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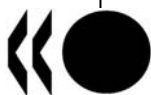
**NUCLEAR ENERGY AGENCY
COMMITTEE ON RADIATION PROTECTION AND PUBLIC HEALTH**

**SURVEY ON ORGANISATIONAL ADAPTATION
TO STAKEHOLDER INVOLVEMENT IN POST NUCLEAR EMERGENCY MANAGEMENT**

Report of the Expert Group on Stakeholder Involvement and Organisational Structures

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FOREWORD

Key lessons in nuclear and radiological emergency management have led to improvements in emergency arrangements nationally and internationally. Among these lessons has been the recognition that the management of complex situations created by an emergency requires the involvement of a broad range of stakeholders from governmental and non-governmental organisations and civil society. To be effective, such involvement should begin and be organised as part of preparedness.

Since the early 1990s, the NEA's Committee on Radiation Protection and Public Health has been investigating and promoting stakeholder involvement in radiological protection decision-making through a series of related workshops and topical reports.

In parallel, the emergency preparedness and response aspects associated with consequence management and transition to recovery has been taken up by the CRPPH Working Party on Nuclear Emergency Matters in its international nuclear emergency exercise (INEX) series. Recent exercises addressing this aspect of emergency management have demonstrated that the involvement of a range of governmental and non-governmental stakeholders, while posing challenges to emergency management structures, presents opportunities for better identifying and implementing sustainable approaches to longer-term recovery.

In the perspective of the 2010 NEA/CRPPH *Workshop on Practices and Experiences in Stakeholder Involvement for Post Nuclear Emergency Management*, the Expert Group on Stakeholder Involvement and Organisational Structures (EGSIOS) was directed by the CRPPH to investigate how emergency management organisations have adapted to the opportunities and challenges presented by "stakeholder involvement" in the particular fields of post nuclear emergency preparedness and response. This report presents the results of a survey of selected countries on this topic.

The CRPPH and the NEA Secretariat would like to thank the countries and individuals that participated in this survey for their involvement and detailed responses, and Mutadis Consultants for the conducting the survey itself and summarising the feedback leading to this report.

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INTRODUCTION

Key lessons in nuclear and radiological emergency preparedness and response (emergency management), identified through events and exercises have led to improvements in emergency arrangements nationally and internationally. Among these lessons has been the recognition that the management of complex situations created by an emergency requires the involvement of a broad range of stakeholders, including governmental and non-governmental entities and civil society. To be effective, such involvement should begin and be organised as part of preparedness. This fact has been incorporated into the ICRP's new recommendations for the protection of people in emergency situations and for those living in long-term contaminated areas after a nuclear accident (ICRP 2007, 2009).

Since the early 1990s, the NEA's Committee on Radiation Protection and Public Health has been investigating and promoting stakeholder involvement in radiological protection decision-making. This interest was most notably manifest in three stakeholder involvement workshops organised by the CRPPH in Villigen, Switzerland (NEA 1998, 2001, 2002, 2004). In addition, the CRPPH report "Stakeholders and Radiation Protection: Lessons from Chernobyl 20 Years After" (NEA 2006) addressed the issue of stakeholder involvement in the response to the consequences of a nuclear accident in the post-Chernobyl context. The report concluded that "a key role of the radiation protection professional is to engage with the affected people ... to assist them in implementing actions that enhance their quality of life".

The preparedness and response aspects associated with consequence management and transition to recovery has also been taken up by the CRPPH Working Party on Nuclear Emergency Matters (WPNEM) in its international nuclear emergency exercise (INEX) series. Recent exercises addressing this aspect of emergency management have clearly demonstrated that the involvement of a range of governmental and non-governmental stakeholders, while posing challenges to emergency management structures, presents opportunities for better identifying and implementing sustainable approaches to longer-term recovery. Specifically, the INEX 3 evaluation workshop (NEA 2007) pointed out that the active participation of stakeholders is necessary not only in the implementation of post-emergency strategies but also before any radiological emergency, during the preparation and planning phase.

Thus, the INEX 3 report emphasised that "the process for involving and engaging all stakeholders in the development of recovery strategies is more important than the specific numbers for action or termination, and that such involvement should start as part of planning". The report further recommended "develop[ing] international guidance on objectives and processes for recovery management ... including stakeholder involvement processes". The INEX 3 report suggested "conduct[ing] a workshop or other forum to consider in greater detail stakeholder involvement at all stages of preparedness and response", a recommendation taken up by the CRPPH in its ongoing work in this area.

In the perspective of the 2010 NEA *Workshop on Stakeholder Involvement for Post Nuclear Emergency Management*, the Expert Group on Stakeholder Involvement and Organisational Structures (EGSIOS), which previously investigated the impact of stakeholder involvement processes on operations of radiation protection organisations, was directed by the CRPPH to investigate how emergency management organisations have adapted to the opportunities and challenges presented by "stakeholder involvement" in the particular fields of emergency preparedness and response.

Survey Methodology

The scale of stakeholder involvement can be generally characterised by the emergency management timeline. Early in the emergency, urgent protective measures will be implemented using a top-down management approach, with little or no stakeholder involvement beyond the emergency response authorities. However, as various parties will be involved in the implementation of these actions, for example evacuation or sheltering of the public or agricultural countermeasures, it is important that these parties be involved as part of planning. As the emergency exposure situation progresses into consequence management and the transition to recovery, it will become increasingly important to move to a bottom-up process, involving stakeholders in discussions leading to protection decisions in order to improve their acceptance and effectiveness. As a result, emergency preparedness activities should include processes to support the involvement of stakeholders, both in the preparedness phase and to an increasing degree following the crisis management phase.

The manner in which organisations have begun to adapt to this approach, and the related experiences and issues raised, was investigated through a survey of selected countries represented on the WPNEM. The survey questions were structured to gather information on the ways emergency management organisations address stakeholder involvement in the field of post-crisis preparedness and response and identify key cross-cutting issues of common concern for the NEA member states. The survey questions, which are provided in detail in Annex 2, addressed the following topics:

- General issues related to preparedness and post-emergency management;
- Historical aspects (when, why policy on stakeholder involvement);
- Legal and regulatory aspects, government policies;
- Provisions for stakeholder involvement, cooperation with stakeholders, support to stakeholders' initiatives, empowerment;
- Tools and indicators for stakeholder involvement;
- Best Practice/recommendations.

Based on an initial analysis, a set of five countries represented on the WPNEM (Finland, France, Norway, the United Kingdom and the United States) were chosen for the survey, with the possibility to include others at a later date. An initial survey was conducted in the first part of 2009. The outcomes of this first round were reported to the CRPPH at its May 2009 annual meeting. As a result, the CRPPH requested that, rather than extending the survey to other countries, a second set of more detailed questions should be added, including questions regarding the role of stakeholders in the optimisation process. This second round of questions was completed in the last half of 2009, and the results were presented to both the Planning Committee for the 2010 workshop on stakeholder involvement, as well as the WPNEM. The WPNEM requested that the survey undergo a final verification with the interviewees as well as the corresponding country delegate(s) on the WPNEM. This verification was completed in the January 2010.

This present report, based on 10 phone interviews of emergency management organisations in the five NEA member countries, has been organised to provide comparable feedback on this topic. While this report should not be interpreted as representing the official positions of the countries mentioned, it does provide a view into the situation in these countries as regards stakeholder involvement in post nuclear emergency management. It also draws out some preliminary conclusions and from these five contexts, recognising that the main intent of this report is to provide input into the workshop discussions, which has as a main objective to “identify commonalities in strategies, good practices, as well as limitations for developing effective stakeholder involvement processes as part of preparedness”, based on all of the information presented and discussed during the workshop.

Definitions

In this report, the term *stakeholder* refers to organisations and individuals that will be affected by an emergency situation and will be involved in or affected by its management, including governmental and non-governmental organisations and civil society (industry, public, etc). A broad range of stakeholders may be implicated in the decision-making framework in terms of providing inputs, outputs, information, needs and perspectives, with the intent of facilitating decisions better suited to a particular situation. However, while stakeholders interaction provides input into the decision-framing process, the responsibility for decision-taking in preparedness and response rests with the relevant decision-makers.

Preparedness refers to the ensemble of legal, regulatory and institutional frameworks, emergency plans, procedures, arrangements, infrastructure, training and other support actions needed to ensure a capability of all concerned actors to respond to an emergency situation and its consequences along the emergency management timeline.

Post-(nuclear) emergency management encompasses all preparedness and response aspects associated with the period following the early or crisis phase (i.e., consequence management and transition to recovery).

OVERVIEW OF THE STATUS OF ORGANISATIONAL ADAPTATION TO STAKEHOLDER INVOLVEMENT IN POST NUCLEAR EMERGENCY MANAGEMENT IN THE FIVE CONSIDERED COUNTRIES

FINLAND

Legal, regulatory and institutional framework

Finland is a unitary State. Its nuclear emergency management arrangements are governed by a global legal framework that addresses all types of risks and threats. The *Emergency Powers Act (1991)* sets an obligation on all authorities in Finland 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 23 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.

The regular lines of authority for responding to emergencies and the responsible organisations under normal conditions are maintained as far as feasible in all exceptional situations. Subject to legislation, the competent authorities are always in charge of decisions concerning their own administration sectors. State and municipal authorities as well as the private sector have to cooperate and coordinate their respective measures. Depending on the cause of the situation, the same applies to the representatives of the business community and NGOs. There are coordination bodies established in all levels of administration.

In case of a nuclear or radiological emergency, the Radiation and Nuclear Safety Authority (STUK) makes a safety assessment of the situation and gives recommendations for protective measures to all authorities at local, provincial and national level as well as advises private actors.

Identification of stakeholders concerned by post-emergency issues

Various public authorities and agencies are involved in nuclear emergency and post-emergency management (agriculture and food, health, traffic control, manufacturing, etc). Local authorities were also identified as concerned stakeholders. In the Finnish legal and institutional framework, private stakeholders play a specific role based on the Finnish tradition of “public-private partnership” (this term is preferred to “stakeholder engagement” or “stakeholder involvement”), in which co-operation is organised on an expert level between public authorities and the business sector and covers the most important social sectors.

The National Board of Economic Defence (NBED) was created in 1955 for ensuring extensive cooperation between public authorities and the business sector. It was abolished in summer 2008 and the function of organising public-private partnerships was transferred to National Emergency Supply Agency (NESA). Securing supply in Finland has been organised as a comprehensive co-operation network. Participants are various sectors of the public administration and business, as well as branch organisations.

Emergency preparedness is extended to cover the entire national economy and to reach all its branches, including certain plants producing goods and services that are necessary for securing supply. Various sectors of public administration, from central government to local administrative agencies, are prepared to take the necessary measures under emergency conditions. NESA supports, guides, and coordinates the development of these activities. NESA includes 24 sector-wise pools managed by the business sector and responsible for operative preparedness in the concerned sector (food, communication, energy, forest industry, etc). NESA's task is to analyse threats against the country's security of supply, to plan measures to control these threats, and to promote preparedness planning in individual industrial sites. The national Emergency Supply Organisation (NESO) also includes a high level Council for Security of Supply and Infrastructure (CSSI) and an executive National Emergency Supply Agency (NESA). Through this organisation, the industry and business sectors constitute a privileged stakeholder with which authorities closely cooperate. However, as regards nuclear issues, the pools are most often mobilised on emergency preparedness than on post-emergency issues. NGOs and citizen groups were not mentioned as key stakeholders.

STUK considers cooperation with media as essential for efficient transmission of information of an unusual event to the public and puts special emphasis on this aspect. There is a 24 hour phone service at STUK through which the general public and media can reach STUK's experts any time. STUK also organises annual training courses for journalists, and representatives of media take part in emergency exercises as players as well as evaluators of quality of public information.

Concerning prior information for nuclear and radiological emergencies, the licensees of nuclear power production deliver detailed information to all citizens living in the emergency planning zones. In addition, there are instructions for radiation hazards in all telephone directories throughout the whole country.

Stakeholder involvement tools and practices

Several specific stakeholder involvement actions carried out in the field of post-emergency preparedness were identified.

First of all, private stakeholders are associated to emergency exercises. For example, as a result of a post-exercise debriefing, a working group was formed with stakeholders on the issue of the radioactive waste generated by post-emergency management activities. STUK has also supported the development of guidance for farmers by food industry. Finally, STUK and other possible organisations from administration also organise training for stakeholders or participates in training organised by non-governmental rescue services and in training organised by pools.

Rationales for working with stakeholders on post-emergency issues

The interviewees elaborated a series of rationales for cooperating with stakeholders on post-emergency issues. At first, interviewees stressed that a nuclear event would affect all sectors of society. As a consequence, if the concerned stakeholders do not take part into planning, the response may not be sufficiently coordinated and could possibly fail.

The interviewees also expressed the need to set up in advance adequate "rules of the game" and to strengthen the capability of radiation protection organisations and stakeholders to cooperate, communicate and coordinate. A specific need for cooperation with stakeholders was expressed in the field of monitoring. It was stressed that, in the case of a nuclear emergency, radioactivity monitoring could be necessary in the whole country, even in areas with low or no contamination. However, monitoring resources are limited. It is therefore necessary to take into account all monitoring resources and capabilities of society at the

national and at the local level, including possible resources of the private sector (e.g. monitoring capabilities of the food industry).

Finally, cooperating with stakeholder in preparedness phase was also identified as a means to improve the capacity of public authorities and technical support organisations to advise stakeholders in during emergencies.

FRANCE

Legal, regulatory and institutional framework

France is a unitary State with a certain extent of decentralisation. The Prefects, representatives of the State in the regions and departments (territorial sub-units of the regions), are in charge of the implementation of government policies at the territorial level.

The existing legal and regulatory framework is limited to emergency situations. In France, the department Prefects are the decision-takers as regards emergency plans and emergency management concerning the protection of population and properties threatened by the accident. During emergency management, the ministries and the Nuclear Safety Authority (ASN) advise the Prefect by providing information and opinions. The Institute of Radiation Protection and Nuclear Safety (IRSN) has a technical support role (technical advice, measurements, simulations, activation of a crisis centre, etc) to public authorities (including ASN, Ministries and the Prefectorates).

A specific legal and regulatory framework for post-emergency management is under development since 2005. This process was initiated on 7 April 2005 by an inter-ministry instruction through which the Government commissioned ASN to coordinate the development and implementation of a post-emergency framework in cooperation with the concerned ministries. To achieve this, ASN set up in June 2005 the Executive Committee on Post-Accident Issues (CODIRPA).

As regards nuclear activities in general, a particular feature of the French institutional context is the existence of Local Liaison Committees (CLI) in the vicinity of nuclear sites. The CLI have a general mission of monitoring, information and dialogue in the fields of nuclear safety, radiation protection and impact of nuclear activities on health and the environment as far as the facilities of the site are concerned. They gather a variety of local actors: elected representatives, social and economic actors, environmental NGOs and qualified personalities. Since 2000, the CLIs have formed a national association, the ANCLI, which facilitates exchange of experience and information between CLIs, establishes relations with national and international organisations, offers logistic and scientific support to the CLIs and commissions expertises and studies about any issue linked to environment protection and nuclear safety.

Identification of stakeholders concerned by post-emergency issues

Various types of public and private organisations at the national and local level were identified during the interviews as stakeholders with respect to post-emergency management issues.

At the national level, a wide range of identified stakeholders take part in the works of the CODIRPA through thematic working groups (see following section):

- Ministries (Health, Environment, Economy, Agriculture, Internal Affairs, Defence, Justice);
- Public safety agencies and technical support organisations (French Food Safety Authority - AFSSA, French Agency for Environmental and Occupational Health Safety - AFSSET, IRSN, Institute for Public Health Surveillance, Institute for Health Monitoring, National institute for the industrial environment and risks - INERIS);

- Other private or public scientific and technical organisations (Nuclear Protection Evaluation Centre - CEPN, National Institute of Agronomy of Paris-Grignon, Météo France weather forecast agency, regional health observatories);
- Local and national NGOs and their federations;
- Professional federations, institutes and associations (in particular in the food sector);
- Firemen and health professionals;
- Insurance sector.

In addition to these stakeholders, the interviews also identified stakeholders at the local level which would be concerned by post-accident preparedness and management:

- Local governments and administrations;
- Prefects;
- All local divisions of State administrations linked to the ministries concerned by post-emergency issues;
- Local services and professionals who would play an active role in the response to a post-emergency situation (e.g. health professionals);
- Local professionals whose activities may be impacted by a nuclear event (e.g. industries, farmers);
- NGOs;
- Lay citizens.

Stakeholder involvement tools and practices

CODIRPA: a structured mechanism for co-development of the French post-emergency doctrine

Currently, the CODIRPA initiative is the main tool for public authorities (and in particular for the Nuclear Safety Authority) to identify stakeholders' concerns and expectations. In a first phase (2005-2008), 11 thematic working groups were set up at the national level, gathering about 130 experts and a variety of stakeholders particularly concerned by the addressed theme. A specificity of the CODIRPA process is that the involved stakeholders directly participate in the elaboration of the elements of post-emergency doctrine prepared through CODIRPA.

In a second phase (2008-2011), the thematic working groups are continuing their work. To ensure integration of the work carried out in the different working groups, two transversal commissions have been established on the "management of the transition phase" and on the "long-term phase management". In addition to this work at the national level, stakeholder dialogue is organised at the territory level with territorial divisions of State administrations on the one hand and with civil society on the other hand.

Other stakeholder involvement practices in the post-emergency field

In the French context, several practices of stakeholder involvement in the post-emergency field were developed before the CODIRPA process. In 1990, a first booklet on post-emergency management in the field of agriculture was developed by the Institute for Nuclear Safety and Protection (IPSN, which was transformed in 2002 into IRSN). The first crisis exercise including a post-emergency dimension was

organised in 2003. The post-emergency dimension of such exercises has been developed since the Golfech exercise of June 2008.

From 2003 to 2009, ASN and IRSN took part in the EURANOS¹ integrated European research project on post-emergency preparedness and management. Several activities of the EURANOS project developed participatory research methods involving stakeholder groups. Both ASN and IRSN took part in a stakeholder group within the context of a research activity aimed at developing a strategic framework for the elaboration of sustainable rehabilitation strategies in case of long-term contamination, including guidance on its application. IRSN was also a member of a research team for an activity aiming to develop a generic handbook for the management of contaminated food production systems in Europe in cooperation with agricultural technical centres and institutes.

In parallel to the work of the first phase of CODIRPA, ASN has developed a participatory assessment of the post-Chernobyl management experience through the PAREX project (2005-2006). This assessment relied on a series of seminars involving a pluralistic group of local and national stakeholders of about 30 people (including members of the CODIRPA working groups). It allowed a series of lessons relevant in the French context to be drawn from the Belarusian post-Chernobyl experience and a set of recommendations to be issued to public authorities in the perspective of a process of post-emergency preparedness in France.

From 2005 to 2007, a handbook on post-emergency management directed at farmers was developed by IRSN and a farmers' professional association (ACTA) at the joint request of the Ministry of Agriculture and of ASN.

From 2007 to 2009, IRSN developed the PRIME research project (IRSN, 2007-2009) which aimed to develop indicators of vulnerability of a territory to a nuclear emergency. The methodology of this project involved pluralistic working groups of local governments and other local actors of the Rhône valley.

Actions developed by stakeholders in the post-emergency field

In the French context, local communities have developed on their own initiative specific actions on post-emergency issues. For example, since 2004, the community of towns of Montbéliard has developed a pilot project on radiation protection with the technical and methodological support of the Nuclear Protection Evaluation Centre (CEPN). Since the beginning of 2006, a specific component on post-emergency preparedness has been developed in the framework of this pilot project.

Since 2007, the CLIs and the ANCLI have progressively engaged autonomous reflections on post-accident issues. This engagement has notably been triggered by the participation of members of several CLIs and of their national association, the ANCLI, in the stakeholder groups of the PAREX project and EURANOS European research project.

In May 2007, the CLI of Golfech organised, in partnership with the ANCLI, the Community of Towns of Dunkirk, the Community of Towns of Montbéliard and the Association of Local Governments of Communities Hosting Nuclear Facilities (ARCICEN), a seminar on “Territories and post-nuclear accident issues”. The seminar allowed the participating CLIs to exchange experience with delegations of Norwegian and Belarusian local actors confronted with actual post-emergency situations resulting from Chernobyl fallout. During this seminar, ASN and IRSN also presented their work on post-emergency issues.

¹ EURANOS: European approach to nuclear and radiological emergency management and rehabilitation strategies (<http://www.euranos.fzk.de/index.php>)

Following the Golfech seminar, the ANCLI created in September 2007 a permanent working group “Territories and post-nuclear accident issues” bringing together 12 CLIs. This working group aims to support the CLIs which engage in reflections on post-accident issues through networking, information exchange, sharing of expertise and reflections, and provision of technical tools to support investigations carried out by the CLIs on post-accident issues at the local or the national level.

In October 2009, a meeting between the ANCLI and IRSN was organised in order to discuss perspectives on cooperation between IRSN and the ANCLI in the post-emergency field. A representative of ASN also attended the meeting. Finally, in December 2009, a local association involved as a stakeholder in EURANOS and PAREX projects as well as in the works of CODIRPA organised a conference in Lille on “post-nuclear accident preparedness – involvement of local citizens and local actors in the governance of major hazards”. This included presentations by ASN and IRSN.

Rationales for working with stakeholders on post-emergency issues

The interviewees elaborated a series of rationales for working with stakeholders. A first concern expressed by the interviewees was to improve applicability and efficiency of post-emergency frameworks, tools and practices developed by public authorities. The activities of ASN and IRSN in the post-accident field raised awareness of the complex character of post-emergency situations, for which adequate response necessarily requires a diversity of skills, knowledge and expertise in different technical fields (e.g. nuclear issues and agriculture). This exceeds the scope of radiation protection organisations and is held by different actors. They also identified the need to mix traditional technical expertise with the expertise of stakeholders (knowledge of local context, practices and ways of life, specialised professional knowledge) in co-expertise processes. It was also seen as a necessity to develop not only co-expertise but also co-decision frameworks, tools and procedures for post-emergency management.

Beyond improving the applicability of the post-emergency doctrine under development, a key concern expressed by the interviewees was to develop public and private stakeholders’ awareness and interest in post-emergency issues and encourage them to put post-emergency issues on their own agendas. They also expressed the need to establish working relations with the various identified stakeholders and develop relations of trust. In this regards, supporting specific projects and actions developed by stakeholders (in particular local stakeholders) and organising training for local stakeholders who would be more directly involved in post-emergency management were identified as a potential direction of work.

Finally, the interviewees also considered stakeholder involvement as a means for public technical and scientific organisations to improve the quality of their own expertise in the post-emergency field. In particular, cooperation with stakeholders was seen as a necessity to ensure that the expertise provided by public organisations addresses the needs of local actors and can be easily understood and used. Post-processing of expertise results and the use of geographic tools to present the results were mentioned as possible directions of work. In the hypothesis of a post-emergency situation, specific needs for cooperation with stakeholders were identified in two fields:

- Dialogue with stakeholders and lay citizens on health issues will be necessary to answer their questions and concerns and to carry out health monitoring;
- Dialogue with local stakeholders is also needed for radiation protection organisations to improve the quality of their expertise through time, taking into account local specificities, in particular as regards predictive assessment of doses.

Identification of stakeholder expectations

According to the interviewees, the different projects and initiatives described above are the main channel for radiation protection organisations to identify stakeholder expectations and concerns, particularly as concerns local stakeholders. The main stakeholder expectations identified are related to the access of local stakeholders to information and expertise in the post-emergency field. A key concern of local stakeholders in a post-emergency situation is their access to measurements of radioactivity in the environment and in food products. Two points were raised concerning this issue:

- How can local stakeholders perform measurements of radioactivity in the environment and food products?
- How can local stakeholders have access to data produced by other actors (including IRSN)?

Finally, at the occasion of meetings or seminars with ASN or IRSN, local communities have also raised questions about the integration of post-emergency issues into the Community Safety Plans (Plans Communaux de Sauvegarde – PCS), which are multi-risk preparedness plans that local communities must develop according to the 13 August 2004 Law on modernisation of emergency preparedness.

Key issues for further development of stakeholder involvement

Involvement of local communities and stakeholders in the post-emergency field has been identified by the interviewees as a key stake for post-emergency preparedness. Developing partnerships with local communities and supporting territorial projects has been identified as a future direction of work. However, they also identified several difficulties to be overcome.

The interviewees pointed out that the work developed with stakeholders is still limited to a reduced “microcosm” of actors (including stakeholders taking part in the CODIRPA process) who are already aware of post-emergency stakes and issues. A key issue for radiation protection organisations is to go beyond this microcosm and reach a wider range of stakeholders, in particular local communities.

While radiation protection organisations are specialised institutions, local communities and stakeholders are exposed to a multiplicity of risks (non-nuclear technological risks, natural risks) and are not prone to massively invest energy and resources in the sole issue of post-emergency preparedness. Moreover, for elected representatives of communities which draw benefits from a nuclear facility (e.g., local tax income, employment, etc), it may be difficult to address possible negative effects of the facility.

Local communities in the vicinity of nuclear sites are already equipped with a local dialogue structure (the CLI) and have developed awareness and skills as regards nuclear issues. This facilitates exchanges with radiation protection organisations, with which the CLIs already have regular contacts. However, as the consequences of a nuclear event can impact territories beyond the immediate vicinity of a nuclear facility, a key issue for radiation protection organisations is to find ways to raise awareness and facilitate preparedness of local communities which do not have a nuclear culture. At the present time, the Community of Towns of Montbéliard is the only example of a local community without nuclear facilities which has developed post-emergency preparedness activities.

Drivers for developing stakeholder involvement in post-emergency preparedness and management

The interviews identified different drivers for addressing post-emergency issues and for developing related stakeholder involvement processes. At first, the occurrence of catastrophic events in France and abroad since 1999 has been a serious driver for considering the consequences of an accident beyond the emergency phase. The terrorist attacks of 11 September 2001 led public authorities to address the

possibility of a nuclear event resulting from a terrorist attack. Several other catastrophic events in France reinforced this trend towards consideration of post-emergency issues: the severe storm which struck France in December 1999, a major accident in a chemical factory in Toulouse in September 2001 and the serious heat wave which struck Europe in summer 2003 and caused about 15 000 casualties in France.

The creation of IRSN as an independent institute in 2002, and of ASN as an independent administrative authority in 2006, made it easier for these institutions to address post-emergency preparedness and management. Personal commitment of the top management of these organisations was also identified by the interviewees as a key driver for change.

As regards the development of stakeholder involvement in post-emergency issues, the engagement of both ASN and IRSN in several projects in the post-emergency field (PAREX project, EURANOS European research project and the CORE programme – Cooperation for Rehabilitation of living conditions in the contaminated territories of Belarus) were identified by the interviewees as drivers for change insofar as they highlighted the benefits of stakeholder involvement in this field.

Finally, the internal principles and strategy of both ASN and IRSN were also identified as drivers for change. Transparency is among the key principles of ASN. During the interview, it was highlighted that ASN implements active transparency by developing regulatory frameworks in cooperation with concerned stakeholders. Since its creation in 2002, IRSN has progressively developed a global strategy of openness to society which was pushed by the top management and made a strategic priority for the institute. A specific division of the institute - the division for openness to society - was created in March 2006 to facilitate the implementation and further development of this strategy. Pilot actions were developed by IRSN in different fields to test new methods of cooperative work with stakeholders. However, at the present time, no such pilot action has been developed in the post-emergency field.

NORWAY

Legal, regulatory and institutional framework

Norway is a unitary State. Nuclear emergency preparedness and management is governed by the *Act and Regulations on Radiation Protection and Use of Radiation* (2000), the Royal decree of 17 February 2006, *Nuclear preparedness – national and regional organisation* (update of royal decree of 28 June 1998) and the *Act on Nuclear Energy Activities* (1972).

The Crisis Committee for Nuclear Preparedness (CCNP) has authority as regards emergency preparedness and response. It is chaired by the Director General of the Norwegian Radiation Protection Authority (NRPA). The secretariat of the committee is performed by NRPA. The CCNP is composed of representatives of:

- The Norwegian Radiation Protection Authority;
- The Directorate for Civil Protection and Emergency Planning;
- The Ministry of Defence;
- The National Police Directorate;
- The Norwegian Directorate of Health and Social Services;
- The Norwegian Food Safety Authority.

The CCNP is authorised to take decisions and order or recommend the implementation of detailed, specific measures during the acute phase of an accident. In later phases, responsibility of management lays on sectorial administrations depending on their remit.

The CCNP is the core of the full Norwegian Nuclear Preparedness Organisation which has representatives from ministries, research institutes, directorates and county governors. County governors are responsible for coordinating plans of the various regional authorities at the regional level. A coordination group with representatives from NRPA and 3 county governors meets 3-4 times per year. However, this committee mainly focuses on emergency planning issues.

A specific experience of post-Chernobyl management

Norway was heavily impacted by Chernobyl fallout. Milk and meat in impacted areas were highly contaminated. In particular, reindeer breeding and trade, which are the main activities of the Sami people, was severely impacted. After the Chernobyl accident, a rehabilitation strategy was elaborated by radiation protection, food control and animal health authorities under the Ministry of Health and Ministry of Agriculture. Rehabilitation involved elaboration of countermeasures and strategies by central actors (i.e. the authorities and the Agricultural University of Norway). These were later adapted to and implemented at local and regional levels by local offices of the authorities which were supplied with monitoring equipment. Banning of contaminated meat and milk was a highly unsatisfactory countermeasure, however, it was the only applicable one in the first period of the fallout. Therefore, live monitoring of animals prior to slaughter and subsequent clean feeding, as well as distribution of Prussian blue in boli, salt licks and

concentrates, were developed as measures. For reindeers, a change of slaughter season was also used as a countermeasure. These measures are still applied for sheep, cows, goats and reindeer in Norway. Farmers are compensated by the Norwegian government for the extra expenses incurred to produce meat and milk below the intervention limits of 600 and 370 Bq/kg, respectively.

Reindeers are particularly sensitive to radiocaesium contamination and it was soon realised that the reindeer-breeding Sami population was facing a great challenge to produce reindeer meat below the intervention level of 600 Bq/kg. During the first year of the post-accidental situation, the decision was taken by governmental authorities to stop the systematic slaughtering of contaminated reindeers and to raise the radiological intervention level from 600 to 6000 Bq/kg for reindeer meat for sale. The decision was based on the fact that the general Norwegian population has a very low consumption of reindeer meat per year and that such an increase was necessary to sustain reindeer breeding in Norway. Although aimed at sustaining the economic development of Sami populations, the decision was challenged and argued by these populations. Specific compensations were, and are still, given to reindeer herders so that they can further reduce the contamination levels in reindeer for domestic consumption to 600 Bq/kg or buy less contaminated meat.

After the post-Chernobyl monitoring and countermeasures system was put into place and operated routinely, contacts between public authorities and stakeholders decreased over the years. Following reorganisation of the food safety sector in 2004, the governmental laboratories for food control were privatised. Radioactivity measurements of foodstuffs now relies mainly on private laboratories whose numbers are constantly declining. Today, public authorities are considering updating the post-Chernobyl management system. However, difficulties to develop a shared understanding of post-emergency issues between the different concerned administrative sectors were noted.

Identification of stakeholders concerned by post-emergency issues

The interviewees identified various types of public and private organisations at the national and local level that are considered as stakeholders with respect to post-emergency management issues:

- Ministries (Health, Environment, Economy, Agriculture and Food, Defence, Justice);
- Local authorities (county governors, local and regional divisions of food safety authority);
- Local governments (counties, municipalities);
- Food safety authority;
- Private laboratories performing radioactivity measurements;
- Sami organisations;
- Professional organisations (e.g. in the field of agriculture);
- NGOs.

Stakeholder involvement tools and practices

Three different stakeholder involvement practices were pointed out during the interview. The first one is the organisation, by NRPA, of training and exercises for county governors representatives and municipalities. Emergency preparedness training is organised approximately every 3 years in each county.

The second was an exercise performed with the full Norwegian Nuclear Preparedness Organisation in 2004 where ethical perspectives in post-emergency management were addressed. The exercise highlighted

the number and variations of different stakeholders in a post-emergency situation and the challenge of protecting and dialoguing with all of them.

The third stakeholder involvement practice identified was the development of a pilot study on post-emergency preparedness and management by NRPA with a panel of stakeholders. This pilot study was developed in the framework of the EURANOS integrated European research project (2004-2009), in which NRPA was a member of the research team. As part of the pilot study, two 2-day meetings were held in spring 2008 with about 25 delegates from local communities, reindeer herders, agriculture, industry, fisheries, outdoor groups as well as national and regional authorities. Participants had different experiences from the Chernobyl disaster. The first seminar was held in a region still affected by contamination from the Chernobyl accident (Nord-Trøndelag), and one in Oslo (to ensure maximum participation from national authorities). The purpose of the first seminar was to exchange experiences of the Chernobyl accident, and to identify the most urgent problems should another incident occur. The seminar consisted of talks and visits to introduce the group to the theme and the participants to one another. The group was asked to identify the main problems and issues for discussion at the following meeting (i.e., the identification stage of the method). The second seminar was held 5 weeks later, and was organised to provide a focused discussion of the identified themes, with the aim of producing concrete recommendations for authorities and decision-makers.

The recommendations from the pilot study included the following:

- At the local level, nuclear emergency preparedness should be strengthened with the aid of:
 - Local measurement stations;
 - Communal emergency plans;
 - Involvement of the primary health services;
- At the State level, nuclear emergency preparedness should be strengthened with the aid of:
 - Sector-wide implementation of countermeasures on a regional and local level;
 - Improved follow-up of the municipalities;
- There is a particular need for both the Food Safety Authority and the health sectors to clarify their roles in emergency preparedness;
- The present knowledge and competence needs to be maintained and developed in the form of:
 - Documentation and transfer of experience from Chernobyl;
 - Improving the knowledge on radioactivity in the general public;
 - Dissemination on the conclusions of research and studies;
- Information strategies are an important means of alleviating psycho-social stress in the public. Information must be consistent, based on local measurements (in affected areas) and be available in more languages than Norwegian and Sami;
- Any eventual reduction in the food intervention level for radioactive caesium in reindeer meat needs to be evaluated with respect to social, health, cultural and economic factors. At the present time, the benefits of such a reduction appear to be small compared to the disadvantages;
- The roles and division of responsibilities between industry and authorities should be clarified with respect to risks to market and image perception and measurement capacity.

Rationales for working with stakeholders on post-emergency issues

Several main rationales were identified by the interviewees for engaging with stakeholders. The foremost rationale for developing stakeholder involvement in post-emergency management is the awareness that a successful implementation of countermeasures can be developed only in cooperation with stakeholders. This awareness is based on the specific post-Chernobyl experience of the country. It is necessary to harmonise the stakeholder decisions with the authority decisions, since stakeholders will initiate actions on their own in event of a lack of information/action/dialogue with authorities.

It is also important to ensure good coordination between administrative sectors. In particular, it is necessary that each administrative sector concerned by post-emergency preparedness is aware of its responsibilities, and has adequate post-emergency plans. It is important that post-emergency plans are established at all levels in a coordinated way, including at the local level.

Finally, the last rationale pointed out by the interviewees for developing stakeholder involvement in the post-emergency field was the concern of ensuring good communication with the public.

Drivers for developing stakeholder involvement in post-emergency preparedness and management

Two different drivers for developing stakeholder involvement in post-emergency issues were pointed out during the interviews. The first one is the growing demand of civil society to be involved in the preparation of decisions that affect citizens.

The second driver is linked to the NRPA pilot study on post-emergency preparedness and management developed in the framework of EURANOS. A recent presentation of the outcomes of the study has triggered the desire of some administrative sectors to develop cooperation with stakeholders.

UNITED KINGDOM

Legal, regulatory and institutional framework

The United Kingdom is a unitary State with devolved competencies to Scotland, Wales and Northern Ireland. Nuclear emergency preparedness and management is governed by the *Radiation (Emergency Preparedness and Public Information) Regulations* (REPPPIR, 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.

In the UK, work on recovery and rehabilitation is carried out at national, regional and local levels. Regulations in the form of legislation for planning and response ensure that partnership is carried out between and within each level by 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.

In the event of a major UK accident or emergency, the response is managed primarily at the local level, and generally under the operational coordination of the police or local authority. The Health Protection Agency – Radiation Protection Division (HPA-RPD) provides expert advice and information on the radiological aspects of any emergency (including public protection measures) to the government and any strategic group set up to manage the response.

The Nuclear Emergency Planning Group (NEPLG) was created in 1990 under the Department of Energy and Climate Change (which chairs the NEPLG). It brings together institutional stakeholders, the local government association and professional associations (police, ambulance, etc). A Nuclear Recovery Planning Group has been established as a sub-group under the auspices of the NEPLG and is chaired by a member of the Environment Agency. There are strong links between these groups and the regional and local resilience teams set up under the UK resilience policy (which addresses all types of risks).

Note: The present study has focused on HPA-RPD and the Environment Agency.

Identification of stakeholders concerned by post-emergency issues

The interviewees identified various types of public and private organisations at the national and local level that are considered as stakeholders with respect to post-emergency management issues:

- Central government departments: Department of Energy and Climate Change, Department of Environment, Food and Rural Affairs (DEFRA), Department of Health, Department for Transport;
- National agencies/authorities : Health Protection Agency (in particular its radiation protection division), Environment Agency, Food Standards Agency, Health and Safety Executive (HSE), Nuclear installations inspectorate, Nuclear Decommissioning Authority (NDA);
- Meteorological Office;
- Government Decontamination Service;

- Local Governments and their associations;
- Other local bodies, depending on the considered territory (e.g. National Park Authority, local tourism board, etc.);
- Local professionals involved in post-emergency management (ambulance service, police, fire officers, etc) and their associations and unions;
- Other local professionals (e.g. farmers) and their unions;
- NGOs.

Stakeholder involvement tools and practices

Several initiatives were taken in the UK to facilitate stakeholder involvement in post-emergency preparedness.

In 1997, the Agriculture and Food Countermeasures Working Group (AFCWG) was formed to involve stakeholders in the development of strategies for managing agricultural land and products following a nuclear accident. Since its creation, the working group has met regularly (at least yearly). The Group is chaired by the Food Standards Agency (FSA), with the technical and minutes secretariat provided jointly by FSA and HPA-RPD. The composition of the Group has evolved since its inception and currently includes 21 representatives, including central government, devolved administrations, local governments, professional groups and unions and NGOs. The terms of reference agreed at the first meeting of the group are:

- to improve communication links between stakeholders;
- to establish routes for the wider dissemination of information on countermeasures;
- to encourage informed debate on the practicability of options;
- in the event of an accident, to contribute to decisions on countermeasure strategy.

HPA-RPD developed a recovery handbook for radiation incidents in 2005, which was most recently updated in 2009. It comprises 3 standalone handbooks to assist in the management of contaminated food production systems, inhabited areas and drinking water. The handbook for food production systems in particular has been developed in close collaboration with the AFCWG. Further stakeholder involvement in the development of these handbooks has been possible under the framework of the EURANOS integrated European research project. The handbooks can be used as a preparatory tool under non-crisis conditions to involve stakeholders and to develop local and regional plans. The handbooks can also be applied as part of the decision-aiding process to develop a recovery strategy in conjunction with stakeholders following an incident. In addition the handbooks are useful for training purposes and during emergency exercises.

Exchanges between the Nuclear Recovery Working Group of the NEPLG and local authorities (in particular emergency planners) also occur during the local government nuclear seminar organised by the Local Government Association.

Following a number of incidents (e.g. Buncefield fire, flooding), it became apparent that local responders needed more comprehensive guidance to support them in dealing with the recovery stage of emergencies. In 2007, the National Recovery Working Group produced generic National Recovery Guidance to deal with a wide range of risks. The guidance is reviewed and updated on a three-month basis. The NEPLG has used the generic guidance to develop a national Nuclear Recovery Plan Template (2009), which is being adopted by local authorities and incorporated in their local nuclear recovery plans. The plans include advice to set up a Strategic Recovery Co-ordinating Group with a number of specialist

subgroups (monitoring, environment and infrastructure, health and welfare, communications, finance and legal, business and economic) to co-ordinate local, regional and national response. The recovery plans are tested through annual exercises.

Rationales for working with stakeholders on post-emergency issues

Several main rationales were identified by the interviewees for engaging with stakeholders:

- Improve coordination between local, regional and national authorities and agencies;
- Improve quality of technical tools (e.g. handbooks or template nuclear recovery plans) and adequacy to stakeholders' needs;
- Ensure applicability of plans;
- Gather the necessary expertise (e.g. on water management, agriculture, etc.);
- Develop stakeholder awareness of post-emergency issues and stakes;
- Facilitate the involvement of local communities into post-emergency planning.

Drivers for developing stakeholder involvement in post-emergency preparedness and management

The interviewees identified different drivers for addressing post-emergency issues and for developing related stakeholder involvement processes. A key driver for tackling post-emergency issues in the UK context is the Civil Contingency Act (2004), which makes necessary to address resilience and recovery issues for all types of risks.

As regards the development of stakeholder involvement, several trends were identified. Developing stakeholder involvement is now a general trend of UK government policies. Both as a result of this trend and of the implementation of the Civil Contingency Act, HPA has developed a stakeholder involvement policy which was issued in 2009.

Finally, experiences of stakeholder involvement for other nuclear issues (e.g. stakeholder involvement activities of the Committee on Radioactive Waste Management or the development of a stakeholder involvement strategy by the Nuclear Decommissioning Authority) were also identified drivers for developing stakeholder involvement in the post-emergency field.

UNITED STATES

Legal, regulatory and institutional framework

The USA is a federal State. At the Federal level, the Nuclear Regulatory Commission (NRC) is responsible for developing the regulatory framework for civil uses of nuclear materials and guidance for its application at NRC-licensed facilities. As set forth in the National Response Framework (NRF), emergency management coordination responsibilities for nuclear/radiological incidents are shared among various federal agencies. These agencies include the NRC, the Environmental Protection Agency (EPA), the Department of Defence (DOD), the Department of Energy (DOE), the Department of Homeland Security (DHS), including Customs and Border Protection and the U.S. Coast Guard, and the National Aeronautics and Space Administration, depending on the nature and location of the radiological incident.

State emergency management agencies are responsible for emergency and post-emergency planning and management. The Federal Emergency Management Agency (FEMA), also a part of DHS, is the federal interface with States and local governments with regard to emergency preparedness for nuclear power plants. NRC provides assistance in offsite preparedness through its membership on the Regional Assistance Committees (RAC), which is coordinated by FEMA.

Note: In the framework of this study, the role and practices of the New York State Emergency Management Office were more specifically investigated as an example of state-level emergency management.

Identification of stakeholders concerned by post-emergency issues

Depending on the level of jurisdiction concerned (Federal or State level), different stakeholders were identified through the interviews. At the federal level (NRC), the main stakeholders identified by NRC as regards to post-emergency issues were FEMA, State Emergency Management Agencies, members of the public (mainly NGOs) and local governments. The NRC does not engage with the business sector (with the exception of its licensees).

At the level of the New York State Emergency Management Office, the stakeholders identified as particularly concerned with post-emergency issues were:

- County governments and local governments;
- New York State Departments of Health, New York State Department of Environmental conservation, New York State Energy, Research and Development Authority, and other State departments;
- Transportation agencies;
- Police, firemen and other professionals involved in post-emergency management;
- Federal government, NRC, FEMA (secondary stakeholder);
- Federal Radiological Monitoring and Assessment Centre (FRMAC).

Finally, it is noted that the New York State Emergency Management Office does not engage with NGOs and citizen groups, as they are not directly involved in post-emergency management. During the corresponding interview, it was stressed that the New York State Emergency Management Office is not a regulatory body with which NGOs can communicate to comment on draft regulations.

Stakeholder involvement tools and practices

The stakeholder involvement practices of the NRC are partly determined by its position as a federal agency. The NRC does not develop stakeholder involvement activities at lower jurisdictional levels (State, county and local communities) as this is the responsibility of the corresponding jurisdiction. In the post-accident field, stakeholder involvement activities of NRC are of limited intensity and essentially go through the NRC's traditional channels of communication with stakeholders. This includes spontaneous comments sent by NGOs on regulation projects. NGOs and other stakeholders have access to information on all regulatory changes through the Federal register, in which all regulatory changes are notified, with a public comment period varying from 45 to 90 days. In addition to this, the NRC proactively consults stakeholders in written form by sending draft documents and asking for comments.

Contacts between the NRC and stakeholders are facilitated by the NRC Preparedness and Response Division outreach team of 5 people who attend meetings at the request of stakeholders and make presentations and also proactively participate in conferences attended by stakeholders in order to develop informal contacts. Finally, NRC has also recently conducted stakeholder surveys (in particular with emergency response officers at the local and State level) in order to know how they would react to new provisions of NRC regulations.

With respect to New York State, the New York State Emergency Management Office has developed actions directed towards stakeholders in the emergency and post-emergency field. These activities are however mainly focused on the emergency phase. Crisis exercises for nuclear facilities are limited to the emergency phase and do not involve the participation of the local population in order to avoid risks of harming people. However, in the State of New York, national level post-emergency exercises on Radiological Dispersal Device (RDD) incidents in urban environments (e.g., 2009 EMPIRE exercise organised by the USDOE National Nuclear Security Administration), have shown a growing concern for stakeholder involvement. The EMPIRE exercise, which considered short term consequence management (48 hours after the incident) and longer-term recovery, led the participating federal, State and local agencies and authorities to discuss which stakeholder groups should be more specifically involved, and to anticipate the roles and demands of the stakeholders.

The New York State Emergency Management Office organises training for firemen, county police and other professional involved in emergency and post-emergency management. It has regular contacts with the county authorities concerned with emergency plans. Standard quarterly meetings with county authorities are organised with possible participation of the NRC and FEMA. Finally, the New York State Emergency Management Agency commissioned an emergency preparedness review for residents living within 10 miles of the Indian Point nuclear power facility with the support of federal funds. This review, conducted from 2004 to 2005, included a public outreach programme. It was however focused on emergency preparedness and did not address post-emergency issues.

As regards post-emergency issues, training sessions on immediate re-entry were organised for the 7 county authorities concerned by emergency plans. Tabletop exercises on long-term recovery have been organised with the authorities of the 4 counties surrounding Indian Point nuclear site.

Finally, it is noted that no specific demand from stakeholders was identified by the interviewees in the field of post-emergency management.

The Environmental Protection Agency (EPA) is the coordinating agency for environmental response and cleanup for radiological incidents on land not otherwise covered by NRC, DOD, DOE, or DHS authority. Including stakeholders in preparedness and post-emergency management decisions is an important priority of the EPA. Stakeholder involvement practices for post-emergency management follows the *EPA Stakeholder Involvement Action Plan*. Also, the Office of Emergency Management, part of EPA's Office of Solid Waste and Emergency Response, runs a *Community Engagement Initiative* that aims to involve local stakeholders in decision-making for land cleanup, emergency response, and the management of hazardous substances and waste. (Note: The results of the Empire 2009 exercise were taken into account in the organisation of the US EPA-sponsored Liberty RadEx exercise (2010) in Philadelphia, Pennsylvania. This exercise also considers post-emergency issues (including recovery) based on a radiological dispersion device scenario, and includes meetings to involve stakeholders on waste staging, disposal, and choosing cleanup priorities).

Rationales for working with stakeholders on post-emergency issues

Two main rationales were identified by the interviewees for engaging with stakeholders. The first one is the need for adequate coordination between public agencies and departments. The second one is the need for stakeholders to be prepared for implementation of measures. For example, in the State of New York, schools located within the 10 mile Emergency Planning Zone inform parents about potassium iodide tablet distribution and require them to sign a declaration if they do not want their children to take these in an emergency.

Drivers for developing stakeholder involvement in post-emergency preparedness and management

The interviewees identified different drivers for addressing post-emergency issues and for developing related stakeholder involvement processes.

First of all, in a given State, the existence of particular risks for nuclear facilities, in particular natural risks (e.g. storms and hurricanes, floods) constitutes an incentive to go beyond emergency preparedness and address post-emergency issues. Moreover, the terrorist attacks of 11 September 2001 were a strong driver to consider the possibility of nuclear events resulting from hostile acts. The aftermaths of the attacks also showed that health monitoring of affected people will be necessary for a long time (possibly lifetime). Hurricane Katrina in 2005 also raised awareness among public authorities to consider longer term issues and in particular has shown that evacuees might not be able to return to their homes quickly. FEMA has asked that crisis exercises to be organised in 2010 and beyond include hostile acts scenarios.

The interviewees also identified several drivers for developing stakeholder involvement in post-accident issues. For example, the possibility of emergencies resulting from malevolent acts (in particular attacks on nuclear sites) has led the NRC to change its general methods and develop stakeholder involvement for the licensing of new nuclear reactors and license extension of existing reactors. Stakeholder involvement in post-emergency issues has been developed within the work of the Preparedness and Response Division outreach team. The interviewees also expressed the need for more visibility on emergency and post-emergency preparedness and more intensive communication between jurisdictions and agencies. Finally, they also highlighted that stakeholder involvement was a necessity for tackling longer-term issues (both in the perspective of preparedness and management) as the decisions for long term recovery are much less straightforward and "linear" and are more political in nature than for emergency and early phase post-emergency management.

It was also highlighted that the NRC's internal principles and strategy also give provision for stakeholder involvement in the various issues addressed by the NRC. Thus, the NRC's strategic plan for 2008-2013 period includes general principles of transparency and openness and points out a "need for

effective and open communication with public stakeholders about a variety of issues” including emergency management. The NRC has elaborated guidance for licensing procedures on how to implement these principles. However, there is no such guidance as regards post-emergency preparedness and management. Finally, outreach to stakeholders is a criterion taken into account in the evaluation of NRC by the Congress. It is also among the considered criteria or the evaluation of NRC staff members.

EPA’s strategic plan includes general goals of transparency, information and collaboration (in particular with States, tribes, other federal agencies, local governments and other countries). In the specific field of emergency and post-emergency preparedness and management, EPA identified the difficulty of communicating with stakeholders on radiological issues during several radiological emergencies, and, as a result, has developed a crisis communications guide and training to help improve communications about radiological issues. The guide features responses to anticipated questions about radiation in easy-to-understand language. The guide has been distributed to NEA member countries and has been translated into German. EPA is now focusing on the development of messages for the post-emergency cleanup phase.

Finally, FEMA's Planning Guidance for Protection and Recovery Following Radiological Dispersal Device and Improvised Nuclear Device Incidents gives provisions for engaging stakeholders in the late phase of the response to an incident (i.e. when commencing recovery and cleanup actions designed to reduce radiation levels in the environment to acceptable level). According to this guidance, long-term decisions should be made with stakeholder involvement, and can also include incident-specific technical working groups to provide expert advice to decision makers on alternatives, costs, and impacts.

SUMMARY AND CONCLUSIONS

The NEA Member Countries surveyed for this work present a great variety of national political, institutional and cultural context and approaches as regards post-emergency management. The mandate and role of national emergency management organisation in different countries varies greatly, depending on the national political organisation (federation, unitary State, decentralised State) and on the institutional arrangements as regards nuclear safety and radiation protection (e.g. separation of regulatory and expertise functions or concentration of the two functions in a same organisation). Legal and regulatory obligations assigned to the different types of stakeholders (including local private stakeholders) concerned by post-emergency management also vary greatly from one country to another.

Stakeholder involvement in post-emergency management also depends on the experience of the considered country as regards nuclear issues. The capacity of stakeholders to mobilise on post-emergency management issues may thus be affected by the level of development of the nuclear energy sector and the organisation of dialogue on nuclear issues, in particular the prior existence of mechanism for structured multi-stakeholder dialogue on nuclear issues at the local or national level, or the existence of a structured organisation of local communities in the nuclear field. Post-emergency management is also affected by general trends towards increased involvement of stakeholders in environmental issues or, in some countries, towards decentralisation and increasing devolution of responsibilities and competences to the regional or local levels.

The survey reveals a general trend of emergency management organisations to address longer-term issues beyond the early or crisis phase. This change has been largely driven by the experience of catastrophic events in the last ten years. In particular, the September 2001 terrorist attacks in the United States have led emergency management organisations to consider the possibility of radioactive releases resulting from a malevolent act. In several countries, this concern is reinforced by the experience of other catastrophic natural events.

While involving various stakeholders in post-emergency preparedness, different emergency management organisations have pursued a multitude of objectives: informing concerned stakeholders and developing awareness of post-emergency issues and challenges, gathering comprehensive information for post-emergency planners, ensuring applicability of planned post-emergency measures, ensuring good coordination of authorities at the different territorial level and in different sectors (radiation protection, health, agriculture, transportation, etc.), and enabling the different concerned institutional and non-institutional stakeholders to prepare themselves to a post-emergency situation.

The survey also showed a diversity of tools and methods for stakeholder involvement developed by emergency management organisations. These include information and communication tools like surveys and opinion polls, proactive communication with stakeholders (including dedicated outreach teams with the specific mission to develop contacts and information exchange with stakeholders), and open or targeted consultation on draft documents (e.g. plans, recommendations, guides, etc). Stakeholder involvement tools also include cooperative work with stakeholders through thematic working groups at national or at territory level. These range from structured consultation to co-development of documents and tools. Finally, there are also tools and methods aimed at developing the awareness, capacities and preparedness of stakeholders, such as exercises, expert support and specific training for stakeholders.

In conclusion, it is clear from the survey of the five countries contributing to this report that the subject of stakeholder interaction with emergency management organisations raises several opportunities, challenges and issues that could benefit from a broader experience exchange and analysis. It is thus hoped that the this report will serve as a useful contribution to these discussions in the context of the CRPPH *Workshop on Practices and Experiences in Stakeholder Involvement for Post Nuclear Emergency Management*

**ANNEX 1
LIST OF INTERVIEWEES**

Finland	Hannele Aaltonen, Head of Emergency Preparedness, Radiation and Nuclear Safety Authority Orre Kyösti, Managing Director at Association of Logistic Enterprises in Finland, Member of the Land and Transport pool of the NESO
France	Didier Champion, Director of Environment and Intervention, Institute of Radiation Protection and Nuclear Safety Isabelle Mehl-Auget, Ionising Radiation and Health Department, Nuclear Safety Authority
Norway	Astrid Liland, Head of Section for Health and Environmental Assessments, Norwegian Radiation Protection Authority Dag-Otto Skar, former Governor of Sør-Trøndelag County
United Kingdom	Carol Attwood, Environment Agency, Chair of the Nuclear Recovery Planning Group Anne Nisbet, Health Protection Agency, Radiation Protection Division
United States	Andrew Feeney, First Deputy Director, New York State Emergency Management Office Patricia Milligan, Senior Advisor for Emergency Preparedness, Office of Nuclear Security and Incident Response, U.S. Nuclear Regulatory Commission

ANNEX 2 INTERVIEW QUESTIONS

General issues related to preparedness and post-emergency management

- Is your country already addressing a radiological situation? IF yes:
 - What is the role of your organisation in the **response** to this situation?
 - What are the other organisations & jurisdictions which have a statutory role in the response to this situation?
 - How does your organisation work with these organisations & jurisdictions, in particular as regards stakeholder involvement issues?
 - Who are the main types of stakeholders that are engaged in the response to this radiological situation? How were they identified? How does your organisation interact with these stakeholders?
- What is the role of your organisation in **preparedness and post-emergency management**? What are the other organisations and jurisdictions which have a statutory role in preparedness and post-emergency management?
- How does your organisation identify and address societal concerns in the field of preparedness and post-emergency management?
- Are the preparedness activities of your organisation focused on public authorities and public expert institutions or do they also include other concerned stakeholders? How? What are the targeted stakeholders?
- What are the main types of stakeholders involved in your preparedness activities? How did your organisation identify these stakeholders?
- Are there other relevant organisations conducting stakeholder involvement processes? What are the main stakeholders involved?
- What are the benefits that your organisation expects from stakeholder involvement
 - In the field of preparedness?
 - In the field of post-emergency response?

Historical aspects (when, why policy on stakeholder involvement)

- Were there changes in the field of preparedness or management of radiological situations during the last 15 years? In particular as regards stakeholder involvement? (*focus on changes affecting SI in the last 10 years*)
- Which major change led you to take up stakeholder involvement in the field of preparedness and post-emergency management? (e.g. date of new laws or government policies, major 'event', new

developments in preparedness and post-emergency management policy, more general concerns e.g. Aarhus convention)

- When did change happen?
- Was this in response to operational needs, lessons learned, experience from other countries or to organizational (high level) policy?
- Was change led from the top or driven by middle management, or by some other driver?

Legal and regulatory aspects, government policies

- Is there an existing legal or regulatory framework for post nuclear emergency preparedness and response? (*focus is on post emergency, and in particular SI aspects*)
- Are policies, regulations or standards for post-emergency preparedness and management currently developed in your country (or were developed during the last 5 years)?
- Are (or were) stakeholders involved in the development of these policies, regulations or standards? How? What is (or was) the expected role of the stakeholders involved in their development?
- Is there a legal or regulatory framework for tackling cross-border issues in post-emergency preparedness or management? In particular as concerns the involvement of foreign stakeholders?
- Are there bilateral agreements or informal contacts with foreign organisations as regards post-emergency preparedness and management? In particular as concerns stakeholder involvement?
- Are there specific requirements with respect to stakeholder involvement in nuclear or radiological protection regulation? What are the impacts of these requirements on the work of your organisation in the post-emergency field?
- Are there other regulations/guidelines that affect your activities in the preparedness and post-emergency management (links to legal requirements)?
- What other drivers are there? [Look at broader drivers for change (e.g. political/policy environment). Links to legal aspects. Leads to cultural change (?)] Change led from the top? E.g. cabinet-level.

Existence of specific policy for stakeholder involvement within the institution, specific drivers for change

- Do you have a general policy for stakeholder involvement? How is it applied in the field of post-emergency management?
- Do you have specific mention of stakeholder in your quality systems? (e.g. ISO 17025, 9001 require customer feedback)
- Is there mention of stakeholder involvement in your founding charter or e.g. Leadership/mission statement/strategic plan?
- Are the guiding principles of your organisation for stakeholder involvement summarised in a public document/charter (e.g. IRPA guiding principles/code of conduct)?
- Is there a budget identifiably allocated to stakeholder involvement activities? In general? In the field of post-emergency preparation or management?

- Is there a specific division of organisation or staff dedicated to stakeholder involvement in general (if communication dept, how much involvement do they do beyond communication)? What is the role of this specific division or staff in the field of preparedness and post-emergency management?
- Are stakeholders associated to the definition of the policy of your organisation (including stakeholder involvement policy & actions) in the preparedness and post-emergency management fields? How? (informal exchanges, workshops, participation to an advisory committee) Who are the concerned stakeholders? What is their role/contribution?

Provisions for SI, cooperation with stakeholders, support to stakeholders' initiatives, empowerment

- Do specific provisions relating to stakeholder involvement in preparedness and/or in an actual post-emergency situation exist
 - in your national legislation in general?
 - in the legal and regulatory framework related to preparedness?
 - in the legal and regulatory framework for post-emergency response?
- What are the nature and objectives of these provisions? What are the types of events concerned (nuclear accident, malevolent act, transportation accident ...)? Are there provisions specific to a particular type of event?
- Are stakeholders associated to the development of specific actions/projects in the preparedness and post-emergency management fields?
 - Who are the concerned stakeholders? How are they involved?
 - What is their role/contribution?
 - Is there a formal framework for the cooperation with these stakeholders (e.g. formal partnerships, contracts, memorandums of agreement ...)? Do they play a role in the governance/management of the projects/processes they are involved in (e.g. through advisory or steering committees)?
- Does your organisation provide expertise to stakeholders in response to their demands in the field of preparedness and post-emergency management? How?
- Are technical tools (e.g. simulation tools, health or environment indicators and monitoring tools, handbooks ...) developed by your organisation for preparedness and post-emergency management intended to be used with or by stakeholders?
 - Who are the concerned stakeholders and how are they supposed to use these tools?
 - How are the needs of the stakeholders taken into account?
 - Are the concerned stakeholders involved in the development of such tools? How?
- Are you aware of projects/processes initiated by stakeholders (outside industry/regulator) in the field of post-emergency preparedness or management? Who is the initiator of the project/process? What is the scope of the project (a specific geographic area, a particular professional sector e.g. agriculture ...)? Is your organisation supporting these projects/processes? How?
- How does your organisation contribute to capacity building of other stakeholders (outside industry/regulator) in link with preparedness and post-emergency management issues?

- Which actions contribute to empower the stakeholders and develop their capacities in the preparedness and post-emergency fields (trainings, participation of stakeholders to specific projects, development of tools to inform debates, dialogue and deliberation ...)?
- What types of stakeholders are concerned?
- What skills, knowledge or know-how have they developed?

Tools and indicators for stakeholder involvement

- Do you (or under what circumstances do you) plan your resources for stakeholder involvement as part of your project plan? (links to budget)
- What capacity building activities (for stakeholder involvement) are there? E.g. Training for staff? What about ‘on-the-job’ training? Senior management? Internal seminars/internal feedback from projects? Are there specific capacity-building activities for stakeholder involvement in the field of preparedness and post-emergency management?
- Do you employ specialists in this area e.g. psychologists, governance specialists in your activities linked to post-emergency issues?
- Do you have any indicators or success criteria for stakeholder involvement in the preparedness and post-emergency management fields?
- How do you draw experience from stakeholder involvement in the preparedness and post-management fields (stakeholder involvement actions, partnerships with stakeholders, support to stakeholder-initiated projects)? What is the impact of this experience on the work carried by your institution in the field of post-emergency preparation or management?
- Do you draw on experience from other industries or countries? How? Links to best practice...
- How do you decide on the scale and nature of stakeholder involvement for a particular situation?

[Best Practice/recommendations]

- [Do you have any particular examples/experience good or bad. Please describe...]

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