, France, Norway, and the United Kingdom.

"Emergency and Post-Accident" GIGP at the local level and interactions with the national level

As mentioned in Section 6.3, for the development of local actions and their link with the national level, the proposed objectives are the following:

- Set up a system of production and access to information which could cope with the complexity of the situation including the different categories of stakeholders;
- Ensure a pluralism of information production;
- Favour the emergence and the participation of local experts;
- Favour the dialogue between the different producers of information to share common views;
- Allow the flexibility and adaptability of the process for producing information and involving the different categories of stakeholders according the evolution of the situation in the short, medium and long term.

Different processes are currently under development in European countries which could serve as reference for the Emergency and Post-Accident GIGP.

- In Finland, the Emergency Powers Act (1991) sets an obligation to all authorities to plan for emergencies. A particular feature of the Finnish legal framework is that this preparedness obligation is extended to private actors, if necessary with the support of public authorities. The Government resolution on the Strategy for Securing the Functions Vital to Society (SFVS) of 23rd November 2006 elaborates the cooperation model of prevention from security and safety threats to the society. The role of different sectors of State and municipal administration, business community and non-governmental organizations (NGOs) is emphasised.
- In France, a specific legal and regulatory framework for post-emergency management is under development since 2005. This process has been initiated by an inter-ministry instruction through which the Government commissioned the French Nuclear Safety

⁷⁶ See NERIS-TP website : <http://resy5.fzk.de/NERIS-TP>

⁷⁷ See Nuclear Energy Agency Committee on Radiation Protection and Public Health Expert Group on Stakeholder Involvement and Organisational Structures Survey on institute’s adaptation to stakeholder involvement in the field of preparedness and post-emergency management (OECD/NEA, 2010)

Authority (ASN) to coordinate the development and implementation of a post-emergency framework in relation with the concerned ministries. In order to achieve this, the ASN has set up in June 2005 the Executive Committee on Post-Accident Issues (CODIRPA). In addition, at the local level, according to the 13th August 2004 Law on modernisation of emergency preparedness, local communities have to develop Community Safety Plans (Plans Communaux de Sauvegarde – PCS), which are multi-risk preparedness plans. Under the umbrella of the national association of the local liaison committees (ANCCLI), a working group on post-accidental management preparedness has been set up, involving several pilot projects around nuclear installations, to facilitate exchanges of experience and information, establish relations with national and international organisations, offer logistic and scientific support and commission expertise processes and studies.

- In Norway, nuclear emergency preparedness and management is governed by the Act and Regulations on Radiation Protection and Use of Radiation (2000), the Royal decree of 17th February 2006: “Nuclear preparedness – national and regional organisation” (update of Royal decree of 28th June 1998) and the Act on nuclear energy activities (1972). A preparedness programme involving local stakeholders is under development.
- In the United Kingdom, nuclear emergency preparedness and management is governed by the Radiation Emergency Preparedness and Public Information Regulations (REPPiR, 2001) whilst recovery (for all types of natural or technological risks, including nuclear) is enforced under the Civil Contingencies Act (2004), which is the unified single framework for civil protection in the United Kingdom. Work on recovery and rehabilitation is carried out at national, regional and local levels. Partnership is carried out between and within each level by the setting up of appropriate working groups. These groups have responsibility for producing recovery guidance and plans, which are reviewed and updated on a regular basis.

"Emergency and Post-Accident" GIGP at EU level

In 2010, the NERIS Platform has been set up to establish a forum for dialogue and methodological development between all European organisations and associations taking part in decision making of protective actions in nuclear and radiological emergencies and recovery in Europe.

The objectives of the NERIS Platform are:

- Improving the effectiveness of current European, national and local approaches for preparedness concerning nuclear or radiological emergency response and recovery;
- Promoting more coherent approaches in Europe through the establishment of networking activities;
- Maintaining and improving know-how and technical expertise among all interested stakeholders in Europe by developing a supranational training programme;
- Identifying needs for further developments and addressing new and emerging challenges.

Its mission is to:

- Favour the involvement of the different stakeholders and improve confidence in capabilities of the key players and used methods in management of nuclear and radiological emergencies in Europe among European citizens and decision-makers;
- Encourage European, national, regional and local authorities, technical support organisations (TSOs), operators, professional organisations, research institutes, universities, non-governmental organisations (NGOs), and national and local stakeholders to co-operate to achieve the objectives;
- Facilitate access to expertise and technology and maintain competence in the field of management of nuclear and radiological emergencies for the benefit of European countries and citizens.

Concerning access to information and public participation in emergency and post-accidental situations, the NERIS platform provides a framework where a multi-level dialogue and initiatives can be developed.

GIGP regarding expertise

In the framework of INEX exercises launched by NEA-CRPPH, recent exercises considering consequence management following a nuclear or radiological emergency demonstrated that stakeholder involvement (governmental and non-governmental) is necessary to implement sustainable approaches to longer-term recovery. Conclusions of feedback experiences from radiation protection experts are:

- preparedness for stakeholder involvement should be a top priority
- stakeholder involvement is not a goal in itself
- RP professionals are themselves stakeholders
- it can be difficult for organisations to proactively work with stakeholders
- use of existing networks and communication systems increases efficiency and enhances interactions
- incentives for participation enhance stakeholder involvement
- agreement on rules, procedures and processes is essential for effective stakeholder interactions
- in some cases, skilled and experienced communications experts are needed
- a broad spectrum of stakeholders is essential in emergency exercise planning
- types of stakeholders and their roles will be different during different phases of emergency management, particularly during the recovery and rehabilitation phase
- an all-hazards approach to emergency management is most efficient

Within the NERIS TP European research project, a dedicated reflection is engaged with a panel of experts from Norway, Spain, Germany, Slovakia, Belarus and France to address the place of public experts to favour the engagement of stakeholders in the preparedness of emergency and post-accidental situations at the local, national and European levels. The aim is to identify the conditions and means for engaging such processes with various stakeholders. This could provide useful input for the Emergency and Post-Accident GIGP.

7.4. Nuclear safety management

The proposed Generic Inclusive Governance Patterns (GIGP) in the context of nuclear safety are grounding on the corresponding Analytical Sheet (see section 6.4) that is describing the specific features and stakes for the concerned categories of actors in the local, national or European context of nuclear safety.

The nuclear safety GIGP are describing good practices in the EU for public information and participation in the perspective of:

- Updating the existing legal frameworks and guidelines for implementing Public Information & Participation (PIP) in the context of nuclear safety, notably taking advantage of the result of experiments and new practices,
- Developing at EU level common quality criteria, principles, and methodologies in order to assess the implementation of PIP in the context of nuclear safety in the Member States
- Developing comparative assessment among member states of PIP practices in the context of nuclear safety, notably in the perspective of the implementation of the European directive on nuclear safety,
- Facilitating the emergence of networks of experts able to support civil society engagement in the field of nuclear safety,
- Supporting the development of European cooperation among civil society organisations involved in the field of nuclear safety, encouraging the development of coordinated civil society contributions to the assessment of nuclear safety at EU level (e.g. in the upcoming follow up of the post-Fukushima stress tests recommendations)

The nuclear safety GIGP are proposing specific patterns for public information and participation at the local, national and European levels. The proposed generic patterns might be transposed into the actual local or national contexts when considered appropriate.

Nuclear safety management is achieved through the different phases of the lifecycle of a nuclear facility:

- Elaboration of a nuclear programme and decision on the design of the nuclear facilities;
- Siting of nuclear facilities (see the specific GIGP on siting);
- Building of the nuclear facilities;
- Operation of the nuclear facility, including possible incidents or accidents;
- Decennial inspections and safety review;
- Possible extension of the lifetime of the nuclear facility and associated modifications of its specifications;
- Closure of the nuclear facility;
- Dismantling (see the specific GIGP on dismantling);

In order to ensure robust information and participation of the public throughout these different phases, a coherent framework should be set up at the local, national and European levels.

Links with the European legal framework of nuclear safety

The European Directive 2009/71/EURATOM of 25th June 2009, establishing a Community framework for the nuclear safety of nuclear installations includes general provisions for information of the workers and the general public as regards regulation of nuclear safety (see article 8 of the directive).

Furthermore, nuclear facilities are included into the scope of the European Directive 2011/92/EU of 13th December 2011 on the assessment of the effects of certain public and private projects on the environment (Environmental Impact Assessment – EIA – Directive)⁷⁸. Article 6 of this directive notably gives precisions on the public information and participation requirements associated with EIA procedures. Article 6, paragraph 2 of the directive indicates the minimum information that must be provided to the public “early in the environmental decision-making procedures”. The necessity to include the public early in the decision-making process is reaffirmed in Article 6 paragraph 4, which states that: “early and effective opportunities to participate in the environmental decision-making procedures”. The EIA directive (Article 7) also includes provisions for trans-boundary information and participation of the public in cases of projects “likely to have significant effects on the environment in another Member State”⁷⁹.

Plans and programmes (e.g. nuclear energy programmes) that entail the development of nuclear facilities are included in the scope of the European Directive 2001/42/EC of 27th June 2001 on the assessment of the effects of certain plans and programmes on the environment (Strategic Environmental Assessment – SEA – Directive). According to the SEA Directive, plans and programmes that are likely to have significant environmental effects shall be assessed before decision taking (article 3) and an environmental report shall be prepared (article 5). Before decision, a draft version of the plan or programme, as well as the environmental report, shall be made available to the public, which “shall be given an early and effective opportunity within appropriate time frames to express their opinion on the draft plan or programme and the accompanying environmental report” (Article 6). Similarly to the EIA directive, the SEA directive also includes provisions for trans-boundary information and consultation for plans and programmes which are likely to have significant effects on the environment in another Member State (article 7).

Nuclear safety GIGP at the local level

The objective here is to build the conditions for the creation of a safe space of dialogue on the scope of a nuclear site in order to enable civil society actors to bring their specific contribution to nuclear safety.

⁷⁸ Annex 1 of the directive includes “Nuclear power stations and other nuclear reactors including the dismantling or decommissioning of such power stations or reactors”, “installations for the reprocessing of nuclear fuel” and “installations designed (i) for the production or enrichment of nuclear fuel; (ii) for the processing of irradiated nuclear fuel or high-level radioactive waste; (iii) for the final disposal of irradiated nuclear fuel; (iv) solely for the final disposal of radioactive waste; (v) solely for the storage (planned for more than 10 years) of irradiated nuclear fuels or radioactive waste in a different site than the production site.

⁷⁹ This article integrates the provisions of the Espoo Convention on Environmental Impact Assessment in a Transboundary Context (1991) in the EIA Directive.

In this perspective, might be considered as a reference:

- The creation of Local Liaison Committees attached to nuclear sites, to enable pluralistic follow-up of the operation of the nuclear facilities on the site, including safety of these facilities. The role of these Local Liaison Committees can include independent information of the local population on the activities of the nuclear site. As regards safety, they can be specifically mobilised during the different milestones of the lifecycle of a nuclear facility (e.g. decennial inspections, assessment of the return of experience of nuclear incidents or accidents, lifecycle extension decision-making process, assessment of the safety of the decommissioning process...), for instance by making compulsory to issue an official opinion of the Local Liaison Committee.
- These committees should be autonomous bodies and be independent from the operator(s) of the nuclear facilities of the sites as well as from the nuclear safety authority, who should not be directly members of the Committee but can participate to its works in an advisory capacity. Their funding should be arranged in a way that respects their autonomy (notably, direct funding from the operators should be excluded). Local Information Commissions in France and Site Stakeholder Groups in the United Kingdom are examples of such Local Committees.

Nuclear safety GIGP at the national level and interactions with the local level

The objectives here are to set up platforms of dialogue at the national level between all types of stakeholders for nuclear safety issues of national relevance and to enable local stakeholders to engage into investigation and discussion of nuclear safety issues (and in particular generic safety issues that are dealt with at national level) at the national level.

In this perspective, the following arrangements might be considered as a reference:

- The creation of a national framework for the Local Liaison Committees defining clearly their mandate, membership and resources (including access to expertise). This national framework should also define rights for these Local Committees to access to information from the operator, nuclear safety authorities or TSOs. Finally, the national framework should also define milestones in decision-making processes throughout the lifecycle of the nuclear facilities (e.g. decennial inspections, significant modifications of a nuclear facility, including extension of its duration of operation) where a formal opinion of the Local Liaison Committee is to be required (in an advisory capacity).
- The creation of a permanent reference committee at the national level involving the various concerned categories of stakeholders and notably national NGOs, representatives of interested public at national and local levels together with Public authorities, TSOs and nuclear operators. This committee is to be created by law or attached to a public institution having a neutral position vis-à-vis nuclear safety (ombudsman, parliamentary office...). It should be provided with appropriate resources for achieving its mandate.
- Practical recommendations for the setting and operation of such national reference committee and for the successful engagement of representative categories of stakeholders are well documented and can be found in the outcome of European research⁸⁰ such as

⁸⁰ See for instance the CIP EU Guidelines and the ARGONA Suggested guidelines for transparency and participation in nuclear waste management programmes

COWAM In Practice and ARGONA. The following approaches can be considered as references:

- the Conuclear safety model where various stakeholders (including local actors from different territories in the UK) were associated with the definition of generic options for nuclear safety;
- the French High Level Committee for Transparency and Information on Nuclear Safety⁸¹ is a pluralistic permanent committee with a mission of information, dialogue and debate on risks linked to nuclear activities, on the impact of these activities on health and the environment, and on nuclear safety. It notably has the mission to periodically organise dialogue and debates on safety and sustainable management of radioactive waste and materials⁸².
- The creation of a national network, federation or association of Local Liaison Committees. This organisation should notably aim to
 - Facilitate exchange of experience between Local Liaison Committees and facilitate common addressing of nuclear safety issues relevant for several Local Liaison Committees;
 - Facilitate access of Local Liaison Committees to expertise, e.g. through cooperation with TSOs, universities or other organisations able to provide expertise useful for investigating nuclear safety issues, as well as with individual experts.
 - Be a focus point for dialogue between Local Liaison Committees and other national stakeholders and help voicing out common concerns of Local Liaison Committees (on safety issues, but also on various other topics, including governance of nuclear activities and the place and role of the Local Liaison Committees in this governance);
 - Facilitate cooperation between Local Liaison Committees and other stakeholders at the European level;
- The creation of a clear national framework for minimising conflicts between information and participation of the public, on the one hand, and confidentiality of sensitive information, on the other hand. This national framework should be defined in consultation with all concerned stakeholders including civil society organisations. It should include delimitation of the information covered by industrial, commercial or defence secret as an explicit list of exceptions to a general rule of publicity of information. For specific procedures (e.g. SEA, EIA or other codified procedures like the public debates organised by the National Commission for Public Debate in France), the national framework should include guidelines for ad hoc procedures for access of a limited number of civil society actors to “classified” information. These guidelines could be developed through experimentation. For instance, in France, in the framework of the Public Debate on the EPR reactor, a procedure for giving a group of appointed experts of civil society access to classified information has been successfully experimented.

⁸¹ This committee was created by the Law of 13th June 2006 on transparency and safety in nuclear activities

⁸² This mission was given to the committee by the Law of 28th June 2006 on sustainable management of radioactive waste and materials.

- Development of cooperation (e.g. through pilot projects) between civil society actors (including Local Liaison Committees) on the one hand and TSOs and nuclear safety authorities on the other hand in the perspective of improving the contribution of civil society as a fourth pillar of nuclear safety (alongside with operators, nuclear safety authorities and TSOs). An example of such cooperation is for instance the cooperation developed in France between the IRSN, the National Association of Local Information Commissions and Committees (ANCCLI) and 4 Local Information Commissions (CLI) for facilitating the engagement of these CLIs in the follow-up of the 3rd decennial review of 900 MW reactors. This cooperation enabled the IRSN and the participating CLIs to enter into technical discussion upstream of the decennial visits and to experiment modalities of access to the operator's files. This also enables the IRSN to better understand the needs of the CLIs. As a consequence of this process, stakes identified by the CLIS were integrated into the specifications of the 3rd decennial visit for the Fessenheim 2 reactor.

Nuclear safety GIGP at the EU level

The following objectives are proposed

- To facilitate exchange of experience between local, regional and national stakeholders (in particular civil society actors, local, regional and national elected representatives, workers of nuclear facilities) on the conditions, means and methods to address nuclear safety issues as non-experts;
- To favour the emergence of a shared assessment of the nuclear safety level in the different EU Member States between institutional actors (operators, nuclear safety authorities, TSOs, other experts, civil society and elected representatives).

No identified reference in the field of nuclear safety can be proposed here. It is suggested to

- Build a shared return of experience of the EU peer review of the stress tests of nuclear installations after the Fukushima accident, with all types of concerned stakeholders. European networks like ENSREG or WENRA could take part to the organisation of this process.
- Ground on the results of the European Roundtable of the Aarhus and Nuclear initiative to be organised (within the Aarhus Convention & Nuclear initiative of ANCCLI and DG ENER) in Brussels on 4th and 5th December 2012 on the issue of implementation of the Aarhus Convention in the context of nuclear safety.

7.5. Nuclear new build and facility siting

The proposed Generic Inclusive Governance Patterns (GIGP) in the context of nuclear new build and facility siting is grounding on the corresponding Analytical Sheet (see section 6.5) that is describing the specific features and stakes for the concerned categories of actors in the local, national or European context of nuclear new build and facility siting.

This GIGP is describing good practices in the EU for public information and participation in the perspective of enabling:

- setting up spaces of dialogue at the national level, involving the different stakeholders, for articulating the nuclear siting decision with energy policy issues;
- creating the conditions for public information and participation at national/local levels regarding the assessment of nuclear safety. The access of the public and NGOs at a relevant and pluralist expertise is a significant means, in this perspective;
- at the local level, setting up the conditions for an active and sustainable engagement of territorial actors 1) in the evaluation of the consistency of the siting decision vis-à-vis the characteristics of the territory and its sustainable development perspective and 2) in the assessment of the radiological protection and nuclear safety of the proposed installation in its territorial context;
- building a shared understanding at the EU level of the necessary conditions and means for the public and the NGOs to effectively contribute to the quality of decisions in this context and to coordinate actions in the EU in order to raise the public information & participation in the context of nuclear siting;

The GIGP for nuclear new build and facility siting propose specific patterns for public information and participation at the local, national and European levels. The proposed generic patterns might be transposed into the actual local or national contexts when considered appropriate.

Nuclear new build and facility siting encompass three key dimensions: national energy mix, safety issues, and relevance of siting in a given territorial context. It can be declined into two successive phases:

- Elaboration of a nuclear programme and decision on the design of the nuclear facilities;
- Siting of nuclear facilities (developing at the national and at the local level).

In order to ensure robust information and participation of the public throughout these two phases, a coherent framework should be set up at the local, national and European levels. As safety and environmental issues associated with the new nuclear sites or facilities are key dimensions at stake with new build and siting, this framework should be coherent with the frameworks for the nuclear safety management and for the management of discharges and environmental monitoring around nuclear facilities.

Links with the European legal framework of nuclear new build and facility siting

Nuclear facilities are included into the scope of the European Directive 2011/92/EU of 13th December 2011 on the assessment of the effects of certain public and private projects on the environment (Environmental Impact Assessment – EIA – Directive)⁸³. Article 6 of this directive notably gives precisions on the public information and participation requirements associated with EIA procedures. Article 6, paragraph 2 of the directive indicates the minimum information that must be provided to the public “early in the environmental decision-making procedures”. The necessity to include the public early in the decision-making process is reaffirmed in Article 6 paragraph 4. The EIA directive (Article 7) also includes provisions for trans-boundary information and participation of the public in cases of projects “likely to have significant effects on the environment in another Member State”⁸⁴.

Plans and programmes (e.g. nuclear energy programmes) that entail the development of nuclear facilities are included in the scope of the European Directive 2001/42/EC of 27th June 2001 on the assessment of the effects of certain plans and programmes on the environment (Strategic Environmental Assessment – SEA – Directive). According to the SEA Directive, plans and programmes that are likely to have significant environmental effects shall be assessed before decision taking (article 3) and an environmental report shall be prepared (article 5). Before decision, a draft version of the plan or programme, as well as the environmental report, shall be made available to the public, which “shall be given an early and effective opportunity within appropriate time frames to express their opinion on the draft plan or programme and the accompanying environmental report” (Article 6). Similarly to the EIA directive, the SEA directive also includes provisions for trans-boundary information and consultation for plans and programmes which are likely to have significant effects on the environment in another Member State (article 7).

Nuclear new build and facility siting GIGP at the local level

The objective here is to build the conditions for the creation of a platform of dialogue on the scope of a nuclear site in order to enable local actors (in particular elected representatives, NGOs, local economic actors...) of possible sites for new nuclear facilities to investigate, prior to the decision-making on siting:

- Relevance and conditions of siting in the territorial context (including environmental impacts and social and economic impacts);
- Safety of the considered potential new nuclear facility.

⁸³ Annex 1 of the directive includes “Nuclear power stations and other nuclear reactors including the dismantling or decommissioning of such power stations or reactors”, “installations for the reprocessing of nuclear fuel” and “installations designed (i) for the production or enrichment of nuclear fuel; (ii) for the processing of irradiated nuclear fuel or high-level radioactive waste; (iii) for the final disposal of irradiated nuclear fuel; (iv) solely for the final disposal of radioactive waste; (v) solely for the storage (planned for more than 10 years) of irradiated nuclear fuels or radioactive waste in a different site than the production site.

⁸⁴ This article integrates the provisions of the Espoo Convention on Environmental Impact Assessment in a Transboundary Context (1991) in the EIA Directive.

In this perspective, might be considered as a reference:

- The creation of local consultation and dialogue structures to support the engagement of local actors in the process of examining the opportunity of the siting in their local context while reviewing the quality and safety of the technical options proposed. Such structures could be extrapolated from the “partnership” model in the field of radioactive waste management that was notably implemented in Belgium and Slovenia and proposed by the NDA in the UK. These partnerships should be autonomous and independent from nuclear operators and regulators. They should have sufficient funding to be able to resort to independent expertise on technical, environmental, social and economic issues. Specific attention should be given to the territorial perimeter covered by the local consultation structure in order to ensure that all territories potentially affected (be it in an environmental, social, economic... way) could be included.
- In case of new nuclear facilities in an existing nuclear site with a local liaison committee, the consultation structure for siting should build on the existing local liaison committee. In such cases, the local liaison committee could be the local consultation structure itself, or part of this structure (e.g. acting as a technical committee on safety and environmental issues in a bigger structure addressing a larger territorial perimeter);
- In case of new nuclear sites, the local consultation structure could become a local liaison committee in a second step, should the decision of siting the nuclear facility be taken (see here the analytical sheet on nuclear safety). Appropriate local participatory structures should also be created in order to follow up the implementation of accompanying social and economic measures and ensure the required transparency.

Nuclear new build and facility siting GIGP at the national level

The objective here is to build the conditions for the creation of a safe space of dialogue at the national level in order to

- facilitate access of the public to information as regards the nuclear programme and the general design of the considered nuclear facilities;
- facilitate access of the public to pluralistic sources of expertise;
- reduce possible conflicts between information and participation of the public and industrial / commercial / defence secret.

In this perspective, might be considered as a reference:

- The setting up of a national consultative committee gathering the various involved parties under the aegis of a neutral institution and chaired by a qualified independent personality accepted by the different parties involved. The national consultative committee should ensure the quality of the participatory process along the different steps of the decision-making process (in particular the SEA and EIA procedures). It should also facilitate the articulation between the discussions on nuclear energy programmes and the debates on energy policies. Finally, it should also seek to reduce conflicts between access to information and commercial / industrial / defence secret by setting up appropriate procedures. For instance, in France, in the framework of the Public Debate on the EPR reactor, a procedure for giving access to classified information for a task force of civil society experts has been successfully experimented.

- The creation of a national framework for setting up consultation structures at the local level in the different territories that could possibly host new nuclear sites in the framework of the siting process. In case of new nuclear facilities on already existing sites (e.g. new reactors in an existing nuclear power plant), this national framework should also define the articulation between the local consultation structure and the local liaison committee (when existing). The national framework should define the formal role of the local consultation structures in the decision-making process (in particular in the EIA procedure). It should also define the resources available to these local committees in order to guarantee that their operation is independent from the promoters of the project of new nuclear facilities. Finally, it should also give guidance on the future evolutions of the consultation structure in case of taking the decision to build a new nuclear facility.
- In cases of siting processes involving multiple possible sites, arrangements enabling local actors from the different concerned territories to investigate commonly relevant issues should be set. In particular, articulation between the national consultative committee and the local consultation structures should be sought.

Nuclear new build and facility siting GIGP at the EU level

The following objectives are proposed

- To facilitate exchange of experience between local, regional and national stakeholders (in particular civil society actors, local, regional and national elected representatives, workers of nuclear facilities) on the conditions, means and methods to for facilitating engagement of civil society actors in assessment of new nuclear programmes and in the siting process of new nuclear facilities;
- To identify quality criteria to be considered as reference at the European level for decision-making processes in the fields of nuclear new build and nuclear facility siting.

No identified reference in the field of nuclear new build and facility siting can be proposed here. It is suggested to

- Examine the feedback experience of European roundtables of the “Aarhus Convention and Nuclear” initiative to assess the feasibility of similar initiatives in the field of nuclear new build and nuclear facility siting.

7.6. Decommissioning of nuclear facilities

The proposed Generic Inclusive Governance Patterns (GIGP) in the context of the management of decommissioning of nuclear facilities are grounding on the corresponding Analytical Sheet (see section 6.6) that is describing the specific features and stakes for the concerned categories of actors in the local, national or European context of dismantling of nuclear facilities.

The "Decommissioning" GIGP are describing good practices in the EU for public information and participation in the perspective of:

- Creating the conditions for sharing the information on safety and environmental issues related to the dismantling of the nuclear facilities with the concerned stakeholders, within an appropriate time in order to give to the public concerned the opportunity to express an opinion before development consent is granted⁸⁵
- Favouring the evaluation by the local stakeholders of the consistency of the objectives of the remediation with the territorial development perspectives, including the various issues at stake (technical, economic, environmental, health...) associated with the future of nuclear legacy sites;
- Developing national and European processes for improving the access of stakeholders to reliable information and expertise related to dismantling of nuclear facilities.

The " Decommissioning " GIGP are proposing specific patterns for public information and participation at the local, national and European levels. The proposed generic patterns might be transposed into the actual local or national contexts when considered appropriate.

"Decommissioning of nuclear facilities" is characterised by several phases that are necessary for achieving it:

- The setting of national networks for the management of radioactive waste generated by the dismantling activities and for the management of the sites after dismantling;
- The organisation of the long term environmental monitoring of the site during the dismantling operations and after these operations, when applicable;
- The organisation of a decision-making process for assessing and managing the transition to new activities on the site and at the regional level.

The considered activities are to be managed at the national and local levels. Regular update of the considered activities is to be achieved according to the needs and experience of the various concerned actors in each context.

The " Decommissioning " GIGP are to create the conditions for:

- The identification of common indicators for the follow-up of management of the dismantling activities concerning the safety, environmental and health issues;

⁸⁵ EC Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment

- The availability of a plurality of expertise favouring the common understanding, between the different stakeholders, of the monitoring of the residual level of radioactivity in the dismantled material and in the soil of the site;
- The identification of common stakes and framing of the future activities to be developed on the site and in the surrounding area after the dismantling of the nuclear facilities, including the discussion on restricted or unrestricted releases of sites or facilities;
- The setting up at the national level of a framework to ensure the follow-up of materials and waste issued from the dismantling activities and notably to address the conditions and means for the potential re-use of this material;
- The elaboration of decommissioning plans for different facilities opening the dialogue with the interested public for addressing the different phases and objectives of the decommissioning activities at the local level;
- The facilitation of international exchanges between stakeholders from the civil society among European Union Member States, notably regarding the application of the EC Directive on radioactive waste⁸⁶ or the Safety Directive (2009/71/Euratom) and of international conventions, such as the OSPAR⁸⁷ and ESPOO⁸⁸ Conventions.

Links with the International Recommendations and European legal framework of "decommissioning of nuclear facilities"

Commission Recommendation 2006/851/Euratom of 24 October 2006 on the management of the financial resources for the decommissioning of nuclear installations, spent fuel and radioactive waste provides specific requirements concerning funding for these activities:

"Where not already provided for, Member States should set up or appoint a national body capable of providing an expert judgment on fund management and decommissioning cost matters. This body should be independent as regards the contributors to the fund. (...)

Financial resources should be used only for the purpose for which they have been established and managed. In this context, due consideration should be given to transparency. All commercially non-sensitive information should be publicly available."

The regulations and recommendations related to environmental surveillance also apply to the dismantling of nuclear facilities concerning safety and radiation protection issues. The Euratom Basic Safety Standards, a revision of which is currently being finally negotiated in the Council, stipulate in its Article 69 that:

"Member States shall ensure that an appropriate environmental monitoring programme is in place for estimating the exposure of members of the public."

⁸⁶ EC directive "establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste" - Council Directive 2011/70/Euratom

⁸⁷ Convention for the protection of the marine environment of the north-east atlantic, text as amended on 24 July 1998, updated 9 May 2002, 7 February 2005 and 18 May 2006

⁸⁸ Convention on environmental impact assessment in a trans-boundary context, Espoo (Finland), in force 25 February 1991

Similarly, international agreements, dealing with trans-boundary issues, are also applicable for the dismantling of nuclear facilities:

- ESPOO Convention on environmental impact assessment in a trans-boundary context;
- OSPAR Convention for the protection of the marine environment of the North-East Atlantic. It has to be noticed that this Convention led to the establishment of a dedicated process of international participation with representatives of different concerned parties and aims at developing environmental quality criteria for the protection of the marine environment.

Furthermore, the Aarhus Convention also provides a useful framework for promoting public information and participation for issues related to dismantling of nuclear facilities.

"Decommissioning of nuclear facilities" GIGP at national level

The objective here is to build safe spaces for a permanent dialogue between a panel of actors (parliament, government, national authorities, operators, experts and local and national stakeholders from the public) in order to identify and update common stakes and conditions for multi-level inclusive governance for the dismantling of nuclear facilities.

In this perspective, might be considered as a reference:

- The creation of a national framework for addressing the requirements for the decommissioning activities and managing nuclear legacy sites with the involvement of the different stakeholders and allowing to share the available information and expertise as well as to discuss the programme for managing the waste;
- The setting up of consultation processes to favour shared evaluations of the impacts on the population and on the environment associated with on one side the dismantling of the nuclear facilities and on the other side the future use of nuclear legacy sites, involving pluralistic expertise;
- The development of shared evaluations on economic and financial issues related to the resources needed for the dismantling of nuclear facilities and the future socio-economic development of the territories.

As mentioned in section 6.6, it should be reminded that the creation of the conditions for transfer of information and knowledge within a transparent, fair and constructive process is a key element for the management of dismantling of nuclear facilities in terms of:

- Reliability of the information produced for all stakeholders concerning the safety and radiological characteristics of the site during the dismantling operations and at the end of these operations;
- Organisation of the heritage related to safety and environmental quality of the dismantled sites, notably through the conservation of records on the remediation actions achieved as well as to the follow-up at the national level of the dismantled materials and waste management;
- Sustainability of the resources allocated to the dismantling activities and of the socio-economic development of the territory.

"Decommissioning of nuclear facilities" GIGP at the local level and interactions with the national level

Involvement of Local Liaison Committees (LLC) concerning the environmental surveillance of the sites during the dismantling activities is essential for ensuring the follow-up of the nuclear installations beyond the operational phase and providing useful expertise to address this issue. Different committees have already been involved or are currently involved notably in Sweden (around Barsebaeck nuclear power plant), in France (around La Hague reprocessing plant), in the UK (around Sellafield installations), in Spain (around Vandellos nuclear power plant). Based on these different involvements, at the local level it could be of interest to develop dedicated processes aiming at:

- Identifying the available environmental measurements related to the nuclear facilities in the region and organising the long-term surveillance after the dismantling of the nuclear facilities in order to provide useful information related to the quality of the environment,
- Promoting proactive information, and translating the technical information in meaningful way in order to contribute to mutual understanding and trust,
- Allowing the expression and the definition of local population expectations related to the future socio-economic activities,
- Facilitating the sharing of information on the follow-up of dismantling activities at the national and European levels for local stakeholders.

"Decommissioning of nuclear facilities" GIGP at EU level

The following objectives are proposed:

- To favour the sharing of information on long-term environmental surveillance strategies, the transfer of responsibility to the State after the dismantling of the installation and memory of nuclear legacy sites at the European level;
- To identify conditions and means for the emergence of a dialogue between different stakeholders on the environmental quality of dismantled sites and safe management of materials and waste issued from dismantling activities;
- To facilitate international exchanges and networking of stakeholders from the civil society among European Union Member States, including issues related to socio-economic development and sustainability of the resources needed for dismantling activities.

Reference processes in the field of "decommissioning of nuclear facilities" are not specific but are largely similar to the processes proposed for radioactive waste management (see "RWM GIGP").

GIGP regarding expertise

Providing diversified sources of expertise to local and national stakeholders should be regarded as the cornerstone of public information and participation. This has been largely observed in the studies related to radioactive waste management and in the feedback

experience of the local liaison committees involved in the follow-up of dismantling of nuclear facilities. This diversity of expertise can be favoured at different levels:

- Sharing available measurements of the radioactivity in the environment and favouring the participation of pluralistic experts in this domain;
- Developing pluralistic assessment of the safety and radiation protection strategies for the dismantling of the nuclear facilities;
- Developing capacity building for local and national stakeholders to cope with the various issues of the dismantling activities follow-up, including expertise on safety and environmental issues as well as socio-economic issues.

ANNEX 1: A STATE OF ART REGARDING PUBLIC INFORMATION AND PARTICIPATION

The ENEF WGT has already identified a series of good practices to favour transparency for nuclear activities in Europe. Starting from the indicators established by the ENEF WGT, it is interesting to remind different analyses performed during the last decade and allowing to address this issue of public information and participation in the eight sectors mentioned above.

Among these projects, we would like to mention:

- TRUSTNET (1999-2006), an European pluralistic think tank, focussed on developing governance arrangement and practices for hazardous activities and their impact on public health and environment,
- RISKGOV (2001-2004), project proposing a comparative analysis of risk governance associated with radioactive and chemical releases from industrial facilities
- COWAM (2000-2009), network and cooperative research programme focussed on radioactive waste management,
- Inclusive Governance of Nuclear Activities - IGNA (2005-2006), European study on public information about environmental issues, and involvement in decision-making processes in the nuclear sector,
- ACN (Aarhus Convention and Nuclear), a dialogue approach consisting in organising round tables/spaces for discussion (associating civil society and decision-makers) on the practical implementation of the Aarhus Convention in the nuclear field.
- CSS (Civil Society for Sustainability), cooperative project to foster networks between civil society and research organisations, while developing a civil society oriented research agenda for sustainable development,
- Arenas for Risk Governance - ARGONA, project investigating how approaches of transparency and deliberation relate to each other and also how they relate to the political system in which decisions, for example on the final disposal of nuclear waste, are ultimately taken,
- Implementing Public Participation Approaches in Radioactive Waste Disposal - IPPA project to establish *safe spaces* where stakeholders can join to increase their understanding of the issues involved in radioactive waste disposal and also of their respective views.

All these projects include reflections on governance process to implement for hazardous activities with focus on the involvement of local, national and European stakeholders who are directly concerned by these activities (a detailed presentation of these different projects is available on Annex 1). It is interesting in responding to this call for tender to remind the main conclusions and recommendations derived from these projects.

As testified by recent opinion polls and feedback from different case studies, there is a strong public demand for more participation in decision-making processes relating to the environment, and nuclear issues specifically. There is an increasing expectation that the phase of decision-framing which determines the scope and objectives of a regulation or of a decision on an industrial facility, involves not only experts and politics, but also a wide range of knowledgeable persons – NGOs, independent experts, local actors, etc. This expectation is now supported by significant legislation at EU and national levels, the foundation stone of which is the “Aarhus Convention on the Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters” (1998).

One can find different but convergent rationales behind these developments. On the one hand, there is a consideration that nuclear technologies – like numerous hazardous activities – have a potential impact on the public and accordingly require that their development involves affected parties. On the other hand, the problems raised by nuclear activities have an impact at several levels (local, national,

international), and are multi-dimensional, i.e. they entail safety, economic, social, ethical, political, legal and environmental issues. In the face of this complexity, traditional modes of management both by the operators and by the administration appear to be quite fragmented: their reductive approach is to break down complex problems into several simplified one-dimensional issues which are more easily handled. Another source of misunderstandings and conflicts lies in the justification of industrial activities: a discussion on risk is impossible for most affected parties if the question of the justification is not debated before addressing the operation of the activities and related risks and impact.

Traditional governance has difficulties in addressing the justification issue, just as it has in addressing complexity and multi-dimensionality. This situation has led to major conflicts on technological development in recent decades, and to a crisis of trust in decision-makers, as well as in experts. As this crisis unfolded, it became obvious that in order to embrace complexity, the different stakeholders should contribute to the knowledge base of decisions. In this new light, participation appears to be much more than a support to information. Participation would provide stakeholders with the means to get involved in decision-making processes and to contribute their views so as to improve the quality of expertise, the reliability of decisions and the safe operation of activities. There is a belief that, far from diminishing effectiveness, by moving away from a purely technical approach and towards an inclusive approach, one can enhance effectiveness and practicability in the decision-making process.

The different projects in public information and participation demonstrate that it is actually possible to improve decision-making processes by engaging concerned parties in the preparation of decisions and in the oversight of nuclear activities. The analysis of the case studies clearly pointed out that the effectiveness of stakeholder involvement relies on two major transformations: a stronger role for new categories of actors, including local and regional governments and institutions; and an opening up of the institutions in the perspective of stakeholder involvement in the decision-making process in the nuclear sector. These transformations prove to be practicable and achievable. Although they imply significant changes from the various actors, they are by no means “revolutionary”, but rather manifest a progressive evolution that is respectful of existing institutional structures.

Over and above the general emergence of a new role for local actors, these transformations of the current decision-making process are the result of an emerging understanding, by all the actors, of the real benefits of the participatory process.

It appears that the regulatory system and associated legal tools to support and implement these changes are already in place at the Community level. Some additional regulation may be required in the Member States to specify the integration of inclusiveness in particular fields of application, for instance, waste management, decommissioning, etc. Nevertheless, efforts should essentially relate to the concrete procedures for implementing stakeholder involvement in the different Member States. This entails, for instance, setting up partnerships and new modes of cooperation in local areas and regions. The experience reflected in the case studies, and more generally by inclusive governance projects in Europe, demonstrates that the changes in stakeholders and institutions are made through pragmatic and cooperative experimentation, and do not result from a mere implementation of theoretical principles, either from the top or from the bottom. Moreover feedback experience from case studies shows that this evolution is an essential part of sustainable development strategies. In this perspective, nuclear activities may draw on the vigilance of local communities, so as to reinforce the quality of monitoring and the sustainability of their territorial integration.

Among the key issues to be considered in the development of public information and participation processes, one can mention the following:

- Necessity to define a common issue among the different stakeholders,
- Develop a well framed process and shared between the different stakeholders,
- Adopt a flexible and robust process allowing notably to address the different issues at stake and to evolve according the context with clear rules,

- A commitment level adapted to the stakes,
- A dynamic multi-level interaction between different levels of stakeholders depending on the complexity of the issues to be addressed.

ANNEX 2: RECOMMENDATIONS OF THE ENEF WGT ON TRANSPARENCY FOR NUCLEAR PROJECTS IN THE EUROPEAN UNION

Introduction

The ENEF Working Group on “Information and Transparency” has been entrusted with the responsibility to examine ways and means to better inform the public in objective and factual terms about all aspects of nuclear energy and to provide information in clear language on the existing solutions for waste management. The working group was established as a follow up action after the inaugural conference of the ENEF in Bratislava on 26-27 November 2007 and concentrates its activities on:

1. Establishing a roadmap on better information and transparency in the nuclear field;
2. Developing an appropriate consultative process;
3. Initiating concrete structured stakeholder dialogues beyond the European Nuclear Forum meetings to broaden the discussion basis.

Since its creation the working group has been dedicated to finding ways to strengthen governance and transparency by bringing together different representatives of a range of organisations in European Member States, including NGOs, industry representatives, governments, local communities, regulatory bodies, etc, and sharing practices on information and consultation.

On the basis of exchange of experiences and discussions, the Working Group has developed and refined 22 recommendations to the Commission, to governments and to the stakeholders in the nuclear debate to improve practices on

- information,
- communications,
- participation and
- decision-making in nuclear matters.

The recommendations, without being legally binding, aim to make improvements in the governance framework for siting, operation and decommissioning of nuclear facilities as well as transportation, waste management and final disposal, by raising public awareness and adequate involvement. Many of those recommendations are already legally in place in Member States through the Aarhus Convention, the Environmental Impact Assessment Directive and the Strategic Environmental Assessment Directive.

Whereas the Aarhus Convention primarily addresses states, the WG encourages all the stakeholders to go beyond and apply the principles to the broader scope of nuclear energy.

All stakeholders should examine them carefully and determine how best they could be applied in their own national settings. These recommendations can support the practices in different Member States in order to continue to reach the highest standards of governance in nuclear activities in Europe.

The WG approved the recommendations on 21 September 2009, a list of definitions providing additional clarifications was attached on 29 January 2010 (annex 1). All stakeholders have been invited to report on good practices by means of a questionnaire (annex 2).

Recommendations on information

A – All concerned actors, or "stakeholders", whether they be public authorities, public and private companies and associations or NGOs should ensure that information about nuclear energy in the context of the national energy mix is made available and disseminated to the public in order to achieve the widest possible knowledge about nuclear energy.

B – To assure the quality of the information that is made available:

- The sources of information should be transparent and traceable.
- Information should be up to date, accurate, balanced and comparable to understandable reference levels (standard units of measurement, limits allowed by the existing international legislation...).
- Tailored information should be provided for different target groups with various backgrounds, taking into account their knowledge, language, etc.

C - Public authorities, public and private companies and associations or NGOs involved in nuclear issues should disseminate – on request, as well as in a proactive manner - reliable information that is relevant to the receiver as long as it does not infringe with protected interests, such as public security, legally protected confidentiality of industrial and commercial information, intellectual property rights etc.¹

D - Information should be made available in the form requested unless:

- It is reasonable for the public authority to make it available in another form, in which case reasons shall be given for making it available in that form; or
- The information is already publicly available and readily accessible to the requester in another form.

In any case, a broad dissemination of information should be realised via different channels such as meetings, websites, print and social media.

E – Stakeholders should be encouraged to establish information/visitors centres to inform the public on energy issues.

F - Local communities, councils and committees or similar structures could facilitate the access to reliable information for the public and to different sources of expertise. They can also provide room for dialogue and establish their own expertise. Their costs may be covered by external resources.

Recommendations on communications

A – All stakeholders need to commit themselves to a concrete and fully open communication process in order to build trust between the different groups.

B - The concerns and expectations of the population should be integrated at the early stage of the communication process and throughout the whole process.

C - Honesty, respect, fairness, reliability and personal commitment should be ensured along the whole communication process.

D - Local information committees or similar structures could play an important role in contributing to a dialogue process between different types of stakeholders.

E - All the communications tools used should provide people with a chance to react/reply to the information provided, such as fora on websites, direct meetings with the relevant parties, info desks...

Recommendations on participation

A - Governments should establish an effective legal and/or institutional framework for public participation, especially defining the rights and responsibilities of individuals and organisations in order to create a level playing field.

¹ A list of acceptable grounds for refusal can be found in Art. 4 (2) and (3) of the Aarhus Convention

B - Information about the public participation process should be known before the process starts and participation should be continuously evaluated throughout the process. A step-wise procedure may be an effective approach.

C – Key elements of an open and transparent public participation process are:

- The process of public participation should be initiated as early as possible,
- All options should be open until the participation process comes to a conclusion while recognising that a decision cannot be allowed to be postponed indefinitely,
- Whenever a public participation process is initiated, it should be made clear what its purpose is and at what point it takes place in the decision-making process,

A good participation process would be based on:

- shared language and understanding, in favour of collective learning,
- the way how to respect and value the expression of different perspectives,
- ensuring a regular feedback mechanism to those who contributed.

D - Financial resources could be made available to enable effective public participation. Some of these could be made available to civil society organisations, local committees or similar structures, with a view to acquiring additional expertise. The decision to allocate financial support and its amount should be based on clear and publicly-known set of criteria.

E - Cooperation between host and neighbouring communities should be encouraged.

Recommendations on decision-making

A - The rights and responsibilities of the different parties concerned have to be clearly defined by a legal/institutional framework.

B - The public should be given early and effective opportunities to participate in the decision-making procedures on nuclear matters.

C – An explicit time schedule should be provided to enable citizens to prepare and participate effectively in the decision-making process.

D - The authorities' decisions should be well founded - thereby taking due account of the public participation process -, transparent and made accessible to the public including information about the public participation process itself.

E - A well established administrative procedure should be available to enable the public concerned to challenge such a decision as well as a denial of access to information and public participation.

F A review procedure before a court of law should be available to challenge the decisions.

List of definitions

The definitions below were made concise on purpose. Additional information is provided (smaller italic fonts), as appropriate.

Transparency

Transparency, as a key principle of democracy, is as a cooperative process of providing information to all interested parties (i.e. stakeholders and individual citizens) so that they can independently assess how particular activities may impact their lives.

It is also a principle that allows all interested parties to know not only the basic facts and figures but also the mechanisms of the decision-making process (e.g. siting procedure).

Transparency implies: openness and integrity along the whole decision-making process, clarity of roles and responsibilities, public availability of information. Transparency fulfils the citizen's right to know and right to understand and it empowers all interested parties to be able to influence decisions.

Transparency includes not only access to information (passive transparency) but also its provision to interested parties (active transparency).

Governance

Governance consists of the mechanisms by which citizens and civil society convey their interests and interact with institutions of authority and with each other (participatory democracy which complements representative democracy). When governance is implemented, decisions are no longer the fact of only one decision-maker (or group of decision-makers), but it is the result of co-operation between authorities and civil society.

The European Commission White Paper "European Governance" identifies five principles to underpin good governance: openness, participation, accountability, effectiveness and coherence. From the conception of policy to its implementation, the choice of the level at which action is taken (from EU to local) and the selection of the instruments used must be in proportion to the objectives pursued.

Information

Information is a one-way process in which an emitter sends a message to one or more receivers. Its purpose is to fulfil goals such as affecting attitudes, positions and image, in particular through increasing awareness and assessment capacities. Not only must the public receive the information but they must see the information as credible and relevant to their views on a specific issue. Information is a basis condition for public dialogue.

Communication

Communication is a two-way process in which there is an exchange and progression of thoughts, feelings or ideas. The goal of communication is not simply telling, but acting, changing another person's behaviour or perception through increasing awareness and providing appropriate assessment capacities.

The communication process can only be effective if all parties of the process are interested in communicating and if the dignity and the roles of all parties are acknowledged. The target audience (skills, knowledge, social and cultural environment) needs to be considered.

Public participation

Participation means contribution of the public and/or stakeholders to a general debate (e.g. national energy scenarios for the future) or to a debate on a more specific issue (e.g. nuclear facility siting), as an element of a consultative process. Public/stakeholders involvement in nuclear matters requires establishing communications mechanisms and tools for discussions between the interested parties and those responsible for decision-making.

Public participation seeks and facilitates the involvement of those potentially affected by or interested in a decision. Effective public participation implies that the public's contribution may influence the decision.

Decision-making

Decision-making in the nuclear field is the way decisions are taken by entitled stakeholders (e.g.

private or public company, local and national authorities, etc.). The process can involve only a few decision-makers and may also include external contributions from stakeholders or from the public concerned.

Although it may increase the duration of the decision-making process, involving stakeholders and/or the public concerned generally facilitates better cooperation between all participants and leads to more acceptable and robust decisions. At the end of the process, the responsibility for decision-making must always lie with the relevant competent authorities.

Public consultation

Public consultation is a framed process organised by national or local authorities before taking a decision by which the public's input on matters affecting them is sought. In a consultative process, the target civil society organisations, citizens and the concerned stakeholders representing the society in its diversity are invited to give their opinion and to reply to specific questions.

Aarhus Convention

The United Nations Economic Commission for Europe (UNECE) Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters was adopted on 25 June 1998 in the Danish city of Aarhus.

The Convention provides for:

- The right of everyone to receive environmental information that is held by public authorities ("access to environmental information").
- The right to participate in environmental decision-making.
- The right to review procedures to challenge public decisions that have been made without respecting the two aforementioned rights or environmental law in general ("access to justice").

Environmental Impact Assessment

The European Union requires an Environmental Impact Assessment (EIA) to be carried out before approval can be granted for certain public and private projects. The EIA Directive lists the projects concerned, the information to be provided and the third parties to be consulted in connection with approving such a project.

The EU has adopted the EIA Directive 85/337/EC, as amended by 97/11/EC and by 2003/35/EC Directives. This Environmental Impact Assessment must identify the direct and indirect effects of a project on the following factors: man, the fauna, the flora, the soil, water, air, the climate, the landscape, the material assets and cultural heritage, and the interaction between these various elements. The EIA Directive lists the projects concerned, the information to be provided and the third parties to be consulted in connection with approving such a project.

Strategic Environmental Assessment

The European Union requires a system of prior environmental assessment - Strategic Environmental Assessment (SEA), to be carried out at the planning stage.

The SEA Directive stipulates that plans and programmes which are liable to have significant effects on the environment must be subject to an environmental assessment prior to their adoption.

The EU has adopted the SEA Directive 2001/42/EC. Environmental assessment is automatically required for plans and programmes which are prepared for town and country planning, land use, transport, energy, waste management, water management, industry, telecommunications, agriculture, forestry, fisheries and

tourism and which provide the framework for subsequent consent for specific projects listed in Annexes I and II to Directive 85/337/EEC. The same applies to the adoption of plans and programmes liable to affect sites protected by Directive 92/43/EEC and for which an assessment is required under that Directive. Other plans and programmes which set the framework for future development consent of projects will be subject to environmental assessment if an examination taking account of the criteria laid down in Annex II to the Directive shows that they are liable to have significant effects on the environment.

Nuclear facility

A nuclear facility (or installation) is a nuclear reactor (research, medical isotopes production, power plant), a conversion plant, a fabrication plant, a reprocessing plant, a spent fuel storage facility, an isotope separation plant, an irradiation installation, a mining and raw material processing facility (uranium mines), a radioactive waste management facility or any facility where radioactive material is produced, processed, used, handled, stored or disposed of - or where radiation generators are installed - on such a scale that consideration of protection and safety is required. It includes associated buildings and equipment.

Siting

Siting is the process of selecting a suitable site for a nuclear facility.

The siting process for a nuclear installation generally consists of site survey and site selection. Site survey is the process of identifying candidate sites for a nuclear installation after the investigation of a large region and the rejection of unsuitable sites. Site selection is the process of assessing the remaining sites by screening and comparing them on the basis of safety and other considerations (including assessing local public acceptance) to select one or more preferred candidate sites.

Operation

Operation is all administrative and technical activities performed within specified limits and conditions to achieve the purpose for which an authorised facility was constructed.

For a nuclear power plant, this includes start-up, power operation, shutting down, shutdown, maintenance, testing and refuelling.

For every nuclear facility, operation is based on safety requirements and is monitored by regulatory authorities.

Decommissioning

Decommissioning is the administrative and technical actions taken to allow the removal of a nuclear facility from service, also the subsequent actions of safe storage, dismantling and making the site available for unrestricted use.

Decommissioning typically includes dismantling of the facility (or part thereof). A facility can be decommissioned without dismantling and the existing structures subsequently put to another use (after decontamination).

The use of the term decommissioning implies that no further use of the facility (or part thereof) for its existing purpose is foreseen.

Decommissioning actions are taken at the end of the operating lifetime of a facility to retire it from service with due regard for the health and safety of workers and members of the public and the protection of the

environment.

Waste management

Waste management is all planning, administrative and operational activities involved in the collection, pre-treatment, treatment, conditioning, transport, processing, recycling, storage or disposal, and monitoring of waste materials.

The main objective in managing and disposing or destroying radioactive waste is to protect people and the environment. This means isolating, diluting, or destroying the waste so that the rate or concentration of any radionuclide returned to the biosphere is harmless.

Final disposal

A final disposal is the storage of nuclear waste in an appropriate facility where it will be stored until the level of radioactivity becomes comparable to that found in the Earth's crust.

Two types of long-term (or final) disposal exist:

- *Deep geological repository: a facility for intermediate and high-level radioactive waste, including irradiated fuel elements, located underground (usually several hundred meters or more below the surface) in a stable geological formation to provide long term isolation of radionuclides from the biosphere. This disposal allows for the retrieval of the waste or not, depending on the project.*
- *Surface or near-surface repository: a facility for low-level radioactive waste located at or within a few tens of meters of the Earth's surface, designed and strictly monitored to avoid any contact between the radioactive materials and the environment.*

Stakeholders

Stakeholders can be defined as those who have a specific interest in a given issue or decision.

A nuclear stakeholder consists of any actor or group of actors that is or may be directly or indirectly involved in or affected by the use or the non-use of nuclear energy, the existing or planned nuclear facilities, such as institutions, authorities, public or private organisations, regulatory bodies, nuclear industry, non-nuclear industry, scientific bodies, media, electricity consumers, finance, civil society, and any other concerned citizen.

Local committees

A Local Information Committee is a structure of information and of co-operation established in the vicinity of a nuclear facility. It aims to encourage transparency and public's information on the activities of the nuclear facility and to enable discussions with all the local actors on all issues that can occur around it.

The composition of Local Information Committees generally reflects the society in its diversity. Most often chaired by mayors or heads of local council, its members may be elected citizens, environmentalists, nuclear industry, representatives of the administration, academicians, physicians, independent experts, national experts, trade-unions, consumers, priests, etc.

Civil society organisations

Civil society might be defined as, "The entire range of organised groups and institutions that are independent of the state, voluntary, and at least to some extent self-generating and self-reliant." This includes non-governmental organisations, but also independent mass media, think-tanks, universities,

social and religious groups, trade unions and employers' organisations, professional associations, charities, grass-roots organisations, organisations that involve citizens in local and municipal life.

Most of civil society organizations have very limited budget and rely often on voluntary service and donations. In order to enable their members or representatives to be genuinely involved in information and participation processes, appropriate funding systems, which at the same time guarantee their full independence in the process, have to be developed. Such systems are implemented e.g. in Sweden and in France.

Public

Two forms of public can be distinguished:

- the "public" means one or more natural or legal persons, and, in accordance with national legislation or practice, their associations, organisations or groups;
- the "public concerned" means the public affected or likely to be affected by, or having an interest in, the environmental decision-making; for the purposes of this definition, nongovernmental organizations promoting environmental protection and meeting any requirements under national law shall be deemed to have an interest.

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