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One-day seminar organised by the Belgian Society
for Radiation Protection and dedicated to

PUBLIC COMMUNICATION ON NUCLEAR EMERGENCIES

BVS-ABR, 4 March 2016 - Palace of the Academies, Throne Building, Brussels

This publication is dedicated to the minutes of the presentations and discussions at the seminar on 'Public Communications on Nuclear Emergencies' organised by the Belgian Society for Radiation Protection. The minutes are preceded by a synthesis text with conclusions. They are further complemented with views of Marc Molitor, former journalist, and with a more in depth assessment of the related European Requirements, by Augustin Janssens.

The Society wishes to thank particularly all contributors to the lectures and texts, but also all participants to the discussions, to the finality of the seminar.

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**SYNTHESIS AND CONCLUSIONS
ON A WAY FORWARD**

Pierre Kockerols, Belgian Society for Radiation Protection

Fukushima has shown us that the probability for severe nuclear accidents should not be considered as negligible. Until 2011, the enhanced safety records of modern nuclear power plants tended to demonstrate that events that would lead to a major detrimental impact on the environment were only hypothetical. The former major accident at Three Mile Island in the United States in the late 1970s had only marginal consequences outside the plant. And the Chernobyl accident occurred in an installation which was considered 'out of the scope' – its intrinsic design and operation mode dating back to the Soviet era were obviously much less safe.

Soon after the Fukushima accident, 'stress tests' were conducted in Europe aiming primarily to investigate the resistance of the installations to all type of external hazards: several areas were identified for improvement and action plans have been drawn on this basis. But Fukushima and the stress tests also proved that there is still much work to be done to better prepare us for a nuclear emergency. In the case of a major accident, a release of radioactivity can have geographically widespread consequences. And even where long-distance contamination is measured at levels far below

thresholds to have a direct effect on health, authorities must still be prepared to address public concern.

Citizens should have a better understanding of nuclear and radiological risks and the recent developments of the nuclear debate in Belgium have again illustrated this necessity. But communication to the public should not start when a crisis is ongoing. It should be pro-actively prepared, through an appropriate *risk communication strategy*. Confidence for crisis response should be built in 'peace' time.

Risk communication also goes beyond a one-way transmission of information. It shall consider an interaction with citizens and even a participation in the preparation of emergency plans. In recent decades participatory approaches have indeed gained increasing recognition as a key characteristic of good governance. Involving the public in the decision-making process improves its quality and strengthens the credibility of its outcome.

The idea to unravel the positive potential of public awareness is not new. The requirement to interact with the population on nuclear emergencies was already embedded in the European Directive 89/618/Euratom issued in the aftermath of the Chernobyl accident. Public participation in environmental matters is also explicitly addressed by the Aarhus Convention adopted in 1998. Nevertheless - and this has been put in evidence by recent assessments at national and at European level -, initiatives to involve citizens in nuclear emergency preparedness still remain marginal today, with few exceptions.

Considering these challenges and identifying concrete pathways on how to move forward to improve public communication on nuclear emergencies was the aim of the one-day seminar organised by the Belgian Society for Radiation Protection on 4th March 2016.

How to move forward?

Communicating about risks is a difficult business and a communication strategy has to be *well prepared*. Interest should be raised among the population. Diverging perspectives of different groups of people or

individuals have to be taken into account: there isn't such thing as the 'right' information. Tone of and medium for communication have to be considered carefully. Not considering the thin line between scaring people and making them resilient could have adverse effects.

The following points of attention form a synthesis of the presentations and discussions during the seminar:

- When addressing emergency preparedness - the preparation of measures to deal with a potential crisis - basically *three levels of communication can be followed*:
 - (1) One-way information to people with the aim of educating, explaining them complex matters requiring expertise;
 - (2) Two-way consultation of people, mainly to assess the level of understanding and adapt accordingly communication ways and measures;
 - (3) Direct participation of people in the decision-making, for example on logistic measures, or in undertaking a vulnerability analysis for defining pertinent countermeasures.

In this sense, a pro-active communication strategy should identify which issues of the emergency plan should be disseminated through information campaigns, which will take advantage from being additionally assessed by a public consultation and which issues related to emergency planning could be subject to the third, more demanding participative process.

- *The extent and method of communication must be also linked to the target groups*, i.e. the audience to who the communication is addressed. Besides the general public and more particularly the public living in the vicinity of nuclear installations, some target groups can be of specific interest and require a dedicated approach: rescue commanders and staff, medical rescue staff, practitioners (family doctors). Attention should also be paid to officials, school teachers, journalists.
- There is a shared view that a communication strategy should follow *an integrated, "all hazards" approach*: nuclear and radiological risks are essentially not different from other risks. For

many aspects, nuclear incidents and accidents can be dealt with as e.g. chemical ones. In the chemical field there is practical, real experience, while in the nuclear, the practice comes only from exercises. An integrated pro-active communication allow also to deploy synergies and it avoids an over-focus on nuclear, while the probability for other incidents is higher.

- *Civil society organisations can play an important role* in mobilizing the public and building trust. They can help making the information about emergency arrangements widely accessible and broadening the outreach. They can also achieve that the population is more involved in local exercises.

This is performed in France by the “Comités Locaux d’Information” (“CLIs”) that have been created by law and are established in the vicinity of all nuclear sites. In Belgium the partnerships MONA and STORA linked to waste disposal have expressed the demand to be involved in the optimisation of the emergency plan. First initiatives have been taken in this respect and the dialogue proved to be useful until now, but in the future a more formal support from local organisations could be pursued following the French example.

Civil society organisations could help to develop a ‘risk culture’ on nuclear emergency, allowing citizens to become a responsible actor.

- Dealing with *public communication immediately after an accident, in the response phase, needs in the same way careful preparation.* Here also the organisation of the emergency communication should not be seen as solely one-way but as a cyclic process, where the feedback and the living perceptions need to be analysed for further improving the transmission of the most pertinent information. Consideration should be given that in the early stages typically a gap exists between the limited available information and the high information demand.

With the organisation of the emergency plan in Belgium the public communication at local and national level must be streamlined. Each entity has its role, which will depend on the effective hazard; locally more interacting with the public (dialogue or instruct), nationally more in a single way (inform or convince).

- Special attention is needed on the role of media in crises. *Media are the main bridge between experts and society.* They do not only report, but also frame the communication. They represent, interpret and as such construct the perceived reality.

Today journalists are multitasking and have no means to develop personal expertise, particularly in domains like nuclear which are by nature complex. They must rely on external sources. But experience shows that the scientific community stays rather silent and anonymous during nuclear crises, which has a negative effect on public perception. This should be changed. Ad hoc experts in various fields should be known to the media but should be also rapidly available for their opinion. Building trust between experts and journalists is important.

A harmonisation of the communication of expert views is almost impossible and even not desirable: showing different opinions can be seen as a positive sign.

- When moving from emergency to recovery, recent accidents have put in evidence that autonomy, resilience, capacity of action and freedom of choice of people are key elements. *Social processes of recovery cannot be decreed but can be facilitated.* Post-accident policies should focus on supporting local communities that engage in rebuilding a life that is worth living. Authorities can plan on how to integrate local and spontaneous actions, but no plans can be made on how communities will actually behave.

Conclusion

Five years after Fukushima, Japan is recovering step by step from the major nuclear accident that has affected the country. Of the many issues still

to be managed by the authorities, probably the most delicate endeavour is to deal with the psycho-social consequences and anxieties among the Japanese population, even where direct effective hazards resulting from the accident remain marginal or at least limited.

In Europe, several assessments of the off-site nuclear emergency plans have been conducted over the last years and all converge to very similar conclusions with respect to the need to improve public communication and actively involve citizens in emergency planning. There seem to be a common agreement on this necessity, also of those who have currently responsibilities in crisis management and who will have the difficult task to implement new approaches in this direction.

Some actions including new communication campaigns are currently planned in Belgium. Ideally they should be integrated in a more general strategy with a common vision, relying on the support of all actors: federal public services and agencies, local authorities, emergency services, civil society groups, research organisations and scientific associations. This would allow a coherent line of conduct and would deploy synergies, ensuring a more effective and efficient use of resources, instead of spending them on isolated initiatives.

The on-going implementation of the new EU Basic Safety Standards could give an impetus for elaborating such a joined strategy and to re-focus resources from current assessments to effective implementation measures.

Nuclear and radiological risk communication should not be seen separated from other risks and there is also a common understanding that an integrated, 'all hazards' approach would be beneficial to create an adequate 'emergency culture'. In the end, working together with citizens in emergency preparedness could be conceived as a tool to support risk communication in itself.

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MINUTES OF THE SEMINAR

The minutes of the seminar on 'Public communication on nuclear emergencies' as they are presented here feature the highlights from the different presentations. They also integrate the responses to the questions raised and the observations and proposals made during the debate at the end of the seminar. The minutes were reviewed by the respective speakers.

Ivana Oceano ¹

Introduction session

Advisory report of the Superior Health Council 'Nuclear accidents, environment and health in the post-Fukushima era: Emergency Response' - **Gilbert Eggermont, President Working Group Fukushima, Superior Health Council**

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European Requirements for public communication on nuclear emergencies
- **Augustin Janssens, formerly European Commission**

Session 1 - Information provided to the public during emergency situations

Improving communication with media in nuclear emergencies: general and practical suggestions - **Tanja Perko, Researcher, Belgian Research Centre SCK•CEN**

Role and experiences of the Communication Cell of the national Crisis Centre - **Benoit Ramacker, Communication Officer, Crisis Centre of the Government**

Organisation of the emergency communication at provincial and local level - **Yves Stevens, Communication Officer, federal services of the Governor of the Antwerp Province**

Information and participation of local actors confronted to a nuclear accident: lessons from the Chernobyl and Fukushima accidents - **Stéphane Baudé, Senior Consultant, Mutadis, France**

Media information during an emergency - views of a former journalist - **Herman Henderickx, retired journalist (formerly at broadcasting VRT)**

Session 2 - Pro-active communication and public participation in emergency planning

Views of the 'Nuclear Transparency Watch' on the needs to enhance public communication and involvement for nuclear emergency planning - **Nadja Železnik, Country Office Director, Regional Environmental Centre, Slovenia**

Expectations on emergency planning from communities in the vicinity of nuclear installations: the case of Mol and Dessel - **Marlies Verhaegen, Anne Bergmans, University of Antwerp**

Information to rescue services on nuclear hazards, experiences with drills
- **Frederik Vercruyse, Fire Protection Zone of Antwerp**

Information to family doctors on radiation risks and emergency measures
- **Petra Willems, Federal Agency for Nuclear Control**

Public involvement on emergency measures, French experiences - **Yves Lheureux, Valérie Demet, Association Nationale des Comités et Commissions Locales d'Information (ANCCLI), France**

Closure session

Seismic risk communication: the emergency phase in Romagna in 2000
- *Gaia Civiletti, Italian National Institute of Geophysics and Volcanology (INGV)*

INTRODUCTION SESSION

Advisory report of the Superior Health Council 'Nuclear accidents, environment and health in the post-Fukushima era: Emergency Response'

Gilbert Eggermont, President Working Group Fukushima, Superior Health Council

Foreword

'*Future*' needs to be built on the lessons from history; adverse historical facts tend to recur if they are not tackled appropriately.

Forty-seven years ago, after the only Belgian criticality accident at the Mol nuclear research centre in 1966 that caused one severe irradiation, the author made his first presentation to a BVSABR audience, on criticality dosimetry. The last years of his professional life he investigated the reactor accident in Fukushima.

The Belarusian investigative journalist Svetlána Alexándrovna Alexiévich, who was awarded the Noble Prize for literature in 2015, wrote about the human suffering in the accident region in the former Soviet Union. She was impressed by the treatment of animals, shot by the army in the contaminated areas after the Chernobyl disaster. Twenty-five years later, similar situations were also experienced in Fukushima with an increased psychological impact on citizens.

Off-site emergency planning must be revisited for many reasons, particularly in the light of the Fukushima accident. The nuclear stress-test performed in Europe drew the attention on the on-site impact of emergencies was limited. But off-site emergency planning was not yet addressed and the gap needs to be filled.

The advisory report by the Superior Health Council represents four years work and was presented to the press and policy makers at the end of February 2016. It was worked out by seven independent experts, from

seven nuclear and non-nuclear disciplines, including psychology, and also implied several ad hoc meetings with additional experts on specific topics, including communication. Experts working for the authorities such as the FANC and the Crisis Centre were associated as well.

A previous report on prophylaxis and distribution of iodine tablets had already been released by the Health Council in 2015.

Both documents will be presented on March 9 to the Nuclear Safety Commission of the Belgian Parliament.

Overview of the Fukushima report

The overall objective of the Superior Health Council was to realize a complete analysis of nuclear emergency preparedness, including socio-psychological and communication aspects, in order to recommend improvements. Nuclear emergency preparedness should be seen as a cornerstone of nuclear safety.

The main findings and recommendations are²:

Awareness on risks should be increased:

- A serious nuclear accident can happen also in Belgium and the emergency planning has to be reconsidered with respect to the high density of NPP's in a high population density.
- Dispersion of radioactivity can disturb a large region (larger than what is considered today) and create anxiety beyond the areas directly affected.
- Serious environmental and economic consequences can remain for many years.
- Prevention of health effects is needed including addressing the psycho-social impact.

2 See for more details the full report on the website of the Superior Health Council – Advice/Resume 9235 <http://www.health.belgium.be/fr/avis-9235-fukushima> ; see also the summary in publication Vol.40 n°4, 2015 of the Annals of the Belgian Society for Radiation Protection.

The risk analysis as a basis for emergency planning should be completed:

- More focus is needed on general failure types as root causes of accidents.
- Vulnerability analyses should be included in risk assessment, both for the purposes of authorization procedures and siting as for emergency preparedness and response, and they should involve the public. One of the lessons learned from Fukushima is that not only atmospheric transfer, but also ground and sea water dispersion should be assessed, including penetration of molten core in the soil.

More adequate intervention measures should be prepared:

- Planning zones should be reconsidered and evacuation should be strategically prepared with more care e.g. for the elderly.
- Communication with the population should be organised as a bilateral activity, with an active role of the civil society also through social media (the RISCUM model for transparency was unfortunately not transposed in nuclear communication in Belgium neither in the field of nuclear emergency planning).

Coordination should be improved and include long term strategies:

- More attention is needed for medical coordination in medium and long term, including also focus on vulnerable people.
- Long term issues should be addressed, like disturbance or disruption of the social tissue that may last for decennia, the cleaning of contaminated areas, the waste disposal and the return of evacuees.

Citizens should be more involved:

- Consideration should be given to include citizens in the preparation of emergency planning. A continuous participative learning process could start at school and actively integrate concerns and indications of people.
- In the event of a crisis, consideration should be given that it can become worse through interaction with other risks and failing communication. Proactive integration of new social media and active monitoring of concerns of the public is required.

International harmonisation:

- Strengthening of international collaboration is needed as any serious accident will have a trans-border impact.
- Better harmonisation is also needed more generally in nuclear safety requirements; nuclear safety collaboration should be strengthened with a greater role for an EU nuclear safety authority.

Psycho-social consequences of a nuclear accident

A chapter of the present report is devoted to psycho-social aspects of a nuclear crisis. Anxiety, depression, alcoholism and sleeping problems are a frequent consequence when risks are not very well defined or predictable and when uncertainty of the future is high. Prolonged sheltering as well as evacuation, possibility to return, uncertainty of health impacts and the fate of property, goods and animals can be the source of considerable stress. Social stigma is also a possible stress factor correlated to these events.

Stress after an accident is strongly linked to risk perception. A risk is considered as a situation or event in which something of human value (including humans themselves) has been put at stake and where the outcome is uncertain. Different value references exist depending on the actors of the emergency: it can be health anxiety but on the contrary also fear for panic in case of evacuation, or risk of economic losses. Expert perception can be wrong as well and fear for panic is more an expert mind construct than a fact.

Risk communication will be in this sense an attempt to bridge opposing perceptions, in an open dialogue. Consideration and clarification of values should be also included. Communication will be only effective when it is bilateral, representing the truth but as well be legitimate and authentic. Not only telling the facts, but also discussing the context of (dis)advantages, the hidden agenda or interests is the challenge to guarantee transparency. Offering perspectives to the population is crucial.

Emergency risk communication needs to be well planned. Confidence for crisis response should be built in 'peace' time. This will avoid confusion and distrust in crisis managers.

Also for nuclear security events transparency in the measures to be taken and public participation needs to be carefully addressed.

Public participation

One important recommendation that can be highlighted from the present report is to involve people, as early as possible, and already in the emergency's planning phase. In the Fukushima crisis, thousands of people worked in decontamination operations with no or little adequate preparation and training.

France organises public participation on a legal basis, with the creation and empowerment of the CLIs (Comités Locaux d'Information). A similar frame could be developed in Belgium.

Public participation could be of particular interest for the pertinence of the vulnerability analysis (*Who are the 'problematic' persons³ if countermeasures must be applied?*). A vulnerability discussion would be crucially and helpful. Even schools could address these issues. It would help reassure and clarify the emergency measures and also reinforce the elaboration of a long term strategy at all levels.

Conclusion

In nuclear energy, nuclear safety and emergency response complex questions arise with numerous uncertainties that confront values of people. In such a situation the Superior Health Council advocates for a precautionary strategy.

The strategy to be adopted implies a broader participative approach involving the public, within a legal framing that guarantees independency of expertise and regulatory authorities, and a reinforcing of European collaboration with regulatory authorities and an EC nuclear safety authority.

3 Many victims of Fukushima were among the more 'problematic' people, as shown during the evacuation of hospitals and care centres for elderly.

**European Requirements for public
communication on nuclear emergencies**
Augustin Janssens, formerly European Commission

(See also separate text in this publication)

First EU requirements related to communication on nuclear emergencies

The requirements for communication in case of nuclear emergencies were settled by Directive 89/618/Euratom. The Directive, also called ‘the public information directive’, has a misleading title, since its provisions also deal with emergency workers and not only with members of the general public.

The earlier ECURIE Council Decision⁴ already included provisions on sharing information and communication with the public. The Decision requires that in the event of a radiological emergency (which either resulting from abnormally high levels of radioactivity in the environment or following an accident from which a significant release of radioactive material occurs or is likely to occur) Member States notify the Commission and the affected or likely to be affected Member States on the protective measures, taken or planned, and on actions to inform the general public. But experience shows that this latter requirement is not easily implemented. Recent developments in the information exchange platform facilitate the sharing of such information.

EU Basic Safety Standards

The new EU Basic Safety Standards (BSS) were published in 2013⁵ and consolidate five former directives linked to radiation protection matters. Among the novelties linked to emergency preparedness, new requirements

4 Council Decision 87/600/Euratom on Community arrangements for the early notification and exchange of information in the event of a radiological or nuclear emergency.

5 COUNCIL DIRECTIVE 2013/59/EURATOM of 5 December 2013 laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation, and repealing Directives 89/618/Euratom, 90/641/Euratom, 96/29/Euratom, 97/43/Euratom and 2003/122/Euratom <https://ec.europa.eu/energy/sites/ener/files/documents/CELEX-32013L0059-EN-TXT.pdf>

are set for international coordination and for emergency workers. Post-accidental situations are also addressed: Member States are required to be prepared for the long-term.

The main articles of interest with respect to emergencies are listed below:

Articles 70 and 71 specify the information to the members of the public likely to be affected and actually affected in event of an emergency. The provisions are not different from those in Directive 89/618. To what extent Member States have implemented these requirements ‘in reality’ is hard to trace, so their introduction in the new BSS may be an opportunity for further harmonisation.

Article 17 addresses ‘prior information and training for emergency workers’. Emergency workers identified in the emergency response plan must receive adequate and regularly updated information on the health risks and this information has to be supplemented appropriately as soon as an emergency occurs, having regard to the specific circumstances. The responsible organisation or the undertaking must provide appropriate training in emergency management and appropriate radiation protection training and information.

Article 53 fixes additionally to the prior information and training the conditions for the emergency occupational exposures.

Article 99 tackles international cooperation: ‘Member States shall cooperate with other Member States and with third countries in addressing possible emergencies on its territory which may affect other Member States or third countries, in order to facilitate the organisation of radiological protection in those Member States or third countries.’ Compared to the previous BSS, the new text is quite stronger, albeit by changing only one word: ‘shall’ instead of ‘seek for’ cooperation.

Implications for the future

The BSS Directive creates new perspectives for an improved cooperation between Member States on emergency preparedness, the sharing of resources for assessments and the building of trust between Member

States. Coordination needs to be improved. An example is the proposal for enhanced cross-border cooperation, as recommended by HERCA.

Integration of nuclear safety and radiation protection cultures should be fostered.

Beyond the requirements of the Directive, the further development and harmonisation of emergency preparedness will be necessary, including stakeholder involvement and improving the adequacy of information provided to the population.

Although the requirement to communicate was already embedded in the Directive of 1989, the integration in the new BSS could make the issue more visible and trigger new developments in this sense.

SESSION 1

INFORMATION PROVIDED TO THE PUBLIC DURING EMERGENCY SITUATIONS

Improving communication with media in nuclear emergencies: general and practical suggestions Tanja Perko, Researcher, Belgian Research Centre SCK•CEN

Some 15 years ago the Belgian centre SCK•CEN started the PISA project on the integration of social sciences into nuclear research. In the frame of PISA, public communication and ways to improve it are also analysed.

Media are the main bridge between experts and society. They do not only report, but also frame the communication. They represent, interpret and as such construct the perceived reality.

Outcome from recent events and assessments

On 29.2-1.3.2016 the “Stanley Foundation for International Journalists” and “Atomic Reporters” organised a “*Nuclear Security Workshop*” which was a table-top exercise for world top journalists reporting on ionising radiation matters. The event gathered 20 journalists. A terrorist scenario involving a Radiological Dispersal Device– or “dirty bomb” – was used as reference; the purpose was to assess the communication streams following the terrorist action.

Interesting was that the exercise showed that social media were the first to report on the events, although a press release was distributed within the first 30 minutes by the communication cell. Due to this 30 minutes needed to formulate first holding statement, following the exercise, the authorities were accused by journalists of hiding information, failing to protect the population. Field reporting on emergencies is an enormous challenge for authorities and emergency management .

During the *RICOMET Conference* of 2015 in Slovenia that gathered around 120 participants, analysis results from media were discussed. Nuclear accidents are reported with an international coverage with a great

interest at the beginning of the accident and radiological effects are not the most important issue within this flux of information. In this sense it cannot be expected that journalists become experts on ionising radiation. But journalists and experts should have a mutual understanding of procedures and demands, which would limit misinterpretations and mistakes in public communication. Communication guidelines on the occurrence of a nuclear crisis should be set and taken into account.

The latest barometer survey on perception held in 2015 showed that experts and scientists are considered to be trust-worthy than journalists and representatives from the government when addressing risks and benefits of nuclear energy.

Lessons from media coverage of Fukushima

On the occasion of the Fukushima accident, in 2011, the coverage of the accident in Belgium by traditional media was still very high in comparison with social media.

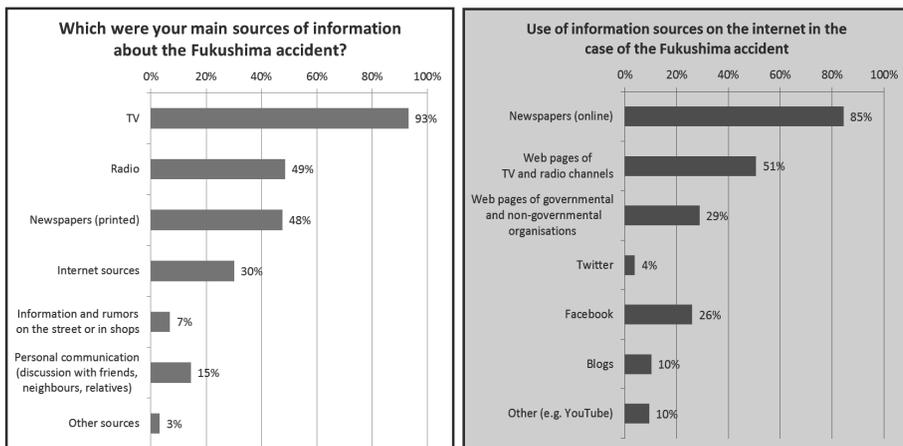


Figure 1: Distribution of information sources after the Fukushima accident, with at the right a detail on the origin of internet sources

Despite it was not considered as a relevant information source, 2 million tweets with the word “Fukushima” were registered between March and May 2011 (mainly during the first week of the accident). When looking to the origin of these tweets released in Brussels Time cone or in Norwegian

language, no one seemed to come from a government organisation or an expert organisation. Today the situation would probably be different. Anyway, all media, traditional and new media, reported similar (limited) content, which is often the case in emergencies.

The analysis of the media coverage of the Fukushima accident showed also that the local population concerns are taken into account more in the first phase of an emergency than in the transition and recovery period, when it would make more sense for media to address the way that people's life is affected in the medium to long-term, also with regard to uncertainty and effect of low doses.

How to improve communication through media

The communication through mass media during and after an emergency constitutes a real challenge: media and crisis management are driven by different motivations and follow different processes. But media communication is also an important opportunity; media are a powerful tool to reach the public for the information on risks and protective actions.

A better, more pertinent communication could be possible. It is observed that the scientific community stays rather silent and anonymous during a nuclear crisis, which has a negative effect on public information. This should be changed. Experts need training on public communication and media communication, in "peace time", as in case of any emergency or crisis it will be too late⁶.

Coordination of the communication of expert views is almost impossible and even not desirable: showing different opinions can be seen as positive sign.

What counts are empathy, exchange and open dialogue, which have more positive effects than technology. Psychological aspects need to be taken into account. The rule in crisis communication is "human first".

⁶ Comment formulated on this: *Consideration should be also given to overcome the contradiction between the fact that experts should communicate more and be trained to do so effectively and the limitations that experts from companies, operators and regulators face in terms of exchange with media (where only appointed spokespersons are allowed to communicate).*

**Role and experiences of the Communication
Cell of the national Crisis Centre
Benoit Ramacker, Communication Officer,
Crisis Centre of the Government**

The National Crisis Centre ('CGCCR')⁷ has to deal with safety and security aspects. Different types of emergencies entail different type of risks. Experts in crisis management are not experts in specific hazards; they need to coordinate a number of actors; they ultimately could be considered as 'administrators'.

The Belgian Nuclear Emergency Plan

The current version of the Belgian Nuclear Emergency plan dates from 2003 and is today under review. It is expected to be finalised and communicated in 2017. The plan is not just a text; it implies an interaction of many actors who have to contribute at international, national, provincial and local level. The new plan will integrate the lessons from past exercises as well as from Fukushima (as expressed in the new report of the Superior Health Council). As such, the longer term post-accident phase will be developed for all type of crisis. Aside the management, evaluation and information cells, the socio-economic cell will be made operational.

Historically the nuclear emergency plan has been activated only once, as a result of the Fleurus incident in 2008. But it is periodically tested, occasionally on a large scale, for instance in the frame of the 'Pégase 2012' exercise.

Periodically a communication campaign on nuclear risk is organised, the latest one was planned by coincidence in 2011 and thus implemented only a few days after the Fukushima disaster. It is observed that in the period after Fukushima communication was also performed through social media (with reference to a previous presentation, the Belgian authorities effectively did tweet on Fukushima, but they did not use 'Fukushima' as hashtag).

⁷ 'CGCCR' or 'Centre Gouvernemental de Crise – Crisis Centrum van de Regering'

The website <http://nuclearrisk.be/> gives permanent and general information on nuclear risks and on the related emergency measures. Specific information is also available for doctors, pharmacists, communities and media.

Risk and Crisis Communication

Communication should be seen as a cyclic process, starting with an identification of the aim of the communication, preparing, delivering, analysing the feedback and further improvement on the basis of lessons learned.

The new trend is an ‘all hazards’ approach, also in pro-active communication: nuclear is essentially not different from other risks. For that reason, the next communication campaign which is planned within a few months will apply an integrated risk approach. Interaction with the public is expected, as citizens need to be on the front line when dealing with their own safety and security; they are also a valuable support to institutional actors.

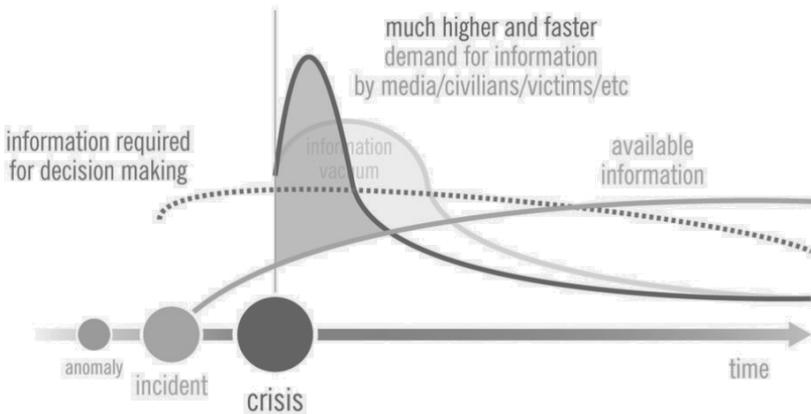


Figure 2: Gap between the ‘available information’, the ‘required information’ and the ‘information demand’ in crisis

In the early stages of a crisis, the main difficulty resides in the deficit between the available information and the demand from media and

citizens as well as the information necessary for the decision making. The demand settles with time while on the contrary the information increases (see figure 2).

Within the Belgian Crisis Centre CGCCR, the so-called ‘Discipline 5’ (i.e. the communication cell) has several tasks. The approach is cyclic. Both the development of the crisis operations as the effect on people must be monitored. The latter is analysed, this includes listening to people (also through social media and journalists) and understanding their perception. A ‘crisis communication plan’ is then proposed and exchanged with other actors, differences are balanced. The strategy is then implemented, which can include alert, announcement of protective measures, continuous information, media management, ...



Figure 3: Organization of crisis communication as a cyclic process

In case of an unforeseen occurrence, the first communication should concentrate on ‘we know’ (information available), ‘we do’ (behaviour) and ‘we care’ (sense-making).

For an effective communication a network of communicators is needed, both at federal and local level, that has to be involved in the analysis, the elaboration of the communication strategy and its implementation. A difficulty is that local and federal communication strategies need to be harmonised and based on the same analysis.

Clearly the strategy has to include different communication channels, among which direct communication with the public is important: call centre, info sessions, website and social media, spokesperson and press briefing, etc.)

Given the complexity of crisis communication, anticipation is required, for a better management.

Organisation of the emergency communication at provincial and local level

Yves Stevens, Communication Officer, federal services of the
Governor of the Antwerp Province

Role of the Antwerp Province

The management of nuclear emergencies in Belgium is a national competence but the provinces have an active role in the coordination at local level, which is the scope of the Provincial nuclear emergency and intervention plan. The Antwerp province has to deal with the potential crises from the nuclear sites on its territory (in Mol-Dessel), but also those in the vicinity (the nuclear power plants of Doel and Borssele). Radiological accidents are also possible in the harbour, during transport, in hospitals or diverse facilities.

Experience shows that risks are perceived on the average higher at local level. A direct dialogue with citizens to provide information and listen to concerns is crucial, especially when the effective risk is low.

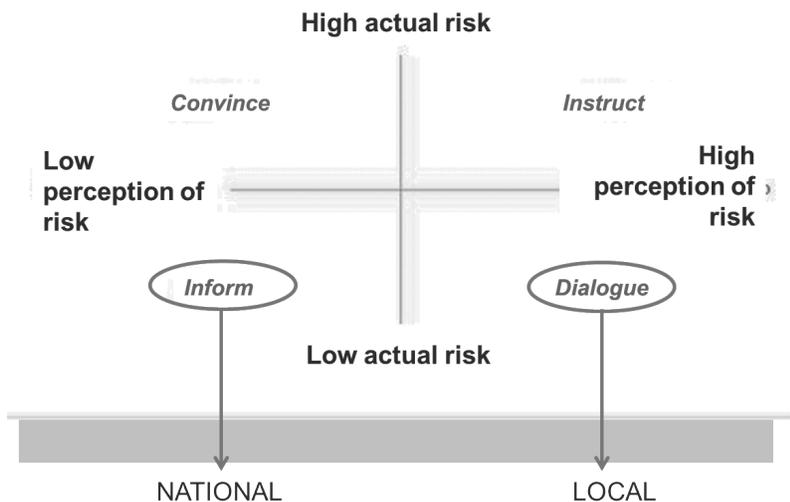


Figure 5: Role of national and local communication cells, depending on the 'actual risk' level and the 'risk perception' by the population

It is important that every incident is reported, also minor ones, because the perception of the population can be completely altered by the lack of information.

Communication should not start when the crisis is ongoing; it should be addressed pro-actively, through an appropriate ‘risk communication’ strategy. Mono-disciplinary communication plans are in place. They are generic for all types of emergencies. Strategy and procedures are the same, only part of the organisation is specific.

After a crisis it is important that the lessons are learnt and communicated.

Coordination of the communication

With the structure of the Belgian emergency plan, the biggest challenge during an ongoing crisis is coordination of the different actors, at the level of the province, the municipality and at federal level. The communication strategy needs to be developed and agreed at all levels.

One exception is represented by the Reflex phase, when there is no time to develop a common strategy and the governor must warn the population as quick as possible. The media can be very helpful in this phase, to reach the majority of the affected population (a contract can be signed between local authorities and TV broadcasting, in order to pass the warning message).

Coordination is the most challenging and delicate activity, which takes time to build.

Lessons learnt on public involvement

A difficulty is that nuclear crisis management cannot be built on real practical experiences, as nuclear incidents are rare. Improvements should come from lessons learnt after exercises.

The evaluation of crisis communication, performed after the latest exercise with the population, in November 2015, showed that messages were not always clear and understandable. Some measures can be hard

to implement (for example: keeping animals inside can be quite simple if you have a dog but proves to be less straightforward if you are a farmer...).

It was also questioned why evacuation was not addressed. The exercise scenarios cannot cover all measures. If, given the circumstances, sheltering represents the most advisable action, the Governor of the province will deliver the message not to evacuate, but to shelter.

Population should be more involved in local exercises and this can be achieved through local organisations. In Belgium, citizen organisations are not established by law, like in France. Nevertheless, MONA and STORA, the two local organisations created respectively in Mol and Dessel on the issue of waste disposal, provide an opportunity for the interaction with civil society on emergency preparedness. The dialogue proved to be useful until now.

Information and participation of local actors confronted to a nuclear accident: lessons from the Chernobyl and Fukushima accidents

Stéphane Baudé, Senior Consultant, Mutadis, France

Post-accident recovery is difficult to manage and its complexity can jeopardize the efficiency of the elaborated policy. The efficiency of conventional public policies can be limited by adverse effects like damaging social bonds and provoking distrust.

The issue is addressed by the so-called 'PREPARE' initiative, which is funded by the European Commission's 7th framework programme, under work package 6: 'Information and participation of the public'. The present project aimed at assessing the lessons from Chernobyl and Fukushima through nine case studies and a dedicated workshop.

Complexity of post-accident situations

Local populations staying in contaminated territories or being relocated experience a maximum level of complexity in the recovery phase as their day-to-day life is disrupted. They face the post-accident situation as a whole: it is not possible to separate environmental effects from the economic and/or health consequences, all of them are tied together.

Many crucial micro-decisions are in the hands of local actors. Practical examples are consumption choices when food contamination is perceived as a risk. Local populations are also confronted with the dilemma: evacuating or living in a contaminated environment. Both scenarios drastically disrupt daily life and are source of stress.

In a context in which the spreading of distrust impedes the emergence of a consistent societal response, local populations have to recreate the conditions to access trustworthy and reliable information, understand the situation at the individual and community level, and take relevant actions.

Central and local decision-makers also have to face complexity and balance conflicting interests such as to protect public health and avoid disproportionate economic loss. Not everything can be decided at the authorities' level however. Many decisions ultimately lay with people.

Experts on their side have to deal with uncertainties and 'multi-dimensional' issues requiring various fields of expertise. The role of experts is not purely technical but also social, as they are confronted with a diversity of interactions: between experts (inside & outside institutions), with authorities, local populations, media...

Recovery as a social process

The main driver in recovery management is '*the people*': those to whom the countermeasures are addressed. The recovery phase can be framed at the policy level, but is practically carried out by affected people themselves. The capacity of local actors to build their response predominantly depends on their capacity to build new forms of cooperation.

Project of life and horizon for the future is at the centre of all concerns. It integrates human and social dimensions beyond health protection or economic viability, and includes capacities to regain autonomy and dignity.

Recovery is a transition process in which individual and social resources for addressing the complexity of the post-accident situation are built. Recovery is also a phase of trials and errors, which must be continuously evaluated and corrected. Radiation protection is one important dimension that has to be integrated, but it is not the only dimension. Viability of the solutions adopted is a crucial criterion (examples can be given where health is protected but social life destroyed).

How to support a social dynamic?

Basically the ways to support a social dynamic in a recovery are applied in three phases:

Phase 1: Emergency – short term:

The focus is on protection of the population. In this phase citizens' participation cannot be organised top-down. People will organise themselves, evacuate, contact others to get more information.

Phase 2: Medium term:

More focus is devoted to socio-economic reconstruction. Authorities will have more time for reorganisation actions. Still there will be spontaneous initiatives.

Phase 3: Long term:

The attempt will be to go back to normal and reconstruct earlier life. A multilevel governance system will be set, with a convergence between spontaneous initiatives and policies.

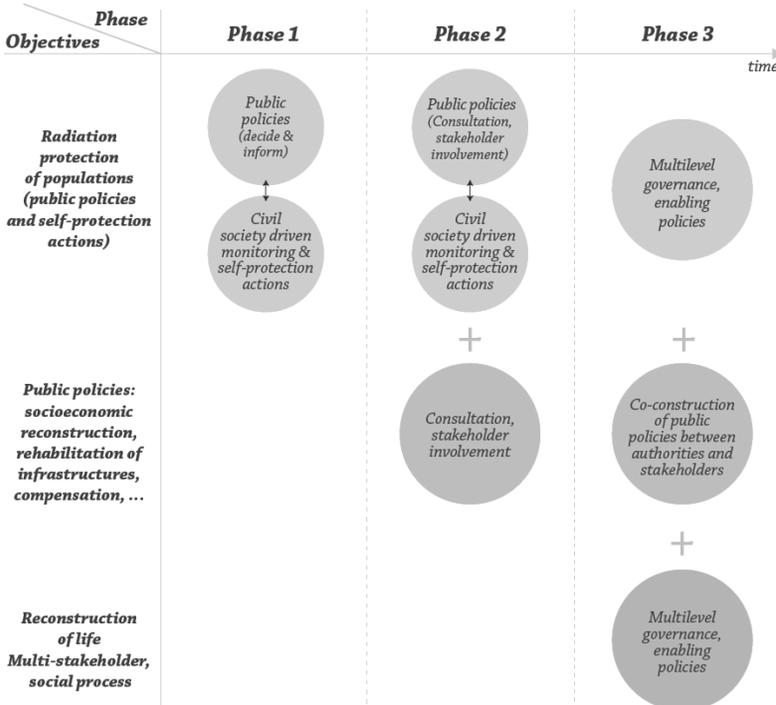


Figure 6: Support to recovery, changing with time

Post-accident situations are too complex to be framed, controlled or governed by traditional mechanisms of authority and expertise. A better approach is to create favourable conditions for social processes of recovery to develop fruitfully, enabling adapted responses to the complexity of a post-accident situation. There is no 'one-size-fits-all solution' and public policies should follow multiple approaches. Initiatives of actors that are outside the traditional governance system constitute a key resource.

A good example is given by Fukushima, where people were measuring radioactivity in the environment by themselves. The authorities were not pleased about this behaviour, until they realised they could use it as an opportunity and therefore provided dosimeters and channels to share measurements.

Diversified expertise and room for pluralistic assessment represents an added value, without implying a transfer of burdens from central to local.

Conclusions

In conclusion of the project, the following key messages can be delivered:

- Nuclear accidents force local actors to imagine *new ways* of building their understanding of the situation, and of building a new life that will be different from that known before the accident.
- In order to facilitate a return to normality, societies and institutions cannot be fully prepared in the usual meaning of preparedness, reserving resources and setting up procedures that can temporarily replace jeopardised systems of decision and action.
- Recovery is made by *people*. Autonomy, resilience, capacity of action and freedom of choice of people & communities are key elements.
- This calls for a *change of governance* and modes of action from emergency to recovery.
- However, this *does not imply by any means a transfer of responsibility* (and of financial burden) from national authorities to local communities.
- Social processes of recovery cannot be decreed but can be facilitated. Post-accident policies should focus on supporting local people and communities that engage in rebuilding a life that is worth living. Authorities can plan how to integrate local and spontaneous action, but no plans can be made on how communities will actually behave.

A more extensive report of the project has been published in 2016⁸.

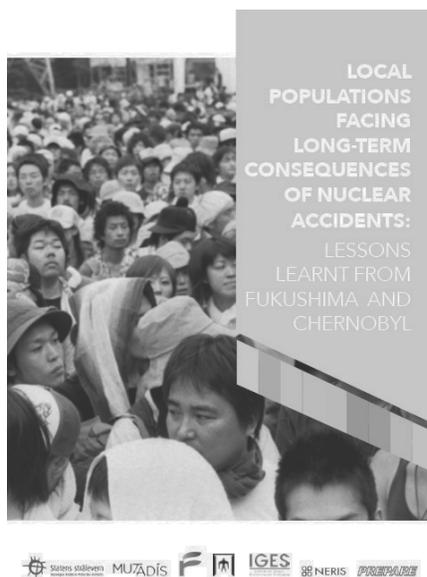


Figure 7: Report of the study of populations facing the long-term consequences of nuclear accidents⁸

⁸ See report <http://www.mutadis.org/wp-content/uploads/Local-populations-facing-long-term-consequences-of-nuclear-accidents.pdf>

Media information during an emergency - views of a former journalist

Herman Henderickx, retired journalist (formerly at broadcasting VRT)

When addressing media reporting during an emergency and more particularly a nuclear emergency, the main problem which is linked to modern journalism is that in most cases journalists must remain generalists, to be able to address a variety of issues. Specialised journalism has become very rare. It should be understood that journalists miss even a basic knowledge of nuclear energy, of radiation risks, of radiological contamination and its dangers. Therefore today journalists have to find elsewhere information sources for an appreciation of what is happening and to be able to report.

Accidents happen without warning. So chaos can be expected. But a lot of bad and wrong information could be avoided with fast, reliable and complete information. However experience shows that the nuclear sector hasn't considered effectively the lessons from previous accidents and is still very shy to provide quick adequate information. This was obviously the case after Chernobyl, which is now 30 years ago, but other examples after more recent accidents or even smaller incidents illustrate this.

Journalists are expected to report as soon as possible. Whenever an accident occurs, the first information sources will be welcomed. In practice NGO's are often faster in communicating than the involved companies. Less filters seem to exist, NGO's can express more freely their point of views. In this sense journalists cannot be accused for providing unilateral and sometimes too critical news, if no other sources are available for balancing the information.

Social media do not have filters at all and can be even dangerous because of this.

What can be done? Training, lectures and visits for journalists could be organised, but they will have to be often repeated to have some effect. Having relevant background data and fact sheets available might already compensate for the lack of knowledge in the media. Ad hoc experts in

various fields should be known to the media but should be also rapidly available for their opinion. Building trust between experts and journalists is important.

SESSION 2

PRO-ACTIVE COMMUNICATION AND PUBLIC PARTICIPATION IN EMERGENCY PLANNING

Views of the ‘Nuclear Transparency Watch’ on the needs to enhance public communication and involvement for nuclear emergency planning

Nadja Železnik, Country Office Director, Regional Environmental Centre, Slovenia

The NTW working group on nuclear emergencies

The Nuclear Transparency Watch (NTW) aims at bringing the point of view of civil society in the nuclear debate: it works to identify key challenges linked to the nuclear industry and provide input on how to overcome them. The overall objective is to improve nuclear safety across Europe and combine in a single perspective the different views of the represented associations.

A dedicated emergency preparedness and response working group was established in 2013 with the aim to carry out an evaluation of the existing European and national provisions, from the civil society point of view, identifying key challenges, to inform public on the findings and to provide guidance for further activities of the interested public. Through seminars, workshops, desk work and surveys the nuclear emergency planning in Europe has been assessed and a synthesis report was issued in 2015 and presented to the European Parliament⁹.

Main conclusions of the report

The NTW study highlights that the EU Member States are well prepared ‘on paper’, but that in practice a lot of improvement is needed. One of

9 See 2015 Report of NTW Working Group on Emergency Preparedness & Response (EP&R) <http://www.nuclear-transparency-watch.eu/wp-content/uploads/2015/04/NTW-Report.pdf>

the main findings of the evaluation is that the national nuclear emergency provisions are too bureaucratic. In this sense also the evaluation of the offsite emergency plans contracted by the European Commission¹⁰ remained for several aspects a desk exercise without in depth investigation on how the provisions are concretely implemented. There seem to be a discrepancy between the inquiry responses and the reality.

With respect to communication to the public, in most cases, no citizens' involvement is foreseen in the emergency planning (with some exceptions). Outcomes of drills and exercises are often not taken into account, and this for example is the case when they show the need for more information and participation of citizens in the emergency preparedness and response. The latter finding could improve with an effective and not only formal implementation of the BSS directive: more pro-activeness in communication must be pursued.

Other findings, not directly related to public communication, raised in the report relate to the need to consider better the trans-boundary dimension of nuclear accidents (and in this sense the harmonisation and practical solutions proposed by HERCA, a voluntary association of the Radiation Safety Authorities in Europe, could be of particular interest); the need to consider the longer term post-accident consequences; the need to improve also the on-site emergency planning and the importance to address clearly the nuclear liabilities in case of accident.

Stakeholder involvement

As a first step the stakeholders should be identified. Not only the official representatives defined in the national system have an interest in the emergency planning, but also citizens, civil society organisations and NGOs, together with the private sector (professionals, industry, ...).

The preferred way would be to organise 'multi-stakeholder discussions' in the form of:

10 See (2013) Report: Review of Current Off-site Nuclear Emergency Preparedness and Response. Arrangements in EU Member States and Neighbouring Countries https://ec.europa.eu/energy/sites/ener/files/documents/2014_nep_epr_review_2012-474_main_0.pdf

- national round tables with different players (civil protection authorities, nuclear regulatory bodies, municipalities, citizens) in order to better identify the challenges and discuss on possible solutions;
- transboundary round tables (like those organised in 2013-2015);
- EU round tables in the context of the Aarhus Convention, where broader issues can be discussed.

Surveys and analyses of the real situation could also be performed. They will also develop the communication and ensure a certain level of stakeholder involvement in the emergency plans.

The involvement of civil society brings many advantages:

- Expert advice and analysis: civil society organisations can give access to competing ideas from outside the normal official channels;
- Information collection and dissemination: citizens are the first to know the territory, civil society organisations can give ideas about the real situation around nuclear installations and local communication;
- Mobilization of public opinion and building trust: civil society organisations can influence the public through campaigns and broad outreach, and can make information about emergency arrangements widely accessible;
- Representation of the voiceless: civil society organisations can help convey the interests of persons that are not well-represented or are the most affected;
- Legitimization of decision-making mechanisms: civil society organisations could broaden the base of information for decision-making, improving the quality, authoritativeness, and legitimacy of EP&R arrangements.

By playing a mediating role between different players, the civil society is a good catalyst for change and improvement. Civil society organisations should be already involved in the reflection on how to effectively transpose and implement the requirements of the BSS directive. Overall, public participation processes should be applied to all emergency management phases (not only planning, but also testing and revision for improvement). Adequate resources have to be foreseen to fulfil these missions.

Next steps

As next steps, the NTW will continue to investigate the modifications of the provisions at national and transboundary level. The NTW wants to influence the improvements made in the new legal EU framework, with the implementation of the Basic Safety Standards but also the Nuclear Safety Directive and new food standards.

The NTW will try to work with the European Commission in order to identify and involve all relevant stakeholders (NGOs, civil society organisations and other) and organise multi-stakeholder and transboundary round tables, in line also with the requirements of the Aarhus Convention.

A possible cooperation of civil society organisations in EU research projects (the Horizon 2020 Euratom programme) is also anticipated. The transposition and implementation of the BSS could be a driver for this, as they highlight the need for a more pro-active communication.

Expectations on emergency planning from communities in the vicinity of nuclear installations: the case of Mol and Dessel

Marlies Verhaegen, Anne Bergmans, University of Antwerp

Background – origin of the local partnerships

Sociologists from the University of Antwerp are since some time involved in the cAt-project, which is the name for the yet to be build Belgian repository for short lived low and intermediate level radioactive waste. Indeed, in the late 90's, NIRAS/ONDRAF, the Belgian radioactive waste management agency was looking for a decision making model that would include the participation of local stakeholders in the search for a final waste repository. The new approach included local groups of stakeholders and gave them the time and means to deliberate whether hosting a repository was considered feasible (from a social and technical point of view) and what could be considered as a fair mechanism of compensation (i.e. what social and technical elements would make the project beneficial instead of a burden for the local community). Partnerships were created with the civil society in Mol and Dessel.

At the end of the process, both partnerships of Mol and Dessel advised their municipal council to put themselves up as a candidate host community and presented integrated projects for repositories as well as conditions to be fulfilled. There was some variation in the conditions set in each partnership and municipality, but there were also several commonalities. One such common requirement was a demand *that the nuclear emergency planning for the area would be optimized*. Although not linked to the perceived risks posed by the final waste repository, the anticipation of an additional nuclear facility was used as leverage to open the discussion on emergency preparedness. In both communities, hosting several existent nuclear facilities, some dissatisfaction existed about existing emergency plans.

Regarding this specific demand from the local communities, it should be underlined that there is no regional mandate for nuclear emergency planning as this is a federal competence; the federal government will take

the lead in the case a major incident would happen on a nuclear site. NIRAS/ONDRAF, the implementer of the future waste repository, can provide the means and efforts to fulfil the conditions set by the partnerships, but the agency has no competence when it comes to offsite emergency planning.

Actions taken – state of play

In follow-up of the requirement formulated by the local populations and on the request of NIRAS/ONDRAF, the sociology department of the University of Antwerp conducted interviews with staff that has a role in emergency planning and response at municipal and federal level, and at the intermediate level of the provincial Governor. The purpose was to try to assess more precisely what the reasons were for this local ‘un-easiness’ with nuclear emergency planning, and how the respondents considered these to be preferably solved. A synthesis report was issued¹¹.

With the inquiry as a basis, a workshop bringing different stakeholders together¹² was organized in 2015. The goal was to inform the partnerships and NIRAS/ONDRAF about the complexity of nuclear emergency planning in another way than the written language of the report, to unite the interviewees of the report, to create a forum for some themes raised in the report, exchange of information, visions, worries and implicitly, to reconcile some of the differing visions. Sixty people attended the workshop; all participants had the opportunity to ask for clarification or to formulate comments. Not everyone agreed on the origins of the problems and on their possible solutions, but most of the goals as set above were reached.

11 See Report: Verkennend onderzoek naar de organisatie van de (nucleaire) noodplanning in Mol en Dessel (2014) <http://anet.uantwerpen.be/desktop/irua/core/index.phtml?language=&euser=&session=&service=opacirua&robot=&deskservice=desktop&desktop=irua&workstation=&extra=loi=c:irua:123559>

12 See Report: Verslag van de workshop nucleaire noodplanning (2015) <http://anet.uantwerpen.be/desktop/irua/core/index.phtml?language=&euser=&session=&service=opacirua&robot=&deskservice=desktop&desktop=irua&workstation=&extra=loi=c:irua:130714>

A second workshop is organised on 19th April 2016. The workshop is dedicated to the on-going enhancements of the emergency organisation in Belgium, and is also presenting the assessment made by the Superior Health Council.

Importance of public involvement

It is for sure a necessity to have an emergency plan in place, which clearly states the responsibilities, the communication channels and as such prepares the coordination of an incident on a nuclear site. This is not only required for operational reasons but also on a political and juridical level, to fix who is responsible and who is liable. *But in addition, working on emergency preparedness and developing an emergency response could be conceived as a tool for risk communication in itself.*

Communicating about risks is a difficult business and the communication strategy has to be well prepared. Diverging perspectives of different groups of people or individuals have to be taken into account: there isn't such thing as the 'right' information. Tone of and medium for communication have to be considered carefully. Not considering the thin line between scaring people and making them resilient could have adverse effects. As it is extremely challenging to reach everyone with 'urgent' information (certainly risk information), it is advisable to take a proactive approach. This advocates for more time and manpower that will enable to test ways in which larger parts of the population can be informed about risks and emergency measures and actively be involved in the emergency planning.

As it is conceived now, communicating with citizens happens proactively through the websites risico-info.be and more specifically nucleairrisico.be. More attention to the subject is given during a federal campaign, normally every five years. During an emergency, people are informed about what is happening (if this is clear) and what to do (or not to do) through sirens and soon through Be-Alert (<http://be-alert.be/>). But explaining better and pro-actively the measures taken in more detail and also explaining why they are taken, will directly increase the efficacy of the plan: people will be more aware of what is going on and what they are supposed to do in case of an incident. Open and transparent communication will indirectly generate trust. If people are more or less convinced that the Government

is prepared and knows what it is doing, it is more likely that they are open to cooperate. This is in line with the latest report from the Superior Health Council and the main lessons learned from the Fukushima accident.

Concluding remarks on possible ways of communication

Clearly more emphasis should be given to public involvement in emergency preparedness. This can be organised in different ways and to different extents:

1. Public communication can be aimed at educating people. A *'one way communication'* is indeed sufficient for highly complex matters, criteria and measures that must be defined after discussion amongst experts. An example is the radiation exposure or amount of millisievert a firefighter is allowed to receive during an intervention.
2. Public participation can be organized to consult people. A *'two way communication'* is undertaken, but the decision remains with the entity organizing the consultation. This can be performed through surveys, making a statistical abstraction of what people think and feel and what they expect. It will allow adapting certain communication ways or policies. For example, citizens can be asked whether they know what to do when evacuation is needed; if the result is negative, a response would be to organise exercises involving local residents.
Such a *'two way communication'* can also be achieved through face to face conversations or through question-response sessions with local civil services responsible for emergency response. In the meantime, the approach will build trust.
3. Finally public participation can be used as a tool for improving the planning in some areas, achieved by a *'shared decision making'* between governing bodies and citizens. Citizens are invited to co-produce problem definition and solutions. Delegating power to citizens for emergency measures can be useful when it comes to collectivities for example. Schools or clubs with sport infrastructure can come up with ideas of their own on how to help in case of an emergency. On the one hand they help the local government logistically, on the other hand the communities become more resilient by entering the thinking process *'what if...'*.

Public involvement approaches are relatively demanding and require resources. It is preferable to integrate the different hazards in the same initiatives, so that the public is not confronted with different approaches.

Information to rescue services on nuclear hazards, experiences with drills

Frederik Vercruyse, Fire Protection Zone of Antwerp

Setting the scene – example of a recent accident

Recently an important fire occurred at an industrial facility in the North of Antwerp, involving a container from a waste incineration facility where a lot of hazardous material was used. The 112 was contacted which resulted in an immediate intervention by fire brigades, ambulance and police. An explosion took place and a spontaneous evacuation of potentially affected people followed.



Figure 8: Explosion and fire at a chemical plant, Antwerp

Communication in the social media (namely Facebook, Twitter, Instagram) immediately followed the accident. Questions from concerned people were answered informally, in real time.

But after the termination of the emergency, questions arose among the members of the rescue teams: Can I use my gear again? Do these chemicals cause cancer? Was I sufficiently protected? Should my blood not be analysed? What will be the effect on my health?

As part of the internal communication, rescue workers indeed need to be informed about potential health implications of their interventions.

Organisation of the information and training to rescue services

Belgian fire brigades rely on 18 000 staff workers. How can all of them effectively be trained in CBRNE (Chemical-Biological-Radiological-Nuclear-Explosives) matters?

Two levels of training are provided:

- general information on risks and risk recognition is addressed to firefighters, team leaders get short term tactical information and officers receive information on CBRNE incident management;
- in depth information is addressed to dedicated members of a CBRNE cell of dedicated specialised firefighters and officers who are regularly engaged in drills and training including risk analysis, CBRNE measurements, use and correct interpretation of exposure limits, use of gastight suits, ...

Specialised officers



Figure 9: Principle of the support of Dangerous Goods Advisors ('AGS') to the local 'Command Post' and to the central 'Coordination Committee'.

The concept of specialised officers ('Dangerous Goods Advisors' or 'AGS') is relatively new and was inspired by the Dutch model. They receive an intensive training (~260h) in CBRNE risks to support incident strategies. Cooperation with Universities as well as with the industry (including also the SCK•CEN nuclear research centre in Mol) and the civil protection plays an important role.

The Belgian model counts 24 specialised officers in Flanders and 24 in Wallonia. They are in an on-call duty and in case of incident should be able to be on the spot in less than one hour.

Plans for nuclear and radiological incidents

A 'general emergency and intervention plan' is used as reference for radiological and nuclear incidents. But experience shows that operational guidance prevails on policies. Task forces involving experienced partners have been created to address specific issues like how to use appropriate personal protective equipment, the dose limits and means for decontamination.

For specific incidents or installations, a 'special emergency and intervention plan' is established. It is stressed that these types of document should be compact to be useful for first responders. More developed plans only have an interest in the longer term.

An integrated CBRNE approach

As shown, the information and training to fire brigades is based on an all hazards, integrated approach. Radiological and nuclear incidents are dealt with in the same way as chemical ones. In the chemical field there is practical real experience, while in the nuclear, the practice comes only from exercises. For these reason it is considered as a major advantage that the risks are addressed in a combined way.

Information to family doctors on radiation risks and emergency measures

Petra Willems, Federal Agency for Nuclear Control

Information campaign in 2011

A public information campaign on nuclear risks has been undertaken in 2011. The campaign went together with a renewed distribution of iodine tablets in the emergency planning zones around nuclear facilities¹³. Different from previous campaigns, adults over forty years of age were advised to ask information to their general practitioner before taking the iodine tablet since the benefits of iodine tablets for persons older than forty are limited; the chance of developing side effects enhances and may overcome the benefits. The pre-distribution of iodine tablets happened through the pharmacists and for them, more specialised information was provided.

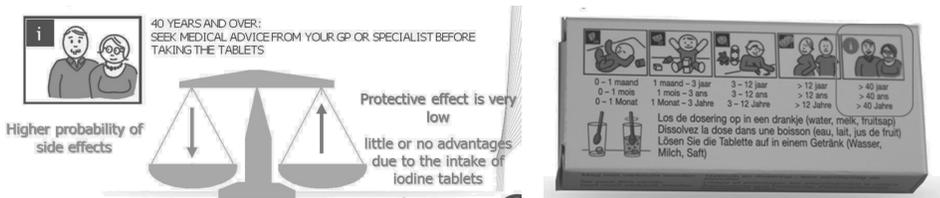


Figure 10: Information on iodine tablets

The information campaign prepared by the crisis centre contained a part specifically dedicated to practitioners and general doctors. Specialised literature was selected and made available on the website www.nuclearrisk.be; the website also includes short presentations with scientific supporting information, general information on radiological risks, information on the functioning of iodine tablets and recommendations on who should take the tablets (children), who should not and for how long to take them.

¹³ Inside emergency planning zones, iodine tablets are always available; outside them, centralised storage is foreseen. Iodine tablets are most effective up to 12 hours before the exposure.

Dedicated information meetings

The Federal Service for Public Health encouraged the organisation of information meetings for practitioners, which were held between March and May 2011.

The information has to cover the direct consequences of the radiological hazards. But the physicians need to have a broader approach in order to face all impacts on health.

FANC considers repeating the information meetings in the context of the new emergency plan and the next distribution campaign of iodine tablets.

Public involvement on emergency measures, French experiences

Yves Lheureux, Valérie Demet, Association Nationale des Comités et Commissions Locales d'Information (ANCCLI), France

Role of CLIs and ANCCLI

ANCCLI is the French national federation of the Local Information Committees ('Comités Local d'Information' or 'CLIs'). They were created as in 1981 by application of a circular of the Prime Minister and later confirmed by the Law of 30th June 2006 – the Transparency and Safety Nuclear Act. Article 22 of TSN states: '(...) a local information committee is (...) tasked with a general follow-up, information and consultation mission in the field of nuclear safety, radioprotection and the impact of nuclear activities on persons and the environment as far as the site installations are concerned.'

CLIs operate close to every nuclear installation in France, 36 in total; they group various representatives from the civil society: territorial collectivities, personalities, economical actors, medical professionals, unions, environmental protection associations, ... The committees depend from the Council of the Department; in such a way they are independent from operators and national (safety) authorities. Regulators are invited to CLIs' activities as external member.

As neutral stakeholder groups CLIs ensure a pluralistic approach to nuclear related issues and empower citizens by raising public expertise and capacity on complex and sensitive subjects. This is realised through meetings, seminars, visits, working groups and newsletters ('CLImag').

Public perceptions and public involvement on emergency planning

A survey shows that over 80% of the French population considers that nuclear activities are a very sensitive subject. The word 'taboo' is frequently mentioned. Nevertheless, it is recognized that considerable efforts have been made to improve transparency and access to information.

The behaviour in case of emergency is an essential question (‘Should I stay or should I go?’). According to the survey, the majority of the French population believes that only at a distance of 300 km people’s health is protected in case of nuclear accident. But a significant part of the population lives at a less than 200 km distance from a nuclear facility. In practice, no one really knows what to do in case of nuclear accident.



Figure 11: Example of activities of the Comités Locaux d’Information (‘CLIs’)

As such ANCCLI wants to enhance public participation in emergency planning and ensure appropriate communication. Civil society is an essential actor in nuclear safety.

These views are in line with the Aarhus Convention¹⁴ and its art. 5.1 c. that states: ‘In the event of any imminent threat to human health or the environment, whether caused by human activities or due to natural causes, all information which could enable the public to take measures to prevent or mitigate harm arising from the threat and is held by a public authority is disseminated immediately and without delay to members of the public who may be affected’.

CLIs ensure that the necessary interaction with civil society happens in ‘peace time’, with the possibility to give a valuable input in the emergency plan’s updates and during exercises. Since the French Law of 2015 on ‘energy transition for a green growth’, ANCCLI is formally consulted on nuclear planning and is an observer in regular exercises.

14 Aarhus Convention (1998) <http://ec.europa.eu/environment/aarhus/>



Figure 12: ‘Julie et Martin’ cartoon for information campaigns by ANCCLI

ANCCLI has created a pluralistic working group on these issues. The objectives are multiple: to inform about consequences of a radiological emergency situation, to anticipate reactions and to build relationships between local actors, to educate population (good behaviours), to be involved and assess all emergency and post-accident plans (off-site plan, iodine plan...).

The ANCCLI group recently released the White paper ‘Nuclear: crisis and post-accident management at local level and role of CLIs’ that advocates to take the lessons from Fukushima and consider a wider area for emergency measures. The group is about to launch a cartoon (‘Julie et Martin’) as a communication tool to develop a risk culture on nuclear emergency, in order for citizens to become a responsible actor.

Post-accident phase, spontaneous evacuation, cross-borders cooperation and harmonized practices are all topics that are addressed by ANCCLI. This is summarized by its motto: ‘Listen to citizens’ expectations... and understand them’.

CLOSURE SESSION

Seismic risk communication: the emergency phase in Romagna in 2000

Gaia Civiletti, Italian National Institute of Geophysics and Volcanology (INGV)

The attention for communication and the need to address the psychosocial consequences of a disaster on the population are by far not unique for nuclear emergencies. Several types of crises can impact on people and this is illustrated here, by way of example, by the study of the reactions observed in the region of Romagna in Italy after a series of earthquakes.

Typically, attention goes only to major crises or catastrophes but the specificity of the occurrence analysed here is that they concern a series of minor shocks spread over a longer duration. Although the events didn't cause major visible damages, they had several practical effects on daily life habits and repercussions on health, socio-cultural spheres, infrastructure and the emergency response of the authorities.

Seismic activity Romagna

Emilio-Romagna is an Italian area of intense seismicity characterised by moderate magnitude values in Italy at least from the XI century. In 2000 a series of shocks were observed in the municipalities of Faenza (~50 000 inhabitants) and Forlì (~110 000 inhabitants).

The seismic activity started on the 19th of April and ended about one month later on the 15th of May, recording a total of 408 shocks of relatively low magnitude (Max $M_I=4.2$). The number of earthquakes was particularly high in the second week of May, with over 40 shocks recorded in some days.

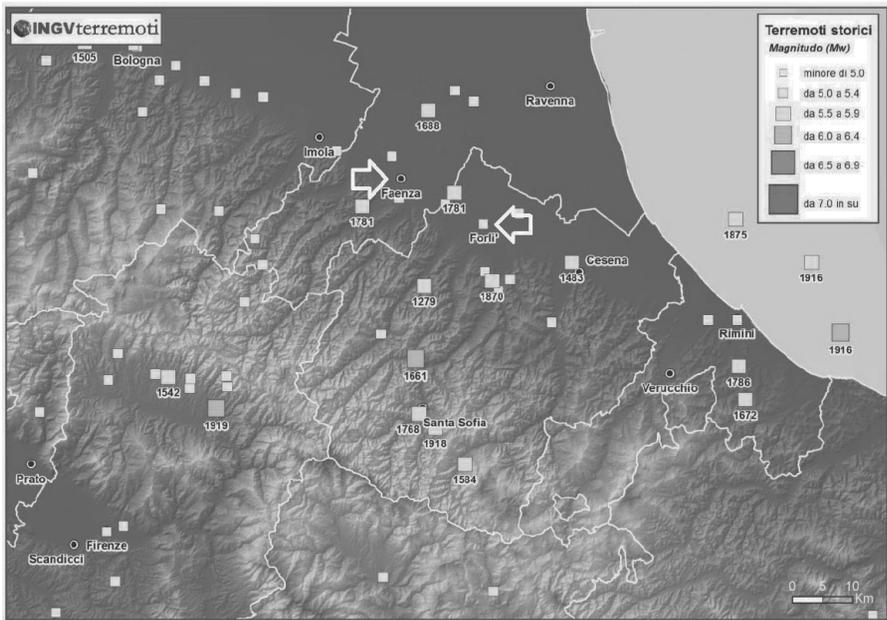


Figure 13: Historical seismic activity in the Romagna area, Italy (INGV terremoti)

Reaction of the local population and media

The intense reaction of the population was triggered by the continuous and fickle seismicity with a raise of magnitude values in May while the quake epicentres were also shifting here and there.

Seismicity science deals not only with stochastic but also epistemic uncertainty. This dramatic aspect implies a wide confusion and several interferences, such as legends, religious, gossip and lies, which were widely registered by the media.



Figure 14: 'Faenza shakes, fear grows' (Resto del Carlino, 3 May 2000)

Significant social effects emerged in Romagna area where individual and massive displacements and commuting were observed. People evacuated spontaneously, left their houses and started to sleep in cars, gardens, parks and whatever open space, in tents, cars and campers.

Indeed, prolonged anxiety can create psychosomatic traumas, which are linked to the long lasting release of hormones in the human body, resulting in deep stress, irritability, nightmares and lack of good sleep, even when the hazard is gone.



Figure 15: 'The advice from the psychologist: «Prolonged anxiety, the real danger»' (Sette Sere, 6 May 2000)

Reaction of authorities

Given the low magnitude involved, no “state of emergency” stricto sensu was requested nor declared, also because no major damage - which would

have justified it - was being observed. Nonetheless, a sort of “state of alert” was widespread among the municipal authorities and emergency and security officials due to the epistemic and stochastic uncertainty that doesn’t allow to surely identify where, when and how an earthquake will occur. Therefore, the emergency teams were prompt to react and set up several and unprecedented assistance points to assist the Romagna population.

Indeed, the measures taken to deal with these social effects went beyond the ordinary competences and different type of emergency tools were deployed. Focus was given on the best possible smart actions. Several on-site information and health support points were created. Special tents for sheltering were installed. Schools, public, private buildings and critical infrastructures were submitted to intensive monitoring. Municipalities grouped the coordination actions in special committees at municipal and then provincial level (“Comitato Operativo Comunale” and “Comitato Operativo Provinciale”).

Conclusion

The present Romagna study on a low-medium magnitude but long-lasting seismic swarm clearly shows that not only the magnitude but the duration of minor seismic sequences may endanger individuals and communities, involving major anxieties and unforeseen reactions among the population, although the direct and physical damage at the urban fabric resulting from the events remain marginal or at least limited.

The psycho-social consequences increase with the uncertainty on the seismic activity evolution and the difficulty of the authorities to deal with these unforeseen circumstances, with no major hazard to tackle but uncontrolled reactions of the population and individual or collective beliefs and culture on seismic risk. Indeed, although no damage recorded during the 2000 seismic sequence in Romagna, the anxiety of the population widely increased due to the continuous exposure to stress.

Certainly, once the event is gone, the trauma survives for some weeks or months but the experience tends to be later forgotten, which is regrettable. Indeed, Romagna already faced a similar experience in 1995-1996, just

four years before but the population seemed totally new to the natural phenomena. Therefore, it has to finally be highlighted that the risk culture, preparedness and readiness have to be strongly enhanced and improved.

NUCLÉAIRE, LA COMMUNICATION MINÉE ?

Marc Molitor, journaliste ¹

La couverture journalistique des questions liées à l'énergie nucléaire est complexe puisqu'on touche à la fois à la politique économique et énergétique, à des aspects technologiques, et des aspects scientifiques pointus, et des questions de sûreté, de sécurité, et aussi de santé publique. En outre ce domaine est l'objet de polarisations et de clivages très intenses, portés par l'histoire de l'énergie atomique et les conflits qu'elle a entraînés. Cette intersection de différents domaines explique peut-être que peu de journalistes se spécialisent pour suivre de près le nucléaire – ou que des rédactions ne poussent guère leurs journalistes à ce type de spécialisation : ce n'est pas spécifique aux questions du nucléaire, mais à tous les domaines qui présentent cet aspect multidimensionnel, et c'est évidemment regrettable.

Le colloque du 4 mars 2016 était centré sur la problématique des plans d'urgence - soit leurs aspects préparatoires, soit leur mise en œuvre en cas d'accident -, et notamment sur le thème de la communication dans ces contextes.

La communication n'est ni le journalisme ni l'information. Elle est surtout la forme du message et son efficacité par rapport au(x) objectif(s)

¹ Je remercie Mr Kockerols et l'ABR de me donner l'occasion de m'exprimer dans ces pages. Pendant une dizaine d'années, au Journal Parlé de la RTBF, je me suis, entre-autres, occupé des questions liées au nucléaire. J'ai notamment couvert le problème des cuves de Doel 3 et Tihange 2 ainsi que l'accident de Fukushima et ses suites diverses, au Japon, en Europe ou dans le monde. Auparavant, à l'occasion de la 20 ième commémoration de l'accident de Tchernobyl, j'ai réalisé une série de reportages sur cette catastrophe et ses suites. J'ai aussi rédigé un livre, « Tchernobyl, déni passé, menaces futures ? », Ed Racine, 2011. Epuisé mais disponible en accès libre sur Internet, notamment sur les sites Enfants de Tchernobyl. <http://www.aset.be/tchernobyl-deni-passe-menace-future> ou <http://www.enfants-de-tchernobyl.be/> ou <http://enfants-tchernobyl-belarus.org/virtubook/Marc/>

poursuivis. La position, les objectifs et les contraintes des différents acteurs ne sont évidemment pas les mêmes, ils peuvent être complémentaires ou antagonistes. Dans le dossier du nucléaire, les acteurs sont, grosso modo, les exploitants, les états, les autorités de régulation (quand on n'assimile pas état et autorités de régulation), les grandes agences internationales et les groupes de pression, parmi lesquels les groupes écologiques et/ou les groupes antinucléaires, ou les lobbys du secteur, nationaux et internationaux et, bien sûr les populations, directement ou moins directement concernées par l'organisation de la prévention et des plans d'urgence ainsi que par d'éventuels accidents.

Je peux essayer de dire ce que j'ai pu observer en tant que journaliste, à la fois dans le long terme, et à l'occasion de crises particulières.

Les crises nucléaires ou leur préparation sont un terrain particulièrement fertile pour l'imprévu et le dilemme, et cela pour tous les acteurs. Un incident grave ou un accident, ainsi que les problèmes posés dans la mise en œuvre des plans d'urgence, sont toujours la conséquence d'une suite d'évènements plus mineurs – facteurs techniques et humains mêlés - qui, chacun pris séparément, a pu être imaginé, mais dont l'enchaînement s'est avéré pratiquement imprévisible (forcément dira-t-on, sinon il n'aurait pas eu lieu). Cela n'est pas spécifique au nucléaire mais le caractère plus insaisissable – et souvent aléatoire - de la radioactivité et ses conséquences à long terme, fait de ces accidents une réalité spécifique différente des autres accidents.

Medias et nucléaire

Pour aborder l'aspect « communication », voyons d'abord quelques caractéristiques du terrain médiatique aujourd'hui. Les canaux s'y sont multipliés, ce qui n'est pas nécessairement synonyme de diversité, tant le mimétisme est actif. La concurrence alimenterait plutôt un sensationnalisme sans toujours de différenciation majeure sur le fond de l'information. Les modes de travail dans les grands medias audiovisuels ne favorisent pas toujours la qualité.

Mais par ailleurs il y a une multiplication des sources d'expertise : on est loin de la parole unique et souvent un peu arrogante ou autoritaire qui

prévalait dans le nucléaire des années 70. Clairement, les controverses de l'époque ainsi que celles qui ont suivi les grands accidents nucléaires ont divisé de nombreux milieux - même parmi les experts -, et ont permis la création de groupes divers qui produisent une information très riche et de qualité. Les medias peuvent s'alimenter à plusieurs sources nationales et internationales, associations, ong, groupes d'études, sites web plus ou moins bien faits, plus ou moins militants aussi.

Un autre phénomène important est évidemment l'émergence des réseaux sociaux, avec ses avantages, et ses inconvénients. S'ils enrichissent la diversité et la circulation des informations, ils sont aussi le vecteur idéal de la rumeur et de l'exagération (quand ce n'est pas la théorie du complot...). Un exemple récent est la pétition lancée en janvier 2016 sur le réseau Avaz qui écrivait notamment : « Les experts sont très inquiets: la Belgique vient de redémarrer deux vieilles centrales pleines de fissures qui menacent de déclencher un nouveau Tchernobyl en plein cœur de l'Europe ! Un incendie et une explosion ont endommagé un des réacteurs vieillissants il y a quelques semaines, et le directeur de la sûreté nucléaire belge lui-même a appelé à des contrôles après la découverte de 16 000 fissures! » etc... Autre exemple, les alarmes lancées sur la grave situation de la piscine n°4 de Fukushima chargée d'éléments combustibles qui, en cas d'écroulement, eut selon certains provoqué la fin du monde. C'est là qu'on voit que le catastrophisme a un effet regrettable : il masque souvent la *gravité réelle* des situations, parfois très élevée évidemment, et leur appréhension correcte.

Le vocabulaire joue aussi un rôle. Par exemple, l'usage généralisé du terme « fissures » pour désigner les anomalies relevées dans les cuves de Doel 3 et Tihange 2 est abusif. Microfissures ou anomalies ou bulles d'hydrogènes était plus correct. Mais la question posée reste bien : en cas de choc thermique violent (arrêt d'urgence par exemple), les microfissures ne risquent-elles de devenir de vraies fissures ?

Si l'émergence des réseaux sociaux et les évolutions structurelles des medias montrent la fin d'un modèle vertical de la diffusion de l'information, cela n'empêche cependant pas que la parole de l'autorité publique reste centrale, la référence par rapport à laquelle les acteurs se situent.

Dans le cas du grand public, il est sans doute trivial de rappeler que l'énergie nucléaire - l'énergie atomique - reste marquée par son passé militaire et sa culture du secret, même s'il faut soigneusement faire la distinction et éviter les amalgames.

La perception du nucléaire et de ses risques, est aussi influencée par la gestion des crises passées. A cet égard, Tchernobyl et Fukushima sont des faillites qui ont frappé les esprits, et Three Mile Island n'a pas été un modèle non plus même si cet accident là a entraîné des conséquences beaucoup plus limitées. Alors que la croyance commune pensait que dans un pays « moderne » comme le Japon, la situation était sous contrôle², la catastrophe de Fukushima a révélé au monde toutes les tares, corruptions et conflits d'intérêt qui marquaient le « village nucléaire » japonais. Le rôle très controversé de l'AIEA dans la crise de Tchernobyl³, tout comme le rôle actif que lui assignent ses statuts dans la promotion du nucléaire civil ne permettent pas d'en faire et de le percevoir comme un régulateur international indépendant⁴. De même, les analystes qui pronostiquent le développement du nucléaire en Asie (Chine, Inde, Vietnam, etc...) omettent de mentionner l'absence flagrante d'indépendance des autorités de régulation dans ces pays. Tout ceci ne peut que mener à des risques importants de nouveaux accidents et nuire à la crédibilité des agences de contrôle, alors qu'en Europe et aux USA - et en Belgique bien sûr - des efforts importants et incontestables ont été réalisés en ce domaine ces 15 dernières années.

Information, communication, conflits, contradictions et dilemmes

Que ce soit en cas de crise accidentelle, ou en cas de discussion sur les plans d'urgence, la communication et l'information se déploient de toute façon sur un terrain potentiellement conflictuel.

2 Ceux qui suivaient de près ce dossier en Asie ne partageaient pas ce point de vue.

3 Notamment dans la minimisation des conséquences, cf mon livre, chapitres 1, 3, 5 et 7. Voir note 1.

4 Dans son très intéressant ouvrage « Nucléaire On/Off », François Lévêque, ancien d'EDF devenu consultant principal de l'opérateur français, se prononce très nettement pour la séparation des tâches de l'AIEA - de contrôle d'une part et de promotion du nucléaire d'autre part, un mélange des genres qui serait aujourd'hui inconcevable au sein des agences de contrôle nationales dans nos pays.

En cas d'accident, les exploitants (et les lobbies qui les soutiennent) auront généralement tendance à minimiser les coûts, à minimiser les dommages, à privilégier la poursuite de la production des autres centrales. En opérations courantes, ils n'ont pas cependant intérêt à minimiser la sûreté et la sécurité au risque de compromettre la poursuite de l'exploitation et de créer des dommages humains et autres qu'ils réprouveraient eux-mêmes. Se priver d'un gros outil de production entraîne de fortes pertes. En général, on remarque que leur communication est très contrôlée. Les medias n'ont à faire qu'aux communiqués et communicants habituels, qui transmettent assez tardivement un niveau relativement superficiel d'information. Les exploitants semblent craindre comme la peste toute information délivrée de l'intérieur hors de ce cadre et de leur contrôle. Ils donnent plutôt le sentiment d'une « forteresse assiégée ».

Les associations, groupes d'experts indépendants ou organisations écologistes peu ou prou antinucléaires ne doivent pas nécessairement être tous mis sur le même pied. Bon nombre d'entre eux ont développé une expertise indéniable et sont très prompts à répondre aux sollicitations médiatiques, souvent avec beaucoup d'efficacité. Les groupes franchement opposés au nucléaire auront tendance à trouver dans les crises accidentelles une confirmation de leurs analyses.

Comment croire que l'état - et son agent, le gouvernement - soit neutre ? Surtout dans les pays dont la production d'électricité dépend fortement du nucléaire, et encore plus lorsque celui-ci est sous contrôle public, l'état, en cas de crise, est écartelé entre ses différentes missions : organiser la protection de la population et affronter éventuellement la colère de celle-ci à l'égard des exploitants ou de l'état lui-même, choisir de fermer ou non les autres réacteurs en activité. Le régulateur est lui-même soumis peu ou prou à des difficultés semblables et, dans ces circonstances, la population le confond ou l'englobe souvent avec l'état.

Les autorités sont confrontées à un dilemme classique mais porté à un degré élevé dans le cas d'une crise nucléaire : dire la gravité des choses peut provoquer un chaos qui diminue l'efficacité des évacuations et autres mesures à prendre. Ne pas la dire l'expose à la critique du mensonge.

Le premier ministre japonais Naoto Kan en fonction au moment de l'accident de Fukushima a expliqué plus tard qu'il avait envisagé un moment de planifier une évacuation de Tokyo. Mais on n'a pas trouvé de traces sérieuses de tels préparatifs. Finalement parce qu'il s'agit tout simplement d'une opération impossible. Reconnaître qu'on ne pourra jamais évacuer une grande ville pourrait-il saper complètement la confiance relative dans le nucléaire ?

La population n'échappe pas non plus aux dilemmes et contradictions. Evacuer ou pas ? Même en cas d'ordre d'évacuation, il est à parier qu'un certain nombre de gens refuseraient, notamment dans des villes. Mais pas seulement : dans les campagnes, comme autour de Fukushima, agriculteurs et éleveurs ont évidemment les plus grandes difficultés à se résoudre à quitter leurs terres. Un des principaux problèmes est la décision face au caractère aléatoire des conséquences. Si l'on imagine qu'un accident peut entraîner des problèmes de santé et même des décès pour 5% d'une population concernée, 100% de cette population peut croire qu'elle en sera victime, c'est-à-dire être dans les 5%.

La population peut à la fois être très critique vis-à-vis des autorités et en même temps réclamer leur soutien. A plus long terme, dans les situations post accidentelles, elle peut avoir des attitudes ambiguës. Au Japon, beaucoup de populations locales refusent qu'on entrepose des déchets sur leur territoire. Et dans un premier temps les populations évacuées peuvent être victimes d'ostracisme dans les régions où elles arrivent (peur de la contamination, de la « souillure » dans des sociétés très hygiénistes comme le Japon, rejet des gens de Kiev arrivant à Moscou en 1986, etc....).

A plus long terme, souhait de transparence et réaction de déni peuvent coexister. La population rurale par exemple, veut savoir quelle est la contamination de la production. Mais ne veut pas non plus qu'on la sache trop si les relevés montrent des données juste en dessous de la limite admissible. Vivre en permanence dans des dispositifs de contrôle est fastidieux, usant, et peut finir par entraîner des rejets, assez logiques chez ceux qui sont plus ou moins condamnés à rester parce que économiquement et socialement peu mobiles. Des autorités désireuses de tourner rapidement la page ou des « experts » ou scientifiques proches

des milieux des opérateurs pourront aisément surfer sur ces réactions pour amplifier le déni.

Toute préparation, amélioration, approfondissement ou élargissement de plans d'urgence génère inévitablement des réactions ambiguës. D'une part ils sont indispensables et c'est une mission fondamentale des pouvoirs publics auxquels on pourrait reprocher de ne pas y porter suffisamment d'attention. D'autre part ils mettent plus en évidence les dangers potentiels d'un accident nucléaire. C'est le cas notamment lorsqu'on envisage, de façon justifiée, d'élargir les périmètres d'évacuation ou ceux de distribution des pastilles d'iode.

Ceci n'est qu'un aperçu de l'ensemble du contexte et des difficultés dans lesquelles se trouvent les différents acteurs et qui vont conditionner leur communication, soit dans une crise nucléaire soit dans sa prévention. On est loin d'un modèle simple où des pouvoirs publics communiqueraient unilatéralement et sans discussion des consignes à respecter en cas d'accident nucléaire de sorte à atteindre un maximum d'efficacité dans la protection et un minimum de dommages.

Convergents ou divergents, opposés ou complémentaires, les différents acteurs ne sont cependant pas complètement condamnés à une guerre de tranchées ou un dialogue de sourds. Même si les opposants aux nucléaires n'obtiennent pas, à court terme, gain de cause dans leurs objectifs, ils n'ont pas intérêt à se comporter comme si le nucléaire n'existait pas. La participation à des structures de discussion comme les CLI en France - ou d'autres, imaginables mais qui n'existent pas encore -, peut être bénéfique à tous, pour autant que les différents acteurs ne se sentent pas obligés de renoncer à leurs objectifs ou thèses, dans une discussion qui peut être ouverte et même conflictuelle, et où chacun peut approfondir sa connaissance des enjeux.

EUROPEAN REQUIREMENTS FOR PUBLIC COMMUNICATION ON NUCLEAR EMERGENCIES

Augustin Janssens ¹

Consolidation of the legislation

The new Euratom Basic Safety Standards [1] on the one hand incorporate the recommendations of ICRP and in particular introduce the definitions of exposure situations [2], on the other hand constitute a major consolidation of all Euratom radiation protection legislation. This includes Directive 89/618/Euratom on “Public information” [3]. This commonly used shortened title is somewhat misleading since the Directive (further referred to as PID) includes in the term “general public” not only “members of the public” as defined in the Basic Safety Standards Directives but also “persons who might be involved in the organization of emergency assistance in the event of a radiological emergency” (Title IV), currently referred to as “emergency workers”. The scope of the Directive (Article 1) was *to define, at Community level, 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*. For the purposes of this Directive (Article 2), ‘a radiological emergency’ means any situation:

1. *that follows: (a) an accident in the territory of a Member State; or (b) the detection, within or outside its own territory, of abnormal levels of radioactivity which are likely to be detrimental to public health in that Member State; [or (c) ... (d) ...];*
2. *that is attributable to (a) any nuclear reactor; wherever located; (b) any other nuclear-fuel-cycle facility; (c) any radioactive-waste management facility; (d) the transport and storage of nuclear fuels or radioactive wastes; (e) the manufacture, use,*

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storage, disposal and transport of radioisotopes for agricultural, industrial, medical and related scientific and research purposes; and (f) the use of radioisotopes for power generation in space vehicles.

Similar terms were used in the contemporaneous “post-Chernobyl” Council Decision on urgent information exchange (ECURIE) [4]. It is worth noting that this Decision requires notification not only of protection measures but also of “any measures which they have taken or planned to inform the general public”. The consolidation of all legislation in the BSS has the advantage that a long-winded definition of the scope is no longer needed since it now coincides with the new concept of “emergency exposure situation”. The original definition of the scope in the PID is nevertheless useful in underlying that not only nuclear power plants or fuel cycle installations are of concern, but also transport accidents and the re-entry of space vehicles with nuclear batteries, hence requiring all Member States, not only those with nuclear energy, to take appropriate measures for the whole of the population. It is also worth drawing attention to the inclusion in the BSS of provisions for post-accidental situations, regarded as an “existing exposure situation” (in the same way as for instance radon in dwellings and workplaces).

The consolidation has allowed to resolve an embarrassing problem with the Directive since the adoption of new Basic Safety Standards in 1996 [5], caused by the reference in Article 3 of the PID to *situations likely to result in members of the public being exposed to doses in excess of the dose limits prescribed under the Directives laying down basic Community safety standards for radiological protection* and in particular to the dose limit laid down in Article 12 of Directive 80/836/Euratom. This limit was still 5 mSv per year in 1980, but reduced to 1 mSv/y in 1996, a value that was regarded too low as a threshold for an emergency.

Information to members of the public in the Basic Safety Standards

In the PID Directive a distinction was made between (Title II) *Prior information* and (Title III) *Information in the event of a radiological emergency*. This part of the Directive is included almost without change in the BSS, Title VIII, respectively in Article 70 (*Information to the members*

of the public likely to be affected in the event of an emergency) and Article 71 (*Information to the members of the public actually affected in the event of an emergency*).

Article 70 should be implemented within the planning for emergency preparedness, and requires Member States to provide information on health protection measures and on what people should do in the event of an emergency. This information must be provided without request being made, regularly updated and permanently available. So it calls for an active, regular, dissemination. This requirement has of course been transposed in national legislations, also in those of Member States that joined the EU much later. Where the Euratom Treaty (Article 33) calls on the Commission to foster the harmonisation of national provisions, it proved very difficult to obtain information of the implementation of the PID and on-site visits were not feasible. While the requirements in the BSS are not new, we can only hope that they will receive more attention as part of the transposition of this Directive by 6.2.2018.

The content of the information to be provided under Articles 70 and 71 is spelled out in Annexe XII, parts A and B respectively, again with little or no change compared to the PID Directive. It should be noted that in addition to Annexe XII two further annexes are very relevant to the implementation of the requirements on public information, namely Annexe I laying down reference levels (which we did not have in 1996) and XI establishing requirements for the national emergency management system, starting with a “threat assessment”, which links it, implicitly, to requirements on nuclear safety [6]. The emergency management system is spelled out to a very large extent along the same lines as in the international Basic Safety Standards [7].

Annexe A requires information on the basic facts about radioactivity and its effects on human beings and on the environment; on the various types of emergency covered; on emergency measures envisaged to alert, protect and assist the public in the event of an emergency; and information on action to be taken by the public.

Annexe B is more elaborate and requires (B1) prompt information to be provided in the event of an accident with advice on protection, in particular with regard to consumption of food and water, sheltering, iodine prophylaxis and evacuation (terms adjusted) as well as announcements recommending cooperation with instructions or requests by the competent authority. If the emergency is preceded by a pre-alarm phase (B2), the members of the public shall receive information with regard to relevant communication channels and preparatory advice to establishments with collective responsibilities. The latter are linked to the requirement in B1 for special warnings for “certain groups of the members of the public”. Hence the Directive acknowledges the existence of vulnerable groups in the society, for instance schools, hospitals. If time permits people shall be reminded of the information provided in terms of Annexe A on the basic facts about radioactivity and health effects (B2 par.3).

Emergency workers

The PID (Article 7) merely requires also information to be provided to emergency workers on the possible health consequences of their intervention, to be updated in the light of the specific circumstances of the accident. In the BSS (Article 17) as part of the overall requirements in Title IV with regard to radiation protection education, training and information, specific information needs to be provided to emergency workers who are identified in an emergency response plan or management system. Emergency workers now in addition need to receive training, not only in respect of the assistance they should provide in the event of an emergency, but also in radiation protection. This should allow to invoke the concept of informed consent, which is required for emergency workers to exceed a reference level of 100 mSv (up to 500 mSv in exceptional cases). Otherwise the reference level shall not exceed 100 mSv, down to the dose limit for occupational exposures of 50 mSv in a single year (applicable to possible emergency workers who are not identified in the emergency plan).

The Directive also acknowledges the need for radiological monitoring and special medical surveillance of emergency workers.

International cooperation

Article 99 of the BSS strengthens the requirements on cooperation between Member States and third countries. Where the 1996 BSS invited the Member States to “seek cooperation”, now they shall cooperate. They shall establish contact not only to facilitate emergency response but also to coordinate public information. This is an important novelty that is hoped to ensure coherent information to be provided on the development of an accident and on its consequences. Member States’ heads of competent authorities (HERCA), jointly with the nuclear energy regulators (WENRA) adopted a Common Approach on this matter [8]. Among the building blocks of this approach is the suggestion to rely in the first place on the information provided by the Member State in which the accident happened and enhanced cooperation of technical support organisations, in order to build trust between Member States. The Council has taken up some of the ideas of HERCA in Conclusions [9] with the aim of increasing transparency and public participation and confidence, but these do not address the need for coordination of public information. The difficulties that need to be overcome for promptly agreeing on the content of public information are indeed huge, but the author of this paper feels it is still worthwhile to try and make progress in this area.

Perspectives

The current situation with regard to public communication for emergency preparedness and response is far from satisfactory. The need for making progress in emergency preparedness was highlighted by a study conducted by the EC [10] as a follow-up to the “stress-test” of nuclear installations, in the aftermath of the Fukushima accident [11].

The new BSS merely offer a good framework for making progress in this area, and are a good opportunity for seriously addressing the issues already highlighted in the PID Directive of 1989. It is for Member States to take initiatives and to call upon the Commission to contribute to the harmonisation of the approaches.

Better advance information of the population should not ignore people’s reluctance to accept scientific views on the health risk associated with exposure to ionising radiation, whether in a normal situation or in case of an

emergency. Any communication on such risks suffers from the interference of views on their acceptability, and this is related to whether the cause of exposure is felt to be a justified practice or not. A better integration of radiation protection and nuclear safety cultures would on the one hand benefit to a better threat analysis and to emergency plans also addressing events with very low probability but dramatic consequences, on the other hand contribute to a better understanding and possible acceptance of the risk, through adequate stakeholder involvement.

Transparency on regulatory decisions in the area of radiation protection and the justification of practices is now explicitly required in the BSS (Article 77). Transparency and stakeholder involvement is also required under the Aarhus Convention [12] which is applicable to nuclear fuel cycle installations and to which the Community adhered, albeit under EC Treaty provisions [13].

References

[1] Council Directive 2013/59/Euratom of 5 December 2013 laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation, and repealing Directives 89/618/Euratom, 90/641/Euratom, 96/29/Euratom, 97/43/Euratom and 2003/122/Euratom (OJ L 13, 17.1.2014, p. 1–73).

[2] The 2007 Recommendations of the International Commission on Radiological Protection. ICRP 103, Ann. ICRP 37 (2-4) (2007).

[3] 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, 7.12.1989, p. 31).

[4] 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, 30.12.1987, p. 76).

[5] Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general

public against the dangers arising from ionising radiation (OJ L 159, 29.6.1996, p. 1).

[6] Council Directive 2009/71/Euratom of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations (OJ L 172, 2.7.2009, p. 18) Amended by Council Directive 2014/87/Euratom of 8 July 2014.

[7] International Basic Safety Standards: Radiation Protection and Safety of Radiation Sources: General Safety Requirements Part 3, International Atomic Energy Agency, Vienna 2014.

[8] HERCA-WENRA: Common Approach for better cross-border coordination of protective actions during the early phase of a nuclear accident (joint meeting in Stockholm on 21 October 2014)

[9] Still in draft (February 2016)

[10] Review of current off-site nuclear emergency preparedness and response arrangements in EU Member States and neighbouring countries (ENER/D1/2012-474)

[11] Communication from the Commission to the Council and the European Parliament on the comprehensive risk and safety assessments (“stress tests”) of nuclear power plants in the European Union and related activities {SWD (2012) 287 final}.

[12] Convention on access to information, public participation in decision-making and access to justice in environmental matters, done at Aarhus, Denmark, on 25 June 1998

[13] Regulation (EC) No 1367/2006 of the European Parliament and of the Council of 6 September 2006 on the application of the provisions of the Aarhus Convention ... to Community institutions and bodies.

