Nuclear Transparency Watch



Report of NTW Working Group on Emergency Preparedness & Response (EP&R)



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Caveat

The present report is the result of a pluralistic and collaborative process involving a range of contributors representing a diversity of views vis-à-vis nuclear energy. Collectively all participants are committed to contribute to the improvement of emergency preparedness and response (EP&R) as an important part of nuclear safety and therefore as a "common good" for Europe without prejudice vis-à-vis their own personal position. Given this context, the report inevitably contains some divergence of views in some sections. Some contributions do not necessarily reflect the views of all the participants. However, Chapter VI (Viewpoints and Recommendations of Nuclear Transparency Watch) contains the agreed consensus reached by all the participants regarding the assessment of the existing provisions of EP&R as well as NTW's recommendations. It is advised that the report is read with this notice in mind.



Executive Summary

One of the first steps of the Nuclear Transparency Watch (NTW) association was to establish the working group (WG) on the Emergency Preparedness and Response (EP&R) with the aim to carry out an evaluation of the existing European and national EP&R provisions from the civil society point of view, to inform the public on the findings and to and provide guidance for further activities of the interested public.

The information on EP&R provisions in Europe and Ukraine was collected and analyses were performed based on a) desk work to review the national provisions and international requirements, b) interviews and questionnaires with representatives of responsible institutions and members of local populations, c) the organisation of trans-boundary roundtables involving the participation of responsible institutions and civil society, d) international seminars with expert institutions and international associations as well as e) the available investigations performed by the European institutions (i.e. the "Review of current off-site nuclear emergency preparedness and response arrangements in EU member states and neighbouring countries" study). It has to be emphasised that the NTW investigations were performed by individuals or associations which did not possess or have access to dedicated resources to perform the work and also under conditions where they were sometimes obstructed from obtaining requested information. Therefore, the results do not claim to be comprehensive or homogenous, but provide preliminary information on the EP&R provisions as seen from the civil society point of view.

This report provides a methodical overview of all activities in the EP&R work and aims to collect all information obtained during the first review of EP&R provisions. The main findings, viewpoints, recommendations and proposals of the members of the EP&R Working Group are presented, thus summarising the opinion of NTW on the EP&R situation in Europe. Several urgent possibilities for the improvements of EP&R provisions related to different topics have been found, among others, the following:

- <u>Emergency drills</u> NTW observes that many regional and local authorities are not really prepared for a nuclear accident. Sufficient dedicated staff, accurate evacuation plans and full scope exercises involving the local population are missing. Lessons learned from exercises and drills are not taken into account in new versions of plans, nor are they communicated to the stakeholders. NTW believes that there is a need for developing a legal framework requiring the involvement of civil society organisations at each level of EP&R preparation and for related decisions, in the spirit of the Aarhus Convention and in compliance with its requirements.
- <u>Updating in response to social and technological change</u> NTW identifies poor updating of EP&R plans regarding important recent spatial changes (new residential neighbourhoods, shopping malls, medical centres, schools, roads, etc.) and recent changes in technology (internet, mobile phones, new social media, availability of basic radiation measurement equipment among the broader population, etc.). During the Fukushima catastrophe, social media networks played an important role in how citizens gathered on-going information in Japan and beyond. This dynamic is not taken into account in national EP&R plans, nor are EP&R plans adequately addressing cross border issues and the multi-lingual, multi-national and multi-cultural character of contemporary European societies. How will authorities use these communication vehicles to quickly dispatch relevant information to a wide audience? How are they going to tackle contradictory information or rumours?
 - <u>Communication</u> NTW notices that even during exercises and drills, the communication and notification lines for the responsible institutions are not entirely working. The contact data of involved personnel are sometimes wrong or out-dated. Some concerned administration services do not communicate between themselves, and for others, their communication is inadequate or delayed, or even both. For example, in Germany, the crisis teams of the Federal Ministry for the Environment and the federal states Environmental



Ministries failed in a communication exercise in September 2014. The outcomes show that more than one million inhabitants would have been affected by radioactive releases before any public warning by the authorities and some regions would have received security instructions (to close the windows, doors, etc.) five hours too late. How are the communication lines supposed to work between two neighbouring countries if it is so chaotic already on a national level?

- Distribution of iodine tablets The heterogeneity of measures in different countries (like the distribution of iodine, evacuation perimeters and zoning) is a crucial trans-boundary dimension. This heterogeneity is potentially a source of chaos, loss of credibility and most importantly, can lead to failure to protect the population. As an example, in Austria and Luxembourg, iodine tablets can be collected in any pharmacy to be stored at home in the whole territory. In the Czech Republic, iodine tablets are pre-distributed and stored in houses only in an emergency zone up to 13 km around the Temelín NPP and 20 km around the Dukovany NPP. Today, not all parts of the population in the emergency zone have iodine tablets. In Belgium and France, iodine tablet pre-distribution zones are established within 20 km and 10 km around the nuclear power plants respectively. For residents living outside the pre-distribution zone, there are centralised stocks, which need to be distributed after the nuclear accident happens. In Germany, iodine tablets have to be collected by the public itself after the accident. The question is how will the iodine tablets reach the affected population in time? In Japan, stocks existed locally before the Fukushima disaster. But given the fact that the authorities failed to give appropriate instructions to the public, iodine tablets could be distributed only for a very small number of residents in the area surrounding the damaged plant.
- <u>Food standards</u> There is a need for clarification of food standards and their harmonisation especially in the post-accident context. It has been noted that there are several different food standards imposing radioactivity limits per mass or volume. For example, the FAO and WHO standards state 1000 Bq/kg of food stuff for Cs-137 (Codex Alimentarius), whereas the EU imposes different limits for import of food from different areas affected by a nuclear accident - e.g. 370 Bq/kg for Cs-137 in dairy products from the Chernobyl area and 200 Bq/kg for Cs-137 in dairy products from Japan after the Fukushima catastrophe. A repetition of the chaos in food standards after the Fukushima catastrophe has to be prevented at all cost. The confusion caused mistrust of the legal framework and the responsible institutions. The European Commission and other authorities should create a transparent, scientifically sound and publicly accepted set of standards and create harmonisation across Europe.

It is obvious that the usual top-down approach which has been used to date should be changed and that local populations and interested civil society organisations should be involved in this development. This would be the best cure against sectoral "silo thinking" and in particular, the problems of articulation of the responsibilities of civil protection authorities on the one hand and the safety and radiation protection authorities on the other hand. Public participation would also reduce limits of administrative handling that creates EP&R systems based on false or outdated presumptions and/or data and incapable for fast learning and overcoming of cross-border obstacles. Capacities for fast learning and adoption to new circumstances are vital and crucial for effective EP&R since the unexpected is a part of any complex emergency situation. The European Parliament, the European Commission, national governments, regional bodies and municipalities together with Nuclear operators should therefore provide access to relevant information as well as support participation in emergency preparedness and response planning of interested citizens, citizens initiatives and civil society organisations (CSO) regardless of their general standing towards the commercial use of nuclear power.







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1 Introduction

Directly after the Fukushima nuclear catastrophe, which started on 11 March 2011, the European Council initiated a reflection on lessons learned from this event in the form of the European nuclear stress tests. Already at early stage, several citizens' organisations noticed that although Fukushima had seen severe problems in the off-site emergency response, resulting in a high casualty toll as well as unbearable situations for many of the involved people from the surrounding areas, the issue of off-site emergency preparedness and response was entirely missing from this exercise. They called upon the European Commission to address this gap, and pursued the issue during the development of the European nuclear stress tests.

At the end of 2013, Nuclear Transparency Watch (NTW) was created by members of the European Parliament (EP) from a range of political groups and civil society organisations (CSOs) with the objective of ensuring greater vigilance and public involvement in relation to all activities in the nuclear sector. The principal focus of NTW is on transparency and public participation as means to reduce nuclear risk and the protection of human health and the environment. The objective of NTW is to enhance the levels of civil society attention and public participation in nuclear related decision-making processes (such as siting and lifetime extension decisions, waste management, emergency provisions and decommissioning), to support exchange of information of civil society in nuclear-related areas at national and European levels and to initiate partnerships and cooperation in developments regarding nuclear transparency in various European countries.

One of the first steps of the Nuclear Transparency Watch association was to establish the working group (WG) on the Emergency Preparedness and Response (EP&R) with the aim to carry out an evaluation of the existing European and national EP&R provisions from the civil society point of view, to inform the public on the findings and to provide guidance for further activities of the interested public.

The mission of NTW WG EP&R was to check the reality of nuclear off-site emergency preparedness and response. This was investigated both in terms of whether legally binding procedures and measures were actually in place and carried out with due diligence and also whether a conventional top-down approach to EP&R (i.e. dominated by state authorities) can adequately address the various challenges involved. This includes for example providing in-time and trustworthy information, motivating and training key institutional stakeholders at local level and citizens to undertake best possible actions to avoid exposure to post-accident radiation and other negative consequences of nuclear emergencies and post-emergencies. The members of the NTW EP&R WG are fully aware that in order to assure nuclear safety one cannot avoid the issue of safety of operating and phasedout nuclear reactors as well as adequate management of radioactive waste, both spent fuel and other HRW. Therefore even the most perfect EP&R solutions cannot and should not compensate for inadequate safety of operation and management of nuclear facilities. NTW also recognises that nuclear accidents beyond design and anticipated scenarios can also happen in Europe. Therefore a new, active citizenship-based approach to EP&R is needed at EU, national, regional and local level to avoid inadequate behaviour and actions, especially with regard to cross-border cooperation in the field.

Objectives of the EP&R WG work were to identify the:

- key challenges regarding nuclear EP&R from the point of view of civil society;
- main needs for improvements of existing EP&R provisions in Europe at the local, national and European level concerning:
 - the content of EP&R arrangements (such as exposure standards, intervention levels, zoning, transboundary arrangements, etc.)
 - and the decision-making processes for EP&R in the context of the Aarhus Convention;

strategic opportunities to push forward key changes with a view to strengthening EP&R at the local, national and



European levels.

In order to achieve the above objectives the EP&R WG adopted a methodology [1] and implemented national and international investigations based on guidelines [2]. Collected information and performed analyses are based on the following methods and sources: desk work reviewing the national provisions and international requirements; interviews and questionnaires with representatives of responsible institutions and members of local population; the organisation of trans-boundary roundtables involving the participation of responsible institutions and civil society; international seminars with experts from institutions and international associations as well as on the available investigations performed by the European institutions (e.g., the "Review of current off-site nuclear emergency preparedness and response arrangements in EU member states and neighbouring countries" study¹). The detailed information on the approach, activities and results are described in this report. In addition, a separate position paper was adopted with the main findings, viewpoints, recommendations and proposals of the members of the EP&R Working Group, thus summarising the opinion of NTW on the EP&R situation in Europe.

It has to be emphasised that the NTW investigations were performed by individual experts or associations, which were not having dedicated resources to perform the work and also under conditions where they were sometimes obstructed from obtaining requested information. Therefore the results are preliminary, scattered with respect to completeness and not homogeneous due to variety of factors, but provide initial information on the EP&R provisions as seen from the civil society point of view.

2 Background information

Following the International Atomic Energy Agency's (IAEA) recommendations, nuclear safety is based on "*de-fence in depth*" with five independent levels of protection. The objective of the last level is the "*mitigation of radiological consequences of significant releases of radioactive materials*" by means of off-site emergency response. The IAEA stresses that even if the efforts described in the lower levels are expected to be effective in limiting the consequences of severe accidents, "*it would be inconsistent with defence in depth to dismiss off-site emergency plans*". Therefore in 2002, the IAEA adopted in cooperation with other international institutions safety requirements on preparedness and response for a nuclear or radiological emergency (which integrate different involved bodies, common concepts and expectations), a clear allocation of responsibilities among all response organisations, well defined agreements between these organisations and arrangements for co-ordinating an integrated response. However citizens' organisations and the affected population do not have a specific active role in these plans.

But there are several international and legal standards requiring that the different interested parties, also the public, are involved in the emergency preparedness and response in case of nuclear accident. Basic requirements are set in the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters [3], in particular in Article 5.1.(c) which requires Parties to ensure that:

"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".

Also the Publication 109 [4], for example, says:

¹ http://www.nuclear-transparency-watch.eu/wp-content/uploads/2014/03/Report-ENCO.pdf



"During planning, it is essential that the plan is discussed, to the extent practicable, with relevant stakeholders, including other authorities, responders, the public, etc. Otherwise, it will be difficult to implement the plan effectively during the response. The overall protection strategy and its constituent individual protective measures should have been worked through with all those potentially exposed or affected, so that time and resources do not need to be expended during the emergency exposure situation itself in persuading people that this is the optimum response. Such engagement will assist the emergency plans by not being focused solely on the protection of those at greatest risk early in an emergency exposure situation."

The need for adopting a stronger legal framework in this area has been recognised also by the European Commission, especially after the Chernobyl accident in April 1986, which led to the acceptance of several legal requirements dealing with early exchange of information, on informing the general public about health protection measures, steps in the event of a radiological emergency and other basic safety standards for radiation protection [5, 6, 7]. In addition, the European Commission supported several different EU projects, for example EU-RANOS (European approach to nuclear and radiological emergency management and rehabilitation strategies, <u>http://www.euranos.fzk.de</u>) which recognised that local actors and civil society are key stakeholders at the local, national and European levels to assure the quality of EP&R. The European NERIS platform (European Platform on preparedness for nuclear and radiological emergency response and recovery, <u>http://www.eu-neris.net</u>), created at the end of EURANOS, took this concern on board and stressed: *"stakeholders need to be involved at the planning stage to help determine appropriate reference levels for emergency exposure situations and trigger levels for the implementation of emergency countermeasures."*

The Fukushima accident in March 2011 has intensified European concerns about EP&R provisions. Although the European Commission and European Nuclear Safety Regulators Group (ENSREG) initiated a process of stress tests for all operating nuclear power stations in Europe, this process focused only on safety and did not include off-site EP&R. This is contradictory to the defence in depth basis of the IAEA concept of nuclear safety. Civil society organisations (e.g. Greenpeace) pointed out the need to assess off-site EP&R [9]. As indicated in several accident assessments, such as for example in the official report of the Fukushima Nuclear Accident Independent Investigation Commission prepared by the National DIET of Japan [8], there have been many mistakes related to EP&R in Japan, such as incomplete scenario considerations and consequently unrealistic threat assessments, poor crisis preparation and management and a lack of preparation of the local population for the response. The Investigation Commission stated in its conclusions:

"that the residents' confusion over the evacuation stemmed from the regulators' negligence and failure over the years to implement adequate measures against a nuclear disaster, as well as a lack of action by previous governments and regulators focused on crisis management. The crisis management system that existed for the Kantei and the regulators should protect the health and safety of the public, but it failed in this function."

The question also is whether current EP&R provisions are scaled to face INES (International Nuclear and Radiological Event Scale) 7 nuclear accidents or lower levels. Present EP&R plans cannot cope with an INES7 accident, the level of the Chernobyl and Fukushima catastrophes. They are designed to deal with an accident with a limited release of radioisotopes in time and space. The Chernobyl and Fukushima accidents proved that EP&R plans are unable to cope with large-scale releases and contamination and this in complex situations where the accident is linked to other external (catastrophic) events.

Also in 2012, the Aarhus Convention & Nuclear process organised two European round tables respectively on post-accident issues (February 2012) and on nuclear safety (December 2012). These roundtables identified that there is no proper preparedness for a similar nuclear accident in Europe and there is a need to improve EP&R. One of the main deficiencies according to the participants of the round tables is the lack of participation of the local public and citizens' organisations in the EP&R planning, exercises and implementation. In parallel, due



to the recognition of the need, civil society has taken various initiatives on EP&R at the national level, such as the development of guidance on off-site emergency plans, crisis exercises and iodine distribution campaigns developed by the French association ANCCLI (Association Nationale des Comités et Commissions Locales d'Information). Another example is the implementation of an international project coordinated by municipalities in Slovenia (with the cities of Krško and Brežice) on the assurance of preparedness in local municipalities in a trans-boundary context involving also Croatia (Zagreb) and Romania (Cernavoda).

It has also been recognised that several European regulatory bodies' associations, like HERCA (Heads of Radiological protection Competent Authorities, <u>http://www.herca.org</u>) and WENRA (Western European Nuclear Regulators Association, <u>http://www.wenra.org</u>), have identified problems related to EP&R approaches such as: lack of agreement on zoning and other urgent protective measures, harmonisation of national approaches and trans-boundary arrangements and communication challenges related to the exchange and coordination at international level and in particular at the European level. They started to develop a more consistent approach by considering the management of nuclear and radiological emergency situations as a top priority with the aim to develop a comprehensive approach to harmonisation. At the end of 2014, they proposed the AtHLET (Ad hoc High-Level Task Force on Emergencies) approach [10], which considers that within Europe, evacuation should be prepared in an area of minimally 5 km around nuclear power plants, sheltering and ITB (iodine thyroid blocking) in an area of minimally 20 km and a general strategy should be defined in order to be able to extend evacuation up to 20 km and sheltering and ITB up to 100 km. In 2013, the European Commission's Energy DG commissioned a report entitled *"Review of current off-site nuclear emergency preparedness and response arrangements in EU member States and neighbouring countries"* which, however, provides only a formal overview of the EP&R provisions and fulfilment of international requirements based on a self-evaluation by national regulatory bodies.

Then in 2013, Nuclear Transparency Watch formed a special EP&R working group with members from all around Europe and started to investigate the arrangements and challenges of EP&R from a civil society point of view. The results of the work can be found on the NTW web page: <u>http://www.nuclear-transparency-watch.eu/category/activities/nuclear-emergency-preparedness-and-response.</u>

3 Methodology

The proposed process of NTW analyses on EP&R arrangements has focused on country-specific or site-specific issues on EP&R, including trans-boundary issues (identified and addressed by national investigations) and EP&R issues of European relevance from the viewpoint of civil society. The process relied on interactions between:

- national investigations led by EP&R WG members (in cooperation with other civil society organisations) at the national and/or local levels notably through national or regional roundtables (when appropriate and possible),
- and investigations at the European level (seminars, meetings, hearings, etc.) by NTW, integrating national views.

Based on the discussion during the initial seminar it was agreed that the EP&R WG would focus its investigation on:

- Inclusion of Civil Society Organisations (CSO) in EP&R plans and exercises;
- Checking the implementation of national and trans-boundary provisions on EP&R;
- Setting the regulatory framework and harmonisation and
- Improvement of information for the public.



For this purpose two documents were adopted by EP&R WG members: the methodology of the working group on emergency preparedness and response [1] and guidelines for preparation of national inputs [2]. The methodology includes presentation of starting points for investigations, learned from the initial seminar and first collection of data, agreement on the national research approach and international provisions and well as latest EC contributions to be used and examined. The NTW analyses include national researches on how well the EP&R is organised within each country by taking into account besides the documented arrangements also the information from the field and a set of interviews, the round tables' discussion organised at national or trans-boundary level, and comparison of the results with the findings from "DG ENER" study.

For the EP&R investigations the following inputs are available:

- **1.** Lessons learnt from first seminar (6-7 February) and minutes with all presentations on the web page <u>www.</u> <u>nuclear-transparency-watch.eu</u>.
- **2.** IAEA GS-R-2: Preparedness and response for a nuclear or radiological emergency, 2002: <u>http://www-pub.</u> <u>iaea.org/MTCD/publications/PDF/Pub1133_scr.pdf</u>
- **3.** "Review of current off-site nuclear emergency preparedness and response arrangements in EU member states and neighbouring countries" the ENCO study available on the <u>http://www.nuclear-transparen-cy-watch.eu/wp-content/uploads/2014/03/Report-ENCO.pdf</u>.

The guidelines for preparation of national reports on emergency preparedness and response [2] propose the national contributions to include an overview of the state of the art of emergency preparedness and response in countries from the perspective of civil society, i.e. from the perspective of realistic presumptions of the behaviour of people affected by nuclear accident and the provision of practical solutions to protect and help people in a state of nuclear emergency. Guidelines also gave already the results of the first examinations and indicated investigation areas in national context (Annex 1) and provided a questionnaire on EP&R provisions from a (practical) perspective of civil society (Annex 2). National reports should also take into consideration the results of cross-border EP&R Round Tables if they were organised. It was advised to collect the following information:

- Short explanation of goals and objectives of the activities that have been carried out and the context within the investigation took place (like, information on life-span of existing reactors, plans for new reactors, activities in the field of waste management, nuclear safety, etc.).
- The country situation on the EP&R arrangements with investigation on the problems and challenges to be solved based on the publicly available information.
- Results of questionnaire-based investigations:
 - Interviewed representatives of institutions and individuals (including their position and role) with summary of their answers to the questions which are relevant for them regarding nuclear EP&R.
 - Comparative analyses of results obtained by (informal) oral and (formal) written answers to the questionnaire.
 - Conclusions and findings from questionnaire-based investigation.
- Outcomes from the Round tables (a short description and summary of the topics discussed, findings, con-



clusions and recommendations).

- Comparison of findings of NTW EP&R investigations with findings of ENCO study from your country assessment if activities and measures identified by ENCO study are in place in practice.
- Conclusions and findings from overall NTW EP&R investigations in the country and recommendations for the future activities in the field.

In the investigation 21 members of EP&R WG have participated from 10 countries (Belgium, Bulgaria, Czech Republic, France, Germany, Ireland, Luxembourg, Ukraine, Sweden and Slovenia) representing 15 organisations of civil society or individuals (Annex 3).

4 Results of EP&R investigations

NTW EP&R WG investigations on current national and cross border nuclear off-site EP&R regimes and practices have been based on:

- 1. Seminars of EP&R WG
- Common questionnaire on state of the art of nuclear off-site EP&R regimes, activities and stakeholders in NTW countries
- **3.** Multi-stakeholder international workshops on nuclear off-site EP&R management, including cross-border dimensions, in the case of a major accident in a nuclear power plant in Europe

Two days inception seminar of the NTW Working Group Emergency & Preparedness was organised in Paris in early February 2014. The seminar brought together for the first time members of the WG from 7 EU countries and Ukraine that were introduced to the principles and existing reviews of EP&R provisions in the EU and recent developments and EU-wide studies on "post Fukushima" nuclear off-site EP&R. The members of the WG set priority activities of the WG, drafted an action plan on national and trans-national activities and discussed how to investigate identified themes and organise national and trans-boundary activities.

Following the seminar a common approach and provisional time-frame for the organisation of trans-boundary, multi-stakeholder round tables were defined together with a draft methodology for assessment of the state of the art of national and trans-boundary nuclear off-site EP&R and the main challenges in the field from the perspective of civil society.

The second seminar was organised with in-kind support of DG ENER in the beginning of June 2014 in Brussels. In the seminar the methodology of information collection on EP&R was confirmed, members reported on progress on information gathering, on results and experiences gained from the first round table organised in Luxembourg in May of 2014 and on preparatory activities for further round tables. In addition, representatives of DG ENER welcomed cooperation with NTW and presented the future activities of the EC related to nuclear safety in general and in particular to EP&R activities and evaluation of the results of the ENCO study.

Common questionnaire-based research on the state of the art, stakeholders, challenges and perspectives for multi-stakeholder EP&R regimes capable of effectively addressing trans-boundary dimensions has however not provided the expected amount and quality of information. It has turned out that the search for detailed and quality data as requested by the questionnaire exceeds the voluntary capacities of those partners that do not deal with nuclear EP&R at least on semi-professional basis.



NTW carried out round tables in the following countries: Luxemburg, Czech Republic, Slovenia, Bulgaria and Ukraine. In general a lot of efforts have been invested to assure participation of NPP operators and relevant authorities yet in some cases those efforts have not provided desired results, especially when in parallel to EP&R issues also reactors safety issues have been put in foreground by the organizers.

4.1 Seminars

The Inception seminar of NTW EP&R WG

The seminar took place in Paris on 6th and 7th February 2014 at the premises of Leopold Mayer Foundation for the Progress of Humankind and was attended by 29 participants from 7 countries. The minutes from the seminar are given in the Annex 4.

This seminar was a non-public event with the objectives of training EP&R WG members and to identify the most problematic aspects of the existing provisions for nuclear emergency management in Europe. The seminar framed the EP&R WG investigations at the European level, selecting key issues of European relevance. A list of key priorities was developed in order to frame the WG investigations to be performed at national and European levels. At the seminar the Norwegian experience with EP&R and basic situations and main challenges regarding nuclear off-site EP&R and cross-border cooperation for Belgium, Bulgaria, France, Poland, Ukraine and Slovenia were presented. The seminar was also an opportunity for identifying NTW countries where investigations on common NTW EP&R WG approach and methodology could be initiated early in 2014. The short report and presentations from the seminar are available at: <u>http://www.nuclear-transparency-watch.eu/a-la-une/inception-seminar-cluster-emergency-preparadness-response-epr-2.</u>

Key findings from the seminar:

- Current EP&R is in practice at best a bureaucratic list of good intentions since plans are not realistic because the public is not involved and the requests of concerned citizens are not taken into account or simply ignored. Citizens are insufficiently informed and exercise scenarios are not realistic. In most countries civil society can neither participate nor observe EP&R exercises. Nuclear EP&R planning in Europe is out-dated and inadequate to deal with the real impact of a major nuclear accident. In France feedback on EP&R provided by CLIs demonstrated that exercises and emergency plans need to integrate the feedback of Fukushima in order to be realistic. In a real emergency situation current plans will no longer be valid and in case of emergency no one would wait on authorities but everybody would take an individual evacuation action. Strengthening of the participation of local actors and communication support (via a website) are needed for any realistic coordinated emergency action. Without precise and stringent legal procedures that will assure the involvement of local authorities and the public there will be no real improvement of the nuclear safety. An EU initiative for a Directive regarding public participation in nuclear safety, including EP&R, might be helpful to get adequate legal provisions although then the decisive battle to get and implement required legislation is at national level.
- National arrangements for nuclear emergency developed independently in each country over the last 30 years. This resulted in too many differences: in methods, algorithms, models, appreciations of uncertainties, intervention levels and definitions, etc. Individual differences risk leading toward inconsistencies along borders. In addition they lead to distrust in the decisions of the authorities that amplify the seriousness of an eventual crisis situation. When national approaches become solidified it is very difficult to harmonise the differences. Therefore the attempts of HERCA to overcome too many differences in the situation by increasing information exchange and improving communication between authorities in different countries should



be supported both bottom-up by civil initiatives, local authorities and NGOs and top-down by the EC.

- The Fukushima accident has provided a lesson that in a major nuclear emergency situation in a country, multiple sources of information, presumably conflicting, will develop even in the short term. National Public Authorities do not necessarily demonstrate their ability (or willingness) to release quick and efficient information that is needed by exposed populations and local decision-makers (to protect themselves). In case of major nuclear accident one however needs to take a lot of decisions very fast, and it would be hard to involve additional decision makers. Therefore it is important that civil society is involved in emergency planning as well as experts entrusted by the civil society, in a non-linear system of providing information to decision makers and to the affected population. This raises a problem of communication with the linear and top-down organised system of experts from industry, nuclear officials and decision-makers that are in general unwilling to communicate in an open manner with those who do not necessarily share their values, presumptions, cognitive and behavioural models.
- Communication in crisis is fundamental because, on the one hand, crisis communication is very labour-intensive and the communication and decision-making capacities of traditional, hierarchical systems are overloaded, while on the other, in crisis situations people have limited capacities to understand and act. Therefore in the case of a nuclear emergency those responsible for communication should be able to answer about 500 questions with no more than 10 words per question. Within administrative systems people in crisis situations mays also avoid to make fast and autonomous decisions because they would fear being held liable when it is not clear whether taking into account the given information their decisions were right or wrong. In emergency situations mass media will ask NGOs what to do and it might happen that the people would trust NGOs more than the authorities. But how can NGOs provide reliable and useful information in the case of emergency when they are not included in the design of nuclear safety and EP&R system architecture?
- Attempts to improve EP&R at the EU level should take into account the broader context of current EU initiatives to improve nuclear safety after the Fukushima accident including: the EU-wide stress tests of nuclear power plants and their follow up; the study on off-site nuclear emergency preparedness and response; the proposal for the revision of the Nuclear Safety Directive; the revision of the Council regulation on radioactive contamination of food and feeding stuffs following nuclear accident and the joint communication on off-site emergency preparedness and response and on nuclear third party liability and insurance. The European Commission is in principle interested in hearing opinions and statements from civil society and inputs from the initiatives like NTW. The aim of Basic Safety Standards (BSS) revision is to update relevant European legislation, consolidate all relevant Directives, broaden the application of standards and enhance emergency response by thorough EP&R arrangements at national level. The arrangements should require a comprehensive approach based on an emergency management system, an assessment of potential emergency situations, emergency preparedness and response plans and international co-operation where strengthened cooperation between MS and third countries is demanded.
- The "Review of current off-site nuclear emergency preparedness and response arrangements in EU member states and neighbouring countries" (The draft report of the "ENCO Study" commissioned by DG ENER in 2013) has been reviewed by NTW. Several shortcomings of the study have been identified. The study appears to be a desk exercise that is not assessing the actual implementation of provisions and arrangements in practice. It is relying on self-assessment by each MS. The review of EP&R provisions does not involve a contribution of the public. Further investigations are needed in order to assess the reality of EP&R provisions in the EU, beyond the formal nuclear safety provisions and procedures on paper. A civil society insight would provide a valuable check of the facts regarding the implementation of required EP&R measures in practice.



- The NTW investigations and report attempts to address some of these shortcomings by including the perspective of civil society on these critical issues. This offers the possibility of corroborating or challenging the findings of the paper exercise and of providing feedback that in turn can substantially improve study and lead to new recommendations.
- The involvement of the European institutions in EP&R does not necessarily mean a unique and centralised management based on the same standards. The nuclear emergency management necessitates on the one hand a high level of subsidiarity in order to allow each concerned category of actors to take appropriate actions while on the other hand trans-border consistency of standards and counter measures is obviously needed. But this perspective is unlikely, given the European political context. Now coming to the preparedness phase, one can see many advantages in having a procedural framework at EU level, scheduling in a compulsory way the implementation of nuclear emergency preparedness provisions with regular testing and adequate involvement of the civil society in this preparation.
- One needs to be aware that to follow processes at EU level is time and resources consuming while the EU
 has a quite limited mandate over nuclear safety therefore the EC has indeed few tools with which to push
 the Nuclear Safety Directive forward. NTW will follow what is going on the EU level however the bulk of our
 capacities and activities should be on the local level.

Conclusions:

- Regarding EP&R issues, NTW should take actions at 4 different levels:
 - **1.** To identify if there are adequate provisions in place and if they are working in practice or not.
 - 2. To identify ways how to achieve better consistency.
 - **3.** To explore to what extent if at all the conventional approach of linear and centralised command-and-control planning that ignores the capacities of people to get information and take their own decisions does match with the reality of modern society and its communication and transportation technologies and patterns of individual behaviour.
 - **4.** To investigate what European harmonisation can bring regarding emergency preparedness and how an EU legal frame could oblige MS to engage civil society to improve emergency preparedness and response processes by inclusive planning.
- NTW should develop a common methodology to assess the state of the art and the needs of EP&R from the perspective of civil society.
- NTW should initiate and support Aarhus round tables in Europe that will focus on nuclear off-site EP&R from the perspective of (local) inhabitants and on cross-border cooperation. Round tables should bring together civil society actors (the public concerned, natural persons, NGOs, farmers and animal welfare organisations, fire brigades, technical rescue teams, medical rescue teams, hospitals and doctors, independent experts, etc.) and the responsible institutions and organisations (operators, regulators, Aarhus Convention experts, European Commission, Federal and State Ministries: Environmental, Interior and Economy, communities/ councils/ districts etc.) to discuss concrete and very relevant EP&R issues of NPP Cattenom. The first Aarhus RT should be organised based on the outline presented by Mrs Brigitte Artmann in May 2014 in Luxembourg on the EP&R of NPP Cattenom, including cross-border issues (details are given in the minutes).



- Even after Fukushima, it looks like EP&R planning is still based on level 5 accident (INES 5). NTW should request from the EC that the reference scenario for EP&R is based on level 7 (INES 7).
- NTW should address the EC respectively DG ENER to enable full access to the final report of the ENCO study before the EC Communication will be published.
- NTW should develop assessment criteria and check EP&R plans for the some NPPs which are in the view of civil society perceived as dangerous.
- NTW should take a look into the new Basic Safety Standards directive and investigate if indeed it provides any
 progress in terms of improved emergency preparedness & response. If yes, then it should provide support
 to the Directive.
- NTW members should make serious interviews with vulnerable people about what nuclear emergency would represent for them and what are their needs in this case.
- NTW should strive for an off-site EP&R Regulatory Body an authority with capacities to withdraw the operating licence for NPP if EP&R plans are not in line with criteria. NTW should encourage MEPs to formulate a proposal to create similar EP&R agencies in each MS and coordinate their activities. This initiative should take action based on the Treaty of the Functioning of the EU and not under the EURATOM Treaty.
- NTW should further discuss the relevance of an EU Emergency Response Force that would provide support to national authorities in case of nuclear emergency.
- As the priority in 2014 NTW EP&R WG selected the following tasks:
 - 1. Checking the implementation of national and trans-boundary provisions on EP&R
 - 2. Setting the regulatory framework and harmonisation
 - 3. Improvement of information for the public

First Meeting of the EP&R WG

The meeting took place on 9th and 10th June 9 & 10 2014 at Conference Centre Albert Borschette in Brussels. The meeting facilities and translation services were provided by EC DG Energy, who assured also the active participation of their representatives. Minutes from the seminar are given in Annex 5.

The methodology, the approach and the strategic priorities of the Working Group

The general objective of the meeting was to check methodology and ongoing and planned activities on data collection on nuclear EP&R in individual countries, including preparatory activities for national cross-border EP&R round tables. Within this context the necessity to identify those stakeholders that actually play a crucial role in emergencies like medical doctors, teachers, firefighters, etc. was emphasised since even nuclear regulatory bodies admit that many provisions that are administratively in place would in practice function poorly. For example, the lack of calibrated instruments or the people who are trained to use them appropriately or because those instruments might not be stored in a way to be easily accessed and operated in a case of an emergency. There are many nuclear emergency drills in Europe but little evidence that lessons from those drills have been learned and turned into improved provisions and actions. There is also evidence of the problems of providing in time, coherent and easy to understand information to the people in the case of a major nuclear accident as well as evidence of not enough efficient and coordinated cross-border cooperation between regulatory and decision



making bodies as has been recently also recognised by HERCA. The task of NTW EP&R WG is however not only to register in as much detailed as possible this evidence and make it visible within the countries and EU level but also to identify and propose both conceptual and practical solutions to improve EP&R in practice in terms of "total quality management".

NTW therefore should:

- Go beyond the ENCO study desktop work approach and "check the reality".
- Check if a conventional approach to emergencies can work out in case of nuclear emergency at all since after the lessons from Fukushima it is evident that people would in a case of emergency not stay where they are, wait for information and instructions from authorities and then act according to those instructions, but would use modern communication technologies and actively search for information and make their own choices and decisions.
- Identify social networks, credible sources of information and structures of trust that are needed for social action in case of a nuclear accident that is as a social phenomenon by its nature a chaotic event.
- Address post-emergency issues based on the experiences gained from the Fukushima accident that not only showed how the intersection of natural catastrophe, inadequate nuclear safety technical solutions and poor safety culture leads to a disaster in a technologically advanced society but also provided evidence for the "artificial" nature of the division of emergency and post-emergency since the emergency lasted for 8 months.

Merits and limits of ENCO study and NTW's approach toward it

The participants also discussed further the results of the "ENCO study" that has its merits as an attempt to harmonise large differences in definition of intervention zones, sheltering, distribution of iodine pills, evacuation and resettlement criteria, etc., among European countries. Public confidence cannot be gained by "harmonisation" alone but could be enhanced a lot more by good work regarding EP&R in the EU and beyond and by informing citizens about the provisions and organisation and also by inclusion of civil society organisation in improvement of current provisions. Rather than focusing too much on the ENCO study, NTW will seek concrete examples of non-functioning or malfunctioning EP&R provisions that will provide evidence for the need to go beyond a formal assessment of the EP&R landscape.

National authorities should not be regarded as the only source of expertise to provide effective and efficient solutions to off-site nuclear emergencies and post-emergencies. Support should be provided to municipalities and to civil society to be actively involved in the design and management of the response to nuclear emergencies and post-emergencies. This should also include a cross-border perspective.

Phasing out nuclear energy can, as a consequence of reduced state and public attention to nuclear safety, lead to a reduced level of EP&R. However, phasing out policies still demand an adequate level of EP&R related on the one hand to spent fuel and other HRW management and on the other to the cross-border impacts of nuclear emergencies. Therefore phasing out of nuclear energy in a country should not be considered by civil society as the solution to nuclear EP&R challenges but rather the opposite as a challenge to keep pressure on authorities to maintain and improve the level of EP&R.

Approach, design and challenges of the Round Tables

The discussion focused on goals and objectives, principles and approach as well as information and moderation



tools to be used. It was put in the foreground that NTW EP&R round tables should put things forward through dialogue, using tools provided by the Aarhus and Espoo Conventions as well as national dialogue, by searching for common identification of challenges and also solutions. They should also provide upstream information to know what should be done in the case of a nuclear emergency prior to an emergency event and insist onto getting clear answers on concrete questions like to where and how the people will be evacuated or what the authorities are planning to do if the people will start "wild evacuation".

Lessons from the 1st NTW Aarhus Round Table on EP&R in Schengen of NPP Cattenom

Report on first cross-border EP&R Round Table on EP&R of NPP Cattenom, held on May 17 in Schengen, Luxembourg was presented and lessons from the event discussed in detail. The organisers of the first round table were commended for 'breaking the ice' and organising the first round table in spite of the non-cooperation of the French authorities. In the absence of any public funding the event was financed from private donations exclusively.

The round table provided very valuable and substantiated information of safety deficiencies of the NPP Cattenom and on terrorist threats to NPP. The CLI of Cattenom and ANCLLI have not joined the event although all have been invited by the organisers. Authorities from German federal states of Rhinland-Palatinate and Saarland provided written answers to the NTW EP&R WG questionnaire, the radiation protection authority from Luxembourg participated personally and in written form. The main messages from the round table have been very straight and clear: NPP Cattenom needs to be immediately shut down until the main safety deficiencies have been solved; no NPP can withstand crash with a supersonic military airplane or with very large commercial airplane; emergency personal need to have very fluent English in order not to lose time with translation when coordinating cross-border activities in a case of an emergency.

The main issue that arises from reflection on the RT in Schengen on NPP Cattenom is how to assure participation of the authorities and NPP's operators and how to achieve more plural and balanced representation of different types of stakeholder from all relevant countries on the future round tables. It was agreed that the future round tables should in addition to safety issues predominately focus on practical aspects of EP&R and cross-border issues from the perspective of local inhabitants. As for round tables on EP&R in France it is recommended that the ANCLLI invites already active NTW members from other countries that have concerns on safety and EP&R of French nuclear facilities when designing the agenda and list of speakers for the round table in France. These people should be invited to take part as guests at the event.

The meeting emphasised the importance of civil monitoring of nuclear developments also in EU member states which plan to introduce domestic nuclear energy generation or build new nuclear facilities. The participants emphasised that by providing strong commitment to nuclear safety and inclusive governance in the nuclear field the EU is not only playing the role of "shining example" but is also influencing more transparent and democratic decision-making in countries like Ukraine that are aspiring for more democratic rule and better nuclear safety in general.

The details of the discussion on the seminar can be found in Annex 5.

Last EP&R WG seminar in Brussels

The last EP&R WG meeting was held in Brussels on 22-23 January 2015 in the EU Parliament. The aim of this final meeting was to review and to agree about the final contents of two documents:

• Position Paper of the NTW on EP&R - basic document which will be published and is intended for presen-



tation to different stakeholders and EU institutions (European Parliament and European Commission) and

 Draft NTW Report on EP&R intended for discussion with EPR members and summarizing work performed within the group.

Beside that the meeting was aimed to talk about the future of NTW EP&R working group.

The 15 participants from EP&R working group attended the meeting and agreed on the content of report and also reviewed the position paper of NTW on the EP&R situation in Europe [13] which was prepared in March 2015. The minutes of the meeting are provided in Annex 9.

4.2 Results of desk top investigation of publicly available information on EP&R in NTW countries

Below the selected results of desk-top investigation based on web-sources which are available in English and French are provided for the following nuclear emergency measures:

- a) Emergency Planning Zones
- b) Sheltering
- c) Iodine Prophylaxis
- d) Evacuation
- e) Restrictions to Food and Drinks
- f) Information Provision
- g) Termination of Emergency
- h) Trans-boundary Issues

In many cases the relevant documents and studies refer to two or more emergency measures. In this case only the abbreviations of the source are provided at the end of corresponding paragraphs whereas the links to hyper-text are provided at the end of this subchapter in a form of alphabetically ordered lists of web-sources. As well as the most relevant web links and because of their importance as non-web sources, the publications 109 and 111 of the International Commission of Radiological Protection (ICPR) are taken into consideration.

a) Emergency planning zones

According to ICPR Publication 109 no response to a nuclear emergency can be effective without prior planning. [ICRP109 (44)]: *"the importance of planning for emergency response cannot be over-emphasised. No emergency response can be effective without prior planning."* This planning should include the identification of different types of emergencies for which an answer may be necessary, engagement with stakeholders, the selection of appropriate personal protective measures, and the development of a comprehensive protection strategy. Further on it entails the distribution of areas of responsibility of different agencies that will be involved and their communication and interaction, the deployment of the equipment needed for monitoring, support for the implementation of protective measures and training for the implementation of these measures. For ICRP statement in question see: [ACRO2014], for details see: [ICRP109 (44)].

Belgium - defines an area within the radius of 10 km from a NPP as a sheltering zone and within 20 km pre-distribution of iodine prophylaxis zone is ordered. Based on measurement or calculation the Emergency Director can order the extension of the zones in question. (PURN2003).



In Belgium Particular Emergency and Intervention Plans define principles of segmentation that can be tracked. The so-called *»keyhole*« concept provides the systematic application of a circular area around the site to be increased (up to 10 km) by one or more angular areas in the direction of the wind. Those plans are also reflecting the problem of arbitrary defined borders (diameters) of emergency planning zones *"Excessive and not justified measures that are not related to radiation exposure could lead to losses of human lives (traffic accidents during evacuation) ... or to failed compensation of economic losses or indirect damage by the insurance ... It is therefore unlikely to proceed with evacuation of all population within the whole emergency planning zone of 10 km." (PPUI2012)*

As a peculiarity in Belgium a reflex phase related to short-term radioactive release is likely to lead within less than four hours to a higher exposure level as defined by intervention guide needs to be mentioned. See: [ACRO2014]

For general critical assessment of national and particular site emergency plans in Belgium see: [GPB20013].

In **France** the emergency zone is defined only within the radius of 10 km, however a new national emergency plan considers how to respond effectively to nuclear emergency also outside this zone. See: (SGDS 2014).

In France, ANCCLI requires that particular emergency plans (PPI) are extended to 80 km in agreement with the Nuclear Safety Authority and the French Institute of Radiation Protection and Nuclear Safety. For details see: http://www.anccli.org/wp-content/uploads/2014/11/CP-ANCCLI-PPI_TE_07_11_2014-1.pdf.

In **Germany** the national Commission on Radiation Protection in 2014 proposed that next to a Central Emergency Zone within the diameter of 5 km and Intermediary Zone in the diameter of 20 km the actual External Zone should be extended from actual 25 km to 100 km, whereas some measures like iodine prophylaxis for children and pregnant women should be extended to the whole national territory. See: (SSSK2014).

Most recent regulation of Nuclear Regulation Authority of Japan on Emergency Planning Zones defines:

- Precautionary Action Zone with immediate evacuation within the diameter of 5 km in any nuclear emergency situation.
- Urgent Protective Action Planning Zone with a diameter from 5 to 30 km where the actions to protect the population depends on the gravity of the accident.
- Outer Protective Action Planning Zone from 30 50 km was iodine prophylaxis should be at place and other protection measures might be implemented when necessary (NRA2012, NRA2013).

Japan also introduced *"reflex zones"* with a diameter of 5 km. See: (NRA2012.) Most recently in Japan the local authorities have however also started the consultation with public on the issue of zoning. See: <a href="http://www.town.izumozaki.niigata.jp/topics/userfiles/%E5%87%BA%E9%9B%B2%E5%B4%8E%E7%94%BA%E5%9C%B0%E5%9F%9F%E9%98%B2%E7%81%BD%E8%A8%88%E7%94%BB%EF%BC%88%E5%8E%9F%E5%AD%90%E5%8A%9B%E7%81%BD%E5%AE%B3%E5%AF%BE%E7%AD%96%E7%B7%A8%EF%BC%89%E3%80%90PD-F%E3%80%91.pdf.

For a critical assessment of the general aspect and particular provisions of nuclear emergency planning and practices in Japan see:

http://www.greenpeace.org/international/Global/international/publications/nuclear/2012/Fukushima/Lessons-from-Fukushima.pdf.



In the **USA** the emergency preparation zone is defined in a 16 km radius. First phase of evacuation is envisaged within "keyhole" zone with a diameter of 3.2 km and in the sector in the direction of wind up till 8 km. Secondary emergency diameter is defined at 80 km yet it refers to protection from contaminated radioactive food and water (USNRC2012)

US Nuclear Regulatory Commission (NRC) on March 16 2011 recommended evacuation in the radius of 80 km from Fukushima Daiichi NPP for US citizen as precautionary action argued on the lack of information about the state of the damaged spent nuclear fuel pools. Nevertheless NRC maintained within its nuclear emergency planning evacuation diameter of 16 km.

On the **EU level** the ad-hoc high level task force on nuclear emergencies introduced in 2014 to the nuclear safety and radiation protection authorities a proposal that evacuation should be prepared within the diameter of 5 km, sheltering and iodine prophylaxis up to 20 km, yet a strategy should be prepared to evacuate within the circle of 20 km and provide iodine prophylaxis up to 100 km of diameter.

See:<u>http://www.wenra.org/media/filer_public/2014/11/21/herca-wenra_approach_for_better_cross-border_coordination_of_protective_actions_during_the_early_phase_of_a_nuclear_accident.pdf.</u>

b) Sheltering

According to ICPR "Sheltering is the use of the structure of a building to reduce exposure from an airborne plume and/or deposited materials. Solidly constructed buildings can attenuate radiation from radioactive materials deposited on the ground and reduce exposure to airborne plumes. Buildings constructed of wood or metal are not generally suitable for use as protective shelters against external radiation, and buildings that cannot be made substantially airtight are not effective in protecting against any exposures." [ICRP109 (B4)]

Quoted from [ACRO 2014], for details see: [ICRP109 (B4].

In **Belgium** – AFCN recommendations stipulate that sheltering is justified until the effective dose on population does not exceed 5 mSv for a whole body within 24 hours and should not exceed 24 hours see (PURNB2013) and also: [GPB20013].

In **France** sheltering is ordered when predictions on an effective dose on whole body exceeds 10 mSV. The ICPR publication declares that sheltering should not exceed 48 hours (see: ICRP 109 2008) and French authorities (see: SGDSN2014) are recommending that it should not exceed about half a day.

In **Japan** the commission set up by the Japanese government to investigate the accident in Fukushima in 2011 reported that after the sheltering had been ordered at Iwaki on March 15 2011 the shops and the supermarkets have closed one after the other because of the lack of the staff and as a result fire fighters were sent to another city in order to provide basic necessities with their trucks. See: <u>http://www.cas.go.jp/jp/seisaku/icanps/eng/final-report.html.</u>

c) Iodine Prophylaxis

Publication 109 of ICRP stresses that "there is another measure that prevents radioiodine intake directly (restriction of potentially contaminated food consumption), thyroid blocking is considered to be primarily used for reduction of doses that result from inhalation. Iodine thyroid blocking should only be used to reduce the uptake of ingested radioiodine if it is impossible to provide supplies of uncontaminated food, especially for children and particularly in relation to milk; even if this is the case, iodine thyroid blocking is intended for relatively short periods of time, since efforts should be made to provide supplies of uncontaminated food as soon as possible."



[ICRP109 (B2)].Quoted from [ACRO 2014], for details see: [ICRP109 (B2)].

For different figures and studies of the impact of the nuclear disasters in Chernobyl and Fukushima on the emergence of the thyroid cancer as the most common type of cancer resulting from exposure of populations to radiation contamination see:

[IAEA2006] The Chernobyl Forum: 2003 the imChernobyl's Legacy: Health, Environmental and Socio-Economic Impacts and Recommendations to the Governments of Belarus, the Russian Federation and Ukraine, April 2006 <u>http://www.iaea.org/Publications/Booklets/Chernobyl.pdf</u>;

• [UNSCEAR2008] United Nations Scientific Committee on the Effects of Atomic Radiation 2008, Report to the General Assembly with Scientific Annexes, Volume II, Scientific Annexe D, published in 2011; <u>http://www.unscear.org/docs/reports/2008/11-80076_Report_2008_Annex_D.pdf</u>;

- IAEA Bulletin 383 <u>http://www.iaea.org/Publications/Magazines/Bulletin/Bull383/williams.html;</u>
- <u>http://www.pref.fukushima.lg.jp/sec/21045b/kenkocyosa-kentoiinkai-16.html;</u>
- Mizuho Aoki, Experts question Fukushima thyroid screening, The Japan Times, Jul 31, 2014 <u>http://www.japantimes.co.jp/news/2014/07/31/national/science-health/experts-question-fukushima-thyroid-screen-ing/;</u>
- Official statistics on thyroid cancers and health monitoring in Japan are here in English: <u>http://www.fmu.ac.jp/radiationhealth/results/</u>.

For variations of the distance of the areas of distribution of iodine tablets from NPPs in Europe see: [EC-TREN2010]. For the importance of pre-distribution of iodine tablets in order to avoid conflicts with other measures, especially sheltering see: <u>http://www.herca.org/documents/Practical%20Guidance%20Practicability%20</u> <u>of%20Early%20Protective%20Actions_20110630.pdf.</u>

In **Belgium**, iodine tablets are together with information leaflets proactively made available to residents and communities in a 20 km zone around nuclear power plants and sites near the country's border and are pre-distributed at schools, hospitals, nurseries, factories ... The tablets are also available in all pharmacies and some other locations defined by quick distribution plans prepared by the ministry of interior. See: [PURNB2003] and also: [GPB20013].

In **Switzerland** the distribution of iodine tablets within the 20 km diameter started in 1993, but the government recently decided to expand distribution to 50 km therefore at present more than half of the Swiss population is included in the measure that costs approximately CHF 30 million (nearly \leq 26 million) and is covered by the electricity companies. See: <u>http://www.jodtabletten.ch/fr/home.</u>

Luxembourg recently handed iodine tablets to its whole population because of the French NPP in Cattenom. See <a href="http://www.infocrise.public.lu/fr/publications/urgence-nucleaire/brochure-cattenom/201410-brochure-catt

Following the failed attempt to provide iodine prophylaxis to the affected population during the disaster in Fukushima [see: NAIIC2012] the authorities in **Japan** changed policy. They now advise pre-distribution of iodine tablets around 30 km from a nuclear site and recommend stable iodine prophylaxis as an emergency measure within 50 km. See: [NRA2012) and :<u>http://warp.da.ndl.go.jp/info:ndljp/pid/3856371/naiic.go.jp/en/report/.</u>



For the information on the first drills based on the new policy in Japan that resulted in fiasco see: <u>http://www.japantimes.co.jp/news/2014/11/12/national/niigate-nuclear-disaster-drill-finds-governor-state-odds-io-dine-pill-distribution/.</u>

In Europe the operational level to start ingestion of iodine varies by country. France, Belgium, Germany, Luxembourg and Switzerland have jointly decided to adopt the lowest value of the ICRP, i.e. 50 mSv equivalent dose to the thyroid. Belgium and other European countries have also introduced the optimised level of 10 mSv to the thyroid for children and pregnant or nursing women, as recommended by WHO. For WHO standards see: <u>http://</u> <u>www.who.int/ionizing_radiation/pub_meet/lodine_Prophylaxis_guide.pdf.</u>

In case of prolonged or repeated sheltering a comparative European study is providing evidence that the second ingestion of iodine is envisaged after 24 hours for most vulnerable groups in several European countries whereas in United Kingdom and in Belgium it is also foreseen as a protective measure for children against radiation caused by ingestion of contaminated food [EC-TREN2010].

In Europe, "a second intake is envisaged in most countries, mainly in case of long-lasting releases, with a similar or lower dosage than for the first intake. In the United Kingdom and Belgium, stable iodine prophylaxis may be used also as a temporary measure to provide protection for young children against the ingestion exposure pathway, until food restrictions can be imposed. A second intake is generally envisaged 24 hours after the first one. The second intake is sometimes only envisaged for the most radiosensitive population, i.e. new-borns, young children, pregnant and breast feeding women. In Romania stable iodine may be administrated several times on a maximum of ten days." [EC-TREN2010].

On the issue of prolonged discharges of radioactive iodine into the environment, French IRSN launched in March 2013 the project Priodac that is aiming to determine the effects of repeated administration of stable iodine modalities to persons in an area of repeated or prolonged radioactive accidental releases. For details see: <u>http://www.irsn.fr/FR/Larecherche/Actualites_Agenda/Actualites//Pages/2014-04-15-lancement-projet-ANR-PRIODAC.aspx#.VEe-876uHHd.</u>

d) Evacuation

"In the context of developing response plans for emergency exposure situations, the Commission recommends that national authorities should set reference levels between 20 mSv and 100 mSv effective dose (acute or per year, as applicable to the emergency exposure situation under consideration)." [ICRP109(b)]. For the relevant ICRP recommendations in general see: [ACRO2014], for details see: [ICRP109].

The Belgian national plan states that the evacuation is triggered for an integrated effective dose over two weeks between 50 and 150 mSv, despite the measure of sheltering [PURNB2003]. For France, it occurs when the population exposure estimates exceed effective dose of 50 mSv for the whole body. See: [SGDSN20014].

Most of nuclear emergency strategies and plans envisage that the population will be transported to evacuation centres by their private vehicles. In France however the local evacuation plans for the NPP Chooz situated less than 10 km from the border with Belgium is based on the use of collective transport organised by local authorities. See: [PPIChooz2009]. That is however in contradiction with the national nuclear emergency strategy that limits collective transport only to the people that depend on it. See: [SGDSN2014]. In addition local emergency plan for Chooz is mentioning evacuation centres in Belgium without precisely defining where they are located. These contradictions and imperfections indicate the challenges of trans-border evacuation even within the EU countries that are otherwise part of the Schengen regime of free passing of borders between member states.



In Japan, "a total of 146 520 residents were evacuated as a result of the government's evacuation orders. However, many residents in the plant's vicinity evacuated without accurate information. Unaware of the severity of the accident, they planned to be away only for a few days and evacuated with only the barest necessities. Evacuation orders were repeatedly revised as the evacuation zones expanded from the original 3-kilometer radius to 10 kilometres and later, 20 kilometres, all in one day. Each time the evacuation zone expanded, the residents were required to relocate. Some evacuees were unaware that they had been relocated to sites with high levels of radiation. Hospitals and nursing homes in the 20-kilometer zone struggled to secure evacuation transportation and find accommodation; 60 patients died in March from complications related to the evacuation. Frustration among the residents increased." [NAIIC2012].

A study published in Japan in 2014 recently examined mortality risks associated with the evacuation of people from five nursing homes in the city of Minami-Soma in Fukushima prefecture. The conclusions of the study suggests that comparing the relative risks of radiation exposure to the risks and benefits of the evacuation is essential to establish if evacuation is necessary. Authors concluded that *"high mortality, due to initial evacuation, suggests that evacuation of the elderly was not the best life-saving strategy for the Fukushima nuclear disaster. Careful consideration of the relative risks of radiation exposure and the risks and benefits of evacuation is essential. Facility-specific disaster response strategies, including in-site relief and care, may have a strong influence on survival. Where evacuation is necessary, careful planning and coordination with other nursing homes, evacuation sites and government disaster agencies is essential to reduce the risk of mortality³."See: <u>http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0060192</u>.*

Important relevant lessons regarding the consequences of poor preparedness even when the consequences of a disaster and the actions to be taken to mitigate them are known can be learned also from the report of the committee that investigated preparation and response to hurricane Katrina that hit the city of New Orleans in the USA in 2005. See: <u>http://katrina.house.gov/full_katrina_report.htm</u>.

As for nuclear accidents the US Nuclear Regulatory Commission (NRC) highlights the importance of checking the available resources, such as buses and ambulances, as may be necessary to facilitate the evacuation of people without means of transportation, school children and disabled and dependent persons as well as the viability and proper training of facility staff needed for transport of certain groups of dependent people in an emergency. See: [USNRC2011a].

The US regulator requests an evacuation time estimate (ETE) that is a calculation of the time to evacuate the plume exposure pathway emergency planning zone [USNRC2011a]. Research shows that a small percentage of the public, about 10%, takes a longer time to evacuate. Therefore, the time to evacuate 90% and 100% of the population should be provided in the ETE study.

The scenarios for estimation of evacuation time should take into account next to the number of people living in the area, the structure of settlements, available transport systems, etc. also the seasonality, day of the week, time of day, the weather including disadvantageous weather conditions representative of the region, etc. The report on evacuation time estimate for NPP Indiana Point consists of 400 pages. See: <u>http://www.lohud.com/assets/pdf/BH200923215.PDF</u>.

In its new prescriptions, the *German Commission on Radiological Protection* recommends that the evacuation of the area close to a 5 km radius should be performed in less than 6 hours after the notification of the authorities and in less than 24 hours to the intermediate zone a radius of 20 km. See: [SSK2014].

In Japan the shortest evacuation time to evacuate people living in a radius of 30 km around NPP is 8 hours, how-

³Nomura S, Gilmour S, Tsubokura M, Yoneoka D, Sugimoto A, et al. (2013) Mortality Risk amongst Nursing Home Residents Evacuated after the Fukushima Nuclear Accident: A Retrospective Cohort Study. PLoS ONE 8(3): e60192 <u>http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0060192</u>

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ever in the case of Hamaoka NPP where 740 000 people live within the 30 km radius the complete evacuation could take up to 6 days in the most penalising conditions. For details see:

http://mainichi.jp/english/english/newsselect/news/20140114p2a00m0na010000c.html and http://ajw.asahi. com/article/behind_news/social_affairs/AJ201404240069.

Regarding the issue of **spontaneous evacuation** – i.e. where emergency plans are ignored. This can seriously disrupt the smooth running of the response to the accident - the lessons from the accident at Three Mile Island (Pennsylvania, USA) in 1979 are still relevant. After the governor recommended to small number of pupils and pregnant women living within the diameter of 8km from the NPP to evacuate a massive escape of about 200,000 people living within a diameter of 40 km followed although they were told by the authorities to stay at home. In addition to the traffic jams generated that slows the evacuation of people in need the spontaneous evacuation is destabilising life on abandoned territories. For details see:

http://desastres.unanleon.edu.ni/pdf/2003/agosto/PDF/ENG/DOC540/doc540-contenido.pdf.

A study conducted in July 2011 by the association of hospitals and clinics in the province of Fukushima showed that hundreds of doctors and other healthcare personnel left the health centres in the vicinity of the plant at the beginning of the disaster. [GPI2012] In order to prevent this, Japan's nuclear regulator believes that better education for radiation protection must be provided during education of medical personnel. [NRA2012].

e) Restrictions for Food and Drink

Reducing internal exposure of populations to radioactive contamination after a nuclear accident requires in the medium and long-term the setting up of consumption restrictions for food and drink. The authorities must implement controls and restrictions followed by compensation.

The **Belgian emergency plan** states that in relation to the food chain protection measures, intervention areas associated could be significantly larger than the areas of intervention associated with the direct protection thus the emergency planning zone for food chain that covers the whole national territory should also take into consideration the nearby French nuclear power plants of Gravelines and Cattenom. It also considers deterrence or ban of consumption as the most likely preventive measure imposed until the necessary control measures on the actual contamination are undertaken. As for by the maximum permitted levels of radioactive Cesium set by the EU in dairy products and other foods, the plan warns that the levels in question have been established on the basis of general assumptions therefore more restrictive levels as well as adequate restrictions of contamination with iodine-131 and from long-lived alpha emitters should be considered to prevent children from over-contamination. See: [PURNB2003].

Also in **France** in the first phase after radioactive contamination, systematic measures to prohibit consumption of food produced at home or purchased at local markets are envisaged, followed in the second phase by measures authorising the placing of the products on the market compliant with required radioactivity measurement procedures and standards. [CODIRPA2012].

Japan has at the very beginning of the nuclear disaster in Fukushima adopted other standards. The new security rules advocated adopting the same limits regarding future accidents. [NRA2012].

The food imported to the EU from Japan needs to be in compliance with those standards and not with looser EU standards. See: [ACRO2014].

For Japanese experience regarding development of monitoring tools of contamination of food by producers, supermarkets and consumers and setting of their own values depending on the circumstances see: [ACRO2012].



f) Information Provision

Early warning of the population with the transmission of relevant information is a prerequisite for effective protection. This requires means of communication redundancy, including sirens, audio-visual media and phones that need to be tested in order to find out the percentage of people who have heard the warning and the message delivered.

Last *Euratom Directive* requires for the Member States to ensure that in an emergency, the people of the affected public are informed without delay on the data of the emergency, on how to behave and, where appropriate, on health protection measures applicable to them. See: [EURATOM2014].

As for the importance of *message content* based on the experiences gained from evaluation of information practices after Fukushima disaster and the need of the authorities to provide information according to the needs of the population see: [NAIIC2012].

For the role of *social media*, their modes of handing information and their capacities to help authorities to properly address public concerns see: [IIFNA2014].

The importance of the n*eed to provide more fluid information and determine the most homogeneous possible criteria for intervention* and the provision of information assistance from neighbouring countries in case of a nuclear emergency situation in Europe were outlined by Pierre-Franck Chevet, president of the French Nuclear Safety Authority (ASN) during a hearing at the French National Assembly on July 2, 2013. Details are available at: http://www.assemblee-nationale.fr/14/cr-dvp/12-13/c1213077.asp.

In order to *save time and ensure consistency of message the United States* have already prepared answers for about 400 potential questions or concerns that may arise in the event of a nuclear emergency that take into account the fact that due to stress, listening and comprehension skills are reduced. See: [USNRC2011b].

g) Termination of Emergency

The emergency situation has to end at certain point in time. The action then depends on the severity of the situation. When possible the return to normal must be done transparently by allowing the parties involved to make their own checks. However, in case of major accidents, environmental contamination may persist for an extended period of decades, affecting the lives of the persons concerned even for the rest of their life time.

ICPR recommendations in the field states that long-term exposure to contamination resulting from an emergency situation should be considered as an exposure to an "existing situation" [ICRP109 (113)]. It also warns "there are no predetermined temporal or geographical boundaries that delineate the transition from an emergency exposure situation to an existing exposure situation. In general, a reference level of the magnitude used in emergency exposure situations will not be acceptable as a long-term benchmark, as these exposure levels are generally unsustainable from social and political standpoints. As such, governments and/or regulatory authorities will, at some point, identify a new reference level for managing the existing exposure situation, typically at the lower end of the range recommended by the Commission of 1–20 mSv/year." [ICPR109 (116)].

Anand Grover, **Special Rapporteur to UN Human Rights Council**, notes that *"ICRP recommendations are based* on the principle of optimisation and justification, according to which all actions of the Government should be based on maximising good over harm. Such a risk-benefit analysis is not in consonance with the right to health framework, as it gives precedence to collective interests over individual rights. Under the right to health, the right of every individual has to be protected. Moreover, such decisions, which have a long-term impact on the physical



and mental health of people, should be taken with their active, direct and effective participation." He adds: "As the possibility of adverse health effects exists in low-dose radiation, evacuees should be recommended to return only when the radiation dose has been reduced as far as possible and to levels below 1 mSv/year. In the meantime, the Government should continue providing financial support and subsidies to all evacuees so that they can make a voluntary decision to return to their homes or remain evacuated." [HRC2013]See:

http://www.ohchr.org/Documents/HRBodies/HRCouncil/RegularSession/Session23/A-HRC-23-41-Add3_en.pdf.

US regulations set for the long-term goal to keep a dose from radionuclides deposited on soil and other surfaces below 50 mSv over 50 years. For details see:

http://www.fema.gov/media-library-data/20130726-1917-25045 9774/2013_rep_program_manual_final2_. pdf_and http://www.epa.gov/radiation/docs/er/400-r-92-001.pdf_

In **France** the particular emergency plans mention a "process of returning to normal" but completely ignore the possibility of lasting contamination where there will be no return to normal, or no return at all. See [PPUI2012 , PPUI2014] and [ACRO2014].

As the European research group EURANOS explains, "for some people, it may be preferable to stay away from the area until all decontamination measures have been carried out. For others, it may be more important to return home in the knowledge that some remedial work may be necessary at a later date. In this way the social and psychological needs of individuals can be met and excessive levels of stress avoided." [EURANOS2008]. See: <u>http://www.euranos.fzk.de/Products/LiftingCountermeasuresNewGuidance_v2.1Final.pdf.</u>

h) Trans-boundary issues

According to the **IEE Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency** from November 1986 the information on the nuclear accident must also be given to the IAEA but since Japan has not ratified it even after the disaster in Fukushima it has not been tested in practice and the organisation played a minor role in terms of informing the public in Japan and abroad during the Fukushima disaster. During the first month of the disaster in question when the Japanese authorities have underestimated the severity of the accident by classifying it at the level 5 on the INES scale, the IAEA had no complaint. For the Convention see: <u>http://www.iaea.org/Publications/Documents/Infcircs/Others/French/infcirc336_fr.pdf.</u>

The **European Union** also requires from the Member States to transmit all information on nuclear accidents in order for data to be shared and for this purpose set an ECURIE platform that is very useful to the expertise of relevant authorities in each Member State yet it cannot coordinate the response for the protection of populations. For details see: <u>http://rem.jrc.ec.europa.eu/RemWeb/activities/Ecurie.aspx.</u>

The association of the **Heads of the European Radiological Protection Competent Authorities** (HERCA) emphasised that the cross-border differences in response to nuclear emergency results in loss of trust by the people on both sides of the border and thus recommends harmonisation. However to progressively develop cross-border cooperation it is first needed to improve cooperation on decision-making in the country where the accident took place. See: <u>http://www.herca.org/documents/HERCA%20Approach%20on%20emergencies.pdf.</u>

Also the **UJV** - **ENCO** study emphasises that the authorities would be more credible if they were able to harmonise their emergency plans yet it takes harmonisation as a technical principle to solve the problem of credibility regardless of whether it provides the most protective measures for the population or it is based on the minimal common denominator of local political or economic interests across the borders. For the details of this approach see:

http://ec.europa.eu/energy/nuclear/radiation_protection/doc/emergencypreparedness/2014_nep_epr_re-



view_2012-474_main.pdf and

http://ec.europa.eu/energy/nuclear/radiation_protection/doc/emergencypreparedness/2014_nep_epr_review_2012-474_append.pdf.

For the situation in Europe the issue of trans-boundary cooperation is interesting because both neighbouring countries have much in common regarding their energy and nuclear policies. However, neither their emergency responses are harmonised nor is there a strong cross-border cooperation in emergency planning for the NPPs that are located near to the border of the two countries. For example NPP Gravelines and Cattenom, located a few dozen kilometres from the Belgian border are clearly mentioned in the Belgian nuclear emergency plan [PUNRB2003]. But the PPI of these two plants are limited to a 10 km radius and therefore do not take into account Belgium. In a case of an accident the prefect of a French department only needs to trigger civil security cooperation agreements with neighbouring Belgium and inform the British authorities. In case of another French NPP Chooz the situation is different since in the case of a nuclear emergency the prefect in consultation with the Belgian authorities implements measures within the perimeter of 10 km that also directly affects territories in Belgium. For the details and wider aspects of problems and challenges of cooperation in case of nuclear emergency emergency belgium/Global/belgium/ report/2013/Plan_urgence_nucleaire_FR_DEF.pdf.

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4.3 Results of questionnaire based investigations

The overview below is based on the responses to the questionnaire designed by REC Slovenia and Mutadis with the assistance of the other members of the NTW Working Group. The questionnaire has been designed to collect the basic information on the state of the art of EP&R in the countries of domicile of the members of the NTW WG EP&R from the perspective of civil society. The questionnaire was finalised in the end of June of 2014 and distributed to the members of the Working Group in early July 2014 and again on October 15, 2014. It was recommended to be used also as communication to start cooperation with relevant authorities, independent experts and competent civil society organisations on their engagement in preparation and implementation of off-site nuclear EP&R cross-border "Aarhus" round tables that should be organised by members of the Working Group up to the end of 2014.

The reports on country investigations based on the questionnaire have been provided for Belgium by Greenpeace Belgium, for France by ANCLLI and ACRO and for Slovenia by REC Slovenia. For the Cattenom Round Table



the organisers were the Greens Fichtelgebirge (Ms. Brigitte Artmann is speaker for firebrigades and EP&R in the city of Marktredwitz). Greenpeace Luxembourg (stress test expert Roger Spautz) and Cattenom Non Merci (former councillor of the city of Perl, Ute Schlumpberger) provided questionnaires from the Department of Radiological Protection of the Ministry of Health of the Grand Duchy of Luxembourg and the Belgium Crisis Center (Interior Ministry) and FANC, the nuclear safety office. The two letters from the German Federal States of Rhineland-Palatine and Saarland were based on the questionnaire, but were given in German. The relevant excerpts were translated into English.

For the Temelin Round Table the organisers were the Greens Fichtelgebirge, the civil society movement BIWAA-NAA, both from Germany, and the Czech nuclear expert Eda Sequens provided the questionnaires of the Federal State of Bavaria which was given in German and was completely translated by the organisers into English as was the answer of the Slovakian Interior Ministry, which was given in German too. The Slovakian Ministry simply referred to the ENCO Study. Also provided were the questionnaires of the Czech Nuclear Safety Office (SUJB) and of the Austrian Environmental Ministry, both in English. All documents are available on the NTW website. These round tables made clear to the NTW working group that fluent English is needed for the EP&R officers because other languages like for example German, Slovak or Czech are not a common languages and without one base language the communication is extremely difficult and also present a critical point for any response.

The approach to and level of the investigation has however varied very much from personal opinions and collection of basic information from the authorities to very detailed and deep research of national legislation, procedures and practices (and from language and understanding problems within the working group). It has therefore been impossible to make a balanced compilation although the compilation of the answers has been edited in order to provide a basic, yet unbalanced, overview. Nevertheless for some countries answers to some questions are missing and there are large differences in the quality of information. The detailed comparative overview of the results of national investigations on nuclear off-site EP&R is available as Annex 6 to this document together with the original individual country reports (Annexes 6a to 6d).

In spite of its unbalanced and incomplete nature we believe that the overview below still provides some very valuable information and observations that should be useful for further work of WG EP&R and activities of NTW in general. Key findings from the comparative review of national investigations can be summarised as follows:

1. Public Participation and Stakeholders Involvement: Civil society and Civil Society Organisations (CSOs) are in the best case only formally included but not actively supported to take an active part in off-site nuclear emergency EP&R. The authorities in general do not see any need or added value in more open and participatory processes since they are convinced that a nuclear emergency can be best approached and managed by a top-down approach of straight and concerted action by national nuclear safety, disaster relief, health and food safety authorities, local authorities, police and fire brigades.

Only in France the CLIs - local information committees - are legally anchored in a broad set of EP&R activities. In the other countries in question the role of citizens and CSOs as stakeholders is limited to comment and/or raise questions about the activities of the authorities in charge for the different aspects of nuclear off-site EP&R at different levels. Emergency plans are open to municipalities and representatives of critical infrastructure (hospitals, firemen) but with some exceptions not to CSOs and NGOs that are more regularly involved in EP&R drills yet not as an actor that can contribute to support learning and improvements of EP&R provisions and regimes based on lessons learned during drills. In the French national EP&R strategy document, the chapter on relocation calls for the involvement of stakeholders in the plan proposals and to involve civil society "within the framework of the decisions concerning the future immediate population." Means are identified including the use of "a plurality of sources of expertise (in particular associations and academics)" to open dialogue between different stakeholders, provide access to people to means of radiological mea-



surement in order "to enable people living in the contaminated territories to realise a risk hardly noticeable [...] and the necessary elements (degree of food contamination, places of life ...) to build their choices and act daily on their environment and their own risk."

2. Cross-Border Cooperation and Cross-Border Dimensions of Public Participation: As for cross-border nuclear off-site EP&R activities, local communities and CSO are in the best case involved at the level of EU-initiated and supported cross-border emergency planning studies and to a more limited extent also at the level of emergency exercises. However across the border the EP&R requirements, provisions and plans are not harmonised and coordinated regarding zoning, sheltering, iodine prophylaxis practices and evacuation even where the NPP is sited very close to a border. At the level of the authorities the cross-border cooperation is rather the exception than the rule. There are encouraging signs of progress in cooperation between nuclear safety and radiation protection authorities in Slovenia and Croatia regarding EP&R of NPP Krško, situated in Slovenia but under the shared ownership of both countries.

Cross-border support seems to be in place regarding decontamination since the countries might use the capacities of neighbouring and other countries in the regions through the ERCC {EU} and RANET {IAEA} networks.

3. Sheltering and lodine Prophylaxis: Sheltering in private houses, offices and public buildings is in combination with iodine prophylaxis the common practice of the first EP&R measures. No special sheltering sites/ buildings are envisaged. In general sheltering is limited to 48 hours and the main related challenges are adequate supply of food and a problem of disintegrated families seeking information that other family members are safely sheltered at some other place. There are different levels of frequency and amount of information provided regarding sheltering in different countries but in general it appears that there is not enough information regarding the importance of stopping the operation of air conditioning and ventilation devices in a case of nuclear emergency. This issue is increasing in importance because most of recently build and retrofitted residential, public and commercial buildings have ventilation and air conditioning systems.

As for iodine prophylaxis the practices of distribution differ mostly outside emergency zones and the main challenges are related to in-time distribution of iodine pills to the people living outside the emergency zones and providing frequent and quality information on iodine prophylaxis ingestion (timing, doses, age limitation). It should however also be noticed that, according to the questionnaires, within the emergency zones only 20-50% of the people actually picked up iodine pills therefore sheltering and iodine prophylaxis in the case of a nuclear emergency might be conflicting agendas for a considerable part of the population living in an emergency zone.

4. Evacuation: As for evacuation there is a general belief that most of the people will evacuate by their private cars, although some evacuation plans are still based on priority of collective transport-based evacuation. The authorities seem to be aware of the problems of traffic jams that inevitably arise by individual evacuation yet this challenge does not seem to be actually realistically addressed in emergency plans and by emergency drills, especially while taking into account that many people will try to pick-up their dear ones at a start of an evacuation. As a good practice however the acceptance of the initiative of the citizens by the local authorities in Krško (Slovenia) to visually mark in a non-aggressive manner the evacuation routes in the town could be mentioned. The intervention levels for evacuation differs from 30 to 250 mSv which from one side allows small countries like Luxembourg some flexibility to coordinate its activities with the neighbouring countries however the differences also raises scepticism among NGOs and in the public. There are in addition some other issues identified but not adequately addressed by the questionnaires like how to prevent or stop evacuation triggered by panic and not ordered by authorities, how to assure an adequate decontamination if people will take their individual, non-planned evacuation routes. The plans and drills are based on assump-



tions that the official information will be if not the first source of information then at least most entrusted and that the people will not evacuate unless they will be told to do so by the authorities. No plans and drills are made that would put under question those presumptions or at least test the assumptions by credible opinion poll surveys.

Small countries have additional challenges that are under specific nuclear emergencies hard or impossible to deal with plans and rise adequate (in terms of location and capacities) reception centres. This indicates a strong need for cross-border solutions.

- 5. Decontamination: Cross-border support seems to be in place regarding decontamination since the countries might use the capacities of neighbouring and other countries in the regions through the ERCC {EU} and RANET {IAEA} networks. All countries in question claim that they have sufficient decontamination capacities yet in the case of a major nuclear accident they would request international support. How to effectively and efficiently provide people who will evacuate by their own transport with the instructions and means for an adequate auto-decontamination is taken into consideration by the authorities in Belgium, however from the questionnaire is not evident whether adequate solutions are already designed and/or in place. Responses to the questionnaire have not provided more detailed information whether there is indeed enough mobile radioactivity measurement devices and/or adequately skilled people to use them nor how quickly and effectively the international assistance can be provided. For Germany it was noted that the whole decontamination system in its implementation phase depends on voluntary workers, at the outset voluntary firemen yet no system of financing for those tasks that also require a considerable number of equipped vehicles is provided either by NPP operators or by the authorities.
- 6. Relocation: It appears that the lessons learned from Fukushima to avoid multiple relocations have not been considered in all countries or adequate measures put in place establishing general evacuation centres and/or relocation areas are within or too close to potentially over-contaminated parts of the country in the case of a major nuclear accident. Nuclear safety authorities in Slovenia are considering moving evacuation centres beyond 40 km from the NPP in order to avoid the need for re-evacuation. From the information obtained by the questionnaire France provides one example of a comprehensive approach. The special chapter of the national plan from 2014 addresses the issue of remoteness, maintaining or returning populations in situ. It is suggested that the choice of place of removal should be considered and must be able to endure a few days implementation period to allow people to organise themselves and to the administrative authority to collect the necessary logistics. Initially, the accommodation capacity is based primarily on the solidarity of the "closest towns" and mutual relatives of the families concerned. In case of relocation for a period of one month or longer it also takes into account viability of infrastructure and services to populations. To establish the scope of removal, national authorities recall the proposal of a projected dose of 10 mSv in the first month of the post-accident phase, however they do not take into account the internal ingestion of contaminated food.
- 7. Return to affected/decontaminated areas: Another problematic aspect is that the time horizon of relocation plans and activities seems to be limited from a couple of weeks to a couple of months, whereas for large number of people affected by nuclear disaster it might take years and decades before they will be able to move back while many of them will never have this chance. In addition even in case of the actual French national plan no clear criteria on return circumstances for the population are given and standards are for example not taking into account radioactivity doses received by internal ingestion of contaminated water and food. Based on responses to the questionnaire, Luxembourg seems to be well on its way to implement 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 through setting a reference level for the first year. Such a reference level, for example 100mSv for the first year would then include all exposures starting from during the release. Practically this could mean that people who were evacuated before the



release and that were not exposed during the release could be resettled earlier than others that were sheltered during release and have already received a fraction of these 100 mSv.

"Solidarity of the closest" therefore cannot match challenges of long-time relocation nor can it as a principle provide the basis for material compensation of the victims of a nuclear disaster. Therefore a prolonged "post-emergency" phase seems inevitable and its main challenges - how to provide mid to long-term accommodation, social and health services, employment and education to nuclear evacuees - seem to be neglected or at least not adequately addressed. In this respect, for example the Slovenian approach of providing only the most general guidelines without any ex ante mechanisms and plans is symptomatic. It is postponing everything to a government or a special high-level body established after a major nuclear accident.

- 8. Food and drinking water restrictions: By providing answers to the question the authorities refer to European legislation on the subject as the standards for provisions on contaminated food and are therefore required to be implemented in the Member States of the European Union. It is believed by the authorities that national health, veterinary and food monitoring and inspection systems can effectively deal with the challenges emerging from radioactive contamination of larger areas in a country as a consequence of a severe nuclear accident. The radiation protection authority from Luxembourg however warns that in such a case the size of contaminated areas will exceed the capacities for an adequate measurement therefore only a general prohibition of sales and use of food from those areas could actually effectively prevent the use of contaminated food. Given globalised food chains and EU food monitoring and inspection capacities the provision of food from non-contaminated areas should not present a technical problem, yet they might be socially sensitive issues both for poor states/regions/consumers and/or for farmers, food processing industry and merchants from contaminated areas. From the obtained information no conclusions can be drawn about the compensation to farmers and merchants effected by food restrictions implanted after a nuclear disaster however the questionnaire indeed did not request that information.
- 9. Information, communication and awareness-raising on off-site nuclear EP&R: In the case of an emergency national media will be engaged to inform the population, predominately by broadcasting messages prepared by competent authorities. Phone-call centres are also in place. From the countries approached by the questionnaire only Luxembourg is carrying out regular information activities. In addition, the basic information on EP&R in Luxembourg is provided in 8 languages therefore next to citizens of Luxembourg at least the largest migrant and emigration groups of the population are informed on the issue in their indigenous languages. However the authorities admit that the communication strategy is too passive and there is an obvious lack of public discussions on the issue. In Belgium the campaigns that are carried through national and local media are combined with campaigns for pre-distribution of iodine pills and emergency planning zones. Yet the last campaign in question in Belgium took place in March 2011. Belgian information strategy in addition also includes provision of GSM, sms and e-mail tools. France has a similar approach yet the campaigns are restricted to emergency protection areas while large majority of respondents in public opinion polls demonstrate that risk culture is not well integrated in the French population. Difficulties in Germany and in Slovenia in obtaining information from the people about how they are informed on nuclear EP&R indicate that people are not well informed on the issue. In all countries the information is provided on official web-sites of nuclear protection authorities while in some countries information can be also obtained on web-sites of NPP operators, disaster relief and/or local authorities.

From the questionnaire based information provided by ANCCLI the communication strategy in France seems to have at least in theory a most comprehensive approach: communication with the public, as presented in the national plan, aims to transmit feedback information, continuous and credible; to maintain the trust; to make citizens actors by transmitting different procedures to follow, promoting local solidarity mechanisms. The strategy is based on a clear division of roles and responsibilities of each source of information: the op-



erator, the state authorities, Nuclear Safety Authority and IRSN institute. During the emergency phase, immediate communication to the public (and the media) is carried by the operator and by the authorities that provides the use of different means of dissemination of the alert (sirens, a national network of alert, mobile devices ...), complemented and supplemented by various means of communication (agreements with Radio France, France Television ...) and dissemination of information. In the emergency plans, local conventions grew with local radio stations to ensure that, during an accident, the relay of information to populations (evacuation, iodine, containment ...).

10. Trust to information sources: Quality and timing of information to the public in case of a real emergency situation, as well as coherence between information sources at different levels engaged (national authorities, provincial/communal authorities, operator of the facility) should enhance trustworthiness of information and by this means reaction from the public to recommendations and countermeasures decided by authorities for the public. The problem is that real trust in information sources cannot be tested outside of a real emergency situation. There is evidence of scepticism and disbelief about the emergency information provided in a traditional manner by the authorities in todayas' highly complex European societies characterised by plurality of information sources and views.

The latest opinion poll carried out in France by IRSN on the perception of risk and security by the French used to shed light on this question. Indeed, it shows a "relative disaffection of French citizens vis-à-vis the institutions" and more specifically on the nuclear sector "the attitude of the French people on the nuclear stakeholder has a tendency of degradation".

The situation in Slovenia is characterised by paradox. While public opinion polls demonstrate high levels of trust in nuclear safety and information in the field, the large majority of the population in the emergency zone believe that in the case of a severe nuclear accident no action could save them from the worst.

Whereas information obtained from Luxembourg suggests that due to its complex communication strategy, lack of commercial nuclear capacities and proactive approach of radiation protection authorities there should not be major problems in trust to official information sources based on the information from Belgium. In the opinion of Ms. Brigitte Artmann, the German member of NTW, the German public will not rely on official information after the TAZ journal in October 2014 disclosed to the public the severe problems of communication between federal and federal state's nuclear and radiation protection authorities during an EP&R drill that would result in delayed information on nuclear emergency in the country.

4.4 Outcomes from the Round tables

In March 2014 an indicative plan on "Round tables" that should be organised in different countries with a focus on national and cross border EP&R arrangements was approved and included the events with dates, organisation responsibilities, involved countries and expected outcomes as presented. In most of the countries events were carried out as presented in the table below. For each of the round tables a detailed report was prepared with all information regarding the event, the participants who attended, the summary of the discussions and the recommendations adopted will be prepared.


The list of completed Aarhus Cross-Border EP&R Round tables - February 2015

Event	Date	Place	Organisers	Countries in- volved	Outcomes
RT on EP&R of NPP Cattenom	May 17 2014	Schengen (Lux)	Greens of Fichtel- gebirge, Greenpeace Lux- emburg, Catten- om Non Merci	B, Lux, F (F re- fused to partici- pate), Germany	Critical information on the safety of NPPs Cat- tenom and incapacities of NPP to withstand terrorist attacks, information on EP&R and key challenges to improve EP&R in Lux- embourg, Germany and Belgium
RT on EP&R of NPP Temelin	September 27 2014	Hlubo- ka nad Vltavou (Czech Republic)	Greens Fichtelge- birge, BIWAANAA Germany, Eda Sequens, nuclear expert Cz	A, Cz, Ger, Svk,	Critical information on the safety of NPP Temelin and on incapacities of NPPs to withstand serious terrorist attack, informa- tion on EP&R in Czech Re- public, Austria, Germany and Slovakia
RT on EP&R cross border aspects of NPP Krško	October 20 2014	Brežice (Slovenia)	REC Slovenia in cooperation with Nuclear Safety Administration of RS	Slo, Cro,	Information on EP&R regimes in Slovenia and Croatia in case of severe nuclear accident in NPP Krško. Recommendations for improved cross border cooperation on EP&R for NPP Krško
RT on EP&R in Bulgaria	January 19 2015	Sofia (Bulgaria)	Zelenite, FEA	Bul, Ro, Serbia,	Overview on Nuclear emergency prepared- ness & response in the Balkan countries and trans-boundary arrange- ments
RT on EP&R in Ukraine	January 26 2015	Kyiv (Ukraine)	Mama 86	U, Fr, Slo,Si	Overview of EP&R in Ukraine with suggestions for improvements

Below are presented the basic data together with findings and conclusions of the round tables organised in Luxembourg, Czech Republic, Slovenia, Bulgaria and Ukraine. The minutes from the meetings are given in Annex 7.



Aarhus Round Table: NPP Cattenom – Emergency Preparedness & Response

Location, place: Remich -Schengen, Luxemburg

Date: May 17 2014

Long before the Round Table, when all options were open, the German organiser Brigitte Artmann contacted her emergency colleagues in all concerned countries (Luxembourg; Germany: Rheninland-Pfalz and Saarland; France: Lorraine). The organisers contacted in the same way, when all options were open, all relevant NGOs, ministries, authorities, the CLI Cattenom, the CLI members of the cities of Thionville and Trier, the mayor of the city of Perl and also ANCCLI. The latter were asked to do the Round Table together with the organisers, but unfortunately this was not possible. The two German Interior Ministry officers had to participate in written form, because they weren't allowed by Law to participate on any public event so short before local elections. Only the emergency officer of Lorraine completely refused to participate. This pretty expensive Round Table with German/English translation was paid for by donations of the public and by the Greens of Fichtelgebirge.

Participants (number, the actors): 23 (Civil Initiative »Cattenom Non Merci!«, Mayor of Remich, Nuclear Safety Office, Luxembourg, Greenpeace Luxembourg, Former Technical Head of Nuclear Safety Office Germany, nuclear safety experts, NGOs, members of civil protection, local politicians, member of parliaments from Germany and Luxembourg) + two written contributions of authorities of German Federal States of Rheinland-Pfalz and Saarland and one from Belgium.

The findings:

- Neither nuclear industry nor nuclear safety authorities are organising public events on EP&R therefore this is a task of civil society, more EP&R round tables throughout Europe are needed.
- All approached nuclear safety authorities in France and the NPP operator completely refused to take part on the Round Table and even rejected to provide written statements and/or answer the NTW WG EP&R questionnaire that have been sent to them by the organisers together with the invitation.
- German Radiation Safety Commission (SSK) stated: Severe nuclear accidents can have much wider ranging consequences than officially supposed prior to the accident in Fukushima.
- Accident in Fukushima provided the evidence that one needs to go beyond the paradigm of rational, centralised, top-down emergency plans and rather accept the paradigm of decentralised and contextual-rational management of chaos that will inevitably follow any major accident at any NPP.
- Civil protection in Germany, Belgium and France is not adequately prepared for nuclear off-site EP&R.
- Primary tasks of NTW is to put pressure for more transparency and better safety of nuclear industry regardless of whether this would have implications for costs of electricity from NPPs. For NTW safety comes before the profits.
- The "Aarhus Convention" constitutes a very good framework for public engagement also regarding nuclear off-site EP&R.
- "Civil society expertise" is needed to level the playing field between civil society, industry and authorities on the issue and on the nuclear issues in general. The contrasted European landscape regarding the future



of nuclear energy reinforces the need for more vigilance, transparency and participation of civil society. The ageing of nuclear structures in Europe is also a strong reason for increasing social vigilance on nuclear risks for Europeans citizens.

- ENCO study is desk office work that does not check the reality of EP&R, yet it has identified a general lack of strategies and arrangements for long-term protective measures and return to "normality" following an emergency and coherence in cross- border arrangements.
- The content and the wording of the evacuation plan for NPP Cattenom and EP&R are not adequate. The plan is prepared only for short time evacuation and for a district of 125.000 inhabitants whereas people living outside 30 km zone are completely ignored. The marginal level of measured radioactivity that would demand evacuation is not precisely defined. Measurement of radiation in abandoned houses/apartments before the evacuated people will move back is not envisaged. The plan is based on presumption that all people in the emergency zone will patiently wait in their shelters and after receiving information to evacuate get in their cars and in a disciplined manner drive to a given location without considering to make a detour in order to pick up their dear ones or stay at home since they would not be willing to leave behind their pets. The plan is not taking into consideration eventual maintenance or reconstruction works on the road. The trainings are made behind closed doors.
- Luxembourg intends to update the plan in the coming year (2015) and to have a more detailed plan for sheltering and evacuation outside the 25 km zone.
- Safety deficiencies of NPP Cattenom are severe and manifold and cannot be either eliminated in time nor economically viably recovered, therefore the NPP needs to be immediately shut down.
- NPP Cattenom operator and French Nuclear Authorities are hostile to hold any dialogue with civil initiatives from abroad on safety on the NPP.
- Based on the special agreement with the NPP Cattenom operator and French nuclear authorities, in the case of an accident in NPP Cattenom the Department of Radiation Protection of Luxembourg would be immediately and directly informed.
- Nuclear EP&R presents for Luxembourg a special challenge due to the vicinity of NPP in three neighbouring countries, small size of the country, large share of foreign population and its large diversity and large share of daily commuters from neighbouring countries etc.
- Each severe (nuclear) accident is specific. Therefore no readymade recipes how to act can be made nor automatic procedures and/or »one size fits all solutions« can be applied.
- Different communication and administrative cultures of the authorities in different countries presents a great challenge for improvement of cross-border EP&R, lack of language skills to communicate in good English might have fatal consequences in case of severe nuclear accident.

Conclusions from the Round Table Cattenom:

The most urgent requests are:

1. The secret parts of the emergency plans must be published immediately.



- 2. Round tables under the Aarhus Convention are necessary to start a public debate.
- 3. Inclusion of civil society has to be assured in the emergency plans development.
- 4. English must be a common language for responsible emergency officers.
- 5. Iodine tablets have to be stored in all households within the evacuation zone.
- 6. The civil protection and hospitals have to be prepared also in middle and far zones.
- **7.** Radiation level for evacuation is far too high. The level for long time resettlement must be dramatically reduced from 100 mSv/year to the today normal level of 1 mSv/year. If this is not possible, phase out immediately.
- **8.** European food levels must be reduced from 600 Bq/Cesium to 100 Bq/Cesium which is the level in Japan and was the level in Europe before Chernobyl. For children it must be lower.
- 9. Full trans-boundary liability and full financial compensation for the affected public is an ethic demand.
- **10.** The costs for nuclear emergency preparedness and response must be paid by the operators.

The presentations from the event are available at: <u>http://www.nuclear-transparency-watch.eu/activities/aar-hus-round-table-cattenom.html/</u>

The minutes from the round table are provided in Annex 7a. For the press release from the event see Annex 8a.

Aarhus Round Table: NPP Temelin – Emergency Preparedness & Response

Location, place: Hlubuka nad Vltavou, Czech Republic

Date: September 27 2014

Participants (number, the actors): 24 (NGOs, politicians, private citizens from Czech Republic, Austria, Germany and UK, the Major from Kalna nad Hronom/Mochovce and chair of Nuclear Energy Forum Slovakia as official representative of the Republic of Slovakia, the Deputy Ambassador from the Embassy of Austria in Czech Republic,) + written statements by authorities from Bavaria and Saxony (Germany), Austria, Czech Republic and Slovakia.

Moderation: Andrej Klemenc, REC Slovenia, NTW - English minutes- translation (consecutive) Czech/English: Pa-tricia Lorenz

Inputs by: *Ing. Edvard Sequens*, Calla, Czech Republic; *Dr. Herbert Barthel*, FoE Bavaria thel,l,*lictBernhard Riepl, Sonne & Freiheit* Czech Republic/Austria; *Ing. Ladislav glishech Republicnad Hronom/Mochovce*, (chair of Nuclear Energy Forum Slovakia), official. representative of Slovakia; Richard Mark Leighton-Myles, private participant UK/Germany; *Jan Haverkamp*, Greenpeace Central and Eastern Europe; short report on received answers from the emergency officers from Czech Republic, Germany, Austria, Slovakia, Poland presented by *Brigitte Artmann*.



The findings:

- Since 2000 it is suspected that NPP Temelin has a significant failure on one of the welds of the tubes in the primary circle cooling system. The operator and Czech Nuclear Safety Authorities has not yet provided documentation that would clearly deny the existence of the failure that can lead toward extreme safety failure of the reactor.
- In the emergency zone (diameter of 13 km) of NPP Temelin 27,000 people are living. In the evacuation zone live 110,000 persons, until today 40,000 persons have iodine tablets in their homes. There are special evacuation plans for children and pregnant women. Sheltering and evacuation will be done ad hoc depending on the situation. The police, the army and several organisations are involved in evacuation. There are regular rescue team exercises and drills within evacuation zone. Test of alarm devices are also regular. The evacuation of pets is not envisaged. It is left up to the owners.
- Outside the emergency zone the information on EP&R is poor. People within evacuation zone do not know what to do, where are the shelters, where to get iodine pills and by whom and when they need to be taken.
- Austria is not expecting a significant evacuation pressure in case of an emergency in NPP Temelin but some minor evacuation on the north of province of Upper Austria. Some fire brigades in the direct border regions carry out some activities in partnership with the fire brigades from the border regions of Bavaria (Germany) and Upper Austria, yet from the information obtained it is not clear whether actual common nuclear emergency trainings are carried out. ENCO study however does not report any cross-border activities of that kind in the field.
- Liability for nuclear damage is in Czech Republic limited by the Atomic Act up to the amount of €286 million, however compulsory insurance is only up to €71 million.
- The experiences from Germany shows that the decision to shut down NPPs raises additional concerns on safe standing still and decommissioning of the NPP also from the perspective of reduced capacities and preparedness for nuclear off-site EP&R for NPP that are shut down and waiting for decommissioning.
- It is hard to discuss the state of the art and the challenges of nuclear off-site EP&R of any NPP without presence of the national authorities and regional and local emergency and rescue teams. The organisers invited all the relevant authorities and Governments to the Round Table. But it is also for diplomatic reasons difficult for the public to invite neighbouring Governments to events into another country. They have done their utmost to engage all relevant actors in question. It seems however that the culture of communication of the nuclear issues in the country is not suitable for opponents of nuclear energy to involve the authorities and the local actors to take an active part in these kinds of events.

Conclusion of the Round Table Temelin:

- 1. NPP Temelin is perceived as very dangerous and the controversy on damaged weld must be solved.
- 2. In the Czech Republic it is difficult to obtain information for people living outside the 13 km (Temelín) or 20 km (Dukovany) emergency zone.
- **3.** All relevant authorities in municipalities, cities, counties, districts, and on national level (incl. the Ministry of Environment and SÚJB), as well as trans-boundary, have to provide easily and logically accessible infor-



mation concerning emergency preparedness and response for all inhabitants in the Czech Republic and in trans-boundary regions.

- **4.** Research reactors, final nuclear waste disposals, other nuclear facilities have to be included in these trans-boundary emergency plans and emergency information.
- 5. It has to be expected that in case of a nuclear emergency, the public in the Czech Republic will have to deal with a shock, because there is a deeply engrained belief that nuclear energy is safe. This shock has to be taken into account in emergency preparedness and response.
- 6. Such a shock is to be expected on three levels: personal, local and national.
- 7. Special groups, vulnerable groups like babies, small children, pregnant women, people with disabilities, retirement homes, hospitals and especially intensive care units: There should be a full overview available within the primary evacuation zones as well as potential evacuation areas beyond. There have to be clear plans for emergency preparedness and response for these groups. That includes nearby larger towns like České Budějovice, Třebíč and Brno.
- **8.** It is necessary to provide citizens with more clarity about the potential secondary evacuation zones, their potential reach, and planned emergency response actions.
- **9.** On the basis of a stress test of the current emergency preparedness and response plans, it should be considered to expand the primary evacuation zones around Dukovany and Temelin.
- **10.** Iodine tablets have to be stored in all households within the primary and secondary evacuation areas.
- **11.** The radiation limits for evacuation and resettling levels have to be reduced to the generally accepted ICRP norms for citizens. Resettling levels should be based on long term exposure levels of 1 mSv/yr.
- **12.** European harmonisation of radiation limits is needed on the basis of the ICRP norms for citizens and long term exposure.
- **13.** Sufficient financial guarantees should be in place to ensure that victims and evacuees after any nuclear accident can survive on a reasonable living standard.
- **14.** A second Czech Round Table is needed with broader participation, including the critical public concerned, local authorities (incl. trans-boundary), CEZ, SUJB and representatives of other relevant Czech and neighbouring trans-boundary authorities.
- **15.** In principle, such Round Tables should be organised by local and/or regional authorities in cooperation with the responsible national emergency authorities. Participation of critical members of the public as represented on today's Round Table must be guaranteed on foot of equality.

The presentations from the event are available at: http://www.nuclear-transparency-watch.eu/activities/second-round-table-emergency-preparedness-response-temelin.html For the press release from the round table see Annex 8b.



Aarhus Round Table: Emergency Preparedness & Response in case of a nuclear accident in the Nuclear Power Plant Krško

Location, place: Brežice, Slovenia

Date: October 20, 2014

Participants (number, the actors): **63** (operator of NPP Krško, state, regional and local nuclear safety, radiation protection and emergency response authorities from both countries, NGOs from Slovenia, citizens from Krško and Brežice, national and local media from Slovenia).

The findings:

- Slovenia has established bi-lateral cooperation on nuclear EP&R with all neighbouring countries, however there is not enough dialogue on the issue both within the country and on cross-border level.
- In order to improve capacities for communication and coordination of all nuclear EP&R activities the government of Slovenia has established an intra-sector commission, chaired by the director of Slovenian Nuclear Safety Administration.
- Although the local people have trust in safe operation of the NPP they are according to the public opinion surveys poorly informed on how to behave in case of an emergency and sceptical about their chances to escape the worst even when they act properly. EP&R trainings and drills are duly exercised but they do not attract the interest of the local inhabitants.
- Successful communication on NPP Krško as a safe NPP is leading toward passive standing of the local population regarding EP&R.
- Information on nuclear EP&R should be more regular, simple and clear as well as not based on the message that a severe accident in NPP is almost impossible. In the town of Krško evacuation routes needs to be signed on site.
- There are contradictions between planned evacuation of pupils in schools and kindergartens and intentions of parents to evacuate with private cars together with their children.
- There is a lack of regular information and communication on the issue on various levels, including direct communication between the operator of the NPP and nuclear emergency authorities in Croatia.
- The issues of long term relocation and damage compensation in case of a major accident in the NPP Krško are not (properly) addressed by the national and local authorities.
- Evacuation zones and emergency measures are not harmonised between the two countries.
- The fact that a large majority of employees of NPP Krško are living within the intervention zone is positive for the safe operation of the NPP, on the other hand it imposes certain risks that the employees would in case of a severe accident at the NPP give priority to rescuing of their families rather than to their professional responsibilities.
- There is a lack of permanent and balanced dialogue on nuclear safety, including EP&R issues, between the



plant operator and authorities on the one hand and citizens, independent experts and NGOs on the other. This makes dialogue on EP&R burdened with safety of NPP Krško and nuclear waste management issues as well as the issues of lifetime extension of the existing reactor and construction of a new reactor.

- The cooperation between Slovene regulatory authorities and regulatory and emergency authorities in Croatia started recently and is in progress.
- Croatia is progressively catching up with establishment of EP&R regulatory framework and capacities and is using Slovenian experiences and support in the field.
- EU-sponsored project on evacuation in a case of a nuclear accident in 2012 initiated the on-going cooperation between Slovene towns of Krško and Brežice and the city of Zagreb, the capital of Croatia.

Conclusions:

- The dialogue between different stakeholders on nuclear EP&R should be strengthened both within the country and among stakeholders in Croatia and Slovenia. Given the complex and conflictual nature of the dialogue this needs to be well prepared, professionally moderated and regular.
- The states of Slovenia and Croatia, municipalities within evacuation zones within both countries and NPP Krško should provide support to citizens that are actively engaged in the improvement of EP&R concepts, procedures, tools and drills regardless of their attitude to nuclear energy and also with respect to other related issues - e.g. lifetime extension of NPP Krško, siting and operation of LILW repository and plans for construction of new NPPs.
- Cooperation between Slovene regulatory authorities and regulatory and emergency authorities in Croatia should be maintained and strengthened and should lead toward direct provision of information from the power plant operator to emergency authorities in Croatia in the case of a nuclear emergency, more harmonised criteria of definition of zones of intervention (evacuation zones) and emergency measures.
- Information on emergency actions and measures of the people living within the evacuation zone should be more regular, user-friendly and innovative and should not be based on assumption that in fact severe nuclear accident in NPP Krško cannot happen.
- The issues of long-term emergency, long-term protection and decontamination measures within the contaminated zone, compensation measures (including financial compensation) for the people that will not be able to return to their homes and/or will have to live with restrictions within decontaminated areas needs to be addressed more seriously and in detail by updating nuclear emergency and post-emergency plans in both countries.
- Evacuation plans should abandon the concept of collectively organised evacuation of children from kindergartens and schools and in all seriousness take into account the critical issues arising from the fact that the majority of the parents would in case of a nuclear emergency try to evacuate their children yet not all of them would be actually in a position to do that.
- Cross-border dialogue on the issue should be continued and similar events needs to be organised in Croatia also.

The report and presentations from the event are available at: <u>http://www.nuclear-transparency-watch.eu/activ-ities/nuclear-emergency-preparedness-and-response/3rd-roundtable-emergency-preparedness-response.html</u> The minutes from the round table are provided in the Annex 7b.



Aarhus Round Table: Nuclear Emergency Preparedness and Response in the Balkans

Location, place: Sofia, Bulgaria

Date: January 19, 2015

Participants (number, the actors): 46 participants (from different competent authorities and agencies from Bulgaria, operators of NPP Kozloduy, MPs from Bulgaria and Romania, academics from Austria, Bulgaria and Romania, NGOs and non-parliamentary political parties from Bulgaria, FMRY, Romania and Serbia; national media from Bulgaria)

The findings:

- Reasons that led to the Fukushima accident: coalescence of the nuclear industry, regulator and the political
 parties exchanging staff between each other, forming a bubble without influence from outside; lack of understanding of the danger; lack of preparedness, etc. are not limited to Japan but are characteristic for many
 nuclear countries.
- IRSN study assessed the financial costs of Fukushima where more than 100,000 people have to be evacuated - at more than of 430billions Euro.
- Aarhus Convention is also for Bulgaria and other Balkan countries. It is of utmost importance to be informed and to have an influence on nuclear safety issues in general and EP&R issues in particular.
- Bulgaria has an operating system for monitoring of nuclear radiation and transfer of the data in question to institutions in charge of nuclear safety and Emergency & Preparation but additional monitoring stations are needed to have a good system in place.
- NPP Kozloduy which is the oldest operating NPP in South Eastern Europe has undergone several safety upgrades that has been peer-reviewed and monitored by IAEA and WANO and has successfully passed the stress test on the request of EU Commission after Fukushima.
- Following the requirements of the Emergency Preparedness and Emergency Planning Regulation, two general emergency exercises are conducted every year, and different headquarters conduct drills on a quarterly basis. The departmental headquarters of the BNRA, DG FSPP-MoI, ME, the headquarters of the Districts of Vratsa and Montana, and the municipal headquarters of the towns of Mizia and Kozloduy take part in the exercises. Every 5 years a National Full-scale Exercise is conducted under preliminary developed scenarios which drill all levels of the action plans in case of an emergency at Kozloduy NPP.
- In case of NPP emergency plans of municipalities are prepared within radius of 12 km zone.
- The agreement between Bulgaria and Romania is very outdated and it is now in the process of updating.
- According to the survey on the knowledge on emergency preparedness in Bulgaria only few journalists are aware about the specific plans and needed reactions in case of emergency. The survey also shows that people are not getting the risk seriously enough - less than 30% of the respondents could mention 4 or more measures in case of emergency and 22% of the respondents couldn't mention even one measure.
- NGO activists from Serbia and FRYM are not aware of any cross-border EP&R activities although in case of a



severe nuclear accident in NPP Kozloduy both countries might be considerably exposed to radioactive contamination. In their opinion the people in both countries are absolutely not informed on what to do in this kind of situation

- According to the representatives of local civil initiative of Craiova in case of emergency in NPP Kozloduy that
 is situated 40 km from the city of Craiova in Romania the city needs to be immediately evacuated, but according to the existing agreement between Bulgaria and Romania, they need to inform the neighbour only
 in 2 hours' time, which in the opinion of the civil initiative to late.
- In the opinion of NGOs as well as participating members of parliament from Romania both in Bulgaria and Romania the transparency on nuclear and nuclear safety issues is not adequate and needs to be significantly improved.

Conclusions:

- Only well-educated and trained people should be allowed to work in the nuclear facilities.
- Even developed countries failed in emergency reactions and communication to the public when it comes to severe nuclear accidents (INES 6 &7).
- In case of INES 7 accidents the compensation funds are far below the real costs of rehabilitation and compensation for the damage caused to the people and the environment.
- More monitoring stations should be developed.
- Obligation of municipalities to prepare an emergency plan in case of nuclear accident in NPP Kozloduy should be extended from present radius of 12 km from the plant to at least 30 km. This principle however not only effects cross-border emergency planning on Romanian territories but also cross-border nuclear emergency planning in municipalities in NE Bulgaria that might be affected by a severe accident in the Romanian NPP Cernavoda.
- The legislation on transparency and public participation should be implemented in practice.
- The perception of the risk is far below the level that would enable an effective response by the population to a nuclear emergency.
- The institutions and the state media in the Balkan countries have to raise more awareness on the emergency plans.
- The agreements on exchange of information and common planning of emergency measures between the countries should be updated and new agreements should be signed as soon as possible.

The report from the round table is provided in the Annex 7c.



Aarhus Round Table: Nuclear Emergency Preparedness and Response in the Ukraine

Location, place: Kyiv, Ukraine

Date: January 26, 2015

Participants (number, the actors): **100** participants (officials from the State Inspectorate for Nuclear Regulation, nuclear operator NNEGC the State Inspectorate for Nuclear Regulatof Ukraine, Ministry of Health of Ukraine and other relevant central authorities; representatives of local authorities from NPP areas, research institutes and NGOs, individual experts, NTW representatives, etc.) and **22** journalists from central, regional and local media.

The findings:

- Ukraine appears to follow the international standards (revised after Fukushima) with on-site emergency preparedness and response (there are necessary regulatory documents, regular exercises and drills, cooperation between responsible entities, and technical/personnel means to ensure adequate response).
- Off-site emergency preparedness and response, on the contrary, raises serious concerns, considering that the responsibility for it is scattered among different authorities, which do not seem to have much coordination between themselves and mostly suffer from tunnel vision.
- The Ukrainian legislation on EP&R also lacks a systemic approach: there are many by-laws, some of which contradict each other (for example, some documents speak about 30 km zone as the area of EP&R action and others about 50 km).
- Ukrainian officials/public servants tend to follow the rule that dirty linen should be washed at home; therefore in public discussions they present the picture of the EP&R in Ukraine from the normative point of view (what it is supposed to be) avoiding speaking about realities (the actual preparedness).
- Officials from the agencies responsible for various aspects of EP&R at the central level seem to be totally detached from the situation on the local level, pretending not to know that local authorities lack capacity for implementing EP&R measures.
- Responsible persons in local governance bodies need more guidance and support in EP&R measures; they are also interested in building multi-stakeholder dialogue and cooperation and learning from good foreign practices.
- There is practically no information (or it is extremely hard to find) on the websites of responsible authorities or NPPs on what should be the actions of ordinary people in case of a radiation accident.
- Local population is practically not involved in EP&R planning or other relevant measures.
- The national-level nuclear off-site emergency exercises, which are supposed to take place every 5 years, have never been conducted because of the lack of funding; therefore it is hard to judge the actual ability of all responsible authorities to act in a coherent manner in case of an emergency.
- The current situation in Ukraine, with almost a million of internally-displaced persons due to the fighting in the Donbass region, is a real-life test for the civilian protection system of Ukraine, raising such challenges as fast evacuation of people, sheltering, provision of accommodation, clothing and food for the IDPs and peo-



ple remaining in the war zone, etc. The result of the "test" is rather unsatisfactory: the system is not able to cope with this burden and, although a large share of it is carried by volunteers, the situation in some places is close to a humanitarian crisis.

- Yet, this situation may have a positive impact for the future EP&R in Ukraine, considering that the emergency system is now under close scrutiny of top officials and action is taken aiming at its improvement. Although this does not specifically refer to nuclear issues, authorities in different sectors and on different levels are ordered to take EP&R within their range of competence more seriously.
- The National Plan of Response to Radiation Emergencies is supposed to be revised this year, so there is a window of opportunity for some improvements.

Conclusions:

- Ukrainian legislation governing various aspects of nuclear EP&R should be revised to cover the existing gaps and discrepancies between different documents.
- In particular, the missing regulation on iodine prophylaxis should be adopted.
- The dialogue between different stakeholders on nuclear EP&R should continue and, in particular, be brought to the local level, where the action is most important.
- Action should be taken to engage the public from communities close to NPP sites in EP&R measures in a systemic way, as opposed to the current state of theoretical passive possibilities.
- Local information commissions, such as those that operate in France in NPP neighbourhoods, could be a
 good format for sustaining stakeholder dialogue and engaging the public into nuclear EP&R measures on
 the local level. In the coming months MAMA-86 will work on the idea of launching a pilot local information
 commission in cooperation with central and local responsible authorities.
- More inter-agency coordination on the central level is also necessary to ensure that all responsible authorities operate in a coherent manner and are aware of each other's responsibilities
- Regional/local emergency plans should be revised from the point of view of actual capacities (including transportation means and personnel) and not be a theoretical exercise detached from real-life limitations.
- A more thorough study of the state of nuclear EP&R (including a comprehensive overview of the regulatory basis and existing emergency plans on different levels, the actual state of preparedness, as well as the study of the public awareness, etc.) is necessary to provide all stakeholders with a full picture.

The presentations and the press release from the event are available at: <u>http://www.nuclear-transparency-watch.</u> <u>eu/activities/round-table-ukraine-nuclear-emergency-preparedness-response.html</u>

The report and the minutes from the round table are provided in the Annex 7d.



5 Comparison of findings of NTW EP&R investigations with findings of ENCO study

DG ENER commissioned a study in 2013 with the title "Review of current off-site nuclear emergencypreparedness and response arrangements in EU member states and neighbouring countries" (ENCO study). The study was prepared by consortium ENCO (Austria) and UJV (Czech Republic). The objective of the investigation was to:

- Assess the status of the existing arrangements and capabilities for off-site emergency preparedness and response (EP&R) within and between the EU Member States (MS) and neighbouring countries in respect of their coherence and completeness;
- Identify best practices, gaps and inconsistencies, in particular related with cross- border arrangements;
- Assess how current arrangements and capabilities could be made more effective (in particular optimised to make better use of available resources and avoid duplication, both nationally and across borders);
- Make recommendations on potential areas for improvement.

This study was conducted in 28 EU countries, in addition the investigation was carried out in Norway, Russian federation, Switzerland, Ukraine and Armenia.

Methodology for the study included:

- Collection of information on current arrangements: 2 questionnaires sent to national contact points;
- Benchmarking against the requirements (IAEA and European Union):
 - IAEA GS-R-2: Preparedness and response for a nuclear or radiological emergency, 2002.
 - Council Directive laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation, 96/29/Euratom, 1996.
 - Council Directive on informing the general public about health protection measures to be applied and steps to be taken in the event of a radiological emergency, 89/618/Euratom, 1989.
 - Council Regulation laying down maximum permitted levels of radioactive contamination of foodstuffs and of feeding-stuffs following a nuclear accident or any other case of radiological emergency, 3954/87/Euratom, 1987, as amended by Council Regulation 2218/89/Euratom, 1989.
- Mapping against International or European requirements, guidance or recommendations;
- Involvement of Stakeholder Group to internally review the work;
- Case studies- limited to cross border arrangements: AT-CZ and CH-DE-FR;
- Collection of information on future improvements (questionnaire and discussion).



At the beginning of the investigation the EP&R WG was faced with denial of access to the final report of the study from the EC. Official information from DG ENER on the study availability from February 2014 was that "Study contract is on-going, and the report of the study is currently being evaluated by DG ENER and other Commission services according to the formal procedure", . . . "it is premature to present draft findings without the Commission conclusions on these findings", . . . "the Commission intends to set out its thinking on the way forward in a possible Commission communication this Spring." Based on the formal NTW request for access to information [11] made under the terms of the Aarhus Convention (Article 4 on Access to Information) to which the European Union is a Party, the ENCO study is now available on NTW's web pages.

After the receipt of the final report of the study the members of EP&R did an overview of the work performed and found that the geographical scope of the review is limited, consideration is limited to arrangements of operating NPPs, the public or other institutions have not been involved and the study is based on self-assessment by the member states represented mainly by regulatory bodies. The review of national provisions on the EP&R is a paper exercise and it is not based on practical drills.

The basic findings were reported also to the EC in July 2014 by the representatives of Greenpeace who are members of the EP&R Working Group [12]. In this letter it is stated that they concerned that the current state of off-site emergency preparedness would not prevent similar or worse suffering than we have seen after the Chernobyl and Fukushima nuclear catastrophes in the case of a severe accident. In exchanges with the Commission, concrete examples to illustrate this point were given. Greenpeace has highlighted the lack of preparedness in countries like Belgium, France, Germany, the Netherlands, Slovakia, Slovenia and Sweden. The commissioned report from the consultants ENCO and UJV analyses only the degree to which existing rules are fulfilled, pointing to some inconsistencies between member states. The data came from the responsible national authorities only and were not independently evaluated.

We find this report very disappointing, given that it does not address any of the critical issues. In more detail:

- 1. The report lacks a section on the lessons learned from the Fukushima catastrophe, which would be very relevant as a practical starting point for assessing the European situation.
- 2. The report addresses the issue only in the abstract, without assessing every nuclear power station in Europe. It does not even illustrate any of its findings with concrete examples. Emergency response is not only something on paper. It is about specific physical and geographical circumstances in the case of an accident in one or more of the 132 European nuclear reactors or other nuclear activities.
- **3.** The report repeatedly stresses that the aim of emergency preparedness and response is to increase credibility and to improve confidence and trust by the public. NTW disagrees fundamentally that this is the primary aim of EP&R. Emergency preparedness should aim to limit as much as humanly possible any damage to people and the environment in case of any nuclear accident.
- 4. The report pushes for harmonisation. Harmonisation (including the harmonisation of criteria) is a tool, not an aim in itself. Given that there is no concrete analysis of what kind of suffering we should be prepared for, there is also no evaluation of criteria, not to mention a concrete analysis of whether harmonisation would help reaching a better level of protection for citizens.
- 5. There is an emphasis on cost-reduction of cross-border cooperation in emergency preparedness and response. Potential cost reductions are an interesting option to consider where there is a functioning EP&R system in place and the well-being of citizens is guaranteed. In the current situation, where the experience in Fukushima has shown that people suffer tremendously in case of an accident, cost reduction should not



be the driving factor for policy.

- 6. The study states on page 16: "There is little, if any, justification for nuclear emergencies being treated differently from any other type of emergency. Continuing to do so reinforces public and political misconceptions about the special nature of nuclear emergencies." This is a baffling and slightly surreal conclusion. The Fukushima nuclear disaster, for example, led to more complications than the earthquake and tsunami. Factors that make nuclear emergencies very special compared to others, include the fact that it is difficult to communicate the potential hazards involved (radiation cannot be felt or seen or smelled; effects may be long-term; large uncertainties exist about long-term effects of low-levels of exposure); the fact that evacuees should not return to contaminated zones that visually look fine; the insufficient liability regime that leaves people without adequate compensation and the time-frames involved in any remediation efforts.
- 7. In the report, benchmarking looks only into existing rules and regulations. The Fukushima disaster has shown that existing rules are not sufficient to meet the demands of an emergency situation when it occurs. The largely green areas in the benchmarking tables of the report are therefore inadequate descriptions of the situation.
- 8. In the report, benchmarking looks only into existing rules and regulations. The Fukushima disaster has shown that existing rules are not sufficient to meet the demands of an emergency situation when it occurs. The largely green areas in the benchmarking tables of the report are therefore inadequate descriptions of the situation.

The general recommendations emanating from this study do not even touch the core of the problem. Responding to concrete situations will differ from installation to installation.

NTW argues that what would be needed instead is a similar process for emergency preparedness and response as that put in place for the nuclear safety stress tests. The Commission should also ensure that paper plans are tested thoroughly in reality. This would include a peer-reviewed assessment of the adequacy of emergency preparedness and response for every nuclear reactor, spent fuel and high-level waste operation in Europe. The analysis would then result in an action plan for each nuclear installation. In case of severe inadequacies and long implementation times, reactors should be stopped. If the analysis showed that sufficient protection is not possible, reactors should be shut down. Issues assessed would include: prediction tools and models; evacuation plans, special arrangements for vulnerable groups and visitors; strategic infrastructure; long term evacuation and return policies; information collection and dissemination; communication about radiation risks; compensation mechanisms; cross-border issues. We are aware that this is a costly exercise, but these are costs that are inevitably linked to the use of nuclear energy and should be fully borne by the nuclear operators.



6 Viewpoints and recommendations of NTW

6.1 Evaluation of national EP&R provisions

Findings

- 1. Emergency preparedness is mostly based on an INES 5 nuclear accident and response plans generally cannot cope with an INES 7 accident. This is especially true for severe accidents with longer duration of radioactive releases.
- 2. Gaps in the implementation of emergency preparedness provisions: the NTW national assessments demonstrate the existence of large gaps between the announced provisions and the reality and/or the absence or poor implementation of planned activities in practice.
- 3. The feasibility of the evacuation of large urban areas appears to be unrealistic, at least in some cases where the structure of settlements, topography and/or transport infrastructure, either individually or in combination, makes it impossible to evacuate the population in due time to avoid exposure to excessive radiation. Evacuation from large urban areas presents furthermore a large stress to vulnerable groups like the elderly, people with handicap, patients at hospitals, etc. Vulnerable people are to a larger extent at risk during an emergency evacuation.
- 4. Regional or local authorities are not properly prepared for a nuclear accident: NTW has observed that many regional and local authorities are not really prepared for a nuclear accident (lack of sufficient devoted staff and accurate evacuation plans; lack of adequate training and full scope exercises with the involvement of the local population)
- **5.** NTW has observed a lack of capacity to perform post-accident off-site radiation monitoring. Especially in smaller countries, there are only 2 or 3 competent teams in the country capable of performing the valid radiological measurements. Additionally, the availability of (state of the art, calibrated and certified) equipment for measurements is too limited.
- 6. Inadequate medical support in the country and, in trans-boundary situations, internationally: NTW identified medical support to be in most cases available only on a limited scale. There is not enough equipment and not enough medical personnel in some countries. Training of medical staff (doctors, nurses, etc.) on the subject of nuclear EP&R is not appropriate, especially because in the case of a real nuclear emergency they are and will remain important primary reliable information sources for the general public.

Proposals

- 1. EP&R plans should take into account the possibility of a large-scale accident and a long duration release of radioactive materials.
- 2. A review of all EP&R provisions and their implementation is necessary to assess whether they are still up to date: NTW demands national reviews of effectiveness of EP&R provisions under realistic circumstances. These should be performed by an independent body that has the capacity to do a scientifically sound assessment as well as by civil society (e.g. local inhabitants, organised local committees, NGOs and relevant civil associations). This review should include also an investigation into the feasibility of large urban area evacuations, including the assessment of Evacuation Time Estimates, availability of post-accident radiation



monitoring, sufficient and adequate medical support and other relevant issues related to implementation.

- **3.** The gaps in local EP&R need to be overcome: NTW recommends that gaps in local emergency preparedness and response are identified systematically in partnership with national authorities and civil society organisations in a way that reflects the real situation, is based on the interest of (local) citizens and takes trans-boundary arrangements into account where necessary.
- 4. Operators and/or national authorities have to allocate appropriate resources to local municipalities, civil rescue teams, medical support, CSOs and civil initiatives to participate in exercises and evaluations.
- 5. Operational availability of competent teams to perform radiation monitoring as a tool to coordinate the emergency response: NTW proposes the establishment of a European "emergency task force" that would help to provide necessary equipment and expertise to the Member States to undertake prompt measurement of radiation and environmental data

6.2 Assessment of Plans, including Citizens and Stakeholders involvement

Findings

- NTW observed that even where there are many exercises and drills on EP&R, the problem is how lessons learned are taken into account. Many remarks and data are collected during exercises and drills, but these are not sufficiently reflected into revised plans.
- 2. NTW identified gaps in the field of organisation of nuclear emergency and response plans resulting in sub-optimal management of emergency response. This includes lack or late transfer of data from affected areas, lack of radiological expertise among first responders, absence of meteorological input data, lack of established operations rooms, etc.
- 3. NTW identified poor maintenance of EP&R plans regarding important recent spatial changes (new residential neighbourhoods, shopping malls, medical centres, schools, roads, etc.). Plans are also not taking into consideration recent changes in technology (internet, mobile phones, new social media), and in social values and lifestyles.
- 4. NTW noticed that EP&R plans have not been assessed by an independent body nor have been quantitatively evaluated. Examples include the question how many people would be able to hear the alarm, or how many will receive alerting text-messages?

Proposals

- 1. Creating a legally based role for CSOs in EP&R: NTW believes that there is a need for developing a legal framework related to EP&R requiring the involvement of CSOs at each level of EP&R preparation and for related decisions, in the spirit of and in compliance with the requirements of the Aarhus Convention. Efficient EP&R can be expected only where there is cooperative action by all concerned stakeholders in order to co-manage the situation.
- 2. Improvement of EP&R plans: there is a need to improve EP&R plans by introducing quality control proce-



dures including feedback from new events (accidents) anywhere in the world and lessons learned from drills and exercises. Evaluation of plans should be performed by an inter-disciplinary team including both experts and CSOs. The EP&R plans should take into account recent changes in information technologies, social values and lifestyles to ensure that they are based on current conditions.

6.3 Emergency information

Findings

- 1. There are crucial gaps in the management of information during an emergency phase. European legislation (Council decision 67/600/Euratom and the Directive 2013/59/Euratom) requires from Member States that they inform the population about health protection measures and steps to be taken in the event of a radiological emergency as well as providing regular updated information to people likely to be affected in such a case of emergency. However, problems with practical implementation of information dissemination during the Chernobyl and Fukushima catastrophes and other accidents resulted in a lack of clarity, loss of time, wrong decisions and distrust.
- 2. NTW noticed that even during exercises and drills, the communication and notification lines for the responsible institutions are not entirely working. The contact data of involved personnel are sometimes wrong and/or outdated. Necessary stand-by positions are not arranged. Different concerned administration services are not communicating between themselves.
- **3.** During the Fukushima catastrophe, **social networks** played an important role in how citizens gathered ongoing information in Japan and beyond, but this dynamic is not taken into account in EP&R plans. How will authorities use this means of communications to dispatch quickly relevant information to a wide audience? How are they going to tackle contradictory information, rumours, etc.?

Proposals

- 1. Management of information during the emergency phase: NTW takes note of the proposal of HERCA-WEN-RA regarding the management of early information and co-ordination in the emergency phase (which is characterised by strong uncertainty) while suggesting further investigation into the consistency and trustworthiness of the proposed options. It should be noted that different groups of the affected populations will have different criteria regarding credibility of information sources and the risk of communication chaos exists. There should not only be attention for good practice, but especially challenges in information management should be addressed. Such an assessment should involve civil society in order to test and update public information provisions. The obligation to organise such reviews has to be included in the regulatory framework of nuclear installation operation.
- 2. Independent experts, local NGOs, CSO representatives, and stakeholders involved in emergency response should have direct access to technical information related to the accident as required by Article 5.1.(c) of the Aarhus Convention.

6.4 Trans-boundary dimensions of nuclear accidents

Findings



- 1. The transboundary dimension of emergency management. Nuclear EP&R is definitely a transnational issue and there is a long way to go to make it such in the mind of the decision-makers across the concerned countries. NTW identified insufficient communication on trans-boundary arrangements between relevant authorities in all cases it assessed. This is likely to result in different responses and inconsistencies along and across borders, leading in turn to distrust in the decisions of authorities and thereby amplifying the seriousness of the crisis.
- 2. The first round tables organised by NTW demonstrated the difficulty to bring together all the players across borders in order to discuss EP&R as a common issue.
- 3. The heterogeneity of measures in different countries (like the distribution of iodine, evacuation perimeters and zoning) is another crucial trans-boundary dimension. This is potentially a source of chaos, distrust, loss of credibility and, most important, of failure to protect human populations. Among the important observed issues is the lack of skills to communicate fluently in English among those that are in charge of counter-measures.

Proposals

- An EU-wide policy on trans-boundary EP&R provisions: It is proposed that the European Commission takes the lead in developing an EU-wide policy by assessing the current shortcomings and adopting an action plan to remedy insufficient communication between Member States on trans-boundary emergency situations. This should include provisions and capacities for an immediate international peer-reviewed assessment of existing EP&R provisions after each accident that requires off-site emergency measures.
- 2. Harmonisation of the EP&R measures: NTW is very keen to examine how it is possible to harmonise national provisions for EP&R measures in a trans-boundary context, like emergency zoning for evacuation, sheltering, and distribution of iodine prophylaxis. NTW is ready to support efforts to organise such harmonisation (benchmarking and/or legal frameworks).

6.5 Post-accident consequences

Findings

- 1. The long term management of radiological contamination (post-accident management). This issue has hardly been addressed by European countries. France is one of the few countries having developed national policies for post-accident management. This is a situation that needs to be improved. It has to be acknowledged that a "return to normal" situation is not possible after a severe nuclear accident with large radio-active emissions. It is recommended to harmonise the norms for decontamination and resettlement in line with long term ICRP exposure norms and to avoid the confusion as seen after the Chernobyl and Fukushima catastrophes.
- 2. There is a need for clarification of food standards and their harmonisation especially in the post-accident context. It has been noted that there are several different food standards imposing the limitation of radioactivity per mass or volume, e.g. the FAO and WHO standards state 1000 Bq/kg of food stuff for Cs-137 (Codex Alimentarius) and the EU imposes different limits for import of food from areas affected by a nuclear accident (e.g. 370 Bq/kg for Cs-137 in diary products from the Chernobyl area and 200 Bq/kg for Cs-137 in dairy products from Japan after the Fukushima catastrophe).



Proposals

- 1. Long term management of radiological contamination: NTW sees an urgent need for proper post-accident strategies and operational programs that should in principle prepare society for the challenges after a nuclear disaster. As a first step, the European Parliament and the European Commission should strengthen the legal framework to address this issue on EU level.
- 2. Food standards harmonisation: A repetition of the chaos in food standards after the Fukushima catastrophe has to be prevented at all cost. The situation of confusion caused mistrust in the legal framework and the responsible institutions. The European Commission and other authorities should create a transparent, scientifically sound and publicly accepted set of standards and create harmonisation across Europe.

6.6 On-site emergency management

Findings

- 1. According to NTW observations more specific mechanism are required to ensure the mitigation of accident consequences on-site. The management of a nuclear accident in a highly contaminated environment is an extremely challenging issue that cannot be based on voluntary workers only.
- 2. The Fukushima emergency management has revealed severe problems regarding the protection of workers (e.g. the misuse of dosimeters, involvement of the yakuza, recruitment of homeless and socially weak workers) and hesitation of workers to be engaged in on-site emergency management (also in the context of the safety of their family members). The position and safety of workers should comply with the relevant provisions of Directive 2013/59 /Euratom [5] as also with all relevant provisions under the TEU and TFEU and without prejudice to the latter.
- **3.** Different technical tools should be available in advance to assure as low as possible doses for all on-site workers during an emergency response.

Proposals

- 1. Management of accidents and emergencies on-site: NTW proposes to the European Commission to consider the establishment of a special European task force of professionals in support of management of on-site nuclear emergencies that would include support in operation of reactors that are under on-site emergency regime. Developments in robotic research and innovation programmes to reduce exposure of emergency workers to radiation should be supported.
- 2. Information disclosure during on-site emergency management: NTW proposes that legislative protection for whistle-blowers amongst on-site nuclear emergency workers should be strengthened in the case of nuclear emergency information provision whereby the benefit of the public should prevail over private interests of nuclear operators and suppliers.
- **3.** Access to information during on-site emergency management. On-site emergency management is the responsibility of the operator. However, in the opinion of NTW, the surrounding population, including CSOs, should have wide access to information about on-site developments that are relevant for off-site management in accordance with Article 5.1 of the Aarhus Convention



6.7 Nuclear liabilities

Findings

1. Any review of liability provisions in case of nuclear accidents demonstrates the significant divergence between existing insurance and liability provisions for nuclear accidents and the estimated cost of large and medium size accidents. It is clear that the current liability provisions within Europe will lead to a lack of sufficient cash flow to provide victims of a large nuclear emergency with sufficient compensation at the moment it is needed. Causes include capping of liability at totally inadequate levels; far too low amounts of guaranteed financial reserves; lack of clarity on the role of public funds in liability; lack of clarity of responsibility for granting and disbursement of compensation directly during and after the emergency situation and others.

Proposal

1. NTW suggests to the European Parliament that it address this major problem actively in partnership with CSOs in order to investigate how to establish appropriate liability provisions. This should entail a review of existing surveys on the cost of nuclear accidents. Liability policies should be based on creating the required cash-flow for those in need during and after the emergency situation - not on the economic performance of nuclear operators. NTW wants to see European and EU initiatives to achieve this in the short-term

7 Conclusions

Based on these evaluations it is the strong view of NTW that active, well-informed, knowledgeable citizens and CSOs supported by non-partisan expertise are a key pillar of an effective off-site EP&R system together with NPP operators, national authorities and municipalities. This system should be capable of taking into consideration permanent changes of framework conditions and presumptions and generate fast learning processes in order to adapt and improve. Nuclear Transparency Watch with its working group on EP&R recognised the importance of civil society involvement in the subject and made its own comprehensive analyses of the EP&R arrangements in some EU countries. Based on these investigations and findings this report has been adopted. Its main purpose is to inform the public, the responsible national authorities and above all European political institutions that a serious improvement of EP&R capacities has to be started. It is obvious that the usual top-down approach, which has been used until now should be changed and that local populations and interested civil society organisations should be involved in this development. This would be the best cure against sectoral "silo thinking" and, in particular, the problems of articulation of the responsibilities of civil protection on the one hand and the safety and radiation protection authorities on the other hand.

Public participation would also reduce the administrative limitations which result in an EP&R system based on false or outdated presumptions and/or data and incapable of fast learning and overcoming of cross-border obstacles. Capacities for determined learning and adaptation to new circumstances are vital and crucial for effective EP&R since the unexpected is a part of any complex emergency situation. The European Parliament, the European Commission, national governments, regional bodies and municipalities should therefore together with NPP operators provide access to relevant information as well as support to interested citizens, citizens initiatives and CSO regardless to their general standing toward the commercial use of nuclear power.



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⁸Council Directive 2003/122/Euratom of 22 December 2003 on the control of high-activity sealed radioactive sources and orphan sources

⁴Council 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

⁵Council Directive 90/641/Euratom of 4 December 1990 on the operational protection of outside workers exposed to the risk of ionizing radiation during their activities in controlled areas

⁶Council 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 ionizing radiation.

⁷Coδ &cil Directive 97/43/Euratom of 30 June 1997 on health protection of individuals against the dangers of ionizing radiation in relation to medical exposure



9 Annexes

Annex 1: Investigated areas in national context

First investigations into the EP&R provisions during the initial seminar of the working group on EP&R in February 2014 have shown the following gaps, inconsistencies and problems and the orientation for the national investigations:

1. Monitoring feasibilities:

- Limited competent teams to perform measurement in cases of long term needs in many countries,
- Lack of availability of sufficient (calibrated and certified) equipment for measurements,
- Lack of automatic data management support (e.g. GIS).

2. Communication and notification:

- Late transfer of data on on-going developments at the affected area to the response centre i.e. delay in reporting,
- Management of response without radiological expertise and/or without detailed, adequate micro-climate modelling and quality meteorological input data,
- Lack of permanent operational room at the response centre,
- Multiple contact lists (with wrong and missing contacts),
- Weak trust in official information sources (in some countries),
- Inadequate capacities of NGOs, civil initiatives and independent experts to provide adequate information in time when approached by affected citizens.

3. EP&R at local municipalities:

- No proper preparedness (availability of plans, training, involvement of local population, etc.),
- Evacuation plans might be based on unrealistic/outdated presumptions (not taking into account the impact of the internet and new social media on information received by the affected population; presuming top-down organised mass evacuation based on collective means of transportation whereas in the reality the majority of people would try to evacuate using their private cars),
- Outdated evacuation plans (not taking into account recent changes in urban planning such as new settlements, shopping malls, medical centres, roads, etc. and their impact on traffic patterns and transport infrastructure.
- Lack of local media (radio) for information dissemination



- Lack of responsible personnel (e.g. 1 person for 5 different EP plans in 1 municipality for nuclear emergency, for flooding, for earthquake, for terrorist attack and for chemical disaster),
- Availability of information for citizens,
- Iodine prophylaxis only small percentage of population have the tablets in 10 km zone, for others there is no clear information.
- 4. Technical arrangements for EP&R:
- size of the EPZ (emergency preparedness zones) differs very much between the countries,
- how many people live in radius of 30km around each NPP,
- how many schools, hospitals, nursing homes are in the EPZ,
- how far is the nearest border (neighbouring country) from NPP,
- number of farms with animals,
- evacuation time estimate (this is compulsory around NPPs in USA),
- triggers or OIL (operational intervention levels).
- IEA criteria/guidence used in mapping comparisons
 Emergency planning zones (IAEA Safety Guide GS-G2.1)
 Table 12-1: Seggested radii of emergency planning zones for reactor > 1000 MV (th)

Precaution action zone (PAZ)	3-5 KM
Urgent protective action planning zone (UPZ)	5-30 km

5. Exercises and drills:

- Many remarks, but problems with implementation of conclusions, inadequate quality of evaluation and/or weak impact of evaluation on adequate changes of plans, exercises and drills,
- Involvement of citizens is very limited,
- Only limited to country with accident, not taking into account potentially affected population in neighbouring countries.

6. Medical support:

- Not enough equipment and not enough medical personnel in some countries,
- No agreement with other medical centres.



7. Trans-boundary arrangements:

- In many countries cross border cooperation is not in place (however there are many NPPs on borders),
- Different arrangements in EP&R provisions, lack of trans-boundary co-operation and co-ordination,
- Lack of cross-border exercises.

8. QA/QC (maintaining the plans, or new plans):

- Poor maintenance of plans regarding important recent spatial changes (new residential neighbourhoods, shopping malls, medical centres, elderly housing, schools, roads, etc.)
- Plans are not taking into consideration recent changes in technologies (internet, mobile phones), media landscape (cable TV, new social media -NSM), social values and lifestyles therefore they might be based on outdated/false presumptions,
- Limited improvement based on drills and exercises,
- Some plans are missing (Agriculture, Health, ...).

Annex 2: Questionnaire on EP&R provisions from a (practical) perspective of civil society

- 1. Which stakeholders should be included in off-site nuclear emergency and response (EP&R) activities in case of nuclear accident according to national legislation and regulations in your country? Please provide evidence (The name and the paragraph of the relevant law/regulation/decree, date of issuance and by whom it has been issued). Which stakeholders should be in your opinion included, why, in which role and at what stage?
- 2. What are the provisions regarding **inclusion of civil society** (local initiatives, NGOs) and/or local communities in EP&R activities according to your national legislation and regulations? Which paragraph of which law or which regulation or decree is defining these provisions? When and by whom have they been issued? How are they defining the inclusion of civil society and/or local communities?
- 3. At what stage if at all are the initiatives of local communities and/or NGOs included in EP&R activities?
 - a) In the preparation of the methodology and the guidelines for EP&R plans of activities at national level;
 - b) In the approval of the methodology and the guidelines for EP&R plans of activities at national level ;
 - c) In the preparatory activities for a detailed off-site EP&R plan of activities at the specific location of a NPP;
 - d) In the approval of the detailed off-site EP&R plan of activities at the specific location of a NPP;
 - e) In the approval of the detailed plan of EP&R activities at the specific location of a NPP;
 - f) In the implementation of EP&R drills and exercises as defined by local EP&R plan;



- g) In the evaluation activities of EP&R drills and exercise as carried out at local level.
- 4. Are the local communities and/or civil society engaged in cross-border EP&R activities? In what role and how often?
- 5. How do you assess provision of sheltering in off-site EP&R plans in your country?
 - a) Are the locations and capacities for sheltering adequate?

b) If not, what are main weakness/problems regarding provisions of adequate sheltering at the specific locations?

- c) How can sheltering be improved at specific locations?
- 6. How (and by whom) are the stocks of stable iodine pills planned in your country?
 - a) Are they planned as individual counter measures or are they are connected with sheltering?
 - b) Are those stocks sufficient also in the case of a major nuclear accident?
 - c) How and by whom is the delivery of iodine pills organized?
 - d) Are there in place clear instructions when the pills should be distributed and consumed by the people (potentially) exposed to radiation?
- 7. How do you assess provisions for evacuation plans in case of nuclear accidents in your country?
 - a) What are their strengths and weaknesses?

b) Have the evacuation plans been updated after the accident in Fukushima or are they at least planned to be updated? In the latter case until when?

- c) How can evacuation plans be improved in general and on specific sites?
- 8. Is there a clear strategy regarding decontamination in your country?
 - a) Are decontamination sites clearly defined and accessible?
 - b) Is there sufficient well trained staff and equipment for an effective decontamination?

c) How many staff would be needed in addition to assure sufficient capacities in case of a major nuclear accident?

- 9. How are EP&R plans in your country addressing the issue of relocation?
 - a) Have those plans been updated after the accident in Fukushima or are they at least planned to be updated?
 - b) What major changes have been made or are planned to be undertaken?



- 10. How are food and drinking water restrictions managed under EP&R plans at national level?
 - a) How will the control be assured? Are there adequate capacities to assure an effective control?

b) How are the provision of non-contaminated food and drinking water assured? Are there sufficient stocks of non-contaminated water and food also in case of a major nuclear accident?

c) Have there been or are there at least changes planned after the Fukushima accident? What are these changes?

- **11.** Are there in EP&R plans clear criteria under what circumstances people will be allowed to **return** (to their homes) **from evacuation or relocation**?
 - a) How will this return be organized?
 - b) Are there clear instructions to people on what to do and what not to do after return?
 - c) Are there sufficient information channels and capacities to distribute those instructions quickly?
- 12. How people in emergency protection zone are to be informed on EP&R activities?
 - a) What are the basic means/media of informing the people on what they should do in case of an accident in a nearby NPP?
 - b) Are there any additional media/forms of communication and, if yes, which?
- **13.** How (by which media) and by whom the people in the emergency planning zone will be informed of a nuclear ar accident in the nearby NPP? How and by whom the general public will be informed of a nuclear accident?
 - a) What if anything should be improved in this respect in the first and/or in the second case?
- **14.** Would the **information** on the level of exposure to radiation, sheltering measures and evacuation activities **provided by authorities be considered as reliable, sufficient and trusted** by the people?

a) Do you believe that in a case of emergency people would behave according to the instructions provided by authorities?

- b) If not, why? And what should be improved to enhance trust in information and instructions?
- **15.** Are there in your country enough calibrated measurement devices to assure an adequate **measurement of levels of radiation** in case of severe nuclear accident?
 - a) Are there enough skilled and trained people to provide measurement?
 - b) How could the situation be improved?
- **16.** Which **civil society organization(s) and/or independent experts and/or institute(s) have a potential to provide trustworthy, credible and effective information** on EP&R in the case of a severe accident in a NPP



in your country?

a) What would be needed to increase capacities of those organizations/individuals to provide reliable, in time and quality information on nuclear EP&R?

b) Which channels of distribution of that information would be most useful in case of an emergency situation?

Annex 3: List of participants to the EP&R WG

	Name	Surname	Organisation	Country
1	Gilles	Heriard Dubreuil	Mutadis	France
2	Jerzy	Nizyporuk	Monitor Atom	Poland
3	Jean Claude	Delalonde	ANCCLI	France
4	Michel	Demet	ANCCLI	France
5	Yves	Lheureux	ANCCLI	France
6	Jan	Haverkamp	Greenpeace	Czech Republic
7	Boris	Sandov	Zelenite	Bulgaria
8	Alabena	Semionova	Association for Food & Agreicul- ture	Bulgaria
9	David	Boilley	ACRO insitute	France
10	Nadja	Železnik	REC Slovenia	Slovenia
11	Michele	Rivasi	Greens of France, member of EP	France
12	Eloi	Glorieux	Greenpeace Belgium	Belgium
13	Dominique	Boutin	ANCLLI	France
14	Andrej	Klemenc	REC Slovenia	Slovenia
15	Marcin	Harembski	Monitor Atom	Poland
16	Eva	Deront	NTW Secretariat	France
17	Brigitte	Artmann	Greens of Fichtelgebirge	Germany
18	Philip	Kearney	CiviQ	Ireland
19	Johan	Swahn	MKG - Swedish NGO Office for Nuclear Waste Review	Norway
20	Roger	Spautz	Greenpeace Luxemburg	Luxembourg
21	Zoriana	Mischuk	Mama 86	Ukraine



Annex 4: Minutes of Inception seminar

Paris, February 6 and 7 2014 Leopold Mayer Foundation for the Progress of Humankind 38 rue Saint-Sabin, 75011 Paris

List of participants:

Name	Surname	Organisation	Country	E-mail	-
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Nadja	Železnik	REC Slovenia	Slovenia	nadja.zeleznik@rec-lj.si	



The seminar took place in Paris on February 6 and 7 2014 at the premises of Leopold Mayer Foundation for the Progress of Humankind and was attended by 29 participants from 7 countries.

The short report and presentations from the seminar are available at: <u>http://www.nuclear-transparency-watch.</u> <u>eu/a-la-une/inception-seminar-cluster-emergency-preparadness-response-epr-2</u>

The context, the NTW WG on EP&R

The question of Nuclear Emergency Preparedness and Response is a priority issue for NTW in the post-Fukushima context. This question has not been taken on board of the European nuclear stress tests. However, Civil Society Organisations have requested this issue to be dealt with by EU institutions during the ENSREG Public meetings (see Public Meeting, 8 May 2012, Post-Fukushima stress tests Peer Review, ENSREG, Brussels). It is now on the agenda of European and National Institutions and will be dealt with in the coming years. A review of existing Nuclear Emergency Preparedness and Response arrangements in the EU member states is currently being performed under the auspices of DG ENER ("Review of current off-Site nuclear emergency preparedness and response arrangements in EU member states and Neighbouring countries ENER/D1/2012-474").

The contribution of civil society is to play an essential role in off-site management of nuclear emergency and post-emergency. An ad-hoc working group was created on Emergency Preparedness & Response (WG EP&R) with the view to carry an evaluation of existing European and national EP&R provisions and to produce conclusions by mid 2014.

The first meeting of the thematic NTW Working Group on "Nuclear Emergency Preparedness and Response" (EP&R WG) was held on November 7th 2013 in Brussels. The WG is gathering information and reviewing existing EP&R arrangements. It is also seeking for cooperation with experts on nuclear emergency and post-emergency management. It is foreseen that the first results of this work will be released and discussed in the framework of an Aarhus & Nuclear European Roundtable to be held in spring 2014.

The EP&R WG Objectives and Methodology

The EP&R WG will investigate

- The key stakes regarding nuclear EP&R from the point of view of civil society
- The main needs for improvements of existing EP&R provisions in Europe at the local, national and European level
 - Concerning the content of EP&R arrangements (exposure standards, intervention levels, zoning, nc
 - Concerning the decision-making processes for EP&R in the perspective of the Aarhus convention (in particular Article 5.1.c tion with experts on nuclear emerg
- The strategic opportunities to push forward key changes in EP&R at the local, national and European level

The proposed process will identify country-specific or site-specific issues (identified and addressed by national investigations). It will also identify issues of European relevance for the viewpoint of civil society as well as concrete conclusions & recommendations at the European and national levels. The WG methodology will rely on interactions between

• National investigations led by EP&R WG members (in cooperation with other civil society organisations?)



at the national and/or local levels notably through national or regional Aarhus Convention & Nuclear (ACN) roundtables (when appropriate)

- Investigations at the European level (seminar, meetings, hearings, ve by NTW, integrating national views
- Support from EP&R WG: inception seminar, methodological and strategic advice, issuing of guidelines for national investigations, participation of NTW members to ACN roundtables.

The Inception Seminar

This seminar was a non-public event of 2 days with the objectives of training EP&R WG members and to identify the most problematic aspects of the existing provisions for nuclear emergency management in Europe. It will present a review of EP&R provisions on the basis of available surveys performed at the European level, notably in the perspective of the main challenges identified in the management of the Fukushima emergency. Hearing of key actors involved in Emergency management in Europe will be performed (public authorities, DG ENER, international organisations, experts, CSOs). The seminar framed the EP&R WG investigations at the European level, selecting key issues of European relevance. A list of key priorities was performed in order to frame the WG investigations to be performed at national and European levels. The seminar was also an opportunity for identifying NTW countries where investigations could be initiated early 2014.

The Agenda

Thursday - February 6 2014 9:30 am- 5:30 pm

9:00	Registration of the participants
9:30	Welcome and Introduction to Nuclear Transparency Watch and Emergency Response & Preparedness, by Nadja Železnik, Chair of the seminar
10: 00-11:15	 Session 1: Hearings, principles and existing reviews of EP&R provisions in the EU, feedback from the Fukushima experience A review of European challenges for EP&R, Eloi Glorieux, NTW, Greenpeace Belgium and Roger Spautz, NTW, Greenpeace Luxemburg
	• <i>Key scientific elements about radiation protection after a nuclear accident</i> , <i>Olivier Isnard</i> , IRSN
	 The new Euratom Basic Safety Standards Directive and its relevance for Nuclear Emergency Preparedness & Response, Gerhard Wächter, EC-Directorate-General for Energy
11:15 - 11:30	Short coffe break



11:30 - 13:00	• The regulatory views on EP&R provisions in Europe, Patrick Majerus, HERCA WG "Emergencies"
	• Evaluations of the Fukushima emergency management, main challenges identified for Europe; David Boilley, ACRO (CSO)
	• Short report on the conclusions and findings of the conference Nuclear Third Party Liability & Insurance, Andrej Klemenc, REC Slovenia
	Discussion
13.00	Lunch
14:00	Session 2: Working Group Session - Identification of priorities
	Work in 3 small groups: identification of relevance and deficiencies of ENCO study and elaboration of proposals "what and how" to improve EP&R on European level. Introduction and moderation of discussion by <i>Nadja Železnik</i> , <i>Roger Spautz</i> and <i>Elois Glorieux</i> .
17:00	Plenary Session:
	Reports of the Working Groups
	Discussion and agreement on the approach
17:30	End of the first day

Friday - February 7 2014 9:30 am- 4:30 pm

Introduction by Nadja Železnik, REC Slovenia	
 Short presentations regarding EP&R national priorities, national plans and possibilities of trans-boundary/regional activities by: 	l action
 Brigitte Artmann, Greens Fichtelgebirge, Germany Yves Lheureoux; ANCCLI, France Inger Eikelmann, NRPA, Norway Short coffee brake -15 min 	
 Zoriana Mishchuk, MAMA86, Ukraine Albena Simenova, FEA and Borislav Sandov, Zelenite, Bulgaria Marcin Harembski, Civil Nuclear Monitor, Poland Nadja Železnik, REC Slovenia Discussion 	



12:15	Address by Michèle Rivasi, the President of NTW
12:15	Lunch
14:00	Session 4: Working Groups - How to investigate identified thematic and organise national and trans-boundary activities?
	• Identification of activities on national and/or trans-boundary level:
	Working group 1: Belgium, France, Germany, Luxemburg-Norway
	• Working group 2: Bulgaria, Hungary, Poland, Slovenia, Ukraine
15:30	Plenary Session: reports of the Working Groups
16:00	Final Session: the Steps Forward
	General Discussion
	Conclusions and steps forward (Chair)
16:30	End of the meeting

Minutes of the seminar

DAY 1

Mr Gilles Heriard Dubreuil, Secretary of NTW welcomed the participants and wished them successful work. The chair of the seminar **Ms Nadja Železnik** introduced the NTW and the programme and the goals and objectives of the seminar.

Session 1: Hearings, principles and existing reviews of EP&R provisions in the EU, feedback from the Fukushima experience

The representatives of Greenpeace Belgium and Greenpeace Luxembourg **Mr Eloi Glorieux** and **Mr Roger Spautz** presented a review of **European challenges on nuclear EP&R**. In their opinion nuclear EP&R in practice is nothing but a list of good intentions since plans are not realistic because they are not involving the public. Citizens are insufficiently informed, exercise scenarios are not realistic. In Belgium the evacuation centres are too close to NPPs and civil society can neither participate nor observe EP&R exercises. Nuclear EP&R planning in Europe is out-dated and inadequate to deal with the real impact of a major nuclear accident.

Mr Oliver Isnard from IRSN presented **key scientific elements about radiation protection after nuclear accident**. He pointed out the importance of atmospheric transport as the fastest mechanism of dispersal of radiation and its multi-scale nature. The radioactive plume propagates with the main meteorological conditions. He introduced the distinction between internal and external irradiation and the difference between short term contamination by iodine through inhalation, midterm ingestion by food where both iodine and caesium are important and long



term external contamination where caesium plays the most important role. He presented and explained dosimetric quantities and units and stressed the temporary character of sheltering, importance of timing of stable iodine ingestion and in-time evacuation of the exposed population in case of a nuclear accident. At the end of his presentation Mr Isnard presented protection measures at they exist in the Emergency Phase.

Comments

Mr Jan Haverkamp pointed out that exposure in Fukushima has been by some proponents of nuclear energy put down and compared to long flight exposure which is less than natural exposure in certain areas however the Fukushima radiation should be calculated on top of background radiation - that includes also nuclear testing fall-out radiation - and not apart from it.

Mr Gerhard Wächter from DG ENER introduced the participants the new Euratom Basic Safety Standards (BSS) Directive and their relevance for Nuclear Emergency Preparedness & Response. He started by outlining the broader contexts of current initiatives of the European Union to improve nuclear safety after Fukushima accident: EU-wide stress tests of nuclear power plants and their follow up, study on off-site nuclear emergency preparedness and response, proposal of the revision of the Nuclear Safety Directive, revision of the Council regulation on radioactive contamination of food and feeding stuffs following nuclear accident and joint communication on off-site emergency preparedness and response and on nuclear third party liability and insurance. He underlined the European Commission's interest in hearing opinions and statements from the civil society and get inputs from the initiatives like NTW. The aim of BSS revision is to update relevant European legislation, consolidate all relevant Directives, to broaden the application of standards and to enhance emergency response. He described the process and the content of the new BSS that requires thorough EP&R arrangements at national level that demand comprehensive approach based on emergency management system, assessment of potential emergency situations, emergency preparedness and response plans and international co-operation where strengthened cooperation between MS and third countries is demanded. Member States now have till t February 2018 to transpose the new BSS directive into national legislation. In order to facilitate this process, the European Commission may organise workshops with Member States and may initiative discussions on possible guidelines and recommendations in order to assure consistency in implementation.

Explanation questions and answers

Mr Haverkamp asked which states other than Switzerland and Ukraine are considered as "third states" and **Mr Wächter** explained DG ENER had organised in October 2013 an EC conference on "Stress tests for Nuclear Power Plants in EU Neighbouring countries", which saw the participation of representatives from Armenia, Belarus and Turkey. The EC also had recently participated in a peer review of nuclear stress tests of Nuclear Power Plants in Taiwan. **Mr Haverkamp** proposed to the EC to contact Greenpeace and/or NTW in order to get in contacts with NGOs in these countries to get the real picture of the situation and an adequate feedback on activities regarding nuclear safety.

Mr Haverkamp also raised a question considering the Directive on Nuclear Safety (*i.e. Council Directive 2009*/71/ *Euratom of 25 June 2009*) regarding implementation of the provision of the independence of nuclear regulators and infringement procedures in case that this is not assured in practice or it has been violated. **Mr Wächter** explained that MS had till 22 July 2011 to transpose the provisions of the Directive 2009/71 EURATOM into national law, which in its article 5 deals with the independence of competent regulatory authorities. Main provisions of national law transposing the requirements of the Directive are communicated to the Commission by Member States. So far the Commission didn't open an infringement procedure. Based on national reports which Member States will have to prepare for the first time by 22 July 2014 and every three years thereafter, the Commission will prepare an implementation report of the Directive which it will submit to the Council and the European



Parliament.

Ms Brigitte Artmann pointed out that in Germany the interior minister conference is in discussion of new EP&R plans and may not decide before 2018. EP&R plans are today the same as for nuclear war and without liability for evacuation except for long time evacuated persons. Only those have a kind of legal standing. If an accident happens outside of Germany, there is no liability at all. She asked if this is consistent with EU rules in the field. **Mr Wächter** explained that this issue seemed to raise issues of nuclear *security and nuclear third party liability* in relation to a specific national legislation. Compatibility of those national provisions with relevant Community law could ultimately only be decided upon by the European Court of Justice.

Ms Nadja Železnik asked about the status of ENCO study and when it will be available for the public. **Mr Wächter** replied that the study has been finished on the contractor's side. The study will be published, but there are still discussions ongoing about the appropriate timing. Pending the adoption the planned Commission communication on the subject, such publication could be expected before summer.

Mr Gilles Heriard Dubreuil underlines that EC should be very much interested in how the study really corresponds to the reality. Therefore a civil society insight in study can provide valuable check of the facts and feedback that in turn can substantially improve study and lead to new recommendations before the announced EC Communication.

Mr Wächter underlined the value of the input from Civil Society to the European Commission on issues of nuclear emergency preparedness and response, in addition to the ENCO study.

Mr Michel Demet remarked on the absence of the solid legal ground for the engagement of the local authorities on nuclear safety issues. Without precise and stringent legal procedures that will assure the involvement of local authorities there will be in his opinion no real improvement of the nuclear safety and EC should be aware of that and should do something about it.

Mr Patrick Majeurs presented the **regulators view on EP&R provision in Europe** by first pointing out the fact that national arrangements for nuclear emergency developed in last 30 years independently in each country that resulted in too many differences: in methods, algorithms, models, appreciations of uncertainties, intervention levels and definitions, etc. Individual differences risk leading toward inconsistencies along borders. In addition they lead to distrust in the decisions of the authorities that amplify the seriousness of an eventual crisis situation. It is however very difficult to harmonize the differences when national approaches become solidified. HERCA is therefore trying to overcome to many differences in the situation by increasing information exchange and improving communication between authorities in different countries.

Explanatory questions and answers

Mr Heriard Dubreuil: HERCAiard Dubreuil:s and answershat national arrangements for nuclear emergency developed in last 30 years independently in each country that resulted in too many differenceseas the role of independent experts and civil society should be taken into account even in the short phase. The Fukushima accident has given a lesson that in a major nuclear emergency situation in a country, multiple sources of information, presumably conflicting, will develop anyway, even in the short term; whereas national Public Authorities do not necessarily demonstrate their ability (or willingness) to release a quick and efficient information that is needed by exposed population and local decision makers (to protect themselves).

Mr Majeurs : It is important to have CS involved in preparation of emergency plans. But in first 12 hours emergency in case of major nuclear accident one needs to take a lot of decisions very fast therefore it would be hard



to involve additional decision makers. In the case of Luxemburg 'I would not have personal problems to involve Roger Spautz as an independent expert in emergency team but this cannot be generalised as universal solution for every country'.

Mr Isnard: We must stay transparent but when there is an emergency decision-making needs to be fast and based on the professionals involved – when there is a big fire you call professional fire brigade and not volunteers.

Mr Haverkamp: I agree largely but in case of fire on the skyscraper the concierge of the building can help you a lot. So you need to have a certain link to CS – which is in the reality a big problem since »nuclear village« is very suspicious of civil society and indeed to everybody who is not a member of the nuclear village community and therefore does not share its values, presumptions, cognitive and behavioural models.

Ms Brigitte Artmann: Local fire brigades in Germany are part of civil society, are volunteers and need to be involved in emergency plans and actions

Mr David Boiley presented main challenges identified for Europe from evaluation of the Fukushima emergency management. In case of Fukushima the people living around the Daiici NPP at the beginning of the emergency state lacked information and afterward lacked trustful information since new information released by the authorities was in contradiction with the previous. Tens of thousands of people have been forced to evacuate literally »with little more than the clothes on their backs«. 150 000 have been forced to evacuate followed by about 60.000 voluntarily evacuated. Basing the evacuation on private cars was chaotic and resulted in a shortage of gasoline and traffic jams. Because of bad post-accident emergency off site management 60% of the evacuated population have been re-evacuated up to 6 times and more, some of them even to more polluted places. 1.600 persons died after evacuation and among nursed evacuees mortality increased 2.5 times. The order to administer iodine never reached the local people and the rescue workers that would need them however the iodine pills were used by medical staff in Fukushima hospital instead. Medical institutions were not prepared for the situation and as a consequence there was a lack of medical care in shelters and extremely badly managed evacuation of their patients. The evaluation of Fukushima also shows that in a major nuclear accident one cannot drive a clear line between emergency and post-emergency activities since many post-emergency activities need to be carried out while the emergency state still continues. The authorities have been discredited since they have failed to prevent the accident, failed to acknowledge the triple melt down of the reactors, failed to protect the workers and the population and failed to properly monitor food.

Mr Klemenc: Who is obliged to provide distribution of iodine pills?

Ms Železnik: it is obligation of the operator of NPP. **Mr Isnard**: In France it is obligation of the operator- within the 10 km zone! Mr Spautz: Also in case if some parts of the zone are in the neighbouring country? **Mr Isnard**: I do not know! **Ms Železnik**: NTW needs to investigate this issue since it is very important for EP&R, including the question who bears the cost for procurement of the iodine pills.

Discussion

Mr Haverkamp: Off-side emergency response is in most countries not in the mandate of the regulator but is a shared mandate of different organisations: ministry of defence, ministry of health, ministry of interior, Civil Rescue Authorities, etc. The situation in different countries is very different and complicated. Therefore offsite emergency response is excluded from recommendations issued by regulators respectively their associations (WENRA and ENSREG).


Mr Wächter : Different levels of authorities are involved in different countries with different legal regimes, which may have an impact on co-operation, especially from a cross-border perspective. What was the view of the representatives of the civil society on the best way to allow for progress from a European level? Is -in the CS' view -there a case for more harmonisation or would it be better to strengthen effective and efficient interfaces of exiting arrangements?

Mr Heriard Dubreuil: What can we do as WG of NTW when facing such a complexity? First we need to identify different levels of off-site emergency activities:

- Conventional emergency management like zoning. We have to identify if there are adequate provisions in place (to test the "green field" of the ENCO study) and if they are working in practice or not (what we cannot find from ENCO study).
- 2. Mr Majerus has demonstrated the low level of consistency and bad information access on international level. We have to identify ways how to achieve better consistency.
- 3. Evaluation of activities at Fukushima have demonstrated that the conventional approach of linear and centralised command and control planning does not match with the reality of modern society and its communication and transportation technologies and patterns of individual behaviour. Indeed it completely ignores the capacities of people to get information and to take their own decisions, including decisions to evacuate in a non-organised way by using their private cars. Here we need to recall once again the Aarhus Convention that gives the people the right to act and take it as a basis of new approach to (post)emergency planning.
- 4. We have to further investigate what European harmonization can bring regarding emergency preparedness, for an EU legal frame would oblige MS to engage civil society to improve emergency preparedness and response processes by inclusive planning.

Mr Boiley: Communication in crisis is fundamental. French authorities found out that the communications in Fukushima were very labour intensive so in case of an accident in France they could not manage the communication on the quality level. US authorities have found out that in crisis situations people have limited capacities to understand and act therefore in case of a nuclear emergency those responsible for communication should be able to answer about 500 question with no more than 10 words per question. In emergency situations mass media will ask NGOs what to do – and it might happen that the people would trust NGOs more than the authorities. But how can NGOs provide reliable and useful information in case of emergency? In case of an accident in a small country that has its own language the communication problem at international level would be even bigger since even when its responsible communication officers are fluent in English also the local people will be by modern ICT-supported media of communication inevitably be involved in information dissemination on the accident.

Ms Železnik: Why even after evaluation of Fukushima for EP&R planning the reference scenario is still based on level 5 accident and not level 7? NTW should raise this question to the EC. In regard to transparency it is not encouraging that we cannot have access to the ENCO study and as NTW we need to address this to EC!

Mr. Haverkamp: Since recently we have in the EU a few new NPP in the pipeline: in HU, UK and Poland. In dominant political discourses in Central and Eastern Europe – and 'I have witnessed that most recently in the Senate of the Czech Republic' - there is a clear sign that responsibility on nuclear issues is getting nationalistic status and the governments will not accept any stricter and more harmonised rules regarding NPP security and off-site emergency management and will therefore veto at the EU Council any decision in this direction. The nuclear lobby in the EU is nowadays more complex than before and is not based anymore predominately on technical and economy arguments but counts more and more on »national pride« and »national independence«. Therefore



I am very sceptical about the political will at the level of the EU Council to support more harmonisation in the field of nuclear safety and EP&R. In this sense the EC proposals are more or less only "wishful thinking"! Can we expect that national authorities would accept that we should have a look in planning beyond 800 m from the planned NPP site? Can we indeed expect from the EC to come with proposals to set as a reference for EP&R an INES level 7 accident instead of the actual level 5? Irrespective of this and maybe in relation to the ENCO study we should take into account that many of on-site emergency plans count on mobile resources from outside the NPP like fire-brigades that also are necessary in off-site emergency response work. Therefore in practice many external people like firemen - for example are hesitating to provide the service to the on-site tasks. Therefore one of the questions to be addressed is the real existing tension between off-site and on-site plans.

Mr Demet: What about the responsibilities of civil society at EU level? Without an adequate legal framework that is in the last instance provided by MS and not by EC or EU the civil society cannot play a significant role on nuclear safety. Only when the laws and regulations are provided we can demand what the laws and regulations are promising. I am insisting on laws and procedures that are provided. We need to get what the laws and regulations are provisions are promising. However an EU initiative in the form of a Directive can help us to get adequate legal provisions although then the decisive battle to get and implement required legislation is at national level.

Session 2: Working Group Session - Identification of priorities

As an introduction to the session **Ms Železnik** provided an overview on current developments regarding EP&R in the EU. DG ENER in 2013 commissioned a study on "*Review of current off-site nuclear emergency preparedness and response arrangements in EU member states and neighbouring countries*" (ENCO Study). Study involved 28 EU Countries plus Norway and Russian Federation, Switzerland, Ukraine and Armenia and focused on NPP provisions regarding EP&R. The shortcoming of the study are limited geographical scope of the review, to operating NPPs arrangements limited considerations, absence of public involvement and to self-assessment of the MS limited approach.

The review is a paper exercise and it is not assessing implementation of provisions and arrangements in practice. Methodology of the study is not very clear as it is not known when the EC will actually enable full access to the study and provide conclusions and recommendations based on the study. Further on Ms Železnik presented in brief different types of IAEA requirements for EP&R (IAEA GS-R-2), relevant EU directives (BSS directive - 96/29/ Euratom; Public Information Directive 89/618/Euratom) and Regulation laying down maximum permitted levels of radioactive contamination of foodstuffs. Finally Ms Železnik presented the objectives of the seminar working groups: identification of the most important issues on EP&R at EU level, prioritization on the issues on on the study.

Discussion:

Mr Wächter stated that relevant legislation in MS will be strengthened taking into account the new BSS Directive. The ENCO study was based on a self-assessment exercise and didn't aim to do an in-depth audit of existing arrangements.

Mr. Heriard Dubreuil asked who are the national contact points for ENCO study? **Mr. Spautz** promised to check this out and pointed out that it is important that not only study but also questionnaires on which it is based will be made available to the public. On that basis it will be possible to assess how much work individual countries provided and how honest they were in providing answers.



WORKING GROUP 1

Discussion

Mr Glorieux: Referring to prof. Eggermont what would be needed is to have once a full scale exercise. Currently evacuation plans are per street, per hospital, but no overall.

Mr Boiley: In Japan they carry out exercises to test whether communication is working erall.o overall.rently evacuation plans are per street, per hospital, but no overall.blic. On that basis it will be possible to assess how much work individual countries providding limited accessibility of cars and buses and so on.

Mr Glorieux: A lot of problems are never taken into account in the Antwerp region: for instance the fact that in case of a Western wind, the majority of evacuation needs to go through one tunnel. Refineries in the port of Antwerp need days to shut down, how to do that with personnel in the 5 km zone?

Ms Artmann: In East-Bavaria there has been a meeting of hospitals, rescue-doctors, fire brigades and police about their preparation and their conclusion was they will not be able to handle a meltdown. The meeting was not published.

Mr Boiley: The emission transportation part of SPEEDI worked, but they had only estimates of parameters which were far too low. When they could use measures, they could only recalculate the source terms and found out they had been too late. Timescale is also important: 10 days (Chernobyl and Fukushima) is a real problem. A next accident could also be a complex situation of nuclear accident and natural disaster.

Harmonisation is necessary. 10 km in Germany the rules were different than in France. Same limits are necessary. Information spreads faster than authorities can imagine.

Ms Artmann: We had a meeting with the German Interior Minister and German/Czech fire brigades and rescue teams. It was a big hall in Germany quite near the Czech border, filled with fireman and a Czech head of their fire brigades. 18 "nuclear trucks", which only can be used for "help work" in case of a nuclear accident, were handed over from the German Government to the German fire brigades. Simple trucks, no special nuclear rescue trucks at all. The fire brigade people said about nuclear trans-boundary work "forget it" while the minister said that everything will work well.

Ms Boiley: Current exercises are not enough. One also needs to test the scenario where there is electric power fall out.

Mr Wächter: The objective of testing/reviewing of emergency plans should not be punishing one but should allow stakeholders to learn with a view to improve planning and emergency exercises.

Mr Glorieux: Psychological aspects. It is not doable to have a full size exercise. But the difference between emergency plan and reality is not taken up fully. For instance, radiation is one of the things that firemen only are allowed to go in on voluntary basis. How many will go? 10%? or 50%? Or the mass evacuation that happened in panic around Three Mile Island when the call for pregnant women to evacuate was made. Including those aspects in exercises is very difficult.

Most important issues:

1. Overview of the situation for each nuclear power station



- 2. Overview of the level of risk on the basis of knowledge in the group
- **3.** We can gather criteria on which one can estimate risks: population density, amount of fuel on the site, accessibility for terrorists, etc. and on that idea make a list of urgency.
- **4.** Trans-boundary round tables in which local emergency workers discuss what they can do in case of an emergency. Include teachers, others. Question issues like is there enough water and so on. Imagine the mobile net is broken, etc.
- **5.** Testing emergency plans s who says the emergency plans works, are they credible, especially trans-bound-ary, who is responsible, etc.
- 6. Test a full city evacuation
- 7. Sanctions if tests fail I nons, are of sanctions are possible. Carrots and sticks.
- 8. Liability issues.
- **9.** Regulatory oversight of emergency planning and preparedness s rans-boundary, who is responsible, etc.tc.s, others. Question issues like is there enough water ater re enough water Maybe not because of not having fire brigades, nurses, police, involved? A new body?
- **10.** Analyses / overview of lessons to be learned from Fukushima (there is a TEPCO, a Diet report and a non-translated private report). In the US there is documentation about timing and so on.
- **11.** Assessment of whether psychological factors have been taken sufficiently into account in nuclear emergency plans? In the US there are such studies.
- **12.** Iodine tablets whether psychological factors havHarmonisation of finance, spreading, etc., trans-boundary situations?
- **13.** Assessment of vulnerable people in emergency situations ions?sufficiently into account in nuclear emergency plans? In the US there are such studies.en
- 14. Communication in case of emergency emergency sTraining of hotels? Trans-boundary?
- **15.** Vulnerable people: in the US, authorities spread cards every year to figure out who wants support in case of emergency. If one concentrates on the most vulnerable, the responsible authorities/organisations will be able to properly threat them.
- **16.** Evacuation of hospitals? Any hospital within 10 km? Should they exist? Should personnel be forced to stay and no evacuation?

Among these topics, the group picked up:

Need and investigation concerning a regulatory oversight
 Proposal for further work by NTW: parliamentary initiative stating why a regulatory body on EP-R is needed
 (based on ENCO report), proposing assessment and sanction capacities and including the civil society.



2. A concrete focus on vulnerable people

Proposal for further work by NTW: interviews with vulnerable people and people in charge of them or of their future in case of a nuclear emergency.

3. An overview of NPP according to their risks related to EP-R

Proposal for further work by NTW: a study comprising criteria to be filled by members in different countries and after that modelling and a full-scale exercise for a few well-chosen NPPs.

WORKING GROUP 2

Emergency plan as a part of a bigger emergency plan for all country. But nuclear activities are so specific, we need particular plans. Does any European country has bot emergency plans at the level of NPP(s) and on the level for a whole country?

What should be our strategy? What can we do together? To what extent we can make some changes? Have to find efficient targets.

What are the current obligations to be implemented taking legislation into account? Picture of what should be implemented in each country like checking if there are appropriate sheltering places

Also in others countries one could - similar to France legislation into account? Picture of what should be implemented in each country like chec

In Poland no nuclear power plants operates or are in construction yet but the government is planning NPP and is spending €40 000 per year for nuclear propaganda. Anti-nuclear coalition fights for renewables instead of coal and NPP and after Fukushima gained positive support from people. An internet campaign on EP&R issues would be a good way to raise attention of people on the danger of nuclear power.

Methodology :

Which methodology to use? How the measurement system works? What happened in each country?

Tools :

In Japan they have not used monitoring network, the authorities provided the wrong instructions on which roads people should evacuate and where to evacuate, so many people evacuated to more polluted areas and more people were killed because of evacuation than from accident itself. One needs reliable meteorological data and good computer models on spread of radiation pollution in order to tell the people where to evacuate. People need maps.

So there are several levels of action: checking if tools are working and are updated, how decisions are made and by whom, is it possible to implement the plan taking into account that plans are usually prepared under presumption that there will be no panic, how will people in practice react to the decisions of authorities, etc.



WORKING GROUP 3

Introduction

Two main issues

- Preparedness (involve people, fire brigades, medical personnel etc.) and
- **Management** (warning system, evacuation plan, evacuation area, measurement, how to have a picture of nuclear releases, where is the contamination).

Does the emergency plan exists, is it realistic, how to improve it in each member state?

1. Implication of involvement of the people for quality of planning and their appropriation of emergency plan at a local level:

There is a national EP&R plan as transposition of EU directives, but on the local level local representatives have to react. However each territory is different, so the EU rules should be indeed transposed into an effective local plan and not in a general national plan. Every local representative needs to be informed on the plan and know what to do. However in most cases mayors does not know much about emergency. One needs to think in terms of districts and local communities that are real social entities and not in terms of zoning and take into consideration that in some cases one has to deal with big cities that are just outside the zones. We should not only ask mayors but also heads of fire brigades, medical personnel, teachers, etc. in order to evaluate preparedness and response of local actors.

2. Public information

Should not be done as in Fukushima: when people woke up their neighbours had left/ were evacuated. Website for nuclear emergency: a website should be developed in the normal situation, when it comes to disaster it is too late.

3. Find a financial way to hold the problem.

Cost of liability. It is necessary to have a professional rescue team at each NPP. The costs of its establishing, maintaining and training , including costs for on and off site emergency exercises should be included in financial liability of the operator.

In France it is estimated that an amount of 10 billion Euros would be needed to make the system safe. What would be the amount for others countries?

Somebody who creates the problem is responsible for solving the problem.

4. Tools

As citizens what can we do? Can we make sure they have updated information, good tools, something we could check = improve the emergency tools.

5. How to do the work?

Facts that could be checked by citizens: about sheltering, iodine pills, evacuation plans, dosimeters etc. Not



enough tests: compare to reality. NTW can make interviews, an assessment in member states.

Local roundtable (in a trans-boundary perspective) and discuss, presentation of the EP&R planning by authorities.

Develop a serious game, simulation to develop knowledge about nuclear. Are there emergency exercises in all countries in Europe ? CLIs have to be mandatory in all MS.

REPORTING FROM WORKING GROUPS

WORKING GROUP 1: (rapporteur: Mr Borislav Sandov)

Issues discussed:

- 1. How to build a dialog with the actors
- 2. Implementation of EP&R plans
- 3. Harmonisation of the regulation on EU level on provisions regarding EP&R

Prioritization:

- Implementation of EP&R plans
- Legal framework for harmonization

Methodology:

- 1. Sketch of a questionnaire on EP&R to be distributed within WG to collect feedback.
- 2. Examine the reality of the results of ENCO study through national investigations by involving responsible and affected people at the local level
- 3. Compare the results of the other reports on the issue EG with the findings of ENCO study

Discussion:

Mr Heriard Dubreuil: Which ENCO report? The draft one or the final one that EC will publish?

Ms Železnik: We will demand the final study from EC according to the Aarhus Convention

WORKING GROUP 2 (rapporteur: Mr Jan Haverkamp)

- 1. Nuclear emergency plans are prepared for white males with cars and full tanks of gasoline;
- 2. NTW members should make serious interviews with vulnerable people about what would nuclear emergency represent for them and what are their needs in this case;
- **3.** We are getting from ENCO an abstract overview but we do not have an overview per NPP we need to check EP&R plans for 7 most dangerous reactors in Europe (but we need to develop criteria first to do this);
- 4. What is the real situation in EP&R is actually a larger study that is in detail similar to those made for on-site



emergency but is adding relevant issues regarding off-site emergency;

- 5. Regulatory oversight: for on-site we have Regulatory Body, we need something similar for off-site e for on-site emergency but is adding relevant issues regarding off-site emergency; a first to do this); ncial liability of the operator. owety but not for nuclear emergency). Who should be the Authority: Regulator or a new body? EU MPs initiative should be initiated by NTW to formulate proposal for the directive on the nuclear EP&R Agency that would demand such agencies also in MS and coordinate their activities. This initiative should take action based on the Treaty of the Functioning of the EU and not under EURATOM Treaty.
- **6.** Trans-boundary WRAP round tables: on distribution of iodine tablets etc.; round tables with emergency response people in order to discuss how people on the different sides of the border are prepared for emergency on the ground.

Ms Železnik: I can see some connection of your ideas on regulatory oversight with our ideas on harmonisation of the legal framework. One level influences the other. We can work on it.

Mr Heriard Dubreuil: What is the opinion of the representative of the EC? To what extend those ideas can fall in the scope of the BSS Directive? Is this a different area or not?

Mr Wächter: Based on the discussions in the workshop, there seems to be a need to reflect on the issue of Governance... The newly adopted BSS Directive is a concrete step in strengthening co-operation between Member States and third countries in addressing emergencies. Governance is relevant from cross border perspective

Ms Deront: New body should have mandate and capacities to assess emergency plans.

Mr Haverkamp: It should also create compliance.

Mr Dement: Can't we have something like the Emergency Response Force that is in France in all EU MS?

Ms Železnik: Now we do not need to take decisions on priorities of WG but this should be done within a month.

WORKING GROUP 3 (rapporteur: Mr Roger Spautz)

Two very important issues:

- Involvement of the local actors in planning
- Involvement of local actors in practical exercises (also trans-boundary)

Other issues:

- Public information
- CLI should be mandatory clear role of CLI in all Europe, not only France?
- Costs for preparedness activities should be fully covered by operators and affected people & businesses should be fully compensated: example in Gravelines – some shops needed to be shut down but shop owners were not compensated
- Methodology: awareness-raising by asking questions to actors who must be involved in emergency exercises



(Fire brigades, doctors, etc.)

- Round tables on trans-boundary issues with all involved members
- Check different national plans on certain pertinent points like shelters (are shelters real or only on paper like in Belgium)

Day 2

Mr Andrej Klemenc reported on the conference *Taking the Nuclear Third Party Liability in the Future* that took place in Brussels on January 20 & 21 2014. The conference provided clear evidence on complexity of the legal situation regarding nuclear liability in the EU. Majority of MS are parties to either Paris or Vienna Convention but not all of them signed protocols that are updating one or the other convention and only few ratified most recent protocols, therefore also Joint Protocol that bridges the two conventions cannot play a significant role. In addition following the subsidiarity principle national law provisions on liability have priority if certain relevant legal matters are left to be covered by national legislation. Besides 5 Member States (Austria, Cyprus, Ireland, Luxemburg, Malta) are not parties to any convention and it is very probable that they would veto any EU attempt to force MS toward harmonisation of the legal framework. Last but not least the USA are not willing to recognise any of the two conventions as a basis for an international legal framework but are pushing forward the Convention on Supplementary Compensation for Nuclear Damage.

European Commission has a weak mandate on nuclear matters yet it is pursuing several very ambitious goals in the field of nuclear energy: enable nuclear energy to at least maintain its present share in electric power supply in the EU, making EU nuclear industry more competitive, enhance nuclear safety both in terms of reactor safety and in terms of better emergency and preparedness, making the industry more liable for eventual damage caused to the third parties without discrimination between the MS and assuring better financial insurance of the third party liability by unlocking the EU market insurance industry potential. However all that at the same time this should not have an impact on the price of electricity from NPP in the EU. The EU (re)insurance industry is expecting from the EU to assure mandatory legally-binding commercial third party liability coverage for all operating NPP in the EU on common legal basis. In this manner the (re)insurance industry believes that another profitable "single market"- that would eliminate the present nuclear third party liability national insurance monopolies - will be created. In their calculation an increase of price of €0.1 cent per kWh of electricity generated in NPP in EU would be enough to assure financial compensation to the third parties up to €10 billion in case of a major nuclear accident in the EU.

At the conference special attention was given to the third party liability in case of Fukushima accident as it is until now the single largest case of nuclear third party liability in a case of a major accident, yet it does not represent a case for cross-border compensation of the victims. The president of the Fukushima Dispute Reconciliation Council prof. Namura first introduced basic nuclear third party liability legal framework of Japan which is not a party to any convention but its laws generally conform to them. For the Fukushima accident in 2011 the government set up a new state-backed institution to expedite payments to those affected. The body is to receive financial contributions from electric power companies with nuclear power plants in Japan, and from the government through special bonds that can be cashed whenever necessary. In the second part of his presentation prof. Namura presented experience of the Dispute Reconciliation Council that was faced - next to lack of personnel to deal with huge number of claims - also with two main challenges: the extent of damage that should be compensated and amount of money that should be paid to a victim. The council issued guidelines regarding compensation to a typical victim that were – although being only a "soft law" - recognised by TEPCO and used also as a reference for mainstreaming direct negotiations with the victims.



Discussion:

Mr Dominique Boutain: Nuclear and insurance companies do not care for society and victims. This is frustrating. Only financial issues have been addressed but we know that more is at stake nts in Japan, and from the government through special bonds that can bel and this has still not been taken into consideration. It seems as if all disputes are only related to increase of price from NPP for 0,1,1 essed but we know that more is at stake nts in Japan, and from the government through special bonds that can bel alling to deal with that. Each country picks from Conventions what they like and it is not a legal game but the game of political and economic power. Insurance companies will go »legal shopping« - taking money but not providing anything in case of major disaster. Insurance companies treat people according to the »level of economic development in the country« and not as persons with equal value and equal rights.

Mr Haverkamp: 0,1 erkampeen taken into consideration. It NPPs can provide compensation on the level of level of ems as if all disputes are only related to increase of price from NPP for 0,1,1 essed but we know that more is at stake nts in Japan, and from the governm. 1 € cent would indeed make difference for the nuclear industry. Reinsurance industry (Munich RE) is willing to cover maximum two major accidents a year since they know that if there will be two, all the nuclear reactors all over the word would be shut down.

Mr Heriard Dubreuil recalled the importance of the Arhus Convention to improve nuclear safety. In terms of its practical implementation he referred to the three important conclusions of the meeting in Luxemburg in order to support a practical implementation of the Aarhus Convention: 1) the establishment of NTW in order to structure and support CSOs action at national and European level, 2) a recognition of the need for civil society to access reliable sources of expertise in order to support its engagement in the nuclear vigilance and 3) the need for multi-stakeholder platforms (involving public authorities, experts, operators together with the civil society) at national and European levels in order to secure an equitable and fair dialogue among the institutional actors and the civil society. The principle of such platforms has been implemented at national (in a dozen of countries) and European levels and tested since 2008 in the frame of the Aarhus Convention and Nuclear (ACN) process initiated by ANCCLI and DG ENER. In this perspective, this ACN will continue in the coming years. Regarding EP&R, it is suggested to NTW members to take advantage of this ACN process to organise topical round tables on EP&R at national level. The organisation of a European ACN Round Table on EP&R mid 2014 is also considered, in order to discuss the results of the EP&R WG. The possibility to organise an ACN Roundtable at national level in the perspective opened by EP&R WG should be carefully considered at national level considering the needs and priorities of the corresponding NTW members and other relevant local stakeholders from civil society. He also underlined the limits and inefficiency of participatory approaches that in practice lead to the engagement of the civil society in the last moment, in many cases just to support the formal legality of the process. CSOs should therefore carefully limit their engagement to well-prepared processes, where there is enough time and resources to at least have a perspective to have an influence on the decision making process. NTW member can also take an active approach and raise a specific issue of their own initiative, for example against violation of EU nuclear waste directive as it was the case of the export of nuclear waste from Hungary to Russia where NTW raised its voice after being alarmed by its Hungarian members. Also EP&R WG shall preferably not get involved in a process in a MS or at EU level unless we will be well prepared. NTW will carefully consider interests and needs of its members before engaging.

Session 3: Examining Priorities and Drafting Action Plan at national and trans-boundary level

Ms Brigitte Artmann introduced the Concept and Design of a trans-boundary German- French-Luxemburg-Belgium Aarhus Round Table on EP&R provisions for NPP Cattenom that is one of the NPPs with the most densely population in France and in Europe. She recalled findings and conclusions of nuclear stress test report of Catten-



om by Greenpeace from 2012 that warns from flaws, blind spots and complacency. She presented the design of trans-boundary Aarhus Convention Roundtable on emergency management in the post-Fukushima context that will be organised in May 2014 and asked for participation of ANCLII. The round table is designed to bring together the civil society (the public concerned, natural persons, NGOs, farmers and animal welfare organisations, fire brigades, technical rescue teams, medical rescue teams, hospitals and doctors, independent experts etc.) and the responsible institutions and organisations (operators, regulators, Aarhus Convention, European Commission, Federal and State Ministries: Environmental, Interior and Economy, communities/ councils/ districts etc.) to discuss concrete and very relevant EP&R issues of NPP Cattenom.

Discussion:

Mr Boiley asked if CLI of Cattenom has been informed on the initiative, **Mr Lheureoux** explained that ANCLLI have also idea to organise round table on Cattenom and **Ms Železnik** stated that it is a duty and interest of NTW to join the round table.

Mr Yves Lheureoux (supported by Mr Michel Demet) presented **ANCLLI's involvement on emergency and post –accident situation**. He recalled the history of establishment and legal recognition of CLIs and ANCLLI and raised attention to the legal context in which CLIs and ANCLLI operates. He presented a specific tool developed to raise awareness of local public on EP&R developed by ANCLLI. The emphasised that the recent legal context about nuclear activities brought new responsibilities and constraints. Especially at local level since regional authorities are usually too far from NPP site problems. Communities have not yet fully integrated their new responsibilities regarding nuclear matters. They will need financial resources and an access to independent expertise to take good decisions. Feedback on EP&R provided by CLIs demonstrated that exercises are not realistic, emergency plans need to integrate the feedback of Fukushima. In a real emergency situation current plans will be no longer valid and in case of emergency no one would wait on authorities but everybody would take an individual evacuation action. Strengthening of the participation of local actors and communication support (website) are needed for any realistic coordinated emergency action. Last but not least the number of 60 emergency exercise per year in a nuclear country like France is not sufficient. At the end Mr Lhereux presented priorities of ANCLLI:

- 1. French ACN process: workshop on preparedness of emergency situation: project of a hearing of local actors (mayors).
- **2.** Project of a meeting between ANCLILI/ASN/local representative of the government to share the preoccupations of local actors on emergency preparedness.
- **3.** Working group with trans-boundary CLIs: to facilitate discussion, exchange of information, of means of communication, identify different ways to manage the emergency situation in different countries
- 4. Project of local roundtable on emergency situation in cooperation with trans-boundary CLIs.

Mr Harembski asked if the number of 60 exercises refers to cooperation with Mr Lheureoux confirmed that.

Ms Michele Rivasi: The issue of independent expertise is very important also regarding EP&R. I was independent appraisal for EP&R. The question is by whom they shall be paid: the government or the operator. When legislation is exempting government to cover the costs for appraisal it should also define who is liable for cover the costs. This can be very tricky and we need to check how this is regulated in each MS.

Mr Demet: This is a regulatory issue. Exercises are organised by states on-site and the local population was not taken into consideration. We believe the population should be involved because in case of accidents this is not



only onsite but in most cases also an off-site emergency issue. The operator in case of emergency exercise at certain French NPP considered evacuation as a task of government. Government indeed provided busses but most of the people evacuated by private car and only two busses have been occupied yet since the drivers have not known the local roads they lost their way to decontamination points. In ANCLLI's opinion it is therefore better that evacuation is the responsibility of local authorities however the minister of interior is not cooperative. In case of accident trustful and professional information centres are needed, but this can only work out if local authorities are well prepared for EP&R which is not the case. An important change has been brought by Fukushima accident to Local Information Committees – now everybody accepts that accidents can happen and before Fukushima accident that was not the case.

Ms Eva Deront asked if ANCLLI has been involved in process of preparation of the national evacuation plans in France. **Mr Demet** explained that this has not been the case and the document is still not available to the public and the ANCLLI will comment on it after it will be published on the web site of French government. **Mr Boiley** informed participants that the document was published few days ago and envisages evacuation by private cars. Although the document has not been discussed by anybody it was published with acknowledgment of the involvement of civil society. **Mr Heriard Dubreuil** stated that this demonstrates a typical approach for central planning of EP&R and is not in compliance with BSS Directive that requires involvement of civil society. **Mr Wächter** however explained that BSS Directive is not very explicit regarding civil society involvement because the way and the extent of involvement are left to Member States. **Mr Kearney** reminded the meeting that under Article 7 of the Aarhus Convention (AC) civil society is entitled to access to this information and to participation in the development of these plans and that France as a party to the AC is obliged to meet these requirements. **Mr Lheureux** referred to practice in France where in some areas civil society is involved but in others not, depending on good will of the highest administrative regional officers (prefects). **Mr Heriard Dubreuil** is asking about the potential cooperation between Greens of Fichtelgebirge and ANCLLI

Ms Inger Eikelmann presented EP&R national priorities, national action plans and possibilities of trans-boundary/regional activities. Norway is the country outside the Soviet Union that was most effected by the fallout from the Chernobyl accident in April 1986. Large areas of mountain pastures were heavily contaminated and caused lots of problems for grassing sheep, reindeer and cattle because radioactive caesium went into the food chain. Norway gained experiences from long-term effects of the Chernobyl fallout for agriculture, environment and health. Early after Chernobyl fallout Norway was not prepared to handle the problems and the authority was not coordinated in handling the situation. Later on it has developed countermeasures to prevent uptake of the contamination in animals and dietary advice to reduce intake of radioactive contaminated food in effected population groups. People are concerned about conditions and reality in their local environment and good management from engaged individuals in communes together with or in spite of national authorities was successful. Local laboratories that are able to measure radioactivity in food products are important for risk perception.

Norwegian preparedness for nuclear and radiological emergencies differs from most other national emergency preparedness systems. In order to ensure an efficient, rapid and competent crisis management of the early phase of a nuclear event, a national Crisis Committee for Nuclear Preparedness has been appointed. The Committee is authorised to make decisions and order implementation of specific countermeasures in the early phase and ensures good coordination on a sub-strategic level (directorate level). The Crisis Committee may on its own initiative implement countermeasures in the early phase and acts as advisor for the government and ministries in later phases. The Crisis Committee has advisors from several national authorities and organisations. These advisors can also be viewed as stakeholders. There are still many weak points regarding comprehensive EP&R and still need for improvement of nuclear and radiological emergency planning, but the need is not very visible in day-to-day life. A series of seminars in nuclear and radiological emergency preparedness for all the 19 county governors in Norway are organised and one day-seminars arranged by the NRPA for the county emergency board and the administration. Seminars are covering the issues of threat/hazard assessment and the nuclear



and radiological emergency preparedness organisation, methods and tools for decision making, information strategies and countermeasure strategies. The project EURANOS focused on involvement of people affected by the contamination of an area and deals with the issues how one can best prepare for the long-term effects of nuclear accidents, who may help to develop the best management practices and which methods should be used and how do we get appropriate information so that the concerns of the affected people will be included in the management plans?

Local-national forum for emergency and recovery strategies in roject EURANOS focused on involvement of people affected bal forum for improvement of both local and national capabilities. It builds strongly on already existing national and local initiatives and will address the challenges met by municipalities/local communities when planning for nuclear and radiological emergency and recovery preparedness and response. The experience gained in a seminar organised by the forum showed that through the discussions, the participants realised their roles and responsibilities and the need to be better prepared for emergencies. Many practical challenges need to be solved locally based on prepared emergency plans. It is important that these plans are made with stakeholders on all levels. There is a need for different kinds of decision support tools and educational tools for the local and regional authorities. These tools need to be well-known in advance to an emergency. Procedures and systems for communication between local, regional and national levels in the emergency response organisation need to be developed in order to have a successful implementation of countermeasures during an emergency and late phase recovery.

Ms Eikelmann also presented cooperation between Nordic countries that takes place in the framework of NEPgroup (cooperation on emergency preparedness), Nordic Nuclear Safety Research (reactor safety, emergency preparedness) and common exercises as well as in the frame of Arctic cooperation (Arctic council, AMAP and EPPR). In addition there is also bilateral cooperation with Russia in the high North focused on clean up after the "cold war", cooperation between NGO's, Bellona, Nature and Youth, regional cooperation in emergency preparedness in the North and environmental monitoring in the marine and terrestrial environment. Parallel to this Norwegian NGO Lofoten is engaged against pollution of the North Sea from Sellafield nuclear reprocessing site in the UK.

Discussion:

Ms Rivasi asked what exactly the problem in Sellafield was. **Ms Einkelman**n explained that it was a radon activated alarm where it took 3 hours to find out what was going on. The problem is also that Norwegian media and public are predominately focused only on nuclear issues in Russia where when it comes to problems of the nuclear energy in the Western Europe the sensitivity is considerably lower.

Mr Niczyporuk was interested about the weakest point of the Russian EP&R system and on how can we help to improve this. He was also curious on plans to open new uranium mine in Scandinavia (Finland). **Ms Eikelmann** answered that plans for uranium mine have been abandoned. Norwegian authorities are in permanent contact with ROSATOM to have better and faster information but it also developed a network of local contacts in Murmansk region in order to obtain information directly and not only via Moscow.

Mr Heriard Dubreuil raised a question on how to we engage Nordic NGOs in NTW EP&R activities? **Ms Eikelmann** explained that Norwegian NGOs are on the different side of the table and are also interested on ocean pollution from Sellafield whereas the primary focus of Norwegian authorities is Russia.

Mr Kearney: We are much closer to Sellafield but we have not been informed on is particular event. We are interested to strengthen cooperation on Sellafield. What is NRPA expertise on Chernobyl and how it is relevant for Fukushima? **Ms Eikelman**: Since very recently we are establishing contacts with research groups in Fukushima.



Experience from Chernobyl is 30 years old thus its relevance to the current situation is limited. It is a lot of learning both for better EP&R but also what kind of information and communication approaches works in a context of very changed world of today.

Mr Haverkamp: Norway was approached by the ACCC on the lack of trans-boundary environmental impact assessment by the United Kingdom in the case of Hinkley Point C. The UK authorities refused to send notifications to other countries. An Irish NGO (An Taisce - the Irish National Trust) has initiated a legal challenge claiming that the UK is obliged to undertake tran-sboundary public consultation regarding its proposed new NPP at Hinkley Point in Somerset and a German member of the Bundestag has filed a complaint to the ACCC. Has Norway done anything in this respect? **Ms Eikelmann**: I do not think Norway has not done much on this issue.

Mr Haverkamp : Hinkley Point unit C can pollute the North Sea and Atlantic Ocean which is important also for Norway fisherman. **Ms Eikelman**: I will take this issue to our authorities. **Mr Kearney**: The Hinkley Point case has been rejected by the UK court based on the argument that the new plant is not likely to cause detrimental effects on the environment. An Taisce is now considering whether to appeal. The decision will be based on costs.

Mr Glorieux: We discussed the costs of EP&R measures. Is there any discussion in Norway that foreign actors should pay for EP&R in Norway? **Ms Eikelmann**: No, the issue in Norway is how much to pay to clean the nuclear garbage in Russia.

Mr Boris Sandov (supported by Ms Albena Simeonova) presented Emergency preparedness and response NTW Balkan Round table. He showed present and planned NPPs on the Balkan peninsula. Bulgaria cannot serve as a good example regarding EP&R due to lack of information, lack of cooperation, low level of interest by the local authorities, non-transparent activities of the regulator , egulator , esent and planned NPPs on the Balkan peninsula. Bulgaria cannot serve as a good example regarding EP&R due to lack of information, lack of cooperation, low level of interest by the local authorities, non-transparent activities, non-transparent activities of a to lack of information, lack of cooperation, low level of interest by the local authorities, non-transparent activities of ation lacks stable forms, finances and capacities. Zelenite and Foundation for Environment and Agriculture are planning to organise in June of September of 2014 a Balkan round table on EP&R that would bring together GO and NGO representatives form E and SE Balkan countries. The organisers need support for covering travel and accommodation costs for 15 NGO representatives as well as information and expert support. Maybe similar conference for W Balkan countries (and Hungary) can be organised in Slovenia.

Mr. Klemenc raised a concern that in case that their costs will not be covered by the organisers the GO representatives will not (be able to) take part on the seminar.

Zoriana Mischuk presented a **first assessment of nuclear emergency preparedness and response in Ukraine**. She stated that the nuclear risk in Ukraine is increasing because the lifetime of 12 out of 15 NPP blocks will expire by 2020 and decisions to extend the lifetime/build new NPPs are taken with violations of international good practices and Ukrainian commitments under the Aarhus and Espoo conventions. With respect to EP&R legal framework the lack of systemic approach is evident since there are many dispersed acts (by-laws) sometimes contradicting each other. Some of them were developed in late 80s after the Chernobyl catastrophe but are still valid. Some acts that are needed are not developed/adopted either because they are not considered by top decision makers as a priority or because there is a confusion over responsibility. The most important concern is however very poor implementation of the legislation. There is no comprehensive assessment of the EP&R normative base and the actual implementation/state of preparedness, however according to the official reports everything is OK. Unofficially experts/public servants say preparedness and response systems are weak. There is an evident lack of coordination and clear division of roles among responsible authorities. The case of iodine provisions can demonstrate the overall situation: during alarm tests the timing of the iodine distribution is not examined, emergency planning zones are not defined in principle (various documents mention 10km, 15



km, 30 km zones of iodine distribution), instructions on iodine provisions are confusing, the authorities failed to establish proper monitoring and warning systems (lack of money), the existing ones are obsolete, there is no EPR awareness-raising among the population of the areas near NPPs and last but not least information provision in case of emergency is based on outdated means of communication. It is needed to carry out a thorough scrutiny of the Ukrainian legislation and its implementation parallel with comparison of the EU legislation and good practices. Further on national/local multi-stakeholder dialogue needs to be encouraged to discuss the state of affairs with the focus on information provision on emergency communication plans and public awareness-raising programs, polls in the communities close to nuclear sites on their awareness of EP&R measures and sufficiency of the available information, etc..

A national ACN Roundtable on the creation of the national system of nuclear information units (CLIs), including discussion of their role in EP&R would be most welcome, too and could be later on upgraded with a regional round table.

Discussion:

Mr Heriard Dubreuil is asking about the planning of the dates for ACN Roundtable. Ms Mischuk replied that under current political situation is hard to plan anything beyond one week timeframe however if the situation will stabilise it would be possible to organise the event before the summer this year.

Mr Niczyporuk asked if gravity could provoke another explosion in Chernobyl reactor. Mr Haverkamp explained that nuclear explosion is out of question but hydrogen explosion could happen. Among scientists it is generally assumed that the concentration of nuclear fuel under the reactor is too low to make the uranium explode.

Mr Marcin Harembski presented the situation in Poland as regards the EP&R. Poland does not operate (and never has) any NPPs at the moment (although it was preparing to have at least one – in Žarnowiec, building it back in the late 1980s). The present and recent governments have pursued installing of nuclear energy and the current official plans and administrative actions seem quite firm with that respect. However, it is not only a question of time when construction of the first NPP will start: it is also a matter of financing, civil and political situation and other factors. In fact, several non-energy nuclear installations persist in the country, with the major ones including: a research reactor (in the town of Świerk, near Warsaw), a nuclear LILW repository (near the town of Różan) and closed uranium mines (mostly in South-Western Poland). Highest standards of safety issues are claimed by the nuclear and political authorities to be at the very heart of the nuclear policy at every level of the implementation of the Polish nuclear power program. Contrary to this claim, EP&R measures seem to be considered superficially (without bothering about the details) and in 'traditional' and bureaucratic ways. What supports this attitude in terms of the pro-atomic narration in Poland is a general belief that future NPPs / reactors to be acquired and operated in the country will be constructed with best available technologies, and thus accident-free. The emergency management framework depends on the spatial range (area) of the accident. The biggest nuclear accidents should be dealt with by voivodeship (highest regional authority) and by the national level authorities. Smaller range accidents are in the domain of local authorities (towns) or that of the management of the given establishment (nuclear installation). Integral and detailed plans are delegated by the central policy documents and need to be still devised and prepared by the lower-level authorities. As for the third-party liability, the legislative provision based on the Vienna Convention requires the coverage of civic consequences of a largest accident of up to 300 million SDR.

Discussion:

Ms Železnik asked if there are any interest to organise a round table on EP&R in Poland and expressed interest of NTW to be informed on anti-nuclear campaigns in Poland. She also asked if there are any interests to join NTW.



Mr Harembski (as the head of the Civil Nuclear Monitor) and **Mr Niczyporuk** (as the representative of the 'Green Zone' Foundation) both confirmed their interest and willingness to join the NTW. They also stated that details on the content, format, location and date of a possible round-table in Poland will be discussed within the interested groups and campaigners in the coming weeks and the plans will be shared with the NTW members in that time perspective. Some of the Polish anti-atomic and civil groups will also be interested in taking part in the possible round-table on EP&R issues in the Ukraine (be it of a trans-boundary or national scope/range/involvement). They are also interested to take part on the roundtable that will be organised in Sofia.

Mr Haverkamp announced an early opportunity for Poland since Greenpeace is planning on 10.03.2014 to publish its study on NPP siting in Poland.

Mr. Jerzy Niczyporuk welcomed the opportunity and informed on anti-nuclear summer camp. Between the two events regional round tables in local communities will be organised. People in Poland have low awareness of and interest in nuclear issues therefore there is a need to create a momentum to change this.

Mr Heriard Dubreuil was interested on the details of Greenpeace study on NPP siting in Poland.

Mr Haverkamp provided the details: The calculations of credible source terms for each of the three proposed reactor types (EPR, AP1000, ABWR) will be calculated by the Institute for Safety and Risk Sciences at the BOKU University in Vienna. The spreading and deposition modelling is done by the Institute for Meteorology and Geophysics at the University of Vienna. Ms Artmann raised a question if the Greenpeace study is translated. Mr Haverkamp explained that at present is in English language only but Greenpeace is making efforts to translate most important parts in Polish.

Mr Demet was interested on legal framework and regulation in Poland? If the French designed NPP will be built are there any signs that also French regulatory framework will be taken in consideration?

Mr. Harembski explained that according to official statements the reactor(s) will be purchased as »bulk investment according to the high quality of standards". It is likely that the regulatory framework for Poland could be adapted to that of the country of the origin of the reactor but theoretically irrespective of a possible future concrete deal. Poland will have basically its own regulatory framework (indeed it has it already to some extent) and the administration touts to look for the best legal practice around the EU.

Ms Nadja Železnik presented in brief **EP&R national priorities, national action plans and possibilities of trans-boundary/regional activities in Slovenia**. After presenting some basic data of the country and possibilities of trans-boundary/regional activities in Sloveniathe high quality of standards". It is likely cident and assessment of EP&R in Slovenia by ENCO study she pointed main challenges in the fields of monitoring preparedness, communication and notification, EP&R at municipalities Brens-boundary/regional activities in Sloveniathe high quality of standards". It is likely. She stressed a lack of proper cooperation with neighbouring municipalities and city of Zagreb in Croatia that lay across the border in the prevailing wind direction and might be severely exposed to radiation in case of major nuclear accident in NPP Krško.

Discussion:

Mr Boiley first made a remark that a severe nuclear accident can indeed through direct and indirect impacts (liability claims, loss of income from tourism, export of agricultural and food products, etc.) devastate a small country like Slovenia. Then he raised attention on the importance of an in-time measurement of the radioactivity for effective response measures. At the EU level a pool of measurement equipment should be created and made



available to MS when needed. After the accident in Fukushima there has been a sharp increase in demand of measurement equipment and as a consequence its price tripled which would be of course even bigger problem in countries less rich than Japan. Equipment thus needs to be shared however this would be difficult among counties unless there would be an international or EU agreement. **Mr Boiley** also raised a question to Ms vere nuclear accident can indeed through direct and indirect impacts (liability claims, loss

Ms Železnik explained that there are fixed measurement stations around Krško yet she is not familiar with the information on mobile measurement devices on site. She also mentioned that in Slovenia a list of measurement devices is under preparation by regulatory body however it is hard to get information what is actually going on in this respect. It is not realistic to expect to get measurements. They are preparing a list of devices but we do not know much about that. Since in neighbouring countries they would need them themselves in case of nuclear accident one cannot expect to borrow the equipment there.

Mr Heriard Dubreuil pointed out that, at the initial stage of an accident, decisions on countermeasures will not be based on measurements but on models, calculation and prognosis, then will come the monitoring. Information should be based on both (ASAP), nevertheless, one needs to keep in mind that there will be failures in both modelling and measurement. One needs to be prepared that in case of an accident there will not be an unique and linear system of information and transfer of data but rather a chaotic situation of lack of some important information on one side and non-linear overflow of data from the other.

Discussion on the provisional conclusions of the seminar

Ms Železnik suggested the following tasks that should be carried out by NTW EP&R WG

- Checking the implementation of national and trans-boundary provisions on EP&R
- Setting the regulatory framework and harmonisation
- Improvement of information for the public

Ms Deront: Harmonisation is intriguing and controversial.

Mr Heriard Dubreuil: One should make a distinction between harmonisation and centralisation. The involvement of the European institutions in EP&R does not necessarily mean a unique and centralised management based on the same standards. The nuclear emergency management necessitates on the one hand a high level of subsidiarity in order to allow each concerned category of actors to take appropriate actions while on the other hand trans-border consistency of standards and counter measures is obviously needed. But this perspective is unlikely given the European political context. Now coming to the preparedness phase, one can see many advantages in having a procedural framework at EU level, scheduling in a compulsory way the implementation of nuclear emergency preparedness provisions with regular testing and adequate involvement of the civil society in this preparation.

Mr Haverkamp: It is very likely that everything that the EC will promote the MS will shoot down! A week ago the Senate of Czech Republic requested from Czech delegation on EU Council to vote against the upcoming review of the Nuclear Safety Directive. It is very likely that CEE MS will stop any progress at the EU level toward more common approach and rules in the field of nuclear safety. Therefore rather than on issues of harmonisation at EU level NTW EP&R WG should focus "down to the ground" on what is happening at the local level and bring in a systematic way and evidence to legitimate frustrations of the people regarding non-existing, weak and contradictory EP&R provisions.



Mr. Heriard Dubreuil: I agree that developing a local pragmatic approach focused on the checking of concrete measures in a manner that was here presented by Mr Glorieux is the first priority for us. Regarding harmonisation we have to take a look at the BSS directive and investigate if indeed it brings any progress in terms of improved emergency preparedness & response. If yes, then we should from the local up to the national levels provide support to the directive.

Mr Haverkamp: We need to be well aware that following processes at EU level is time and resources consuming and we should be aware that the EU has a quite limited mandate over nuclear safety (and nuclear third party liability as well). Therefore, in spite of its intentions and hope, the EC has indeed few tools with which to push the Nuclear Safety Directive forward. We should of course follow what is going on the EU level however the bulk of our capacities and activities should be on the local level. In my opinion only within 5 years something could be done at EU level.

Mr Demet: We need to take a look at the ENCO study and organise discussion with people about the reality of EP&R on- and off-site for each NPP. NTW should also intervene to have a strong legal framework on nuclear safety, including EP&R in each country so that the local civil initiatives will have a solid legal background to push for implementation. We need better involvement of the people in the decision making on EP&R but this is not possible without solid legal ground.

Mr Haverkamp: We need a list of issues that must be taken into consideration in good EP&R practice. Then we can go with the list to local people and check the reality. This will at the same time raise awareness and feeling of urgency on the need to improve EP&R among the local people. However we do need our own list of activities and measures that needs to be carried out in a strategic and logical way regarding EP&R and not only check how ENCO study fits the reality.

Provisionaly list of tasks that needs to be carried out

1. Preparation of minutes from the meeting

Mr Klemenc and Ms utes from the meeting BE CARRIED OUT deration in good EP&R practice. Then we can go with the list to local people and check the reality. This will at the same time rai

2. Development of methodology for WG work on EU and national level

from March until September 2014, first draft of report: October 2014. Final version of the report November 2014

3. Implementation of methodology

Preparation of first draft by Ms st draft of report: October 2014. Final version of the report November 2014 liss from the WG by 7.3.2014, the adoption of methodology and approach by 14.3.2014

4. Request for access to the ENCO study according to the Aarhus Convention obligations.

Until 25 February 2014

5. Implementation of round tables

F-G-B-Lux; Ire-UK-Nor?; Ukraine-Poland-Hun?, Slo-Cro + Hun? + Aus?; Bulgaria-Serbia-Macedonia-Kosovo-Montenegro-Greece?



6. Next meeting

In Slovenia (Ljubljana, Kr-Kosovo-Montenegro-Greece? ? arhus Convention obligations.f the report November 201

Minutes Prepared by: Andrej Klemenc , REC Slovenia

Ljubljana, February 25 2014

Annex 5: Minutes of the 1st seminar

June 9 & 10 2014

Conference Center Albert Borschette-CCAB (EC premises), room 3 B (3rd floor) – 36, rue Froissart, B-1040 Brussels

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AGENDA

Monday, June 9 2014

Registration of the participants
Welcome address by the organisers and the representative of the EC DG Energy Mr Bart Castermans
Methodology of information collection on EP&R-



15:00 - 16:00	Report by individual countries on the progress on information collection on EP&R	
16:00 - 16:30	Discussion on information collection on EP&R	
16:30 - 17:00	Coffee break	
17:00 - 18:00	Report on Round Table on NPP Cattenom	
	Andrej Klemenc (REC)	

Tuesday, June 10

9:00 - 9:20	Report on preparatory activities on EP&R RT in Bulgaria Albena Simeonova (FEA) or Boris Sandov (Zelenite)
9:20 - 9:40	Report on preparatory activities on EP&R RT in France Yves Lheureux (ANCCLI)
9:40 - 10:00	Report on preparatory activities on EP&R RT in Czech Republic Jan Haverkamp (Greenpeace)
10:00 - 11:00	Information on plans of NTW activities in 2015 and discussion <i>Michele Rivasi – president of NTW</i>
11:00 - 11:20	Coffee Break
11:20 - 11:40	Report on preparatory activities on EP&R RT in Slovenia Nadja Železnik (REC Slovenia)
11:40 - 12:00	Report on preparatory activities on EP&R RT in Ukraine Zoriana Mischuk (Mama 86)
12:00 - 12:20	Report on preparatory activities on EP&R RT in Poland Jerzy Niczyporuk and Marcin Harembski
12:20 - 13:00	General discussion on EP&R Round Tables
13:00 - 14:00	Lunch
14:00 - 15:00	Bilateral meeting on cross-border EP&R round tables

Monday, June 9 2014

Introduction to the meeting

After welcome of the chair of the EP&R WG Ms Železnik and technical announcements of Mr Klemenc the participants were address by the representative of the EC DG Energy **Mr Bart Castermans** who presented himself as an expert on nuclear waste policy that is not familiar in details with the issues of EP&R and EC policy in the field. He emphasised the commitment of the EC to strengthen the safety of nuclear reactors and improve EP&R provisions in the EU. EC DG Energy also welcomes and will maintain its support to endeavours of the civil society for providing more transparency on nuclear issues.

Ms Železnik thanked to the EC DG Energy for its support of NTW EP&R, explained roots and mission of the NTW and its WG EP&R. She pointed out that within NTW there are different, even opposing views on the role of nuclear energy in energy supply therefore NTW should not be regarded as an anti-nuclear network but at very first as a network that strives for more transparency and inclusion of civil society and the public also by promoting and using Aarhus, Espoo and Kyiv conventions and other tools for open and transparent dialogue among all stakeholders in processes related to nuclear fuel cycle.

After brief presentation round of all participants Ms Železnik asked Mr Castermans on the actual status of ENCO



study and the position of EC DG Energy to the study and its results.

Mr Castermans explained that ENCO study is in procedure of assessment and evaluation by the EC yet it is not yet clear when the EC will make its final statement.

Mr Boutin recalled the case of EP&R exercise in French NPP Cattenom that in his opinion demonstrated that French government does not know how to deal with EP&R in practice and expressed his concerns about the effects of EC policies and measures for actual improvements in the field.

As the president of NTW **Ms Rivasi** emphasised that NTW it is also about making EU institutions to work for the people and create an European identity since it is evident that nuclear safety issues cannot be solved at national level and without inclusive approach and expertise available also for those does not have direct benefits from the activities of nuclear industry.

Mr Harembski emphasised importance of civil monitoring of nuclear developments also in EU member states which plan to introduce domestic nuclear energy generation or build new nuclear facilities (or upgrade existing ones). He warned from policies of nuclear industry to invest in countries with relatively short experience with modern civil society participation and weaker institutional capacities for fair assessment of nuclear risks and alternatives to nuclear energy which is a case of Poland.

In the opinion of **Ms Mischuk** by providing strong commitment to nuclear safety and inclusive governance in nuclear field the EU is not only playing the role of "shining example" but is also influencing more transparent and democratic decision making in countries that are like Ukraine aspiring for more democratic rule and better nuclear safety in general.

Methodology of information collection on EP&R

Ms Železnik recalled the methodology on assessment of nuclear EP&R provisions in individual countries and their practical implementation and relevance as developed after WG EP&R inception seminar in Paris in February this year. She stressed the importance of "checking the reality" of EP&R provisions that have been identified by ENCO study only to a level that "they exists on paper". She also stressed the necessity to identify those stakeholders that actually play crucial role in emergencies like medical doctors, teachers, fireman etc. She expressed her concerns on the state of the art of the EP&R in practices since even nuclear regulatory bodies admits that many provisions that are administratively at place would in practice functioning poorly due to for example lack of calibrated instruments or the people that could use them appropriately or because those instruments might not be stored in a way to be easily put in function in a case of emergency. There are many nuclear emergency drills in Europe but a few evidences that lessons from those drills have been learned and turned into improved provisions and actions. There are also evidences of the problems of provision of in time, coherent and easy to understand information to the people in case of major nuclear accident as well as evidences of not enough efficient and coordinated cross border cooperation in case of an emergency between regulatory and decision making bodies. The later has been recently also recognised by HERCA. The task of NTW WG EP&R is however not only to register at full scope those evidences and make them visible within the countries and on the EU level but also to identify and propose both conceptual and practical solutions to improve EP&R in practice in terms of "total quality management".

Mr Heriard Dubreuil pointed out that WG agreed to go beyond ENCO study top desk-work approach and "check the reality" yet it is also important to check if a conventional approach to emergencies can work out in case of nuclear emergency at all. He asked if we can after lessons from Fukushima accident still firmly believe that people would in case of emergency stay where they are, wait for information and instructions from authorities



and then act according to those instructions. In his opinion it is much more probable that the people will try to use modern communication technologies and search for different information sources where one can with large probability expect that information provided by (foreign) sources that are alternative to the official bodies would be more trustful. People will not simply stay and wait to authorities to deliver iodine pills, provide shelter of evacuate them but will actively search for information and make their own choices and decisions. The real challenge for NTW is to identify social networks, credible sources of information and structures of trust that are needed for social action in case of an nuclear accident that is as social phenomenon by its nature a chaotic event.

Mr Boiley made a point by stressing the importance of the activities of the WG and its members not to focus only on preparedness activities but to address post emergency issues based on the experiences gained from Fukushima accident that showed how can interference of natural catastrophe, inadequate nuclear safety technical solutions and poor safety culture leads to a disaster in a technological advanced society.

Ms Železnik pointed out that Fukushima accident also provided evidence for "artificial" nature of division of emergency and post emergency since emergency lasted for 8 months therefore EP&R should be also adapted for recovery phase where challenges are different.

In the opinion of **Mr Haverkamp** there is not a single member state where everything is even broadly in compliance with very abstract EU EP&R requirements. It should be also acknowledged that conclusion of ENCO study that technical differences can be objectivised but are causing confusion in public confidence is a value judgment. The problem is that this is not evident to the authors that should rather than attempt to calm down the public and "regain the credibility" by "harmonisation" explain those differences because this is exactly where the problems lay at very first. Public confidence is a result of the good work that has not been done yet regarding EP&R in the EU and beyond. ENCO study has its merits but is by its approach technocratic therefore WG should not lose too much time with it. WG primary task is rather to give good evidence for many examples of non-functioning or malfunctioning provisions that will challenge ENCO study approach and can provoke EC to go beyond ENCO study approach.

Mr Boilley agreed with Mr. Haverkamp about the ENCO study problems. ENCO is very technical and technocratic. We should not have only technical approach. Authorities have the tools but population will not trust the authorities and this will be a problem. The view of a naive citizen who would be affected by an accident is the ground of our work. In case of emergency first concern of parents is »are my kids safe at school«. At each school there is a need of measurement instruments, means of communication with the parents... Nuclear safety should become an issue of a society and not exclusively of the state. Yet new French national EP&R master plan is not changing the paradigm and is not taking into consideration lessons from Fukushima. CLIs should at least try to change that during the design and approval of local EP&R plans that is scheduled for Autumn this year.

Mr Heriard Dubreuil emphasised the importance of the way how to re-build confidence during and after emergency in situation of plurality of information sources and options to act from individual perspective. The real emergency problem is the danger of contamination and not only at very first that problems related to »fear communication«. Long term contamination need to be addressed since it cannot be removed from the environment in general. So people will have to learn how to deal and live with radioactivity.

Ms Rivasi agreed that confidence can be only gained on plurality and not on monopoly of information. A state cannot provide effective and efficient solutions to citizens but can and should provide support to civil society to address and solve nuclear preparedness, emergencies and post emergencies issues from various perspectives and by plurality of solutions.

Ms Deront asked each country is free to choose it own national investigation approach as long this is in line with



agreed methodology

Ms Železnik confirmed that the approach depends very much on each country respectively each organisation involved nevertheless besides common methodology and questionnaire also two way approach of in filed investigation (by search of published sources, interviews and questionnaire etc) and multi-stakeholder round tables should be followed.

Information collection on EP&R

Mr Haverkamp pointed out that questionnaires yields quite general answers but it should be also searching for concrete examples of good practices and problems that are addressed by legislation.

Ms Železnik stated that in Slovenia and most probably also in many other countries responsible people are aware of the problems but are not willing to speak in public on that and/or has have not been addressed by ENCO study. In the opinion of Mr Haverkamp EP&R round tables should bring evidence for that.

Mr Klemenc stated that this evidence might lose its credibility if rather authoritarian communication culture of state authorities on nuclear issues will be challenged by anti-nuclear design of round tables. NTW should next to be well equipped with expertise on weak safety of nuclear reactors and lack of adequate of EP&R provisions and tools also equipped with "naïve" expectations and beliefs that dialogue with the other side makes sense and can lead toward improvements even if the final objective is out of reach of NTW mission. He recalled on fairly tail of H.C. Andersen where innocence of child's look is a precondition to bring the evidence that the emperor is naked. If the same would be stated by a radical anti-royalists this would have led to a civil war. If NTW round tables will be designed as "invitation to someone's own funeral" then they will fail to provide practical evidence for an inadequate information, poor safety culture and EP&R malfunctioning. In order to change culture of communication and decision making one should invite "the other side" already in design and preparation of a round table and not only to an already designed round table. Only in this manner one can avoid social construction of "the Other" within a critical discourse on nuclear energy. The question however remains what to do when the authorities and nuclear industry is either non-responding or is using its power to undermine any conclusions by investing in "expertise based supported doubt production industry".

Mr Heriard Dubreuil emphasised the importance of the plurality of the round tables where no one should be put in a corner. The strength of the round table on EP&R on Cattenom organised in Schengen on May 17 2014 was that it was organised completely independently by money out of the pockets of considered citizens and provided good independent expertise on the safety design of NPP Cattenom. However the meeting has lacked plurality.

Mr Boutin recalled his experience as an observer on Cattenom EP&R exercise under the cover of a status of an elected local official. He was completely ignored by authorities who neglected him to play any role but to obey and follow the orders. In France EP&R drills looks military drills alike and they do not tolerate anybody who has different statement on nuclear energy. By starting the dialogue with CLIs and ANCLLI French authorities are first learning how to approach nuclear issues in a more civil and civilised manner. What happened at round table in Schengen was just a natural reaction to the way of communication and decision making of French authorities when they are faced with brave, critical and knowledgeable people in the field of nuclear safety.

Mr Heriard Dubreuil noticed that NTW EP&R round tables should not be organised only as a reaction on public policies but as an attempt to change it to make proposals and enable discussions that put things forward through dialogue, using tools provided by Aarhus and Espoo conventions as well as national "right to know" and "right to be listen to" legal provisions.



Ms Rivasi reminded the participants that the goal of NTW EP&R round tables should be to provide upstream information to know what should be done in case of an nuclear emergency prior to an emergency event. The problem is that in many contexts one has to deal with a "military system" and by simply being good tampered and naïve one can indeed only provide democratic legitimisation of undemocratic practices. We should insist to get clear answers on concrete questions like where and how the people will be evacuated or what the authorities are planning to do if the people will start "wild evacuation". In approaching the officials one should avoid to send them only the questionnaire or send them questionnaire first but should rather approach them by informal interview and first afterwards send the questionnaire. Than one would be able to compare what the officials are really concerned and what they really thing with what they suppose they should be concerned and think of in order to stay on their positions and develop their carriers. In this manner one should take the power of information away from the authorities that are operating in a military mode.

Mr Haverkamp warned from the danger that NTW EP&R will be marginalised within overall nuclear national and EU debates or even used to put lipstick of democracy to an authoritarian face. If there would not be people who are in principle against nuclear energy some very important questions will not be addressed at all. As for round tables on EP&R in France now it is the ANCLLI s turn and they should also invited Greens of Fichtelgebirge and Greenpeace Luxemburg to be active already by designing the agenda and list of speakers for the round table in France and to take part as guests on the event. In many cases the problem is not that one might intend to clamp down the nuclear industry and state authorities or kick them in corner but that both the industry and the authorities are in the corner soon after factual debate on safety and EP&R starts. The danger of the conventional RT is that one or the other side is afraid to be in a kicking corner. Round tables are good to pick up hot issues however for factual discussion is better that they are followed by the work in small groups. We should therefore think to change the set-up of the agenda and the structure of our round tables. In his experience from discussion on reactor ageing critical experts can work perfectly well in small groups without Greenpeace branding. The other possibility is to take part on RT organised by the authorities and make »wild participation« backed up by credible anti-nuclear brands like Greenpeace. The third option is to have anti-nuclear round tables that will provoke feedback from authorities. Also here one solution does not fit to all situations.

Round tabel on NPP Cattenom and the future design of NTW EP&R round tables

Mr. Klemenc presented in brief the round table on EP&R of NPP Cattenom that was organised in Schengen on May 17 2014 by the Greens of Fichtelgebirge and "Cattenom non-merci!" civil initiative from Germany. In the opinion of Mr Klemenc the round table provided very valuable and substantialised information of safety deficiencies of the NPP Cattenom and on terrorist threats to NPP in general yet the relevant authorities from neighbouring countries – with an important exception of radiation protection authorities from Luxemburg as well - and CLI Cattenom and ANCLLI have not joint event although all have been invited by the organisers. Authorities from German federal states of Rheinland Pfalz and Saarland however provided written answers on NTW WG EP&R questionnaire. Round table has not provided more detailed information on EP&R provisions at NPP Cattenom nor it has given any recommendations on improvement of EP&R provisions, procedures and practices since this was not in the main focus. Main messages from the round table are very straight and clear: NPP Cattenom needs to be immediately shut down till main safety deficiencies will not be solved, no NPP can withstand crash with a supersonic military airplane or with very large commercial airplane; emergency personal need to very fluent in English in order not to lose time with translation by coordinating cross-border activities in a case of an emergency. At the end of his presentation Mr Klemenc raised question on fruitfulness of straight anti-nuclear approach in organising round tables for participation of NPP operators and authorities and proposed reflectively "naïve" and good tampered approach that should focus at very first on EP&R issues. In case that organisers are intending to focus also on safety operation of nuclear facilities he proposed to organise round tables in two parts where one part is dedicated to nuclear safety issues since it is clear that those issues cannot be put under the table when discussing emergency situations in NPPs.



Mr Niczyporuk proposed two aspects to be added to the agenda of the round tables: working on awareness on the consequences of radiation doses to the population in terms of birth defects, future generation mutations and infertility. Real data on this matter from Hiroshima, Nagasaki, and Chernobyl are needed. People should be also well informed that there is no real liability, insurance and compensation in case radioactive catastrophe. Mr Boilley proposed to have a bottom up approach and start questioning from a perspective of ordinary people. It can be expected that in a case of emergency 90% of the population will flee and the question is to give them a possibility to do that in best possible way - measurement instruments in neighbouring villages etc. Some knowl-edgeable people need to be trained to use instruments that need to be placed in early.

Mr Sandov suggested that more moderation and more professional should be engaged.

Ms Simeonova expressed her disappointment on what she has heard on the nature of nuclear discussion in Western Europe since she was convinced that the state of the art of the discussion is like that only in new member states and in Eastern Europe. She emphasised very unstable political situation in most of the Balkan countries where political change after election can completely change the nature and dynamics of discussion on nuclear issues – one day the critical voices are welcome yet the other are in best case ignored. EU should strive for implementation of that will not change by each new government.

Mr Heriard Dubreuil reminded that EU gives us tools to put pressures on governments like directives on wastes. National plan for managing wastes are however outside the scope of EP&R. There will be soon also legal tools regarding reactor ageing.

Mr Demet mentioned dual paradox of the situation in France where there is gap between national and regional EP&R plans while on the other side the state does not take into consideration cross-border EP&R. Local politicians are reluctant to deal with evacuation plans. In his opinion crises exercise should be defined at EU level. **Mr Lheureux** emphasised that also according to the experience from EP&R exercises in France people will take their own decisions which is not enough taken into consideration by the national plan.

Ms Mischuk recommended to avoid »us« against »them« discourse since at least in Ukraine the government is not speaking with one voice but different ministries and governmental organisations are critical to the other therefore one can find weaknesses and deficiencies and profit out of them. Also NGOs are not speaking with one voice and it is important to include NGOs who dealing with social issues since they are indeed grass-root. Mr Glorieux emphasised the importance of the situation of NPPs that are situated close to national borders where the different counties have different EP&R procedures that will complicate the situation and put people in doubts and anger. Collaboration on EP&R harmonisation needs to be in his opinion strengthened but it is also important to eliminate huge difference between »paper« and »reality« and take into consideration important "banalities" like the situation in Belgium where fire brigades only have one good set of tyres that is switched from one vehicle to the other when the vehicle is driven to technical inspection.

Mr Heriard Dubreuil presented his impression on the conclusions from Round Table on Cattenom. Based on the conclusions one can conclude that the round table addressed several purposes such as the nuclear safety of the Cattenom NPP on the one hand and EP&R provisions in this context on the other hand. Several experts have participated and notably a representative of the HERCA group of Radiation Protection Authorities. Since the organisers did not succeed in bringing a plurality of stakeholders (for parties were reluctant to participate in this meeting) in the meeting, the discussions was not as informative as they might have been. This first experience of EP&R RT should draw the attention of the organisers of future EP&R RT to dedicate more attention to the creation of conditions for the different parties to come into the same room for an equitable dialogue. This should in particular result in involving the several parties during the preparation stage rather than inviting them when



the framework is already settled. He also suggests the preparation of guidelines for future organisers of RT that would notably be based on previous experience of Aarhus Convention & Nuclear RT (2008-2013).

Mr Haverkamp underlined importance of focusing on one NPP – like it was case on the round table in Schengen where also trans-boundary issues has been highlighted by Mr Majerus - when organising round tables and avoid speaking about general EP&R plans. As for participation from France on the round table in Schengen he pointed out that the organisers invested a lot of efforts to assure participation of NPP operator, authorities and CLI Cattenom however without success. He was especially surprised of the rejection of CLI Cattenom to participate on the discussion based on argumentation that the event is too antinuclear. German authorities have at least answered the questionnaire. "Cattenom - non merci!" initiative should be applauded for its efforts and it was good that the Luxemburg radiation protection authorities took part on the event. Round table on Cattenom was a very good event with a lot of relevant conclusions and NTW can learn a lot out of the event. It is important that everybody except that there are different views on the table. One should also take into consideration that in Germany exists only confrontation platforms on nuclear issues therefore it would be good if ANCLII would take part on next round tables to provide an example of co-operative platform. Only in this way NTW can overcome differences in national policy style and platforms and avoid dominance of national identity politics and discourses when discussing nuclear issues internationally. NTW should use round table to make local people more aware on Arhus and Espoo convention which are by none of the state authorities in any country considered as they should be. Not only France has a problem with implementation of Aarhus convention but also Germany where it is believed that everything is perfectly set already by their legal order.

Mr Demet explained the reasons why ANCLII has not taken part on round table on Cattenom. He pointed out that ANCLII has not obstructed the event but would have needed more time to prepare for it in order that its internal democratic rules would have been respected. He also stressed that there are 4 cross-border CLIs which are very different but each CLIs is independent from ANCLLI therefore ANCLLI cannot give them orders what to do. At present ANCLLI is focused on the issue of national EP&R plan and its transposition into local plans where ANCLII has difficulties with the authorities to present and explain guidelines and take into consideration the proposals of CLIs. ANCLLI has capacities to accept opposing views and to deal with them and has managed to have a report that was co-subscribed by the French nuclear authorities as well as by ANCLII and Greenpeace.

As the president of ANCLII and CLI Gravelinne Mr Delalonde emphasised the importance of NTW for creation of political culture where opposing opinion can be freely expressed and participants accept to listen each other although they disagree. He pledged to attract in NTW more organisations and individuals that have not principal anti-nuclear statements in order to demonstrate that NTW is not an anti-nuclear organisation.

Mr Haverkamp proposed to ANCLLI to organise new round table on EP&R of NPP Cattenom II in partnership with French authorities and with participation of the organiser of the first round table.

Mr Demet explained that ANCLLI set up cross-border WG on emergencies and already began to set up new round table on Cattenom that will include also nuclear safety authorities; however it is still too early to define exact time of the new round table.

Mr Boutin stressed the importance of NTW to avoid being pro or anti-nuclear advocates and reminded on aggressiveness and arrogance of nuclear industry that are in his opinion provoking aggressive answers of those who are critical to nuclear energy. The aggression comes from the system and anti-nuclear people just reflect it. It is not possible to have a non-partisan debate unless fair access to all relevant information and transparency are assured. In many cases authorities are getting ignorant or even aggressive even when people are only addressing them questions they would need to answer by law. The state and nuclear industry should stop to attack protests against their own ignorance and "nuclear omerta" and start to provide information and answers. Until this will not happen we will always have on our round tables people that will at very first express their anti-nuclear state-



ments because this is the only place they can speak in public about their fears and frustrations.

Tuesday, June 10 2014

Lesson from Fukushima

Mr Boilley recalled the fact that nuclear disaster in Fukushima Daiichi NPP in March 2011 was not the result of a natural catastrophe as it was claimed by the NPP operator TEPCO but a men caused disaster as confirmed by 3 independent reports (set by government, parliament and a private foundation). 90% of the workers escaped from Daiichi NPP on the 4th days. In the sheltering zone, most people fled and nobody wanted to come in the emergency zone where there were helpless old and sick people left behind. In some hospitals in Fukushima medical doctors and nurses were missing because some escaped from fallout zone. Writing EP&R plans is not enough: there should be some people to execute it. The right to retract in case of a nuclear emergency is a very serious issue that should be addressed. After Fukushima in Japan the trust in existing nuclear safety authorities have been lost completely. New nuclear regulation agency have drawn new EP&R plans that defined evacuation zones in case of any larger accident in the area of 0 – 5 km from a NPP and preparation zones in the area from 5 to 30 km. All municipalities in both zones have been directed to prepare new evacuation plans that also include estimation of evacuation times.

Mr Glorieux emphasised the fact that in case of Fukushima disaster psychological factors have been underestimated and proposed that the working group should put more emphasis on their impact on emergencies. Ms Železnik provided to the participants information on the work of international forum focusing on stakeholder engagement called ICRP dialogue initiative (www.icrp.org/page.asp?id=189). It was established in autumn 2011 as cooperation between ICRP members and Fukushima Prefecture, several cities and villages in Japan, civil society organizations and universities in Japan, other international (France, Norway and Belarus) and national institutions related to radiation protection. The aim was to organize a forum to stimulate a dialogue with all concerned parties in the Fukushima Prefecture, and to identify the problems and the challenges of the rehabilitation of living conditions in the long-term contaminated territories. Some conclusions are very much related to psychological consequences of the Fukushima accident.

The future prospects and activity of NTW

Ms Rivasi explained to the participants her view on the future perspective of NTW. Three main pillars remain: ageing of reactors, management of radioactive wastes (with the focus on how civil society is involved) and EP&R WG. The task of working groups will be to raise questions, address them to the responsible authorities and put pressure on the authorities to provide well explained and comprehensive answers. First then conclusions should be drawn and send to policy and decision makers as well to the public. Questionnaires are an important tool yet it is to be recommended not to relay on written answers but it would be better to get some oral answers through informal contacts with the experts and the officials and first afterwards address them with a written form questionnaire. NTW representative will take part on conference on Aarhus convention on July 2 in Maastricht. It is expected that the new government in Ukraine will comply to the Espoo convention. Ms Rivasi explained the relevance of Espoo Convention for environmental impact assessment of both new reactors and even more for life span extension of the existing reactors since most of the existing reactors in Europe are close to the end of their planned life time however many of them are planned to be refurbished to operate for additional 20 - 40years. It is however not clear yet if Espoo convention also affects reactors that are not situated (or planned to be situated) close to the borders. In order to be able to deal with those and other issues and to extend the network NTW should start to seek for new funding opportunities not only at the EU level but also within each country of the origin of its members by the members. NTW already contacted 10 foundations and with 6 that demonstrated interest to support NTW activities further contacts will be undertaken. As from present arrangement with Foun-



dation for the Progress of the Humankind we can in best case hope that in 2015 will remain at the present level.

Mr Haverkamp emphasised the importance of the environmental impact assessment (EIA) provisions of the Espoo convention on extension of operation licence as indicated by its Implementation Committee. After remark of Mr. Herirard Dubreuil and Dement that in France EIA is needed for new reactors whereas life-span extension only requires new safety review he explained differences in EIA approaches and pointed out that in case of life-span extension safety review should not be sufficient since in decades after start of operation of an NPP also environment might have changed significantly (for example there might be more tourist facilities in the vicinity) therefore not only new safety review but also new EIA should be required.

Followed the intervention of Mr Haverkamp **Mr Lheureux** explained that CLIs in France are involved in life-span extension and safety of NPP however not EIA therefore it is very important to have a clear pictures on impact of Espoo convention on EIA in case of life-span extension in France.

In the opinion of **Ms Rivasi** one of the priority tasks of NTW should be to explore transposition of Espoo convention in national legislation and its impact on IEA in case of life-span extension of NPPs. This issue should be however also addressed to EU commissionaires Oettinger and Potočnik.

Mr Demet was curious on NTW activities regarding nuclear waste management directive.

Mr Haverkamp reminded that plans for management of nuclear wastes should be delivered by national authorities to the EC till August 15 2015 yet the strategic environmental impact assessment is envisaged only for transport, storages close to borders and reprocessing plants.

In the opinion of **Mr Boilley** main issues for the public are safety and waste management therefore they should be in the focus of NTW activities however also energy policy in the EU general should be put in consideration. If Germany will continue with its activities to abandon commercial use of nuclear energy this will have consequences all across the EU and for the EU nuclear policy.

Ms Simeonova emphasised that NTW should also needs to take a look on the situation from a perspective of EU periphery. Bulgaria is in terms of energy supply almost completely dependent from Russia and this will not change soon regardless to EU energy policy. Another important aspect is that many young people in recent decade left the country and in the vicinity of NPP only old and poor people are living that are far from sight of the authorities and can hardly put any pressure on the authorities to improve EP&R. They are left behind and do not know what to do in case of an emergency. Therefor NTW should both involve people and exercise some external pressure on the NPP Kozloduj operator and authorities regarding improvement of safety and EP&R. Mr Demet reminded that NTW in few months succeeded to get recognised and involved in decision making and

emphasised the importance to involve in NTW activities more members of newly elected European Parliament. In his opinion without successful lobbying NTW cannot reach its objectives therefore lobbying should be one of NTW's priorities.

Mr Delalonde emphasised that the gap between local decision making and centralised state planning should remain within the focus of NTW. NTW should insist on demand on well prepared and with due diligence exercised crises exercises and their quality evaluation because they raise awareness, create lively debates and involve strong human moments where barriers between people and institutions involved might be removed.

In the view of Ms Mischuk EU policies are important for Ukraine from the perspective of the EU integration also in the field of transparency and public participation. New government is drafting new law on EIA that should open space for public consultations and in general positive developments are expected.



Mr Haverkamp pointed out that in spite public consultations under Espoo convention are not mandatory that does not mean that public participation should not be taken into a due account. More pressure on the authorities to argument better when rejecting requests of a civil society is needed. More legal complaints should be started where there is no due account for example where »reasonable alternatives« are not taken into consideration. Lack of assessment »beyond design accidents« also needs to be taken into consideration. That however does not mean that every country needs to be prepared for massive evacuation for each new NPP. As for lack of assessment of nuclear waste one should have the idea what to do with the waste prior to construction of NPP.

Mr Boutin expressed his concerns regarding public participation practices that often turn into pure rituals and only rubber stamp what has been decided behind closed doors. He called for increased capacities for counter expertise as a powerful weapon for more transparency and substantive role of civil society in decision making. Mr Demet expressed doubts regarding participative democracy that too often turns into hypocrisy. He warned from the attempts of the authorities to treat as terrorism symbolical violence (as carried out for example by Greenpeace) that aims to rise attention of the public on the nuclear issues and demonstrate weak points of nuclear safety. ANCCLI resisted against exclusion of Greenpeace from nuclear policy arena and achieved that Greenpeace is considered as a partner in the dialogue with the authorities.

According to **Mr Herirad Dubreuil** participative democracy is a form where state remains responsible for the common good. NTW and Arhus convention have other perspective – we are all responsible for common good – but this is not public participation. NTW therefore needs to carry out of constant pressure – including legal tools. NTW needs to ask when and how public consultations will be carried out and get involved into the semantics and agenda settings.

Ms Rivasi expressed her satisfaction that the meeting is also attended by the representative of EC and proposed to organise a meeting with the member of European Parliament who is chairing the committee for energy transition in order to discuss energy transition and its impacts on nuclear policies in EU. She recalled the lessons from the past that people turn either to political ignorance or terrorism if their claims are neglected or disregarded for a longer time. NTW is addressing major challenges also from the perspective of democracy in Europe and the idea of European Union itself. Lack of progress toward more transparency and inclusive governance in the field of nuclear safety would contribute to erosion of democratic governance and would undermine strivings to have more democracy in Europe both at national and at EU level. NTW has major challenges ahead that are important for future of Europe and democracy in Europe.

Presentations of the plans for EP&R cross border round tables

France

Mr Lheureux presented involvement of ANCCLI in discussions about emergency and post-accident situations. AN-CCLI does not separate emergencies and post accidents and established the working group (GPPA) that is dealing with both of them. Working groups use OPAL - an awareness tool to promote the linking of local stakeholders and encourage them to work together on preparation for emergencies. Working group will present National Radiological Emergency Plan that has been made in traditional top down manner without participation of stakeholders to CLIs. It is necessary to provide coherence between national plan and local plans and to test how local plans might work out in reality which is not possible without engagement of municipalities and local civil initiatives. A unified approach will not work out since the situation in north of France differs very much from the one in south. On May 16th ANCCLI tested the robustness of the CODIRPA program in the case of a situation of long emissions (15 days). IN ANCCLI's opinion the program is based on too much zoning which will cause serious difficulties for a crisis manager to take emergency measures while anticipating post-accident previsions. ANCCLI also requires engagement a local reflection on the recommendations of the national doctrine with the elected representatives



(ASN – ANCCLI). In order to share best practices, exchange of experiences on relationships between CLI and neighbouring countries ANCCLI established Cross border working group that will deal with cross-border issues of NPPs Cattenom, Chooz, Gravelines, Fessenheim. On June 19 2014 the workshop on "protection measures for population in emergency situations - PPI" will take place where legislation in France, positions of neighbouring countries, ways to exchange the information and ways to improve cross border co-operation will be discussed. Working group will focus on practical recommendations on measures to protect the population like sheltering, adaptation of emergency plans to local realities (taking into account that most of population will fled by its own cars), scope and mode of distribution of iodine tablets (scope, mode), information distribution and education of local population. Those issues are also related to ACN round tables in France that will continue after renewal of High Committee for Transparency and Information in nuclear safety (HCTISN) and will focus on implementation of the recommendations made during the first ACN France roundtable: improvements of the processes of public consultation and access to Information and ability to provide independent expertise for citizens inclusively access to laboratory analyses at universities. ACN round tables will also focus on implementation of the Aarhus Convention in the context of the extension of reactor operating time and in the context of the governance of the operational phase of geological repositories and on preparedness for emergencies and their management by taking into account the need to adapt existing emergency plan to post-Fukushima lessons. ANCCLI also considers to organise in the last quarter of 2014 (with support of the EC) an Europe wide ACN round table on EP&R.

Ms Železnik asked for some more detailed information on dates of planned activities and how ANCCLI will proceed with preparation of national report.

Mr Lheureux answered that until ANCCLI's High Committee will be renewed no stapes forward can be made.

Mr Heriard Dubreuil explained that ACN round tables in France are organised in partnership with the ministry of environment therefore at present one needs to wait to the appointment of the new minister.

Mr Demet noticed that last year ACN debates were organised with the public but were criticised that are not opened enough to the public. In spite of the new law on organise energy transition the position of the new minister Ms Segoyen Royal on nuclear is not yet clear.

Mr Delalonde explained that at the beginning of energy transition debate nuclear industry was not involved but now this is changing while Segolen Royal is at very first in favour of "soft measures" that would enable more public participation in the debate on energy transition and not for strict legal provisions on public participation.

Ms Deront asked for more information on OPAL tool.

Mr Lheureux explained that OPAL is software designed by IRSN and ANCLII some 5 years ago. It is a tool for presenting the impact of post-accident situations on the territory around NPP. This tool is developed as sensibiliser to inform local actors (mayors) about the post-accident stake at local level. The situation is different at different sites therefore this affects preparation of the post-accident plans and decision making.

Mr Delalonde pointed out that OPAL is not a tool for general public but for the elected decision makers at the local level since it could in the opinion of the minister of interior create fear among local inhabitants if the scenarios would be published. The problem however is that it was proclaimed by the minister of environment to be used as a monitoring tool. In the opinion of Mr Delalonde it should be also used for awareness raising rather than only for basic design of emergency scenarios.



Bulgaria

Mr Sandov presented activities to organise round table in Bulgaria. Greens of Bulgaria identified interests of nuclear safety regulation and radiation protection authorities from Moldova, Romania, Serbia, Greece, Macedonia and Kosovo to take part on the event, however the round table organised on March 11 in Sofia on lessons of Fukushima for the future of nuclear energy showed that in new political circumstances in Bulgaria it is very challenging to bring the Bulgarian authorities and NPP Kozloduj operators on the table. Therefore round table on cross border EP&R of NPP Kozloduj planned for June 20 till is postponed to the 2nd half of September 2014 due to non-availability of the experts and non-responsiveness of the institutions in Bulgaria.

Ms Železnik asked all organisers of round tables to provide till June 20 2013 a short description of the detailed objections of RT, draft agenda and an action plan with the list of invited institutions and persons, target groups, rough estimation of costs by main categories and identification of financial sources to cover the costs of the event.

Czech Republic

Mr Haverkamp pointed out the reality of NTW finances that demands to find outside funding and not to relay on NTW finances therefore it is important to find funders first. He also explained that the EP&R round table on Temelin will be organised by Ms Artmann on September 26 or 27 somewhere in South Bohemia.

Ukraine

Ms Mischuk presented the plan for round table in Ukraine. She explained the current situation in the country where after system has reloaded to more democratic set up there are also opportunities for more participation in policy making. On the other side situation is quite confused and the priorities are not clear and some new top decision makers have few knowledge on the field they are responsible for. It is expected that Association Agreement with the EU will be signed this months. Recent situation also provided evidences that there are no plans for emergencies in general and no plans how to master terrorist threats. Under given circumstances would not make sense to organise a small low profile event therefore it is planned to organise in October or early November 2 day event with 70 participants: relevant authorities and NGOs from Ukraine and neighbouring countries (Belarus Hungary, Poland, Slovak Republic), representatives of the EU Delegation in Ukraine and other interested international organizations and representatives of NTW. In order to assure participation of officials cooperation and helping hand of Ukraine regulatory authorities will be needed however first contacts are positive. Draft agenda is already set (see ppt presentation), the costs are estimated at 10.000 € and fund raising activities have already started.

Ms Železnik asked Ms Mischuk to provide the provisional dates for the event till June 20.

Belgium

Mr Glorieux presented Belgium is a small country with no less than 20 commercial nuclear reactors within our just outside its borders and one 125 MW research reactor, fuelled by HEU, at the nuclear research centre and a nuclear radioactive waste storage and handling company in Mol, at 5 km from the Dutch border. The Belgian EP&R system is based on the assumption that the worst possible accident in one of its NPP's will only release a very limited amount of radioactivity into the environment outside the NPP-site (INES 5 type Three Mile Island). Therefore EPZ's are restricted to 10 km for evacuation and 20 km for the pre-distribution of iodine tablets. The high concentration of NPP's, the high population density, the proximity of cities, and the nearness of neighbour-



ing countries, makes of nuclear EP&R a big challenge in Belgium. Round table will be organised in close cooperation with CLI and is scheduled for beginning on November at Gravelines. It is aiming to assure equilibrium of pro and anti-nuclear oriented participants from local and provincial government and NGOs.

Poland

Mr Harembski explained that Poland started planning procedures for its first NPPs five years ago and yet operation of NPP is still quite distant in time therefore it would be quite abstract to discuss EP&R in a form of a round table since one can expect it, at this stage, not to attract too much public attention and participants. At present, it is transportation of nuclear fuel and nuclear waste that is carried out in Poland and in his opinion it could come much more in focus of such a round table – be it national or cross-border. Therefore, as far as envisaged NPPs in Poland are concerned, it might be enough to have, this year, a low profile event in a form of a discussion with relevant authorities on basic principles and design of EP&R.

Ms Železnik reminded Mr Harembski and Mr Niczyporuk on their primary task to collect relevant information according to the WG methodology and admitted that there is no point for Poland to strive for organizing a 'fully-fledged' round-table on EP&R which would meet requirements set in other countries with incumbent nuclear policies. It would be very beneficial to the NTW's cause, if a low profile RT is held but it should be treated as a very additional and not an indispensable task for Poland. She also expressed an opinion that nuclear fuel transportation has similar radioactivity as the natural background and it is a security and not an EP&R issue.

Slovenia

Ms Železnik presented the situation in Slovenia and Croatia and plans for round table on EP&R of NPP Krško. In Slovenia emergency preparedness and response plan in case of nuclear or radiological accident were after Fukushima renewed at national, regional and local levels yet their relevance for a real emergency situation needs to be critically assessed. It is also to be seen to what extent lessons from drills have been taken into consideration and what is the actual state of preparedness of civil rescuers, fire brigades and medical personnel. It also needs to be seen how much cities of Krško and Zagreb have learned from the EU project "Preparedness on the evacuation in case of nuclear accident" - they have taken part together with the city of Cernavoda (Romania) and a number of institutions. Croatian provisions has however not yet been taken into consideration since Croatia started EP&R provisions first in 2013 where the main challenge is how to evacuate the city of Zagreb that is situated 30 km from NPP Krško in prevailing wind directon and has about million inhabitants. Round Table is planned for the first half of October and will be half a day event with participation of national nuclear safety and radiation protection authorities from both countries, EP&R officers from NPP Krško, representatives of municipalities, fire brigades and civil rescue teams from municipalities of Krško, Brežice (both Slovenia), Samobor, Velika Nedelja and Zaprešić (Croatia), representatives of ex nuclear public partnerships from Krško and Brežice plus some NGOs from both countries.

What is going to happen with ENCO study?

Mr Haverkamp asked Mr Patel when EC communication on ENCO study will be published and reminded that Mr Garribba (DG Energy) has promised publishing of the communication before the summer break.

Mr Patel answered that EC is still analysing the results of the study and its findings and conclusions. In terms of next steps, the EC will issue a communication as a follow up. This analysis of EP&R issues in the EU is a follow-up activity to the stress tests, and the initiative follows largely on comments made by NGOs at that time. Nuclear safety is a current priority together with the waste directive and the new directive on radiation protection. EC initially planned to issue the communication at the end of 2013, however at the last planning stage it was post-



poned till mid of 2014. The current planning suggests that the Communication may be adopted by the present Commission, i. e. till the end of the summer. EC DG Energy is interested on NTW comments. The study was a "snap shot" and is considered as a starting point for a long term process so you are most welcome to write to the Commission and present your points. The communication is likely to indicate appropriate future orientations and actions.

Mr Heriard Dubreuil stated that reviewing the ENCO study is already integrated into WG EP&R activities, however NTW will be first able to provide whole set on conclusions and recommendations after EP&R round tables will be carried out.

Mr Haverkamp pointed out that he is worried because stress tests have been meant to integrate lessons learned from Fukushima (lose of heat sinks, fall out of electricity supply) but ENCO study does not take this and giving only very general conclusions. Its approach is very problematic since it aims to raise quality of tools and measures to improve confidence but the later can be only a result of good work in practice and not good tools and measures as such.

Ms Železnik confirmed that critical assessment of ENCO study will be a part of WG EP&R activities however the statement on it will be first prepared after round tables and reflection of the their results.

Mr Boilley pointed out that the study is not taking into account the fact that after large incident in a NPP there is no way back to normal situation. The study has not been focused on the protection of the people but rather on the way to improve the image that operators and authorities to have an adequate approach and tools to deal with major nuclear accident.

In the opinion of **Mr Heriard Dubreuil** there are two tasks related to the issue: the review the existing provisions that are in place and here ENCO has done the job yet it still remains to evaluate whether those provisions are enough and if they can be put in practice at all in case of a real emergency. At the first glance it seems that main lessons from the accident of Fukushima have been not taken into consideration by the ENCO study. Therefore EC should not make definitive position on the approach of ENCO study and its conclusions.

Presentation of three scenarios of release of nuclear materials from planned NPP in Poland in beyond the planed accident case

Mr Haverkamp presented 3 scenarios of release of nuclear materials from 3 types of actually planned NPP in Poland modelled the potential spreading of radioactivity after non-design accidents in many nuclear power stations on the basis of the FlexRISK modelling work carried out by the University of Vienna. Source terms are not imagined scenarios but the scenarios presented in the documentation for NPPs that are currently under construction or under stopped constructions. General conclusions of the study is that all 3 generation 3 NPP have less potential for sever accident but much bigger impacts and in worst case scenario there might be 1000 time more nuclear materials released than from the accident in Fukushima. This has tremendous consequences for EP&R yet in Polish legislation beyond planned accident situation is not requested by Environmental Impact Assessment study for a NPP.



Annex 6: Reports on country investigations based on the questionnaire

Overview of the responds to NTW WG EP&R questionnaire on EP&R provisions from a (practical) perspective of a civil society

by Andrej Klemenc, REC Slovenia

Introduction

The overview below is based on the responds to the questionnaire designed by Nadja Zeleznik and Mr Heriard Dubreuil with the assistance of the other members of the EP&R WG. The questionnaire is aiming to collect the basic information on the state of the art of EP&R in the countries of domicile of the members of the NTW WG EP&R from the perspective of civil society. The questionnaire was finalized in the end of June of 2014 and distributed to the members of the Working Group in early July 2014 and again on October 15 2014 It has been recommended to be used also as communication to start cooperation with relevant authorities, independent experts and competent civil society organizations on their engagement in preparation and implementation of off-site nuclear EP&R cross-border "Aarhus" round tables organized that should be organized by members of the Working Group till the end of 2014.

The collected information respectively fulfilled questionnaires should be sent to REC Slovenia till the end of October 2014. Till January 12 2015 however REC Slovenia received only the fulfilled questionnaire from France and Belgium. Based on the documentation provided by Ms. Brigitte Artmann it was to a certain extent possible to reconstruct statements of the ministries of interior of the German federal States of Reinland-Pfalz and Saarland and Department of Radiological Protection of the Ministry of Health of Grand Duchess of Luxembourg and it is possible to provide information on statements of Czech nuclear safety authorities, yet the later has not been yet done due to by illness restricted capacities of REC Slovenia. Therefore this document compiles information from Belgium, France, Germany (Rheinland-Pfalz, Saarland), Luxembourg and Slovenia. The investigation approach and the level of investigation has however varied very much from personal opinions and collection of the basic information from the authorities to very detailed and deep research of national legislation, procedures and practices. It has been therefore impossible to make a balanced compilation although the compilation of the answers has been edited in order to achieve at least minimal balance. Nevertheless for some countries answers to some question are missing and there are large differences in the quality of information.

We regret to fail in our approach of making the questionnaire more user friendly by setting many sub-questions. We have learned that more detailed instructions on what is the aim of the questionnaire and how to use should be provided together with some practical testing.

In spite of its unbalanced and incomplete nature we believe that the overview below still provides some very valuable information and observation that should be useful for further work of WG EP&R and activities of the NTW in general. We however sincerely hope that partners will provide most important additional information that would enable to improve the quality of the final overview.

The original reports that served as a basis for this overview are provided as attachments to the overall WG EP&R activities report.

The following organizations have carried out the questionnaire based investigations:

Belgium –eGreenpeace Belgium France raANCCLI and ACRO

Germany (Federal states of *Rheinland-Pfalz* and *Saarland*) ar*The Greens of Fichtelgebirge*



Luxemburg uxThe Greens of Fichtelgebirge Slovenia – REC Slovenia

Overview of the responds to NTW WG EP&R questionnaire on EP&R

• Which stakeholders should be included in off-site nuclear emergency and response (EP&R) activities in case of nuclear accident according to national legislation and regulations in your country? Please provide evidence (The name and the paragraph of the relevant law/regulation/decree, date of issuance and by whom it has been issued). Which stakeholders should be in your opinion included, why, in which role and at what stage?

Belgium:

The nuclear and radiological plan is established by the Royal Decree from October 17 2003.

Federal Authorities: Ministries of Interior, Public Heath, Employment & Labour, Agriculture, Foreign Affairs, Finances, Defense and Economics Affairs & Energy

Territorial level: Regional Ministries and Provinces

Local level: municipalities

Other actors: Federal Agency for Nuclear Control (FANC), Federal Agency for Safety of the Food Chain (FASC), The Scientific Institute of Public Health (SIPH), The Royal Meteorological Institute (RMI), The Belgian Nuclear Research Centre (SCK CEN), the National Institute of Radioelements (IRE), recognized inspection organization, Red Cross, other expertise and representatives of first responders (Fire brigades, police, defense)

France:

Governmental Authorities: The **Minister of the Interior** prepares, coordinates and controls the implementation of civil defense measures activated by the Inter-ministerial Committee for Nuclear or Radiological Emergencies (2003-865 Decree of 8 September 2003 and circular dated 2 January 2012 on government organization for the management of major crises, National plan, Chapter 1.3.1 inte-rsectoral strategy).

Territorial Authorities: the alerted **Prefect** informs the interior minister, took over the management of emergency, ordered the protective measures of the population and proceeds the dissemination of alerts.

Local authorities_contribute in association with prefects to the definition of local policies and the establishment of the necessary means facing a crisis, particularly in terms of assistance to persons, both in the area for welcoming people displaced.

Other actors: operators, The Nuclear Safety Authority (ASN), control authority of the activities of nuclear facilities and activities relating to defense (ASND,) the regional health agencies (ARS), The Institute of Radioative Protection and Nuclear Safety (IRSN), CEA, Météo France,

The Institute of Health Surveillance, national and local media stakeholders from the field of radiological emergency, Local Information Commissions (CLIs)



Germany (Answer from the interior ministries of Saarland and Rheinland-Pfalz)

The German Federal States are responsible for emergency preparedness. In Saarland this is defined in the Law on Fire Protection (Brandschutz), in the regulations on the Technical help (Technische Hilfe) and on the Emergency Protection (Katastrophenschutz - SBKG) as well as by the advices of the Federal Commission for Radiation Protection that assures the unifications of the regulations in throughout the country. The Federal Government is responsible for nuclear protection under the federal Radiation Protection Act (Strahlenschutzvorsorgegesetz) for implementation of which the Federal States (BundesIn Fed) are responsible. In Rheinland-Pfalz the relevant legislation is the Law on Fir Protection (Brandschutz), the Common Law on Help (die Allgemeine Hilfe) and the Emergency Protection Law (Katastrophenschutz). Also here the advices of the Commission for Radiation Protection are relevant.

• What are the provisions regarding **inclusion of civil society** (local initiatives, NGOs) and/or local communities in EP&R activities according to your national legislation and regulations? Which paragraph of which law or which regulation or decree is defining these provisions? When and by whom have they been issued? How are they defining the inclusion of civil society and/or local communities?

Belgium: Federal, provincial and communal emergency plans are on demand available to the public. Questions and comments can be addressed to the respective competent authorities.

France: National plan from February 2012 describes integration provisions of the civil society (communal, recognized associations, civil protection associations formations risks, local information commissions (CLI), social workers, including municipal social welfare centers, volunteer charities, representatives of associations for victims recognized by the Ministry of Justice etc.) in the response activities to nuclear emergencies, mainly concerning interventions missions and/or support and protection of the population during the evacuation phase and consolidation in foster care.

The new national plan (under preparation) is intending to provide the participation of many stakeholders, including institutional, but also local authorities, NGOs and the whole of civil society, however it is regrettable that the implications in terms of preparation for the accident have been so far very limited

Germany: In Germany there is no inclusion of natural persons from the civil society into nuclea EP&R at all. The information about EP&R which was collected for the Round Table Cattenom is not known to the general public in Germany at all. The general public will get a warning when the nuclear accident is happening. Included in EP&R are the local districts (die Landkreise) that unifies local self-management respectively the provincial council (die Landesrat) and the state administration on the provincial level (die Landratsamt).

Luxembourg: Inclusion of civil society concerning the nuclear emergency plan is not part of a law or a decree.

Slovenia: Act on Protection Against Natural and Other Disasters (Official Gazette of RS, no. 51/06 - UPB 1 and 97/10) in its Article 5 indeed mentions: ethe protection against natural and other disasters is carried out – within the framework of their prerogatives and duties - by the inhabitants, voluntarily organized in associations, professional associations and other non-governmental organizations (hereinafter referred to as associations and other NGOs) that are carrying out activities relevant for protection against natural and other disasters.he protect Radiation Protection and Nuclear Safety (Official Gazette of RS, no. 102/04 - UPB 2), in its Article 5 however mentions only: *»expert council for issues of radiation and nuclear safety, safeguards, radioactivity in the environment, protection of the environment against ionizing radiation, intervention measures, mitigation of the consequences of emergencies and use of radiation sources that are not used in human and veterinary medicine; expert council for issues of ionizing radiation, radiological procedures and use of radiation sources in medicine and veterinary medicine.« Each of the expert councils under the preceding paragraph shall consist of five members, experts in the individual above mentioned fields. NGOs and civil initiatives are not mentioned at all. Some general state-*


ments on the participation can be found also in the regional and municipal nuclear emergency plans.

• At what stage - if at all - are the **initiatives of local communities and/or NGOs included** in EP&R activities?

Belgium: In general: see answer question 2 above

Germany: After the decision of the interior minister conference, at the end of the whole process, the state representatives of the local districts (die (Landratsabemter) are included. They are however not prepared for INES 7 accident." A The general public is not included into the whole EP&R activities until the very moment the emergency case will happen.

Luxembourg: Local communities and critical infrastructure, like hospitals, are involved during the approval procedure of the new emergency plan.

• In the preparation of the methodology and the guidelines for EP&R plans of activities at national level;

Belgium: Provincial and municipal authorities and representatives of first responders and involved in development of emergency plans and/or specific procedures at national level. The conclusions of ad hoc stakeholders working groups, even not official, are considered in the development of emergency plans and procedures. EU supported research programs (for example in the field of the safety of food chain) also provide some opportunities for participation.

France: to our knowledge civil society is not involved at any stage of development of methodology

Germany: The radiation protection commission.

Luxembourg: Different Ministries

Slovenia: to our knowledge civil society is not involved at any stage of development of methodology *b)* In the approval of the methodology and the guidelines for EP&R plans of activities at national level

France: To our knowledge, civil society and its representatives are not involved at the stage of consultations of the guidelines at national level. *This response should be completed by further research*

Germany: The interior ministers.

Luxembourg: The Government

Slovenia: to our knowledge civil society is not involved at any stage of development, approval and implementation of the guidelines.

• In the preparatory activities for a detailed off site EP&R plan of activities at the specific location of a NPP.

France: To our knowledge, civil society (NGOs and representatives) are not involved in the preparation of local intervention plan (PPI). *However, in France, in certain territories, the CLI may be associated with the preparation of the PPI.This response should be completed by further research.*



Germany: The interior ministry of the concerned federal state.

Luxembourg: National and local are the same

Slovenia: to our knowledge civil society is not involved at any stage of development and preparatory activities in the field.

• In the approval of the detailed off site EP&R plan of activities at the specific location of a NPP.

France: The establishment of the local response plan (PPI) integrates the consultation of the plan proposed by the mayors and population of municipalities affected by the scope of the plan. This consultation does not extend beyond the perimeter of the local respone plan(PPI). CLIs are invited to express an opinion on the PPI during commissioning consultation.

Germany: The interior minister of the concerned Federal state (die Bundesland).

Luxembourg: National and local are the same

Slovenia: to our knowledge civil society is not involved at any stage of development and preparatory activities in the field.

• In the approval of the detailed plan EP&R activities at the specific location of a NPP.

France: The establishment of the local response plan (PPI) integrates the consultation of the plan proposed by the mayors and population of municipalities affected by the scope of the plan. This consultation does not extend beyond the perimeter of the PPI. CLIs are invited to express an opinion on the PPI during commissioning consultation.

Germany: The interior ministry of the concerned Federal State (Bundesland).

Luxembourg: Government, Parliament and several consultations with stakeholders, such as local communities and critical infrastructure.

Slovenia: to our knowledge civil society is not involved at any stage of development and preparatory activities in the field.

• In the implementation of EP&R drills and exercises as defined by local EP&R plan

Belgium: Actors from local communities (hospitals, schools, farmers etc.) have been and will be involved in exercises, depending on specific objectives.

France: In most cases, civil society (NGOs and representatives) is associated with the implementation of exercises and workouts, including CLI.

Germany: The concerned emergency authority. In Rheinland-Pfalz it is the Ministry of Interior ADD, in Saarland the interior ministry.

Luxembourg: National coordination by High Commission for National Protection (HCPN).



Slovenia: local voluntary fireman brigades and voluntary Civil Protection corps are taking an active part in EP&R drills and exercises. Local inhabitants and NGOs are invited to observe but without request to provide their observations and opinions.

• In the evaluation activities of EP&R drills and exercise as carried out at local level

Belgium: the participants of drills and exercises are requested to draw conclusion and submit their evaluation.

France: In the evaluation stage of the exercises the attendance at evaluation meetings of local elected officials and representatives of the CLI is advocated. More informally, experience feedbacks are made by members of CLI in their commissions or at national seminars of ANCCLI. The participation of national representatives on the evaluation of exercises is also occasionally performed in the context of parliamentary committees (national assembly and senate).

Germany: See under 3.f.

Luxembourg: National and cross border evaluation led by HCPN. Each participant (ministries, administrations) is responsible for own evaluation lessons learned and implementation of improvements.

Slovenia: No participation of civil society on the issue

• Are the local communities and/or civil society engaged in **cross-border EP&R activities**? In what role and how often?

Belgium: only through EU research projects

France: The cross-border exercise of Cattenom aimed to strengthen cooperation and consultation between the various countries (France, Belgium, Germany and Luxembourg) but also allowed to test different levels of competence in each country. The preparation phase and the courses carried out in three years period (June 2012, December 2012 and June 2013) allowed to work with stakeholders at the regional level: decentralized agencies and local actors (development of thematic workshops with elected, representatives of civil society and the workplace). *This response should be completed by further research*

Germany: The interior ministries of Saarland and Rheinland-Pfalz have not provided any information on their cross-border activities.

Luxembourg: No

Slovenia: Although NPP Kristries of Saarland and Rheinland-Pfalz have not provided any information on their cross-border activities. , Belgium, Germany and Luxembourgcts.

• How do you assess provision of sheltering in off-site EP&R plans in your country?

Belgium: National emergency plan provides sheltering in homes or any other buildings. Private or public atomic shelters are not available. Buildings insulation has been improved in last decades due to energy prices and policies, yet not all buildings can offer the same degree of protection. Exposure is expected to be reduced at least for factor 2 compared to staying outside, depending on the structure of the building. This is taken into account in the decision process. However on specific locations problems with sheltering might submerge.



France: In France, the sheltering is ordered, *"when the population exposure estimates exceed effective dose 10 mSv for the whole body"* [National Plan 2014]. The IRSN publication 109 states that sheltering is not recommended beyond about 48 hours. But the need of the food supply and the potential separation of family members are limiting factors. Children may be at school and parents at work. Thus, the French authorities recommend not to exceed a "law-lasting half a day" [2014 nationally]. *This responses needs to be completed by further research*

Germany: There are no special shelters therefore sheltering in ordinary buildings is envisaged. By 10mSv (effective dose) there will be an advice of the crisis team: to go immediately into and stay in buildings, , in particular in cellars, children have to stay in schools and Kindergarten, employers have to stay at their work if they work outdoors they have to go into surrounding buildings, doors and windows have to be closed.

Luxembourg: Sheltering is foreseen in normal houses; therefore it is limited in time to max. 48 hours. Exposure is of about 10 to 30% relative to 100% outside and depending on the structure of the houses.

Slovenia: Emergency plans provides sheltering in homes or any other residential, industrial or commercial buildings. The question is however if the people that are living in low-energy buildings with artificial air conditioning are informed and trained to switch of the ventilation systems.

• Are the locations and capacities for sheltering adequate?

Germany : No. The locations for sheltering are not adequate. Normal houses never were planned to be nuclear shelters. The public is not aware that the only shelter will be the own flat, house, school or any other building that is available. Buildings may have air conditions. Buildings may be a new climate house with an automatically exchange of air. Who will switch them off? Will the concerned person in a private home or public house think about this risk in the stress of the emergency case? Will the responsible person be at home?

Luxembourg: Information is provided beforehand and during an emergency on what to do during sheltering and the protection offered by the shelter in a "normal" house. (For example: switching-off air circulations).

• If not, what are main weakness/problems regarding provisions of adequate sheltering at the specific locations?

Germany The public is completely left alone without any preparation. It is not really expected that a nuclear disaster will cross borders or will affect larger areas or will be really high and that the evacuation and resettling radiation levels are too high. No normal house, school, building in Germany was ever built for sheltering against deadly radiation. Average German cellar is not prepared for sheltering.

Luxembourg: Sheltering is not foreseen for potential high exposure and it is limited in time.

• How can sheltering be improved at specific locations?

Germany There are no specific shelters. For the general public in the whole of Germany special programs are necessary, inclusive technical advice and complete financial support for the upgrading of houses, training and workshops how to deal with a house as a sufficient shelter against radiation and what to do when you go outside. The operators of nuclear power plants in Europe should have to pay for all these activities.

Luxembourg: Renew information to the public

Slovenia: More regular and attractive informing of the public including technical advises how to minimize penetration of contaminated air in a house (switching off air conditioning, additional sealing of window and door



frames etc.)

How (and by whom) are the stocks of stable iodine pills planned in your country?

Belgium: Stocks are planned in the context of the organization of campaigns for individual pre-distribution of pills for the public and collectivities in pre-distribution zones of 20 km around NPP, as determined in the national nuclear and radiological emergency plan. Stockpiles exist at the permanent units of the civil protection for rapid distribution in case of a need. In addition there's also a national stock and the availability of stocks iodine pills in pharmacies in the 20 km zone. Besides strategic stock of basic iodine products is imposed to each pharmacy located on the Belgian territory, allowing to quickly producing additional stable iodine preparations if needed.

France (Internet site of the ASN): Iodine tablets are distributed for populations living in areas corresponding to a radius of 10 km from central nuclear. The fourth campaign of distributing iodine tablets around NPPs took place between June 2009 and the first quarter of 2010. It involved people and communities (schools, businesses, government, etc.) located within 10 km around the 19 French nuclear plants, altogether about 500,000 homes and 2,000 public buildings spread over 500 municipalities. The residents received a letter inviting them to pick up their tablets in pharmacy and 50% of the affected population did that. To the others the tablets are mailed to households that did not come withdraw their boxes. Beyond the scope of the PPI, stocks are available in each department and the distribution is intended only when needed in case of an accident.

Germany: In the emergency zone the iodine pills are distributed by the responsible emergency authorities and the communities. Iodine tablets are available for the s are distributed by the responsible emergencyhe intervention reference is 50mSv thyroid dose for persons under 18 and children and pregnant and by 250 mSv by persons older than 18 and younger than 45. The iodine tablets are available and decentralized stored in Saarland in the 25 km radius in schools, community centers, election locals and so on which are well known to the public. In Rheinland-Pfalz they are stored in the communities in the 25 km radius and will be available in emergency case in the fire stations. For the rest of the Saarland and Rheinland-Pfalz iodine tablets can be accessed in the central national and federal states storage (es storage (e responsible emergencyhe intervention reference is 50mSv thyroid dose for

Luxembourg: Two parallel systems exist. The civil protection has organized stockpiling in the municipalities in the 10 to 25 km zone and centralized stockpiles in the rest of the country (one blister per inhabitant). The Ministry of Health has a complementary program that comprises a pre-distribution to all newborn and stockpiles in all schools for the whole country.

Slovenia: Within 10 km zone from the NPP Krcivil protection has organized stockpiling in the municipalities in the 10 to 25 km zone and centralized stockpiles in the rest of the country (one blister per inhabitant)pportunity to take home boxes of iodine pills, yet only 20 % used the opportunity. Within 10 km zone iodine pills are stored also in kindergartens and schools as well as in companies and institutions with more than 50 employees. Pills can be however picked up at any moment within all hospitals in Slovenia by holders of national health insurance cards.

• Are they planned as individual counter measures or are they are connected with sheltering?

Belgium: in connection with other measures like sheltering.

France: in connection with other measures.

Germany: in connection with sheltering

Luxembourg: In case of sheltering, iodine prophylaxis is combined. It is to be noted that the old emergency plan



considered a core melt scenario as worst case with would allow sufficient time, around 24 hours, to distribute iodine before the releases, in particular since the distance of the closest village is 10 km. This assumption may change.

Slovenia: in combination with sheltering.

• Are those stocks sufficient also in the case of a major nuclear accident?

Belgium: Sufficient to provide entire Belgian population with iodine pills.

France: Iodine stocks of 110 million of potasium iodine 65mg pills are considered as sufficenct and are available in departmental centers if there was need to distribute iodine beyond the perimeter of the PPI in accordance with Iodine-ORSEC plans.

Germany: Not known.

Luxembourg: Yes, blister with 10 iodine tablets per inhabitant, 2-3 blisters are available for young ages (below 20)

Slovenia: stocks are sufficient for the whole population in Slovenia.

• How and by whom is the delivery of iodine pills organized?

Belgium: Decision for distribution pills outside pre-distribution zones and ingestion of pills (in or outside pre-distribution zones) is made by strategic coordination structures: federal coordination committee (decision) in consultation with provincial coordination committee(s) (responsible for coordination execution countermeasures). In addition to the stable iodine pills pre-distributed, the delivery of iodine pills in a real emergency situation, mainly outside the pre distribution areas, is a mission for the so called "discipline 4" (logistic support) within Belgian crisis management structure, and will executed by Civil Protection Units (sustained eventually by military forces).

France: The Prefect of a Department triggers the stable iodine "once the thyroid exposure exceeded forecasts in equivalent dose to the thyroid, 50 mSv." The orde is broadcast by the media under agreement, specifying the dosage, the exact moment of decision, the highest priority population, both for the first shot for a possible renewal. The measurement is based on two distribution devices f preventive distribution of potassium iodide tablets, around the facilities at risk of exposure to discharges containing radioactive iodine (power reactors, research reactors and naval bases) in the planning radius (PPI and feasible distribution throughout the territory in emergencies from departmental and zonal stocks (ORSEC-iodine). in case of nuclear crisis with radioactive discharges common canton capitals receive stocks of iodine tablets corresponding to the population of the canton and will be responsible to organize the distribution for the municipalities that will get their lot tablets. All municipalities will continue to ensure the distribution of tablets to populations in the municipality. » It would be better to pre-distribute iodine tablets to 100 km around nuclear power plants to ensure quick access in case of accidents and avoid conflict with the sheltering.

Germany: The public has to fetch the iodine tablets in the 25 km radius themselves. How the other persons in Germany will get iodine tablets if needed, is unknown. Answer of the ministries: For the rest of the Saarland and Rheinland-Pfalz iodine tablets can be accessed within the central national and federal states emergency center (ency center (the 25 km radius themselves. How the other persons in Germany will get iodine tablets iGrafen-rheinfeld for example the iodine tablets will be delivered by helicopter to the fire brigade station in the big cities.



And then the public has to fetch it.

Luxembourg: During the emergency the municipalities are in charge for the distribution in the first zone, civil protection in the zone above 25 km, teachers will do it in the schools.

Slovenia: The residents within 10 km zone should fetch the iodine tablets themselves. In the schools teachers will in case of emergency deliver the pills to pupils. To the visitors and tourist in the municipalities of Krško and Brežice it will be in a case of emergency delivered by local Civil Protection. The ingestion of pills is triggered –upon the request of the Head of the National Nuclear safety administration - by the Head of National Civil Protection through national and local radio and TV broadcasting.

• Are there in place clear instructions when the pills should be distributed and consumed by the people (potentially) exposed to radiation?

Belgium: Boxes with iodine pills contain explicit warning only to take pills on decision from Belgian authorities (distribution doesn't mean automatically ingestion of pills).

France: The distribution of iodine tablets is accompanied by a leaflet in French.

Germany (BA): the ministries and their responsible officers will give advice at the moment the iodine tablets will be fetched by the public while the emergency is ongoing.

Luxembourg: 2 flyers exist, one in 8 languages how to use it and one in three languages for pharmacies and medical doctors and also the public on how it works

Slovenia: Boxes with iodine pills contain information by whom (age, health situation, in what dose and when the pills should be ingested by explicit warning only to ingest pills on request of the authorities. Basic information are also provided on the nuclear emergency information leaflet distributed in 2010 to the residents of Krško and Brežice.

• How do you assess provisions for evacuation plans in case of nuclear accidents in your country?

France: This response requires extensive research in the various existing PPI.

Belgium: Evacuation is planned in a zone of 10 km around NPP's. The operational aspects are part of the provincial emergency plans. The nuclear and radiological emergency plan for the Belgian territory is updated right now. Distance of emergency planning zones is reconsidered taking into account scientific elements. Comparison is made with emergency planning zones in neighboring countries.

Germany: (Answer of the ministry in Rheinland-Pfalz). *Evacuation will be ordered after a radiation intervention reference of 100 mSv in a radius of 25 km. In Landkreis Trier/Saarburg 2400 persons are expected to be evacuat- ed. Receiving regions out of the 25 km radius are available.* When the public is on the run in their own car, they will look for lower contaminated areas.

Luxembourg: The old plan had an intervention level between 30 and 250 mSv. The aim is to have a flexible value in order to be able to coordinate the response with the other countries.

Slovenia: Evacuation is organized based on national, regional and local Nuclear Emergency Protection and Rescue Plans and should be carried out previous – if applicable - to release of contamination from nuclear object



into environment or after the passing of a radioactive cloud. It will be triggered by the national commander of civil protection who will also provide instructions to the population through the media or intervention personnel. Instructions will be also provided on national emergency web page and on the web page of the national press agency. Evacuation should be provided by own means of transport except for pupils in kindergartens and schools, homes of elderly and hospitals that should be evacuated by collective transport means provided by the authorities. People should evacuate to the check points that are assigned in the local evacuation plans where the families will be merged into place temporary accommodation that is envisaged for 7 days.

• What are their strengths and weaknesses?

Belgium: Strategic principles have been developed to divide emergency planning zones around nuclear facilities in layers and blocs. The application of these principles enhances common understanding between experts, decision makers, communicators and operational intervention services on the field on concrete intervention zones for countermeasures (sheltering, evacuation and ingestion of iodine tablets) and facilitates decision making and execution of these measures.

France: this issue needs to be further investigated.

Germany: Main weakness is that evacuation plans are not trained with the public. It is impossible to evacuate 353.000 persons in three countries in a circle of 30 km around Cattenom in time and without casualties.

Luxembourg: Evacuation is relatively easy to plan, but extremely difficult to execute. Main difficulties in planning are the organization of reception centers for the population in a very small country. Main difficulties to evacuate during an emergency are (this small list is not complete):

- Not possible to really exercise beforehand (you need to tell the people and then they behave differently)
- Poor knowledge about radiation and its effects, risk of panic.
- Poor trust in the decisions of authorities.

Slovenia: The strength is a large number of evacuation routes and check points. It is however not very realistic to expect that the parents will not try to evacuate their children from kindergartens and schools. This can however create traffic jams and consequently a panic. It can be also expected that when informed on an accident in the NPP Krško many people will not wait for instructions and stop at check point but will fled immediately according to their own plans of reallocation. The general weakness is that people are poorly informed on what to do in a case of a nuclear emergency therefore it cannot be expected that they will behave according to the plans.

• Have the evacuation plans been updated after the accident in Fukushima or are they at least planned to be updated? In the latter case until when?

Belgium: After Fukushima, evacuations plans in Belgium have not been updated. However the experienced gained from the Fukushima accident is discussed within different international organizations (WENRA,HERCA...) in order to improve EP&R.

Germany: Information of the two interior ministries: Since February 2014 the radiation protection commission has adopted new advices for updating the emergency plans. Both Bundeslaender already have implemented the new rules: the intervention reference is as before - 100 mSv, a central zone is defined within the radius of 5 km, a middle zone within 20 km, an outer zone within 100 km.



Luxembourg: Yes, the new plan will be much more detailed on the operational planning.

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- How can evacuation plans be improved in general and on specific sites?

Germany :

- 1. The secret parts of the emergency plans must be published immediately.
- 2. Round tables under the Aarhus Convention are necessary to start a public debate
- **3.** Inclusion has to be included in the emergency plans.
- 4. English must be a common language for responsible emergency officers.
- 5. Evacuation zones and possible affected regions have to be located by source term cards
- **6.** Iodine tablets have to be stored in all households.
- 7. The civil protection and hospitals have to be prepared also in middle and far zones.
- 8. Radiation level for evacuation is far too high. The level for longtime resettlement must be reduced from 100 Millisievert/year dramatically to the today normal level of 1 Millisievert/year. If this is not possible, phase out immediately.

Luxembourg: The 100 Millisievert as trigger for evacuation concern an outside exposure. If you stay in your house sheltered, you will receive approx. 20 mSv (10 to 30). This means in a conservative calculation 1 deadly cancer per 1000 inhabitants in such a zone, or less since it is the maximum value – most people will be exposed below in that zone. In Japan we observed 1 person dying due to the evacuation per 1000 people. In these terms of a cold emotionless calculation, the decision to not evacuate is not wrong below these 100 mSv outside. It is the decision between two evils.

Slovenia: Evacuations centers should be removed to the distance longer than 40 km in order to avoid the need for re-evacuation. Most recently there was a citizens not wrong below these 100 mSv outside. It ion roads in the town of Krško and at present the municipality is already designing visible – yet not alarming – signs to assign the nuclear emergency directions in the town

• Is there a clear strategy regarding *decontamination* in your country?

Belgium: Civil Protection units have mobile equipment for measurement of contamination and decontamination. Well trained staff is available. Mobile equipment can be used in reception and decontamination centres of large capacity that dispose of shower capacity. In a case of a severe accident the international assistance may/ will be needed from neighbouring countries or through the ERCC {EU} and RANET {IAEA}. These large capacity centres have to be considered as transit centres to direct people to other locations. People with own transport, not attending these centres in the first place, will receive specific instructions for auto-decontamination if necessary.

France: The Measure Sheet No. 31 of National Plan from February 2014 outlines the conditions and organization of *"first contamination reduction actions."* The objective, "output emergency phase" is to *"minimize exposure to ambient radioactivity persons residing and working in the population protection area (SPA) in case of accident giving result in radioactive release."*

Germany: Saarland: Three decontamination stations out of the 25 km radius (Saarlouis, Wadern and Puettlingen). Rheinland-Pfalz: decontamination station is possible in Konz in the school, 9 others are possible in the other places. The operation of the other decontamination stations near Cattenom is possible.

A general note: Most of these measurement and decontamination stations and trucks in Germany are paid by and belong to cities. Most of these cities have problems with their financial budgets. It is necessary to relieve these cities from the procurement and maintenance costs for these stations and trucks completely. The staff of



these stations and trucks is voluntarily. The whole system is relying on volunteers.

Luxembourg: Decontamination is part of the evacuation plan (old and new).

Slovenia: Decontamination points are defined for 3 out of 5 regions where evacuees should be relocated. In theory the decontamination measures and means should be sufficient under presumption of planned evacuation. However, if the large part of evacuees would decide to flee on their own than it would not possible to carry out an effective decontamination.

• Are decontamination sites clearly defined and accessible?

France: The national plan offers the possibility of a possible gradation areas affected by the decontamination measures "Depending on the extent of the accident and the weather at the time of rejection, ZPP geographical extent may vary. Depending on the density of space built in the ZPP and scope thereof, implementing perimeters shares of the contamination reduction may also be of varying magnitude. Moreover, the effectiveness of these actions varies treated surface type.»A focus is on "territories where people were kept in place."

Germany: The affected public will be informed after the emergency case has happened, especially the one outside of the nearer emergency zones.

Luxembourg: In exercises this is one of the first things done. I am confident that it would be done the same in reality. Anyhow CNN will have it within 2 hours, we as authorities need to be faster.

Slovenia: Decontamination points are clearly defined and accessible yet the challenge is whether evacuees would be capable and willing to get to them.

• Is there sufficient well trained staff and equipment for an effective decontamination?

France: Action Sheet of the national plan identifies stakeholders who could be engaged. Personnel have to intervene in decontamination actions will be in a situation of lasting exposure. As such, it is recommended at first to use restricted to persons trained in this type of intervention: public safety (SDIS / CRIC). It adds that *"some companies specializing in the nuclear field, in which workers are already qualified to intervene in areas regulated by the labor code could also be mobilized. "This response should be completed by further research."*

Germany: The well trained staff in Germany usually is from the fire brigades. Most of them are volunteers. The whole system is relying on volunteers and will need d will need neelunteers.

Luxembourg: Contamination measurements cannot be done on large populations without international assistance. Those assistance mechanisms need to be strengthened.

Slovenia: If it comes to a need for decontamination of large populations than international assistance would be of a great help.

• How many staff would be needed in addition to assure sufficient capacities in case of a major nuclear accident?

France: The answer requires further research.

Germany: If the usual accidents should be covered up as usual and the affected persons should not be left to die



in their cars or burning houses, with a realistic view on a serious nuclear accident, quite a lot of additionally well trained staff would be needed.

Luxembourg: International and bilateral assistance is important. In case of a major nuclear accident (core melt with unfiltered releases) but also in other natural disasters, a small country will always need. Slovenia: the answer requires further research.

• How are EP&R plans in your country addressing the issue of relocation?

Belgium: General emergency plans (not specific to nuclear/radiological risks) of all Belgian provinces provide lists of reception centers that are available in the provinces.

France: The special chapter of the national plan addresses the issue of *"remoteness, maintaining or returning populations in situ"*. It is suggested that the choice of place of removal should be considered and must be able to *"endure a few days implementation period"* to allow people to organize themselves and to the administrative authority to collect the necessary logistics. Initially, the accommodation capacity of IDPs will be based primarily on the solidarity of the "closest towns" and mutual relatives of the families concerned. In case of realocation for a period of one month or longer is also takes into account aviability of in infrastructure *and services to populations*). To establish the scope of removal, nationally CODIRPA recalls the proposal of a projected dose of 10 mSv in the first month of the post-accident phase, not taking into account the internal ingestion of contaminated food. In his chapter on the involvement of stakeholders the plan proposes, right out of the emergency phase, to involve civil society *"within the framework of the decisions concerning the future immediate population."* Means are identified including the use of *"a plurality of source of expertise (in particular associations and academics)"* to open open dialogue between different stakeholders, provide access to people to means ofradiological measurement in order "to *enable people living in the contaminated territories to realize a risk hardly noticeable […] and the necessary elements (degree of food contamination, places of life …) to build their choices and act daily on their environment and their own risk. »*

Germany (Ministry of Interior of Rheinland-Pfalz): There are enough of receiving regions. No information about who will cover the costs at all. No information about compensation for those who do not want to stay in 100mSv/y contaminated areas.

Slovenia: National nuclear protection and rescue plan is defining regions and individual municipalities that should provide relocation plans and plan relocation capacities and services for at least 7 days. After the emergency and before the relocation or re-settlement of evacuated people mobile radioactivity measurement units will be activated in order to measure the level of radioactivity at each single place of resettlement in order to avoid overexposure of the people to the radioactivity. *Mapping of the each resettlement area is the most important part of post-emergency strategy* In case of a major nuclear accident decisions of the Government or an authority established by the government will made informed decisions where and for how long people will be relocated will be made upon measurement of radiation and information on location and size of contaminated and less contaminated areas and the location and number of people that will need to be relocated. In the opinion of national nuclear safety authorities it is enough to have some baselines and framework for improvisation.

Have those plans been updated after the accident in Fukushima or are they at least planned to be updated?

France: National Plan was issued in 2014

Germany: Plans are from 2014 and their up-dating is on-going process.



Luxembourg: Yes, process almost completed.

Slovenia: this still need to be investigated at the level of reception municipalities.

• What major changes have been made or are planned to be undertaken?

Germany (BA): Nothing real new, still thinking in circles, still the old 100 mSv/y resettling level, no iodine tablets stored in households, still 600 Bq Cesium per kg food, and so on.

Luxembourg: To be presented soon. (Partially addressed in other questions)

Slovenia: this still need to be investigated at the level of reception municipalities.

• How are food and drinking water restrictions managed under EP&R plans at national level?

Belgium: This will be managed as all other problems that related to the food chain, essentially by the Federal Agency for the Safety of the Food Chain (FASFC), in collaboration with stakeholders.

France: The National Plan of February 2014 tackles food contamination refers to European legislation on the subject because *"the standards for contaminated food in the European Union […] are declined as regulations and therefore require the Member States of the European Union."* Thus, *"if another accident situation, the [Maximum and Allowable Levels (MAL)] of Regulation Euratom No 3954/87 should be systematically made applicable in the 24 hours following the occurrence of an accident by publication of a regulation valid execution for a period of three months, during which the European Commission should review the adequacy of the MAL as defined by the regulation and possibly reassess depending on the specifics of the accident situation». The National Plan states that <i>"for people living away from the accident site and consume a small portion of contaminated food from the country affected by the accident, the levels of the EURATOM Eligible Maximum and regulations are not strictly health standards. These are indicators at a given time, the radiological quality of food products […].*

Compliance with the MAL in the European Union and ensures any European citizen exposure due to food consumption from contaminated areas well below the dose limits [...].

Germany: Saarland is using groundwater for drinking water and the ministry is expecting no problem. Rheinland-Pfalz gave no answer about drinking water. Both ministries expect no problems by food, because of the global trading. Advices are: *Early harvest, vegetables from the garden should be carefully washed, animals should be sheltered.*

Luxembourg: During the emergency phase harvesting and grazing can be generally forbidden in a given area based on calculations. Later post-accidental management will permit more elaborate measurements in combination with calculations. This has been trained several times. Also drinking water is measured on radiation.

Slovenia: The control over contamination of food and drinks will be carried out by appropriate institutions like veterinary, food and health inspectorates, safe food administration etc. At present there in the opinion of nuclear safety authorities there is no reason or need to go into details but that responsibilities and tasks are clearly defined.

• How will the control be assured? Are there adequate capacities to assure an effective control?

Germany (BA): Germany has a good food control system. It is working well. Realistic after EHEC, "Gammelfleisch"



and mouse droppings in bread: of course not every kilo of contaminated food will be discovered.

Luxembourg: The size of the area in which food is potentially above the limits is very large in case of important radioactive releases. After Chernobyl this was the case for half of Europe. Therefore it is not possible to measure everything. On can only systematically exclude food produced in these areas. There is of course no guarantee, but the food control and tracking systems in Europe are certainly far better than anywhere else in the world.

• How are the provision of non-contaminated food and drinking water assured? Are there sufficient stocks of non-contaminated water and food also in case of a major nuclear accident?

Germany: The ministries expect no problems at all. In the answer of Rheinland-Pfalz the answer fficient stocks of non-conta

Luxembourg: This is not in my competence. But in Europe food stocks are for one year, isne answe

• Have there been or are there at least changes planned after the Fukushima accident? What are these changes?

France: Note: <u>On 10 January 2014 the European Commission adopted a new draft regulation</u> as it has consolidated the legislation in force. In fact, although the commission claims to consider, firstly, the teachings of the Fukushima disaster and, secondly, new scientific knowledge on radiation-induced risk, it considers that the established values since 1987 are still valid. Consequently, the proposed pseudo-reform merely extends the old maximum permissible concentration values of radioactive contamination of foodstuffs established for over a quarter century. Here the only change: *"In order to take into account possible considerable variation in the diet of infants during the first six months of life, as well as uncertainty about the metabolism of infants aged six to twelve months, it is appropriate to extend the period of the first twelve months of life the application of maximum permitted levels reduced for infant foods.»*

Germany: There were changes after the Chernobyl accident. Since 1986 the radiation food levels in Europe are six times as high as before this accident and six times as high as in Japan after the Fukushima accident in 2011 and as in the rest of the world.

Luxembourg: A new EU regulation for food is presently discussed at the EU council.

• Are there in EP&R plans clear criteria under what circumstances people will be allowed to **return** (to their homes) **from evacuation or relocation**?

Belgium: Emergency plans in Belgium focus on optimization of response in acute phase of crisis management. Developments on post-accidental phase on a European level or in neighboring countries, are closely followed though.

France: The national plan provides the output of the emergency phase, the establishment of zoning. The objective is to *"supervise the implementation of post-accident actions to protect the population and management of contamination deposited in the environment in the areas affected by a nuclear accident.*

No clear criteria on return circumstances for the population are given. For information, only the distance criterion proposed by the CODIRPA a projected dose of 10 mSv in the first month of the post-accident phase is given, not taking into account the internal ingestion of contaminated food.



Germany: Resettling will take place at a contamination level of 100mSv/y.

Luxembourg: So far Luxembourg used the German ntamination level of 100mSv/y. iven. For information, only the distance criterion proposed by the CODIRPA a projected into a new doctrine that is more operational and also takes other aspects such as acceptance into account. It is planned to elaborate a post accidental management strategy based on that doctrine. This will be done in order to implement COUNCIL DIRECTIVE 2013/59/ EURATOM of 5 December 2013 laying down basic safety standards for protection against the dangers arising from exposure to ionizing radiation. Above a new concept comes from the above directive that relates to setting a reference level for the first year. Such a reference level, for example 100mSv for the first year would then include all exposures starting from during the release. Practically this could mean that <u>people who were evacuated before the release and that were not exposed during the release could be resettled earlier than others that were sheltered during release and have already received a fraction of these 100 mSv.</u>

• Slovenia: Strategy does not define any levels of decontamination in precise numbers (for example 20 mili Silvert value) but only sets what needs to be taken into account and how, therefore it does not provide recipes bur rather guidelines and establishment of a high-level national body that will be in-charge for informed decisions that will be at the same time both political and professional .This refers also to relocation and re-settlement of evacuated people since it is impossible to foresee the actual scope and size of the nuclear accident and its full consequences. *How will this return be organized?*

Germany: No answers from the ministries about this. Resettling into 100 mSv contaminated homes will only be possible with the force of arms.

Luxembourg: Work ongoing, but forced returns are not an option. Slovenia: Based on ad hoc informed decisions of a high-level governmental body established in case of a nuclear emergency

• Are there clear instructions to people what to do and what not to do after return?

France: The National Plan (2014) provides a number of actions to be taken in an emergency phase output to ensure the possibility of a return of populations. Beforehand, for example, *"the achievement of a first radiological characterization of the environment before the return of evacuees or other checks (e.g. viability of gas, electricity …)"*. It also provides the establishment of food marketing bans and restrictions, materials and manufactured goods and the supply of the population, providing information and finally commits the first actions to reduce contamination of the built environment.

Germany: No.

Luxembourg: The above mentioned CORDIRPA contains very good material on these questions.

Slovenia: National, regional and local plans does not provide specific information on the issue. The instructions will be provided by ad-hoc high-level best possible informed special nuclear emergency government body.

Are there sufficient information channels and capacities to distribute these instructions in time?

Germany (BA): Today yes, after the meltdown, not known.

Luxembourg: Returning home after evacuation permits more time for information. During the emergency phase



it is more difficult to reach people in time.

How people in emergency protection zone are to be informed on EP&R activities?

Belgium: People are informed through information campaigns for the public on nuclear risks. The last campaign took place in March of 2011. In Belgium these campaigns are combined with campaigns for pre-distribution of iodine pills in emergency planning zones. All people (and collectivities) in these zones receive a brochure that contains information about the risk, countermeasures and the adequate behavior to adopt. Publicity for these campaigns is made through national and local media. A website <u>www.nucleairrisico.be</u> is available for the population.

France: The population is poorly informed. Institutional information mainly based on communication with the distribution of stable iodine within the emergency protection area (this is limited to a maximum of 10 km around the facility). Survey by ANCCLI indicated that two in three French consider that nuclear power is a taboo subject. The survey has also identified real lack of information and vis- and vis-he emergency protection area (this is limited to a maximum of 10 km around the facility). Survey has also identified real lack of information and vis- and vis-he emergency protection area (this is limited to a maximum of 10 km around the facility). Survndents identical regardless the proximity of the place of residence of a nuclear power plant. In the same survey, the ignorance of those surveyed on security perimeters shows a blatant lack of information vis-à-vis the nuclear but also that the risk culture is not well integrated with the French population. The draft of French Energy Transition Act requires that operators regularly organize information activities of citizens on accidental situations and appropriate conduct.

Germany: It looks like people are not good informed, because it is even difficult to get information from them how good they are informed. Most of this information was collected directly from the emergency officers. It is not known to wide parts of the public.

Luxembourg: Regular campaigns.

Slovenia: By a flyer from 2010 distributed in the municipalities of Krven difficult to get information from them how good they are informed. Most of this information was collected directly from the emergency officers. It is not known to wide parts of rease the level of professionalism the drafts of the official news will be prepared by assistance of national nuclear safety administration.

• What are the basic means/media of informing the people on what they should do in case of an accident in a nearby NPP?

France: Information mainly happens via the Internet: institutional sites, media and some local government websites as part of an emergency protection zone. Note that on most sites, the information "practice" is hard to find. This is for example the case of the government's website dedicated to the prevention of major risks.

Germany: The public found the websites of district Merzig Wadern in Saarland and in Rheinland-Pfalz the ministry ADD in Trier.

Luxembourg: Flyers, brochure and Internet. Direct Information can be organized on demand, such as in schools. Slovenia: Alarm sirens, national radio and TV, web sites of Slovenian press agency and Nuclear Safety Administration

• Are there any additional media/forms of communication and, if yes, which?

France: The local information committees (CLIs) play an important role in informing people on EP&R in France.



Germany: Nothing known to the public.

Luxembourg: Not yet.

Slovenia: Other (regional and local) TV and radios stations, at present the use of NSM (Facebook, Twitter etc.) is not envisaged by the authorities.

 How (by which media) and by whom the people in the emergency planning zone will be informed of a nuclear accident in the nearby NPP? How and by whom the general public will be informed of a nuclear accident?

Belgium: A set of tools is available to alert/inform the public in case of a nuclear emergency situation to be used by crisis management authorities as described in the nuclear and radiological emergency plan for the Belgian territory: sirens with specific tonalities and possibility of spoken messages, are posted up to 15 km around NPP's, systems to alert/inform the population by phone on the local level, on a national level, the system Be-alert is in a test phase and provides alert/information to the public through different channels: gsm, SMS, phone, e-mail. <u>Crisis alert:</u> an agreement with audio-visual media to interrupt immediately broadcasts on radio/television in order to inform the public, press releases from communication units at different engaged levels (national, provincial/local) to inform public on the emergency situation and countermeasures that have been decided; federal call center: to answer questions from the public.

France: Communication with the public, as presented in the national plan, aims to transmit a feedback information, continuous and credible; to maintain the trust; to make citizens actors by transmitting different procedures to follow, promoting local solidarity mechanisms. The strategy is based on a clear division of roles and responsibilities of each source of information: the operator, the state authorities, Nuclear Safety Authority and IRSN institute. During the emergency phase, immediate communication to the public (and the media) is carried by the operator and by the authorities that provides the use of different means of dissemination of the alert (sirens, a national network of alert, mobile devices ...), complemented and supplemented by various means of communication (agreements with Radio France, France Television ...) and dissemination of information. In the emergency plans, local conventions grew with local radio stations to ensure that, during an accident, the relay of information to populations (evacuation, iodine, containment ...).

Germany: The ministries: In Saarland rapid repeated siren wail (one minute), by loudspeaker and over the media. In Rheinland-Pfalz by loudspeakers and over the media.

Luxembourg: A Grand Ducal regulation was promulgated on 11 August 1996 concerning the provision of information to the population on the applicable measures for the protection of public health and on the conduct to be adopted in the event of a radiological emergency. This regulation stipulates that the government has to inform the population in advance about the sanitary prevention measures and the optimized behavior during a radiological emergency. For this reason the Government published a brochure [2] to inform the population about the possible causes and effects of an accident that may occur in a NPP, about the various alarm signals and siren types, the prescribed protective measures and the appropriate behavior to be adopted in case of alarm followed by the implementation of the special intervention plan. The brochure is distributed to all households. After alerting, more information will be made available through media and websites.

Slovenia: by special siren alarm, by broadcasting on public national radio and TV stations and by web pages of emergency service and national press agency.

• What – if anything – should be improved in this respect in the first and/or in the second case?



Germany: The public opinion: Phase out now before the emergency will happen! Public round tables with all parts of the civil society under the Aarhus Convention are necessary in all councils and cities of Germany to take as much possible oncoming problems into account <u>before</u> the emergency case will happen and to inform and prepare the public. Press releases of what was spoken on these round tables so that persons who are not participating can read it. Further information letters to all households, on Facebook, twitter, other social medias to make sure you reach those who do not want to be reached by bad news and all the other instruments that are used today by the public.

Luxembourg: The communication is too passive by only having brochures and Internet. Messages are than often misunderstood and the normal citizen is either confused or in disbelieve. More dialogue would be needed, such as public presentations. Also some basic principles in physics on radiation taught in school would probably not harm.

Slovenia: Quality, regularity and diversity of communication should be considerably improved and based on not based on underlying message that NPP Krher confused or in disbelieve. More dialogue on the fact that although very rare sever accidents in NPP can have very harmful and devastating consequences.

• Would the **information** on the level of exposure to radiation, sheltering measures and evacuation activities **provided by authorities be considered as reliable, sufficient and trusted** by the people?

Belgium: This is a hypothetical question. Quality and timing of information to the public in case of a real emergency situation, as well as coherence between information sources at different levels engaged (national authorities, provincial/communal authorities, operator of the facility) should enhance trustworthiness of information and by this means reaction from the public to recommendations and countermeasures decided by authorities for the public. Belgian information strategy for the public in case of emergency situations takes into account these criteria.

France: The latest opinion poll carried out by IRSN on the perception of risk and security by the French used to shed light on this question. Indeed, it shows a *"relative disaffection of French citizens vis-à-vis the institutions"* and more specifically on the nuclear *"the attitude of the French people on the stakeholder has a tendency of deg-radation*». This response should be completed by further research in local emergency plans and the assessment and feedback crisis exercises.

Germany: No. In which languages will these instructions be provided?

Luxembourg: We have an iodine flyer in 8 languages. The brochure is in 4 languages. During the emergency embassies will translate press releases and distribute in their language to their citizens.

Slovenia: No direct empirical evidence (by public opinion pools or research) either to yes or to no. However low feedback of the public and local people to the EP&R activities carried out by the authorities respectively to the invitation to take part at presentation of regional & local EP&R plans and to observe the EP&R drills might be - together with the conviction that in case of a sever nuclear accident in NPP Krško no action can prevent harm to personal health - taken as an evidence of low trust. The in-charge national institutions however believe and hope that the information they will provide will be entrusted by large majority of population.

• Do you believe that in a case of emergency people would behave according to the instructions provided by authorities?

Germany: No.



Luxembourg: Some certainly not. Others probably yes.

Slovenia: this needs to be tasted by surveys or opinion polls since the opinions of the authorities and the local people concerned in nuclear matters are opposing.

• If not, why? And what should be improved to enhance trust in information and instructions?

France: Means of communication should be tested with a survey to know the percentage of people who have heard the warning and understood the broadcast message. The clear division of roles and responsibilities of each information source can be an important element. It is also clear that the communication should be continuous along the emergency phase, reactive, anticipating the needs of the media and the public and should be educational. The dimension of uncertainty is also taken into account, *"it is inherent to any crisis and to fuel the feeling of insecurity and doubt felt by the population. Take into account the questions asked, admit the unknown, malfunctions or difficulties and strive to provide answers. " Better inform and involve upstream civil society in the preparation of responses to the nuclear emergency is also a necessary prerequisite.*

Germany (BA): Trust was lost by the first nuclear disaster named Chernobyl and 25 years later by the disaster of Fukushima, this time a high tech nation. Why does anybody think there would be any trust in any authority after a third meltdown? But anyway, yes, it would be easier for the public searching for answers what to do in the emergency case to have coherent measures.

Luxembourg: Measures taken by different countries need to be coherent.

Slovenia: Renaissance of by different countri in the municipality of Krško and Brežice and provision of access to relevant data and information and adequate support for their activities and access to independent expertise has a potential to enhance trust in information and instruction provided by authorities.

• Are there in your country enough calibrated measurement devices to assure an adequate **measurement** of levels of radiation in case of severe nuclear accident?

Belgium: Both fixed measurement stations (TELERAD system) and hand measurement devices (measurement-teams from different stakeholders: Fire Brigades, Civil Protection, SCK.CEN,IRE, Defense...), as well as skilled and trained people are available. Sufficiency of capacities depends on severity and duration of emergency situation. International assistance EU and RANET {IAEA} can/will be requested if necessary (neighboring countries, ERCC)

France: These responses require further research, see investigated.

Germany: Answer of the ministries: In Saarland the measurements of radiation will be done by the dense ODL-monitoring network of the Federal State and the measurement units of the fire brigades in all districts. Two measuring points determine the radiation in the "Umweltmedien" like food and water. Each point has one measuring truck to measure the radiation at site. In Rheinland-Pfalz nearly the same situation but there are three measuring points. One of these points has "some trucks" not known to the public how much. Wide parts of the measurements are relying on the volunteers of the fire brigades. Their measurement units and trucks are paid by local communities. This has to be changed. These units and trucks and following costs have to be paid by those who are relying on them and who demand it: The governments, the EU Commission, the operators.

Luxembourg: The automatic measurement network comprises 18 monitoring stations for continuous gamma-dose rate in air, on-line. 8 of these stations are operational since the year of 1984, the others were installed



in the years 1991 and 1994 and now completely cover the whole territory of Luxembourg. In addition to gamma-dose rate in air, the national monitoring system further comprises the following measurements: 1 on-line station comprising measurements of the gross gamma-activity and iodine-131 activity in river water; 1 station for the automatic sampling of river water; operational since 1986; 2 on-line stations for continuous monitoring of airborne artificial alpha activity, artificial beta activity, Rn-concentration; 2 off-line stations for the sampling of aerosols; 2 on-line stations for meteorological data; 1 station for the continuous sampling of aerosols, gamma spectrometry, artificial alpha-activity, artificial beta-activity, Rn-concentration, iodine concentration (gaseous and particulate) gamma-dose rate; on-line; Operational since 1996, this measuring station is located on the French territory at the vicinity of the Cattenom nuclear power station (Luxembourg-French co-operation on nuclear security) and 1 station for the continuous measuring gamma radiation in the main drinking water reservoir (operational since 2003), combined with an automatic sampling of raw drinking water at the same facility (operational since July 2007).

Slovenia: Slovenia have in place a system for measurement of gamma rays that is concentrated around NPP Krško and mobile teams to measure the radioactivity that can be sent to provide additional in-field measurement, yet there is a space for upgrading and improvement. In case of a an emergency Slovenian authorities also counts on mutual assistance (RANET) under the auspices of IAEA.

• Are there enough skilled and trained people to provide measurement?

Germany: Not known. The fire brigades measurements rely on volunteers.

Luxembourg: In a small country it is of course limited (about 50 people are trained). Therefore Luxembourg has put it focus on automatic systems, also for measuring large amounts of people. Slovenia: In the opinion of national nuclear safety administration yes.

• How could the situation be improved?

Germany (BA): Without any doubt by immediately phase out in Europe. Until this will happen the situation would need to be improved by enough financial funds for the communities who are responsible for these things today. Even more official and paid officers who will have to be integrated into the voluntary fire brigades and technical help brigades would be necessary because the heads of the fire brigades say "our biggest problem is to recruit volunteers". Also help and assistance would be needed to motivate persons to join these brigades as volunteers would be welcome.

Slovenia: more measurement systems, more and better trainings of the measurement teams.

• Which civil society organization(s) and/or independent experts and/or institute(s) have a potential to provide trustworthy, credible and effective information on EP&R in the case of a severe accident in a NPP in your country?

Belgium: National and local authorities and The Federal Agency for Nuclear Control will provide the trustful, credible and effective information in case of a severe accident in an NNP. The Belgian Centre for Nuclear Research the experts from the Physical Control of our Universities will very probably be questioned by the public and the media to provide additional information. The normal channels of dissemination of information to the public will be the media.

France: The opinion survey on risk perception and safety by the French conducted each year by the IRSN survey showed *"a relative disaffection of French citizens vis-à-vis the institutions"* and more specifically on the nuclear *"attitude of the French people on stakeholders tends to deteriorate."* In this same survey, it is shown that at hand,



the strengthening of vigilance and citizen participation is seen as priority one and two. In 2011, after Fukushima, that level of expectation was even higher. *"This level of expectation is to put into perspective in a more general context where the French clearly express support for the idea of establishing pluralistic structures bringing to-gether experts, policy makers, industry, associations and citizens to care for risk situations: almost nine out of ten of them believe that such structures would be useful, their main advantages reside in the ability to better identify risks and help to reduce it.»*

Germany (BA): After Fukushima in Germany it was the nuclear physicist Heinz Smital from Greenpeace Hamburg and his colleagues who were for months in all TV news all around the clock and who informed about the situation in Japan.

Luxembourg: There is unfortunately no expertise at the Luxembourgish University in the area of radiation protection.

Slovenia: in the opinion of concerned citizens at present there are no any civil society organizations or trustful independent experts or institutes in the country although there is a urgent need to their support in EP&R. Some people would trust Greenpeace experts from abroad but not the Greenpeace activists in the county. Jozef Stefan Institute and National Chemistry Institute are two national institutions with identified potential for a road trust on the issue.

a) What would be needed to increase capacities of those organizations/individuals to provide reliable, in time and quality information on nuclear EP&R?

France: Give more money to the CLI in ANCLI and independent associations concerned by nuclear activities.

Germany (BA): If there would be a trusted and reliable states organization, what I do personally not know now, the governments and operators would have to pay for equipment and the staff. But would there be trust by listening to states organization which are ization which are usted and reliable states organization, what I do personally not know now, the governments and operators would have to pay f

Luxembourg: It is very clear that a small authority like the DRP would relatively fast reach its limits in such a situation. On the other hand, a small country like Luxembourg needs to balance its needs for routine works against needs for emergency even more than larger countries. Relatively to the size of the country or the population, the staffing of the DRP is not that small.

Slovenia: competent independent CSO organizations in the field of nuclear safety and EP&R ins the country need first to be established according to the opinion of the local concerned citizens.



Annex 7: Minutes and reports from round tables

Annex 7a:

Minutes of the Aahrus Round Table Cattenom, Emergency Preparedness and Response from the view of the public concerned

2014, May 17 in Schengen, Luxembourg

Round table took place in Youth Hostel in Schengen/Remerschen on May 17 2014. The event was organised by Greens of Fichtelgebirge and Greenpeace Luxembourg on behalf of Nuclear Transparency Watch Working Group on Emergency Preparedness and Response. The round table started at 9:00 and was finished at 17:30. Moderation was carried out by Ms Brigitte Artmann (Greens Fichtelgebirge) and Mr Roger Spautz (Greenpeace Luxemburg). Translation from German to English and from English to German was provided by Ms Patricia Lorenz (Friends of the Earth Austria)

List of participants:

- Roger Spautz, Greenpeace Luxembourg, NTW, nuclear expert
- Brigitte Artmann, Councillor for fire brigades & emergency preparedness, German member of NTW
- Phil Kearney Irish member of NTW, expert for questions about the Aarhus Convention
- Gilles Heriard Dubreuil, French member of the board of NTW
- Andrej Klemenc, REC/NTW member from Slovenia, minutes
- Dieter Majer, Ministerialdirigent a.D., former Technical Head of the German Nuclear Safety Office, EU stress-test expert for Saarland, Rheinland-Pfalz and Luxembourg
- Patrick Majerus, Nuclear Safety Office Luxembourg
- Dr. Werner Neumann BUND Germany, nuclear energy expert
- Ute Schlumpberger Saar, Chair Cattenom Non Merci, former councilor city of Perl Cattenom
- Karl-Wilhelm Koch Rheinland-Pfalz, co-chair Cattenom Non Merci, councilor Vulkaneifel- Cattenom
- Antiatomnetz Trier Gabi Sarik Cattenom
- Mayor Henri Kox Remich, Luxembourg- Cattenom
- Stephanie Nabinger MP Rheinland-Pfalz Cattenom
- Anti-Atom-Aachen Walter Schumacher NPP Tihange/Belgium
- Helmut Wesolek Greenpeace Kronach NPP Fessenheim/France
- Wolfgang Mueller, councilor Bad Steben NPP Grafenrheinfeld/Germany
- Patricia Lorenz, Friends of the Earth Austria
- Dan Michels, Greens Luxembourg
- Albert Artmann, Greens Germany
- Thomas Hecht, Greens Germany
- Martina Haase, West Castor, Aachen
- Heidi Schmitt, Cattenom Non Merci, Saarbruecken
- Interior Ministry ADD from Rheinland-Pfalz written statement
- Interior Ministry Saarland written statement
- Interior Ministry Lorraine refused
- Different int. officers for emergency preparedness, fire brigades, technical and medical rescue teams, police, army, members of civil society (farmers) were interviewed by some of the participants.



Part I: Nuclear »Emergency Preparedness & Response« – Anything learned from Fukushima?

The introduction to the event was carried out by **Mr. R Spautz** who first **welcomed all participants** and afterwards **presented in brief the history of NPP Cattenom** from perspectives of decision making, public opposition and protests, construction, operation and its record of 750 incidents after start of its operation in October of 1986.

Why an Aarhus Round Table on EP&R?

Mrs Artmann briefly presented herself as a German founding member NTW, a district councillor of Wunsiedel, a councillor of the city Marktredwitz and the speaker of the fire brigade & emergency preparedness in her hometown. She pointed out that in spite of more than 60 years from the start of the commercial use of nuclear power no public debate on EP&R was organised neither by the nuclear industry nor by the public authorities even after disasters in Chernobyl and Fukushima. In addition to a much larger probability of a nuclear disaster also its consequences will go far beyond general expectations and assumptions. In 2012 the German Federal Office for Radiation Protection (BfS) concluded in a study that a severe nuclear accident can have much wider ranging consequences than previously officially supposed and that the civil protection is not prepared at all. Therefore it is necessary for local authorities, fire brigades, rescue teams and civil society to request on the basis of Aarhus Convention all necessary information from NPP operators and regulatory bodies and organise local round tables on EP&R to take as much as possible unexpected local problems into account before the emergency case! Mrs. Artmann made a critical statement on the interior ministry of Lorraine which refused to take part on the round table and also to CLI Cattenom which ignored the invitation. German federal states of Saarland and Rheinland-Pfalz were not allowed to take part in the round table because of local end European elections, but participated in written form. She also criticised lack of any cooperation between France and Germany on EP&R issues. At the end of her presentation she called for more EP&R round tables throughout Europe and showed impressive flexRisk cards in case of a meltdown in NPPs Cattenom, Tihange, Grafenrheinfeld and Philippsburg that indicates that in case of a major nuclear accident in Europe most of the European territory will be contaminated to a level where one can without exaggeration speak about "the end of Europe".

The Aarhus Convention and the case of Hinkley Point C

After short presentation of himself **Mr. Phil Kearney** recalled the rationale, the importance, the basic principles and the basic design of **Aarhus Convention** and its 3 pillars: 1. **Right to Know** – access to information; 2. **Right to Participate** in decision-making when options are still open; 3. **The Right to Access to** (environmental) **Justice**. He specifically recalled **Article 5** (collection and dissemination of information), **Article 6** (participation in projects), Articles 6&7 (other areas: policies, plans, programmes, legislation) and **Annex 1** (specific activities including NPP and other reactors, reprocessing plants, installations designed for: the production or enrichment of nuclear fuel; the processing of irradiated nuclear fuel or high level radioactive waste, the final disposal of irradiated nuclear fuel; solely for the storage - planned for more than 10 years – of irradiated nuclear fuels or radioactive waste in a different site than the production site).

Within the second part of his presentation Mr. Kearney presented the recent **case where an Irish NGO has legally challenged the decision of UK government to proceed with construction of a new nuclear power reactor at Hikely Point (Hinkely Point C) in the UK courts based on the argument of lack of trans-boundary public participation. The court in the UK first rejected the case and for the Irish NGO the costs of an appeal would be too high, yet the Implementation Committee of Espoo Convention intervened** by claiming that in this manner the Convention has been violated. Following the intervention in question the UK judge decided that the appeal can go on and capped the costs of the appeal to 10.000 British pounds. If the appeal will be successful this might set an important precedent regarding trans-boundary public participation on nuclear issues.



Mr. Dieter Majer raised a question on a **type of the reactor planned for Hinkely Point C** unit and Mr. Kearrney explained that the AREVA designed **European Pressurised Reactor** is contracted.

Introduction about Nuclear Transparency Watch EP&R

Mr Gilles Heiriard Dubreuil presented himself a as a counsellor for ANCLII, the federation of Local Commission of Information in France (there is such a commission attached to each NPP in France, according to the French law) and the secretary of the newly formed Nuclear Transparency Watch network (NTW). NTW was created in order to support the implementation of the Aarhus Convention in the Europe in the nuclear sector. He underlined the fact that the "Aarhus Convention" constitutes a very good framework for public engagement for it is grounding the need for public participation as a way to improve effectively decisions impacting environment and health (avoiding therefore ambiguities on the purpose of public participation). The creation of the NTW is resulting from the Aarhus Convention & Nuclear process that took place from 2008 to 2013 to (an initiative taken by ANCCLI and DG ENER). By its mission NTW is neither "anti" nor "pro" nuclear. It is aiming a creating societal vigilance on nuclear safety issues. it will support societal investigations at national and EU levels on relevant questions regarding nuclear safety as well as environment and health protection in the context of nuclear activities. It is aiming to provide support to public access to information, to ensure transparency and to provide necessary non-partisan expertise to civil initiatives on different nuclear issues like storage of spent fuel and other nuclear wastes, reactor safety, ageing/life-time extension of reactors and Emergency Preparedness & Response in case of a nuclear accident. The creation of NTW will also promote better coordination and structuration of Civil Society Organisations at EU level, striving for more transparency in nuclear issues in Europe, for expertise in support of civil society demands for better safety of nuclear facilities, for more and better cooperation between "civil society expertise" and experts working for public authorities and academic research on nuclear issues, promoting the development of a culture of participation through the organisation of round tables gathering the different nuclear stakeholders in the perspective of the Aarhus Convention. The contrasted European landscape regarding the future of nuclear energy reinforces the need for more vigilance, transparency and participation of civil society. The ageing of nuclear structures in Europe is also a strong reason for increasing social vigilance on nuclear risks for Europeans citizens. The post Fukushima European stress test did not take into account offsite provisions. The civil society organisations have voiced their concerns about the need to address this question that the European Commission has now decided to take on board. For this reason the NTW Working Group on Emergency Preparedness & Response (EP&R) has been created and will propose at least some adequate recommendations to improve the state of the art of EP&R provisions in Europe based on experiences gained from Fukushima disaster and new paradigm of management of catastrophic events characterised by high risks for rescuers, large amount of exposed and affected people, long lasting health and environmental risks and diversity of information and advisory sources for victims. NTW WG EP&R will not only check if there provisions are in place and if they are adequate but will focus on how provisions work in practice and what alternatives should be provided next to established EP&R scenarios.

Dieter Majer pointed out that light water reactors are by design not safe so it does not make sense to improve their safety but to shout them down. The only improvement can be achieved by quality management of NPPs

Gilles Heriard Dubreuil replied that NTW approach is not limited to improvement of safety of existing reactors but also on new concept of nuclear safety and new concepts of nuclear reactors. On the other side increased safety requirements and demands are putting pressure for shutting down nuclear reactors yet this is a sword with two blades and the negative aspects of shutting down NPPs are also inadequate structures for safe management of existing NPP even after they are shut down. :

In the opinion of **Brigitte Artmann** one need to require from nuclear industry to calculated and internalise all costs related to EP&R activities to the price of electricity from nuclear power plants.



Martina Haase asked if NTW strategy is to burden the price of electricity from NPP with internalisation of external costs to a level that would lead to shut down of the NPPs.

Phill Kearney clarified that the primary tasks of NTW is to put pressure for more transparency and better safety of nuclear industry and not directly to increased costs of operation of NPPs – the later might be however the consequence of more transparency.

Helmut Wesoleck agreed with focus on increased security and more participation but on the other side one should not neglect specific high risks of certain NPP that can be only avoided by shutting down those NPP.

Wolfgang Mueller stated that 100 % security of NPP cannot be reached regardless to improvements yet a single major accident would cause damage that is beyond risk insurance liability of any insurance company.

Nuclear Transparency Watch – The ENCO Study and EP&R questionnaire

Mr. Andrej Klemenc informed the audience on the important achievement of NTW – upon a request of NTW EC DG Energy in early May 2014 agreed to provide full access to the study **"Review of current off-site nuclear emergency preparedness and response arrangements in EU member states and neighbouring countries" that was commissioned in 2013. Mr. Klemenc presented in brief the objectives and the recommendations of the study. He pointed out that the study clearly acknowledges its top level desk office work character and a large number of gaps and inconsistencies in the field, at very first a general lack of strategies and arrangements for long term protective measures and return to normality following an emergency** and **coherence in cross border arrangements**. According to Mr Klemenc the study has also identified numerous opportunities for improvements of EP&R provisions and more efficient and effective EP&R management. NTW Working Group on EP&R will not only critically review the study but is intending to put an emphasis at its weakest point - lack of assessment of how – if at all – identified EP&R procedures and provisions would be implemented in practice . NTW WG EP&R after it inception seminar in Paris designed a questionnaire that is aiming as a tool for its members to check out the reality of EP&R measures on the spot. At the end of his presentation Mr. Klemenc presented in brief the questionnaire.

Following the presentation of Mr. Klemenc **Mr. Heriard Dubreuil** made a comment on the inadequacy of the paradigm the ENCO study that is based on presumption of centrally planned top down activities coordinated by a fully informed central office that is trusted both by implementation agents and by victims that are not seen as agents that are willing and capable to search for their own information sources, trustful advices and individual opportunities to improve their own situation and the situation of their dear ones (including pets). Accident in Fukushima provided the evidence that one needs to go beyond the paradigm of rational, centralised top down emergency plans and rather accept the paradigm of decentralised and contextual-rational management of chaos that will inevitably follow any major accident at any NPP.

Mr. Schumacher raised a question if activities to improve EP&R would have any impact on shutting NPP down and Mr. Klemenc replied that there might be an impact however this is not an objective of NTW as such.

Extension of lifetime and the risks of serious accidents at NPPs

Mr. Roger Spautz informed the participants on ongoing activities of the nuclear power plant operators to expand the life-span of 46 NPPs in Europe and the impacts of this according to the Greenpeace study on nuclear reactor ageing issued in early 2014. Among those NPP is also NPP Cattenom where it is planned to extend its life-time for additional 20 years respectively to 60 years of operation. Mr. Spautz further on addressed different types of risks resulting from physical ageing of the materials exposed to high pressure, temperatures and irradiation,



conceptual and technological ageing resulting from the fact that new knowledge cannot be easily practically implemented for technology and management designs based on outdate knowledge from 1970ies when the majority of the reactors and the equipment that are in operation nowadays were designed. He further mentioned problems of ageing of know-how, organisation and personnel; adaptation of personal qualifications to changed security requests; adaptation of personnel and organisation on changed frame conditions (political, policies, legal, ownership, electricity market etc.) and loses of know how. Ageing cannot be avoided and can be managed only by considerable effort deployed, yet the later demand more resources which is however not in accordance with the pressures from energy markets. In addition it is more likely that because of ageing a disruptive event will cause additional problems and risks related to elimination of the disruption. Mr. Spautz also pointed out that a Fukushima like event in Europe would have influenced significantly larger population in spite the fact that Europe is less densely populated compared to Japan since most of the radioactive pollution in Fukushima affected the open see (Pacific Ocean). As a consequence emergency zones needs to be significantly enlarged however as a consequence the evacuation time will increase to 50 hours and more.

At the end of his presentation Mr. Spautz pointed out safety risks of NPP Cattenom: inadequate reserve systems of emergency cooling of the reactor vessel, inadequate capacities for storage of the overheated water in case of melt down of the reactors, inadequate protection of the containment against collision of fast combat airplanes or transport airplanes above 5,7tons of weight.

Mr. Heriard Dubreuil informed the participants on the workshop on ageing of nuclear reactors organized by NTW in the European Parliament in March 2014. The issue is overlapping with EP&R activities, at very first regarding evacuation plans. In France one of NPPs that are planned to extend life span is also NPP Tihange that is however situated nearby large summer holiday resorts. It is beyond imagination to evacuate 3 million people that are concentrated in the vicinity of the NPP during the period of summer vacation. He also addressed the dilemma whether it is better to support construction of generation 3 of nuclear reactors that are believed to be considerably more safe as generation 1 and are expected not to need evacuation plans or to accept life-time extension and modernisation of some reactors as an opt-out alternative for getting out of nuclear age in generation of electric power in Europe.

Critical Expert View on NPP Cattenom

Mr Dieter Majer presented his view on the security of NPP from a perspective of his 30 years of experience in nuclear oversights in Germany on national level and level of federal states and as an expert that has been engaged in stress test of Cattenom NPP after Fukushima disaster and has been in frequent contact with NPP Cattenom operators French nuclear regulatory authorities. He pointed out the fact that NPPs are dangerous in principle and cannot be simply shut down when it comes to an incident - the heat released in nuclear reaction can in case of inadequate cooling lead toward melt down of the reactor and consequently to uncontrolled release of highly radioactive substances into environment. A NPP is in the last instance only safe to a degree of its capacities to transport heat produced in uncontrolled nuclear reaction out from reactor in a controlled way that is preventing radioactive contamination of the environment. From this aspect NPP Cattenom suffers from several deficiencies.

He emphasised that many relevant system-technical aspects and characteristic of a NPP (cooling possibilities, quality of system components, human errors, and safety culture of the operators) are influenced by legal, economy and administrative parameters and not solely by technical safety reasoning. He presented the concept of EU stress test by analogy with testing of a performances of a private car – stress tests has not addressed if »lights, steering mechanisms and brakes are OK but only if air bags and security belts are OK«. Therefore stress test of Cattenom has not taken into consideration if about 50 irregular recent events have had an impact on the safe operation of the NPP but only if level 4 measures – which means measures to minimise the damage from nuclear



disaster - are adequate. However even at that level of testing NPP Cattenom has shown considerable deficiencies that according to the plan will be first eliminated in 2018, however most probably it will take about 10 years.

Cattenom is one of the largest NPP in Europe and is situated in one of the most populated areas on the continent, yet it has considerable deficiencies from safety perspective: it is not designed according to the international earthquake protection standards and has no safety strategy in case when it would be at the same time challenged by earthquake, floods or/and fire. It is not sufficiently equipped to manage extreme weather events: cold, drought, heat waves and floods. The cooling system relies only on 2 and not on – as it should be the case - 4 systems. Adequate supply with electric power in case of grid dysfunction is under question. The options for recombining of hydrogen are not sufficient. The secondary containments could not sustain maximal potential pressure. Spent fuel might be affected by fire and is not protected by containment. In case of a sever accident the emergency control room might be severely damaged and consequently out of use. There are no plans and procedures what to do if an event will hamper 3 or 4 units. Mobile security and rescue equipment is not stored on proper locations and might be damaged in case of an accident in one of the reactors. Collision of a larger aircraft might destroy buildings that are vital for operation of reactors etc. Mr Majer summarised that according to his information and his knowledge due to the deficiencies in design, equipment and management NPP Cattenom cannot be operated in a manner that assure requested safety levels and should be shut down until the major safety deficiencies are eliminated.

Mr Karl Wilhelm Koch asked what is actually the problem with cooling of the reactors in NPP Cattenom in case of a sever accident.

Mr Majer explained that the problem is that NPP Cattenom has only two pipeline systems for cooling the reactors in extreme events when nuclear reaction cannot be controlled anymore, yet for an adequate safety level it should have four. In addition it has only one pipeline for channelling surplus heat into the river Mosel and nearby lake that serve as wheat sinks«. In case of floods or a strong earthquake the one or the other or both sinks would not be available therefore now investigations are undergoing how to channel the surplus heat to underground water.

Mr Werner Neumann rose a question how independent is French regulatory agency ARSN and if it has a mandate to stop the operation of NPP or it can only demand safety improvements?

Mr Majer explained that on statutory level ARSN is an independent body that has for independent commissionaires. From his experience as a long year president of German-French nuclear safety commission he has observed that the attitude of ARSN toward nuclear safety has after Fukushima considerably improved yet it is still not on the level as it should be.

Mr Heriard Dubreuil asked Mr Majer if he has ever presented or have been in a position to present his findings on safety of NPP Cattenom to CLI Cattenom.

Mr Majer explained that has not been in a direct contact with CLI but only through events organised by French authorities on which also CLI Cattenom has taken part and where his report has been delivered to all participants.

Ms Martina Haase was curious whether stress tests have been made also for other NPP in France.

Mr Majer explained that in person he has been only involved in stress test of Cattenom and partially also in stress test of NPP Fesselheim, however after Fukushima all French and other NPP in Europe have been stress tested according to the request of European Commission.



Mr David Michels recalled crash of a combat airplane nearby NPP Cattenom and asked what danger presents collision of an airplane for NPP Cattenom.

Mr Majer replied that as an officially engaged investigator on the issue he cannot provide a direct answer however in Germany only 3 NPP would withstand collision of combat aircraft of type of Eurofighter without severe damage, however not also collision with heavy passenger of transport airplanes which is also the case for NPP in France.

Identification of gaps/difficulties in EP&R

Patrick Majerus, the director of the Department of Radiation Protection of Luxemburg first presented specific challenges of EP&R in Luxemburg as a small country with large share of commuters (50% of employees) and of foreign population (44 % of inhabitants) that consists from 170 nationalities). In the distance of 250 km they are 10 NPP in operation while in the distance up to 70 km they are three of which the largest and the closest is NPP Cattenom that is situated only 8 km from the border. Large share and diversity of foreign population and the fact that every second employee is commuting from the one or the other neighbouring country presents together with the fact that in case of emergency 5 decision makers (Lux, Be, Fr, Saarland, Rheninland Pfalz) will be involved very complex environment for EP&R decision making in Luxemburg. The good think however is that based on the special agreement Department of Radiation Protection of Luxemburg would be in case of an accident in NPP Cattenom immediately and directly informed, which is rather an exception in cross-border EP&R management. Yet the additional problem is that each accident is specific and there are therefore no readymade recipes how to act. In case of an accident one should take in consideration: uncertainties related to the reactor (type, design), quality and quantity of (potential) releases; time to release of nucleotides, weather situation/ forecasts and appropriateness of a protective measure. Mr Majerus emphasised that no »one size fits all« solutions and provided an example of a crash of a large airplane that would not destroy everything – some systems might be still working, the others not would depend on where and how exactly would airplane crash and what is the design of the reactor and containment. The biggest challenges are special accidents where no automatic procedures can be implemented. Further on Mr Majerous listed core preparedness elements in Luxemburg (iodine prophylaxis, sheltering, evacuation) and emphasised that preparedness is not response therefore even well prepared measures could be poorly or wrongly implemented or no implemented at all. After Fukushima Luxemburg prepared new emergency plan which is currently under approval.

Ms Haase referred to her experience with traffic chaos before and after football matches in Germany. Therefore one can in case of evacuation expect total **chaos on the roads**, at least in Germany. ,

Mr Majerus emphasised **the problem of the different communication and administrative cultures of the authorities** in different countries. Since everything is different in every this makes unnecessary yet very relevant barriers and obstacle for effective and efficient EP&R. In case of an accident with cross border impact the differences in preparedness lead to decisions for protective actions that vary widely between countries: a) different areas concerned; b) different timescales for execution, c) different groups targeted (e.g. children) and d) different operational measures. He also **addressed the issue of language skills** of the authorities since in case of emergency one cannot afford the luxury of consecutive translation. Key Emergency Officers in all countries should all have been trained to speak English perfectly in order to make adequate decisions in fast way based on the information they would receive in English from authorities in other countries. In a state of emergency one also needs to balance a need of rapid dissemination of information to the public against the need to issue limited number of short and coherent messages understandable to the lay people.



Strategies of emergency precaution – position of the largest German environmental NGO

Dr. Werner Neumann - member of the Scientific Board FoE Germany (BUND) - Speaker of Energy Working Group and Member of BUND Nuclear Power and Radiation Protection Commission and from 1990 till 2013 the Director of Municipal Energy Agency of the City of Frankfurt am Main, presented position of the largest German environmental NGO on strategies of emergency preparedness. He reminded the audience that according to the study carried out by Max Planck institute the probability for a meltdown of a reactor in NPP is 200 higher as it was estimated during construction boom in USA in early 1970ies. He emphasised that Germany is not prepared to undertake adequate emergency measures in case of a major disaster in NPP in Europe: iodine pills are stored in central storage, medical staff is not adequately trained including knowledge how to treat radiated patients, the number of beds in hospitals is not sufficient, emergency zones are too small, the threshold value for radiation of 100 mSv is to high etc. Further on Mr Neumann elaborated arguments for crush of the paradigm of risk probability and control in case of huge accidents that - like those in Chernobyl and Fukushima- has different reasons then predicted. Risks of rare and huge cases had different reasons that predicted therefore they cannot be treated by probability methods – it's not throwing dices. Probability of nuclear emergency cases cannot be calculated by "probabilistic" methods that does not take into account technical consequences, emergency treatment and follow up. This definition of risk does not provide precaution yet since on the other side »impossible can happen« (Chernobyl, Fukushima) emergency plans based on neglecting of additional risks are underestimating the full scope of a potential catastrophe. Now this additional risks (including risks of terrorist attacks or crash of an airplane of the size of Airbus 380 that has not been considered by any of E&R plans in Germany) needs to be calculated in (which was also acknowledged by the decision of "OVG Schleswig« Court). There is everywhere a fully insufficient emergency preparedness - and as a consequence nuclear reactors need to be stopped. BUND made scenario for phasing out nuclear energy in Germany till the end of September 2017 which is 5 year ahead of the official phasing out. Afterwards the EP&R should focus on spent fuel (fuel rods) storage, at very first on intermediate storage at NPPs. At the end of this presentation of Mr. Neumann raised the issue who takes the costs of risk and emergency preparedness. In Germany the neither the government (the official tax authorities) nor the Parliament can exercise effective control over the reserves of nuclear industry dedicated to emergency and waste management/storage. If those reserves are to low then there will not be enough money for emergency task and waste management, if however to high the companies are in this way avoiding paying taxes. For this reasons BUND proposed a national public fund for these reserves, for financing emergency preparedness and emergency actions (when needed), decommissioning of NPP and nuclear waste storage. Last but not least one should not forget that also liability insurance must be taken into account, however liability payments in case of nuclear catastrophes are limited because the costs of big catastrophes cannot be paid be the companies. Even the costs of retrofitting of NPP according to requirements from »stress tests« are so high (25 billion €) that the industry is hesitating to accept them therefore most of the recommendations for improvements will not be realised.

Mr Spautz explained that France transferred in 1986 to Luxemburg 1,2 mio € for nuclear emergency preparedness

Mr Schumacher: Are FoE Germany asking for a public national fund for decommissioning? If money will be transferred there then also the responsibility for EP&R will be transferred from NPP owners/operators to a public fund?

Mr Neumann: According to the German law companies should have reserves but they also exercise control over this reserves, thus nobody actually knows if this money is there. BUND argues this money should be put in public fund otherwise it might be lost in case of bankruptcy or invested in coal power etc.



PART II: Cattenom - The public concerned - identification of relevant local emergency problems

Ms Ute Schlumpberger- Saar the Chair of »Cattenom Non Merci« initiative sharply criticised the content and the wording of evacuation plan for Cattenom and EP&R trainings that are made behind the close doors. The plan is prepared only for short time evacuation and for a district of 125.000 inhabitants whereas people living outside 30 km zone are completely ignored. The marginal level of measured radioactivity that would demand evacuation is not precisely defined. Measurement of radiation in abandoned houses/apartments before the evacuated people will move back is not envisaged. According to the plan evacuation should first happen after activities of police, civil rescuers, fire brigade and others will be coordinated. Those people who do not have cars will be left behind and first evacuated after the authorities will find who evacuated by private car and who was left behind. Before evacuation people should stay in shelters yet the plan is not defining time frame for sheltering. The plan is based on presumption that all people in the emergency zone will patiently wait in their shelters and after receiving information to evacuate get in their cars and in a disciplined manner drive to a given location without considering to make a detour in order to pick up their dear ones or stay at home since they would not be willing to left behind their pets. The plan is not taking into consideration eventual maintenance or reconstruction works on the road, too. Based on experiences with human behaviour in catastrophes one can expect that this kind of approach would in practice fail and result in a total chaos where everybody will try to save himself and his dearest according to his/hers best idea how to do it in a given moment.

Mr Karl Wilhelm Koch from Cattenom NON MERCI initiative referred to requests of the organization of German physicians that are critical to nuclear energy to set – like in Japan – a value of annual doses of 20 µSv as the margin for resettlement of the areas exposed to radiation instead of current value of 50 µSv yet even this value is considered by many expert as to high. He recalled the fact that the main cause of the disaster in Fukushima was not the tsunami but the earthquake that provoked breaking of the pipelines for cooling the reactors and spend fuel repository. Daiici NPP in Fukushima was constructed to withstand earthquake of 8,3 magnitude yet it was exposed on March 11 2011 to an earthquake of 9,0 of magnitude. NPP Cattenom is planned to withstand earthquakes of the magnitude 5,4 however in the region one can expect even magnitude of 6,0 or more. Taking into account the type, the number and the size of the reactors in Cattenom as well as the weather conditions one should conclude that 25 km emergency zone is by far too small. In case of emergency announcement the first effect that one can realistically expect is break down of a network of cellular phones. Some areas might also stay without electricity supply. Parents would rush to schools and kindergartens to pick up their children yet their children might be sheltered in some other building. If the same amount of radioactive materials that it was washed in Fukushima in the Pacific ocean (400 tons) would be washed to Mosel river the whole Mosel valley down-streams would have to remain unpopulated for centuries

Henry Kox, the mayor of Remerchen , member of the Parliament and spokesman of the Greens on energy noted the today a majority of population of Luxemburg is against nuclear energy. After disaster in Fukushima out of 106 mayors in Luxemburg 98signed a petition against NPP. The petition also influenced the government to send a »diplomacy mission« in France in order to improve transparency of operation of nearby French NPP. Political pressure will continue in 2 weeks by a visit of Greenpeace ship with 3 environmental ministers on board on mission to replace nuclear energy with green energy. In his function as the mayor of Remerchen he is doing his best to put pressure on NPP Cattenom for better information and is looking forward to further cooperate with NTW in order to strengthen requests on transparency and improvement of EP&R toward NPP operators and relevant authorities. Remerchen is not within evacuation zone therefore he is not directly involved or informed on EP&R measures and plans however the municipality has requested more information and clear structure of decision making in case of nuclear accident from the ministry. The municipality has signed »Climate Pact« and is doing its best to promote and support energy efficiency and use of renewable energy on its territory.



Stephanie Nabinger, member of the Parliament of Rheinland Pfalz warned from the false training of multiplicators that should be active in case of nuclear emergency. She also recalled that EDFshould be liable for 400 billion € compensation of damages in case of a catastrophic event, yet its liability is limited to 95 million €. In her opinnion the only effective protection measure is to shut down NPP Cattenom.

Walter Schumacher from Aachen reported about cracks in the reactor pressure vessels of Tihange 2 and Doel 3. Until 2012 the two reactors were "normal reactors". In August 2012 there was the "shut-down" and the finding of the cracks. Doel 3 and Tihange 2 became "special"-NPPs. The struggle around these cracks began and without any doubt there was the support of Brigitte Artmann and her "international connection". (Remark: Meant is the expert welding meeting in the district office of Wunsiedel in October 2012 about the Temelin welding 1-4-5, file 15/2001/SUJB). In June 2013 the "special-NPPs" went online again and the struggle is continuing. In January 2014 the Aachen-conference took place, in March 2014 there was the latest shut-down. In May 2014 the "Aachen Report" was published and the FANC-visit took place in Belgium. Then the Belgian nuclear safety office FANC itself discovered 8707 findings in Doel 3 and 2030 findings in Tihange 2 with unknown characteristic like flakes, bubbles or cracks and with unknown origin, with up to 24 mm in size (average size 10 mm), concentrated in specific areas e.g. upper core shell in Doel 3, radial directed, flaws are rounded in shape, were described as cornflakes, found between 20 to 100 mm (from the inner to the outer site). Mr. Schumacher said, the NPP is down - but it is not dead! Electrabel has not given up - they still make test to "proof" the safety and therefore, there is still a job to be done. "Bald strahlen wir" on the 8th of June is their "Manifestation & Party" and when the final closure will be announced they want a VERY big Party!

Helmut Wesolek was with Greenpeace inside of NPP Fessenheim. He made clear that any ambitioned person will be able to enter a NPP. It was not the intention of Greenpeace to review this but France is communicating it as end in itself. By doing this the responsible politicians turn away from the real problem. The biggest safety risk is the operation itself, in particular the aging of plants and extension of lifetime. Additionally are the risks of terror attacks and war and their apocalyptic consequences. Drones are available, also the in Bosnian war by NATO used graphite dust bombs, a plane crash with an A 380 or the Russian bunker breaking weapon AT 14 Spriggan, version 9M133 M-2 would be disastrous. This weapon weighs only 25 kilo, can be used by one single man only and can be fired fourth time. The target can be in a distance of 8 km and under a distance of 3.5 km the optical sighting device can be operated. The penetrating power for a single one of these missiles is stated with 1100 to 1300 mm armored steel. From this weapons system there are in Syria (!) 100 launchers and 1,000 missiles. For Russia the numbers from 2009 are: 950 complete systems. Many countries in the Middle East, also globally, do have very uncertain and difficult to assess power structures and governments, some of them have such weapon systems. It is to be expected that there are at least older ones on the secondary market to the equivalent of a few cartons of cigarettes. The Fukushima disaster has shown that "spent fuel" can have a significant radiation potential and still often is far less protected than the reactor itself. Such trapezoidal sheet halls as in Fessenheim, at least in the upper half, have virtually no protection against terrorist attacks from the outside. A risk for Fessenheim is the Rhine channel embankment next to the nuclear plant. A large tonnage vessel placed at the dike would be able to set the whole site under water with possible consequences, as we have seen in Fukushima. A significant threat by Cyber Attacks like Stuxnet is also possible. Further operation - especially the old plant - is irresponsible.

Question of **Dieter Majer**, whether there is anything known about interim storages at NPPs and their protection against terror attacks.

Answer: Greenpeace has tried to get an approval for a visit in Gorleben because of the potentially exceeded radiation limits. The approval was first promised, but then was not granted because there were changes made of the Castor containers. The reason is one is imagining new perpetrator profiles and adapted devices, what exactly is concerning these scenarios with an attack with special weapons. That means, the Castor containers will be taken away from the outside walls and will be distributed in the room. In addition to the long sides of the building there



will be build concrete walls. The catalog of measures cannot be seen, so that no one can make himself a picture of the adopted measures and their effectiveness. Also at the German nuclear power plant sites since 2011 there are plans and ongoing works on" the new perpetrator profiles and adapted devices". No one can get information about the nature and progress of the work.

Wolfgang Mueller, councilor in Bad Steben, Germany, gave a view onto the situation in the far zone (10 km) of the round table participating nuclear power plant Grafenrheinfeld. He interviewed "at the base" authorities, Red Cross workers, hospital workers, police and army officers. The authorities are relying on the help of thousands of volunteers and there are no shelters. The Red Cross worker saw problems if more than one hospital would have to be evacuated, because the lack of volunteers and the lack of not contaminated hospitals. He did not know where to shelter the public, where to get iodine tablets and supposed "the best would be to stay at the cellar". A doctor added: We are not prepared at all. The police officers knew that there are no special training for nuclear emergency preparedness "we will be the first liquidators" was his fear, where iodine tablets would be available he did not know. An army officer told him, the army has squads for nuclear emergency but not for the public. That is not possible because of German Law. About iodine tablets he knew nothing. A nurse from a hospital knew "by emergency case we shall go into the cellar. What will happen to the patients she does not know. She had no nuclear emergency training, no information about iodine tablets. A fire fighter and active member from technical help brigade: the fire brigades cannot help and the local technical help brigade is trained to help by flooding. A teacher knew nothing about nuclear emergency preparedness and what to do with the pupils. Mr. Mueller wondered what will happen to the animals on farms, animal shelters and agriculture industry. And what will happen with the persons in prisons, in schools for disabled children, with disabled persons at home or in common homes.

Prepared by: Andrej Klemenc

Ljubljana, June 6 2014

Annex 7 b : Minutes of RT on NPP Krško (Slovenia)

Minutes of the International Conference and Round Table

Emergency Preparedness and Response in Case of Nuclear Accident in Nuclear Power Plant Krško

As a member of the Nuclear Transparency Watch REC Slovenia on October20 2014 in the Youth Centre in Brežice (Slovania) organized well attended conference and round table on preparedness and response I – including cross-border cooperation – in case of a nuclear accident in a nearby nuclear power plant Krško. The event involved speakers on perceptual and cognitive aspects of nuclear accidents, representatives of the competent institutions in Slovenia and Croatia, NEK, I-Rech Institute, Slovenian municipalities Krško and Brežice, Croatian municipalities Samobor, Sveta Nedelja, the city of Zagreb, the Association of Ecological Movements of Slovenia, firefighters, police, schools, health institutions and citizens of Krško and Brežice, as well as attended journalists from local and some national media correspondents. Overall, the event prepared in cooperation with Nuclear Safety Administration of the Republic of Slovenia, was attended by 55 people.



The Agenda

15:00 - 15:10	Nuclear Transparency watch and NTW WG on EP&R
	dr. Nadja Železnik, the director of REC Slovenija and the chair of NTW WG ER&R
15:10 - 15:30	Conclusions, Findings & Recommendation of the Study on Evacuation in Case of a Nucle-
	ar Accident in the NPP Krško
	dr. Marko Polič; Department of Psychology, faculty of Arts of the University of Ljubljana
15:30 - 15:50	International Frames and Guidelines of Nuclear EP&R
	dr. Andrej Stritar, the director, Slovenian Nuclear Safety Administrator
15:50 - 16:20	Emergency Preparedness and Response in a Case of a Nuclear Accident in Slovenia
	Ms F. Turk Stojanovič and Ms Zdenka Močnik Administration of RS of Civil Protection and Disaster Relief
16:20 - 16:40	Emergency Preparedness and Response in a Case of a Nuclear Accident in Croatia
	mag. Saša Medaković; the director, State Institute of Radiological and Nuclear Safety of the R of Croatia
16:40 - 17:10	Local Emergency and Rescue Plans in Slovenia in Case of Nuclear Accident in NPP Krško
	Mr Milan Kostrevc, NPP Krško, Mr Aleš Benje, Municip. of Krško & Mr Roman, Mun. of Brežice
17:10 - 17:30	Conclusions of the Project "Preparation of Evacuation in Case of Nuclear Accident "
	dr. Pavle Kalinić, Head of the Unit of Crisis Management of the City of Zagreb
17:30 - 18:00	Coffee Break
18:0 - 18:15	Summary of Findings and Conclusions from Previous and Actual NTW EP&R Round Tables
	Mr Andrej Klemenc, REC Slovenia
	ROUND TABLE
	moderator: Ms Milena Marega, REC Slovenia
	Key issues to be addressed
	Are the planned measures based on justified presumptions?
18:15 – 19:00	• Are the experiences gained on EP&R trainings and drills integrated in a system way into revised plans
	• Are the potentialy affected citizens informed on emergency measures in an appropriate and regular man-
	ner?
	• What is the level of cross-border cooperation, what are the key barriers and what should be the key action
	to address the barriers?
	 Do we need in order to improve ER&R also institutional changes in Slovenia and/or Croatia

Introduction

After the introductory presentation of purpose, objectives and activities of the NTW network by its Vice-President **dr. Nadja Železnik**, the director of REC Slovenia, **dr. Marko Polič** presented the results of the study on the cognitive and perceptual readiness for evacuation in the event of a nuclear accident in NPP Krško. The study confirmed the confidence of the population living around the NPP and the competent institutions, administrative and political authorities, civil protection and firemen, yet the on the other side demonstrated that fatalism regarding the advisability of action in the event of a nuclear accident is dominating among the residents. The residents are not well enough informed on what to do in case of a nuclear emergency. The main source of information is thematic brochure, delivered five years ago, but most of the people cannot recall where they have stored it and do not know what to do and where they should evacuate. More knowledgeable are those who are talking about nuclear safety within the family, however in the majority of families this never happens. The study confirmed the hypothesis that the majority would evacuate with their own means of transport and at the same time rescue the family as a whole, which is in conflict with the intended organized evacuation of the children in schools and kindergartens by collective means of transport. A significant part of the population would evacuate immediately after information on nuclear accident in NPP Krško, but most would also verified the information, however it is unclear to the residents how they will be informed on the accident. As the critical point, respon-



dents identified the transport of children, dealing with senior citizens and transport infrastructure in the city.

The Director of Nuclear Safety Administration of Slovenia **dr. Andrej Stritar** spoke about the international aspects, organization and cooperation in case of a nuclear accidents. He pointed out that people on such topics talk too little and has no interest to prepare for something that is very unlikely to happen. Nuclear disaster in Europe always has an international character and includes aspects of communication, mutual assistance and cooperation, while not binding on the harmonized concrete and binding standards on preparedness and response. Lessons and current international co-operation are not the best, although efforts in this direction after the Fukushima accident increased. Slovenia has established bilateral relations with all neighbouring countries and nuclear safety administration is working on this to check the suitability. That refers in particular to increase of the size of the areas of planning measures, faster decision-making that will not be limited by a sectoral approach and a more adequate communication. With this purpose in Slovenia recently amended the National Action Plan for Nuclear and Radiological Accidents and established an inter-ministerial commission he is in charge to coordinate as its head.

Caretaker of the Government Rescue Plan in Case of an Accident in the NPP Krško **Ms. Franja Turk Stojanovič** from the Administration for Civil Protection and Disaster Relief has presented the plan that covers all sectors must that needs to work closely together as only synergies assures in-time and adequate implementation of many necessary steps to assure that all task would be successfully completed. Those activities are now supported by the Inter-ministerial commission led by a Director of the Slovenian Nuclear Safety Administration that is responsible for planning, coordination, monitoring and evaluation of the implementation of the National Plan. She explained that the basis of alarm notification is also in case of nuclear accident the sirens sound system followed by the dissemination of alarm notices by main national media, but unfortunately local radio and TV stations are no longer obliged to alarm and inform the residents.

Her colleague from local branch office Brežice **Ms. Zdenka Močnik** presented prevention, immediate and longterm measures at the regional level and by whom, how and through which communication technologies are ordered. The participants were also informed about who is responsible for the individual measures in Posavje region. She pointed out the ignorance of the population to the presentation of a regional emergency plan in case of an accident in the NPP.

The headmaster of the National Institute for Radiological and Nuclear Safety of the Republic of Croatia **mag. Sašo Medaković** presented how Croatia from the end of the nineties establishes a legal and institutional framework and strengthen human and material resources for preparedness and response in case of nuclear accidents, being confronted with poor visibility topics in the public. As a major challenge remains the strengthening of human resources and the capacity of local communities to prepare for and act properly in the event of an accident in the NPP Krško. Retrieved cooperation with Slovenian inter-ministerial commission is of a mutual benefit, but Croatian authorities still do not have direct communication with the operators of NPP Krško in cases of an emergency. Unlike Slovenia, where direct responsibility for the management of emergency situation is at institutions in the region, in Croatia direct responsibility for action is at the national headquarters of civil protection, but there are also areas for action on the local level. Training and exercises are carried out in Croatia, but could have been better prepared and should be more yet the problem is funding. So far no comprehensive exercise to implement all measures in the event of an accident in the NPP has been carried out. At the end of the mag. Medaković expressed his satisfaction with the event, which for the first time gathered various stakeholders from both countries and hopes that there will be more such events in the future.

How the NPP Krško was dealing with the treat of a nuclear accident during its actual lifetime, what has been done in recent years to further reduce the likelihood of an accident and how to act in its case was presented by **mag. Bruno Glaser**, Head of Analysis and Permission Unit of the NPP. He pointed out that the NPP Krško has never



crossed the 0 level of risk and is subject to a number of independent missions (RAMP, OSART, IAEA, WANO) providing detailed safety checks including contingency planning in the event of an emergency. In the aftermath of the terrorist attack in the USA on September 11 2001 and after the Fukushima accident the NPP made significant investments to improve nuclear safety and in addition to EU guidelines and regulations also takes into account the experience from the practice of the nuclear industry and numerous experiences gained through exercises and drills. The personal is trained to take appropriate tasks in the event of an accident and to ensure the implementation of shift functions without external assistance for at least 24 hours after the occurrence of an event and is under condition of serious injuries controlled without outside help for at least 72 hours. It also does not need external support for major components and equipment for at least 7 days. In the event of an accident in Ljubljana an external support centre would be established for operating management of the emergency.

Advisor for protection and rescue in the municipality of Krško **Mr. Aleš Benje** has described how within the municipality the evacuation would be held in case of an accident in the NPP Krško. The NPP has issued a leaflet *'How to act in case of a nuclear accident'* that presents escape routes, which were also presented to the citizens on the website. Evacuation of families is planned with their own vehicles to regional gathering centres, where decontamination should be carried out. The public opinion poll by carried out by the Faculty of Social Sciences from Ljubljana, among other things, showed that the evacuees would take with them the most necessary supplies and food and drink. After decontamination those who themselves would not be able provide adequate housing would be assisted by municipalities. He stressed the timeliness of information as a necessary condition for a successful evacuation and that is never enough training for rescue teams under radioactive conditions. He also presented the project " Readiness for evacuation in the event of a nuclear accident - PFE " led by Krško municipality and co-financed by the EU.

In his short and dynamic presentation the Head of the Department for Protection and Rescue of the Municipality of Brežice **Mr. Roman Zakšek** introduced measure of the distribution of potassium iodide tablets during nuclear accident to affected populations and explained by whom, when and in what quantities should be in the event of an accident consumed. The municipality carried out information campaign on the issue in cooperation with schools, which proved to be effective as parents are most interested to know if in case of an accident their children have consumed the tablets at school. His presentation ended with the comment that people do not attend the presentation of nuclear emergency plans and measures because those most responsible for nuclear safety and the management of NEK are constantly repeating the message that a severe incident in the NPP Krško is highly unlikely, almost impossible.

Presentation of the event ended with the presentation of the European project *»Preparing for Evacuation in the Event of a Nuclear Accident«*, presented by the Chief of the Office of the Management of Crisis Situations of the City of Zagreb **dr. Pavle Kalinić**. The project led by Krško municipality was next to City of Zagreb also joined the City of Cernavoda from Romania and run from the beginning of 2012 until the end of 2013. The objectives of the project were to improve the preparedness of civil protection and disaster relief, preparation of the population in case of nuclear accident and strengthening international cooperation for the protection and rescue at regional and local level. Dr. Kalinić briefly presented the conclusions regarding the communication between crisis services at different levels, standards of sheltering, logistics, monitoring and registration of evacuees, information and issuing instructions to the affected population. At the conclusion, he pointed out that it is necessary training and exercises in the area evacuations carried out regularly every year.

Round Table

A lively roundtable was moderated by **Ms. Milena Marega** (REC), which is an introduction raised the question of whether measures are envisaged in the event of a nuclear accident in the NPP are relevant and based on appropriate assumptions.



Ms. Smiljana Jurečič asked how it is know what will be in the event of a nuclear accident in a NPP released and in which directions the radioactive pollution will go and where to go in case of a nuclear accident in the NPP Krško? It was said that population should fled in direction to Novo mesto, but if the wind would blew from the other direction that it would be better to go to Zagreb.

Mr. Andrej Stritar replied that the NPP are able to predict what will happen and what kind of radioactive material will be released and afterwards on the basis of meteorological data they can make a scenario in which direction a nuclear cloud will develop. Several simulations have been made to be prepared in advance and provide safeguards. The baseline conditions are given from the time of construction of the nuclear power plant, now the Slovenian Nuclear Safety Authority is dealing with the re-analysis, but it is not expected that considerable changes will be necessary.

Mr. Marko Polič pointed out that only the technological aspects are not enough, because it is necessary to take into account the "human factor". In the case of the Fukushima accident, both the nuclear plant operator TEPCO and the government have not acted appropriately and this was the road from an accident to the catastrophe. **Mr. Andrej Klemenc** (REC Slovenia) has warned that there may be a number of unforeseen events at the same time, which are insufficiently taken into account in the preparation of measures. He asked whether the measures are properly prepared and whether there is sufficient capacity for action in the event of contemporary floods and earthquake in the area and unforeseen events in the NPP Krško. In Fukushima as a consequence of inadequate EP&R and inappropriate action many people have been after catastrophe in the NPP evacuated to radioactive areas, more than half of the initially evacuated and was later up to 6x re-evacuated, while in one of the nearby hospitals immobile patients have not evacuated and were for more days left to themselves, resulting in the deaths of about 50 patients. Thus in case of Fukushima accident due to improper action more people have lost their lives s as they have been killed by the accident in the NPP itself.

Mr. Andrej Stritar presented his observations on the specific culture of decision-making in Japan, where in the case that there is a situation which is not covered by the regulations everybody is waiting for decisions from above and none is acting when given the state of things it is clear what should be done. In his view of the communication of emergency measures to population is better without making an emphasis that an accident might happen since it does not make sense to create panic among population about an event with very very low probability.

In reply to this **Mr Roman Zakšek** has warned that unlikely events can still occur and illustrates that in Fukushima 10 m tall breakwater has been constructed, although it was expected that the tsunami wave will not be any higher than 3-4 m, yet then 12 - 15 m high waves actually came.

Mr. Marko Polič has remarked that people tend to normality and there is a risk that in the case of an accident they will not do anything if there is no proper communication of risks.

Mr. Karel Lipič (Association of Ecological Movements of Slovenia) has praised the decision by the new government of Slovenia to hold a referendum on construction of a new nuclear power plant. He has drawn attention to the extreme importance of nuclear safety and invited to the seminar on nuclear and non-ionizing radiation, which will be held to celebrate the 25th anniversary of ZEG on 23 and 24. 10. 2014 in Šmarjeske toplice and attended by Japanese and Swedish experts in the field of nuclear safety. He has also drawn attention to the fact that control over nuclear safety system is not only performed by the media but also by the non-governmental organizations, which are all too often overlooked.

Mr. Franc Pavlin - a former commander of the local police - has explained that to him it is not clear have the action in the event of an accident in NPP Krško could be based on inappropriate assumptions regarding spatial distribution



of nuclear cloud. As the wind in most cases blows from W it is completely against the common sense that the regional Civil Protection and Disaster Relief headquarter that would have to deal with nuclear emergency is located in Brežice which is exactly in predominant wind direction. He has expressed his concern that location of the headquarters has been based on political rather than for professional criteria. In his opinion sheltering is not an appropriate measure because there are not enough shelters, and those that are, are not properly equipped and maintained. He has concluded with a warning that at the focus of consideration must be content problems, and not just regulations.

In response **Mr. Bruno Glaser** has opposed the arguments raised by Mr. Pavlin because weather data clearly shows that the wind rose in height smears. As for sheltering within 3 km zone around the NPP no sheltering but evacuation is envisaged as emergency measure.

According to **Mr. Rajmond Veber** the best guarantee for the safety of NPP is that most of the personnel, including leading personnel, live in Krško, therefore they are very much interested in security and appropriate action in the event of accidents. The placement of the LILW repository should be in his opinion taken as recognition of our experts.

Mr. Aleš Zajc - a resident of local districts Spodnji Stari grad in proximate vicinity of the NPP Krško - has suggested that the action plans in case of an accident in the NPP should be made in partnership with former local nuclear partnerships. He has expressed certain disappointment on introductory presentations because there are too many fingers on the documents, but not what on that what is in interests of ordinary people. It is important to keep the core messages and tell them understood by ordinary people. He has suggested to mark escape routes in the town of Krško and pointed out that according to his research in countries abroad more than half of the employees of NPP are living outside the area of influence, while 65% of employees in NEK live within the area of influence of a nuclear accident. He has wondered whether the employees in the NPP Krško would in the event of an accident really not preferred to help their families and give priority to their professional duties.

Mr. Bruno Glaser has replied that he was not aware of any study of the response of employees in the event of an accident, but he would came to his post in the NPP in the event of an accident and is also confident that his colleagues would do the same. However the NPP Krško has effective systems of active and passive safety thus the probability of severe accidents extremely small. Recent analysis taking into account the security update shows that now the likelihood of serious accidents and the resulting impacts on the environment is less than a derivative security updates in the NPP.

Mr. Marko Polić has pointed out the problem when experts want give their professional knowledge in the best way to the people but give the people do not want to but it since they want information they can understand and cannot be given in a technical language.

Ms. Zdenka Močnik has presented her personal experience of how only two citizens attended the presentation of the regional nuclear rescue plan - which indeed contains a very concrete information on nuclear emergency - despite the fact that the terms of the presentation have been carefully chosen and invitations have be send by media .In her opinion it would be necessary to further proceed with presentations of the plan. With regard to the location of a regional centre of protection and rescue at Brežice she has explained that in a case of a threat of exposure to radioactivity the centre is capable to move to a backup location.

Mr. Hrvoje Oršanić has commended the organizers and expressed his gratitude to the employees of the NPP, because according to the information available it operates safely. However, the unpredictable factor inherent to all technologies and no science can predict the time and magnitude of next earthquake in the area. Information and brochures should be as simple as possible, without unfamiliar acronyms and ballast. Information should be rounded up several times, not once every five years - and only then in public arrest. First then it will be adequate human interest to attend presentation of emergency plans. He


has also demonstrated his interested on the issue of the life time extension of the NPP Krško and has raised the question who will tell him where to be evacuated in the event of an accident in the NPP?

Mr. Bruno Glaser explained that the NPP during its lifetime updates all systems and replaces the active components whereas passive components are under in the control of aging control programme. By the extension of the useful lives of the commercial operation of nuclear reactors, which were set in 1970ies as more or less a fiction figure, is coming all over the world because the aging processes has been found significantly slower than had been anticipated at the beginning of construction of nuclear reactors. NPP Krško is being permanently updated and improves its security with the latest technological solutions and measures, so that the nuclear safety throughout the lifetime is constantly improving.

Mr.Aleš Benje has reminded that in the brochure on nuclear emergency an area of 10 km of roads and directions for evacuation is depicted and a list of settlements and destination points to which would people be retired is provided. One of the recommendations of the project PFE is that the 3-km and 10-km zone around the NPP the evacuation routes are permanently marked.

Mr. Milan Radisavljević (Institute I-Resca) noted that one of the significant deficiencies in the event of a disaster is that all is (only) on paper. Systems response in reality, when a disaster occurs, never works as it is written on paper. At Fukushima 90% of operators that should be present during the incident, fled immediately after the accident. In Sweden, the sudden appearance of jellyfish close the inlet channels for cooling the nuclear power plant and that was not anticipated by any scenario. In Cornwall in England this year floods have lasted for 6 weeks while in all the documents it is assumed that they cannot last more than 3 days. He also asked why competent Croatian institutions are not regular and direct contact with the NPP in case of an emergency and regarding EP&R in general.

Mr. Andrej Stritar has in his reply pointed out that in case of an emergency the NPP Krško must within 15 minutes inform the CORS that in next 15 minutes must inform several other institutions in Slovenia and the Croatian CORS. He also pointed out that it will be necessary between the two countries to harmonize zoning, while the updated Slovenian national plan will help Croatia to be re-defined zones based on the same standards, and consequently it will be possible that information from Slovenia will go directly to Croatia. With respect to the philosophy of the safety of nuclear power plants he has pointed out that the fundamental principle in the design of nuclear reactors in in no way that nothing will go wrong, but on the contrary, that all can break down. It is essential that the principle of "defence in depth", which means duplicate and triple systems to the required safety function can be performed also in the event of failure of one system.

Mr. Bruno Glaser has in this regard added that no component in a NPP is installed only on the basis of documents, but all are previously tested in reality thus in all components huge engineering reserves are built in. The nuclear industry after disaster in Fukushima has learned to deal with the possibility that something goes wrong as far beyond planned accidents.

Mr. Karel Lipič has recalled the last exercise training for nuclear emergency response, attended by a representative of the NGO. In connection with the exercise he does not have any comments other than on that on the event more journalist have present as citizens. He has stressed the need to present to the new Minister for the Environment the issue of LILW repository in a comprehensive way, since the previous government has approved construction of LILW on the basis of estimates of financial assets that cannot withstand any serious assessment.

Mr. Milan Kostrevc reminded that nuclear safety is part of the international community that has strengthened after the Chernobyl accident, and especially after the Fukushima accident. Therefore in case of a very improbable accident in the NPP also international assistance can be expected.



Rafko Jurečič has warned that no one has answered the question of where after nuclear accident the people will be located and how they will be compensated for the damage to their lives, their land and other assets if they will remain contaminated for decades . What will happen to affected people and their property? Who will take care of their new homes, jobs, etc.? Who will provide compensation? This is cannot be resolved by international aid.

Mr. Andrej Stritar has agreed that the social consequences of such extraordinary national disaster would be vast. Therefore is even more important that we do everything possible that such an accident does not occur. It is confirmed that in the event of a disaster in NPP few thousand or ten thousand people no longer had their homes. After the Fukushima accident, the worldwide rekindled the big question what to do after the end of the disaster at part of the territory that is contaminated. In France they have some plans and Slovenia will next this spring carry out an analysis. In a case of major nuclear accident is will be necessary to prepare a law, or even set up a special ministry to an to decide on and implement measures on what to do with the food, traffic routes, housing etc. With regard to compensation, he has pointed out that either with a reference to Paris or Brussels Convention each victim should be in principle compensated for a damaged caused by nuclear accident.

Mr. Saša Medaković has pointed to the fact that accidents happens but that the welfare of nuclear energy is greater entailed by its commercial use. However one needs to be aware of the risks and take appropriate action to reduce them and have the munder control. Different definitions of evacuation zones in Slovenia and Croatianeeds to be unified soon.

Mr. Pavle Kalinić has pointed out that the Soviet designed NPP Paks in Hungary for Croatia present more danger as NPP Krško, which was created as a result of the tendency of Yugoslavia to demonstrate to the world to be able to master western nuclear technology. However in Croatia people are worried about what would happen to the NPP Krško in the event of a serious earthquake. He has also recalled that in Fukushima today the situation is not under control and that the affected area is far from being rehabilitated, but lobbies managed that Fukushima no longer receives media attention. He has also raised his voice in support that Slovenia and Croatia seriously consider all the alternatives in the energy field before they decide to pursue the nuclear option

Mr. Igor Hrast (Institute I-Resca) has agreed that it is best to take advantage of the NPP as far as possible and has expressed that he does not oppose the construction of the second reactor at NPP Krško. NPP Krško is "by the book" a well-functioning power plant - but it should strive for more. The management of the NPP has reached the goal to release addresses the NPP as completely unproblematic object, which is not the right goal since it this makes population passive und thus unprepared for the most dangerous events. Therefore it should not be to communicate that the NPP Krško is 100% safe, because it leads to becoming too infatuated. The operator of NPP Krško should be more proactive, its representatives cannot allow to be absent on two subsequent important conferences on critical infrastructures. It is necessary to act in accordance with the principle that seek solutions in advance rather than looking for solutions afterwards.

Mr. Bruno Glaser has in response stressed that nobody in NPP Krško considers that anything can be 100% safe thus the NPP follows the philosophy that the safety of nuclear power plants can be always further improved. After the Fukushima accident there is a need to take into account the possibility of events which are very unlikely, occur simultaneously and cannot be predicted in advance.

Mr. Karel Lipič has in connection with the construction of NPP Krško II pointed out the project will not be able to avoid neither Aarhus nor Espoo Convention therefore it will not be decided solely by the NPP or the relevant ministry, but also by citizens of Slovenia and by neighbouring countries. Taking this into account there are very few chances that the project will be ever approved.

Ms. Sanja Rokič (Association of Ecological Movements of Slovenia) has explained that she lives in a village



just 12 km away from the NPP, but has not not get any information about where and which path should be used in case of evacuation caused by an accident in the NPP Krško. She has also asked how to obtain potassium iodide tablets for their children and when they should be ingested in the event of an accident.

Ms. Franja Turk-Stojanović explained that the tablets are available in regional pharmacy shops however it is the responsibility of citizens to pick them up. In case of emergency the distribution is the task the municipality. In principle they should be accessible in all pharmacies in the country also by individuals, but the Ministry of Health of the Republic of Slovenia cannot guarantee that in practice.

Mr. Aleš Benje has suggested to Ms Rokič to pay a visti to his office at Krško municipality in order to be instructed in details about potassium iodide tablets explain in detail since the tablets should not be taken by anyone at any time and are not commercially available.

> Minutes recorded and edited by Andrej Klemenc

Ljubljana, October 27 2014

Annex 7c

Report on Roundtable on Emergency Preparedness and Response on Balkans Ministry of Environment, 22 Maria Luisa blvd; Sofia

January 19, 2015

Agenda

9:30 - 10:00	Registration & welcome coffee
10:00 - 10:30	Opening - welcoming notes, introduction on NTW
Panel I	
10:30 - 12:00	Lesson learned from Chernobyl and Fukushima / Aarhus convention on nuclear
12:00 - 13:30	Lunch break
Panel II	
13:30- 14:30	Overview on Nuclear emergency preparedness & response in the Balkan countries – re- sponsible authorities, level of public information & civil preparedness
14:30 - 14:50	Coffee break
С	
14:50 - 16:00	Trans-boundary Emergency preparedness & response
14:50 - 16:00	Conclusion and closing the Round table



Notes:

- The participants of the Round table are registering. 70% of the confirmed participants registered on time. We expect more to come later.
- There are several representatives of media, including the state national television
- There is a 10 minutes of delay because we are waiting for the Vice-Chair of the Parliamentarian commission of energy Vaelentin Nikolov to open the Round table. After call we understand his flight has a delay and he just arrived in Bulgaria but can't open the event in the next 30 min. Therefore we are starting without him.
- After opening and welcome words of Albena Simeonova and Borislav Sandov on behalf of NTW the first presentation came.
- The first presenter is Dr. Georgi Kaschiev from BAKU university of Austria. He is a senior expert on risk analysis and safety with a background as a President of the nuclear regulator in Bulgaria for 4 years and 40 years in the nuclear sector.
- Several slides of the presentation are about the lessons learned from Chernobyl and Fukushima nuclear disasters.
- Dr. Kaschiev share a real story from his job as President of the regulator when a person who is not professional but working in the nuclear field almost made an emergency situation because he got a signal of accident inside the NPP. It was a meter of minutes this reaction to evaluate to evacuation and signal for disaster on national and international level.
- Dr. Kaschiev mentioned several reasons for the Fukushima accident: coalescence of the nuclear industry, regulator and the political parties exchanging staff between each others, forming a bubble without influence from outside; lack of understanding of the danger; lack of preparedness.
- An analysis by IRSN on a potential accident in Europe and the expected damages was present by dr. Kaschiev. According to the conclusions of it the financial cost will be more than of 430 billions Euro and more that 100 000 people has to be evacuated.
- The National coordinator of the Aarhus convention for Bulgaria Mr. Hristo Stoev made a presentation about the basics of the convention and the related topics to nuclear.
- Mr. Stoev mentioned all the procedures in the nuclear industry which has to include transparency and public participation according to the Aarhus convention construction and operation of nuclear facilities, PLEX, decommissioning, RAW management and storages, nuclear fuel processing, strategies, etc.
- On behalf of the Bulgarian Environmental ministry Mr. Stoev present the existing monitoring station on radiation and how the data is transfer to the other responsible institutions.
- After Mr. Stoev's presentation Albena Simeonova had a speech and present the Nuclear Transparency Watch. She explained the aims and the activities that NTW is involved. She also invited the representatives of the other organizations to join NTW.



- After the presentations there were a discussion on the main conclusions came from the presentations. Borislav Sandov is moderating the discussions in this Round table.
- Journalists also raised questions, mainly to the key speaker Dr. Kaschiev. National state television took an interview from him.
- After the lunch, Plamen Vasssilev representative of Kozloduy nuclear power plant had a very long and concrete presentation about the preparedness and emergency plans of the only one existed nuclear power plant in Bulgaria.
- Mr. Vassilev mentioned that the 100% stated ownership Kozloduy NPP is the first NPP in South-East Europe, opened 40 years ago.
- The representative of Kozloduy NPP explained all the upgrades that had been done during the lifetime of the plant and especially after peer reviews and missions. He also focused on the stress-tests after Fukushima.
- Mr. Vassilev presented the national plan in case of disasters, the responsible actors, and the structure of the plan and the network of existed institutions. He also focused on the on-site emergency plan.
- Following the requirements of the Emergency Preparedness and Emergency Planning Regulation, two general emergency exercises are conducted every year, and different headquarters conduct drills on quarterly basis. The departmental headquarters of the BNRA, DG FSPP-MoI, ME, the headquarters of the Districts of Vratsa and Montana, and the municipal headquarters of the towns of Mizia and Kozloduy take part in the exercises. Every 5 (five) years a National Full-scale Exercise is conducted under preliminary developed scenarios which drill all levels of the action plans in case of an emergency at Kozloduy NPP.
- Dr. Marina Nizamska made the second presentation of the second panel on behalf of the regulatory body. She explained the legal state of the organization and the responsibilities of the regulator in case of emergency including the transboundary aspect.
- Dr. Nizamska presented many maps and tables in the presentation.
- On behalf of the Interior ministry Mrs. Lyudmila Simeonova presented the role of the specific body that is responsible for the national plan.
- Dr. Petar Kardzhilov presented a survey on the knowledge and emergency preparedness in the network of journalists. The results of it show that very low percent of the journalists are aware about the specific plans and needed reactions in case of emergency. The survey also shows that people are not getting the risk seriously enough.
- The risk and crisis communication expert Dr. Kardzhilov present a models of exception of the risk and how that is reflecting to the reactions in case of emergency.
- According to the survey results less than 30% of the respondents could mention 4 or more measures in case of emergency. 22 % of the respondents couldn't recall even one measure.
- After the presentations in the second panel an interesting discussion happened. Several questions were



raised regarding the information and the conclusions. Some statements were made from the representatives of nuclear veterans and the Greens.

- After coffee break the third panel started.
- On behalf of DOM Dr. Ugrinska present the current situation in Macedonia regarding the legal status and
 responsible institutions on emergency preparedness and response. She mentioned that the biggest treat
 for radiation accident for their country is the Kozloduy NPP because it is the closest NPP in the region. Dr.
 Ugrinska is afraid the population of Macedonia is not prepared for any radiation contamination.
- On behalf of a Serbian NGO Zelena Omladina Predrag Momcilovic present in short words that Serbia has no nuclear facilities but Krsko NPP and Kozloduy NPP is a treat for the country. He mentioned that he is not aware about any agreements between his country and the neighbors concerning nuclear accidents and contamination.
- Remus Cerna, member of Romanian Parliament had a statement for more transparency and public participation. He mentioned several cases where nuclear industry of Romania is still very untransparent.
- Remus Cerna said that he is going to raise several questions in the Romanian parliament regarding the issue of emergency preparedness and response
- Prof. Simoiu, member of the initiative committee in Craiova, Romania had a statement about the time for response in the international context. In case of emergency in Kozloduy NPP their city in Romania has to be immediately evacuated, but according to the exist agreement between Bulgaria and Romania, the state has to inform the other one within 2 hours. Prof. Simou said that if they received the signal in 2 hours from the accident it would be already too late.
- Petko Tzvetkov, chairman of Zelenite (The Greens) had a statement about the lack of transparency, the problems with the spent fuel and radioactive waste of nuclear industry, as well as the problems with the decommissioning. He stand that we have to face out the nuclear industry, but very careful and on a high price which is not paid by the consumers of the electricity came from the nuclear power plants but their children and grandchildren.
- Several more people took the floor and share their opinion, which basically repeat already mentioned thesis and conclusions.
- With final words of Borislav Sandov and Albena Simeonova the Round table was closed.

Conclusions:

- Only well-educated and trained people have to work in the nuclear facilities.
- Even developed countries failed in emergency reactions and communication to the public when it comes to nuclear accidents on high level in INES
- The compensation fund is far below the real costs of nuclear accidents on 7th level of INES
- The emergency funds are far bellow of the real costs that needed in a potential accident



- More monitoring station should be developed
- More transparency and public consultation have to be implemented
- Better implementation of the legislation on transparency and public participation should be took in place
- There are no municipal plans in case of emergency outside of 12 km. zone around Kozloduy NPP. There should be such plans in at least 30 km. zones. Also in the municipalities in the North-East Bulgaria which are in the 30 km. zone around the Romania based Cerna voda NPP
- The perception of the risk is far below of necessary level. Especially for the society.
- The institutions and the state media have to raise more awareness on the emergency plans.
- The agreements between the countries should be updated and new agreements should be signed. The agreement between Bulgaria and Romania is very outdated and it is now in an update process and soon it will be signing procedure for the new version

Report provided by: Borislav Sandov

Sofia, January 30 2015

Annex 7d

Report & Proceedings from International Roundtable on Emergency Preparedness andResponse in the Nuclear Sphere

Kyiv, January 26, 2015

On 26 January 2015, the International Roundtable on Emergency Preparedness and Response in the Nuclear Sphere (Ukrainian NTW EP&R Roundtable) was held in Kyiv under the aegis of the Nuclear Transparency Watch. It was organized by the Ukrainian Environmental NGO "MAMA-86" ("MAMA-86"), in partnership with the State Inspectorate of Ukraine for Nuclear Regulation (SINRU) and with financial supports from the Swedish International Development Cooperation Agency and the Nuclear Transparency Watch (NTW). The following report provides information on the Roundtable preparation, its agenda, main presentations and discussions in the course of the event and key conclusions reached.

Background Information

The Overall Situation

The Ukrainian Environmental NGO "MAMA-86", a co-founding NTW member and a long-term contributor to the Aarhus Convention and Nuclear process, committed to conduct the EP&R Roundtable in the early 2014. However, the event was postponed for some time because of the challenging situation in Ukraine. First, the Revolution of Dignity with subsequent change of power meant it would be hard to engage any authorities into the discussion until the transition period is over. Later, the annexation of Crimea by Russia, followed by the armed conflict in Donbass resulting in numerous casualties, causing severe economic crisis and bringing the state into a semi military emergency situation, also made it difficult to draw attention of society and policy-makers to the topic of nuclear EP&R.



However, despite the fact that the conflict is far from being over, on the central level Ukraine has proclaimed its commitment to implement comprehensive policy reforms under the EU-Ukraine Association Agreement to become close to EU norms (this also relates to the nuclear sphere, as well as promotion of public participation in policy making). Another positive development is that after the Revolution of Dignity, which raised people's activism to the highest level in the history of modern Ukraine, the public remains to be committed to be an active player in policy-making and the new decision-makers who came to power as a result of 2014 presidential and parliamentary elections show their willingness to take civil society seriously and create conditions for effective public participation in decision-making.

Considering the military challenges of Ukraine, authorities attempt to address security issues in a more systemic way. To some extent, this affects the emergency preparedness and response in the nuclear field as well. One of the most recent developments (taking place several days after the Kyiv Roundtable) is the official declaration of the semi-emergency state due to the tense security situation. This entails the obligation of all authorities on the central, regional and local levels to examine the emergency preparedness within their area of competence. There is also a window of opportunity for civil society to bring in their proposals on what could be improved. Although this is not explicitly linked to nuclear-related emergencies, the decision has some repercussion for nuclear emergencies as well. In this context, holding a roundtable on emergency preparedness and response in the nuclear sphere could be considered as a very timely activity.

Preparatory Activities

In addition to the changes in the timing of the Roundtable, the overall format of the event was also modified in the course of its preparation. The Roundtable was first thought as a regional (East European) event but eventually, due to the lack of active civil society experts on EP&R in the neighboring countries, a decision was made to focus on the national level but also engage NTW experts from EU countries to bring in the international perspective and allow the audience to learn about the preliminary findings and recommendations of the NTW EP&R study.

Also, at the early stage, MAMA-86 decided to engage the State Inspectorate for Nuclear Regulation (SINRU) as a co-organizing partner, considering the successful experience of holding joint MAMA-86/SINRU roundtables under the ACN process in 2010 and 2013, as well the importance of SINRU's involvement for having a decent representation of other responsible authorities. MAMA-86 sent SINRU an official invitation to partnership in conducting the Roundtable, on the basis of which the Head of the SINRU passed an order on arranging the event, establishing a joint organizing committee and providing a list of other authorities to be engaged. In this way, the event became an official endeavor of Ukrainian authorities, which also raises the status of the discussion and facilitates advocacy of the Roundtable findings and recommendations, referring to the event's co-ownership of SINRU.

During the preparatory stage, the representatives of MAMA-86 and SINRU constituting the organizing committee had numerous meetings and telephone consultations between themselves in order to develop a comprehensive roundtable agenda covering different aspects of nuclear EP&R in Ukraine and to engage various stakeholders. It should be said, however, that not all relevant authorities delegated high officials to attend the Roundtable, how-ever most participants from authorities were indeed the people dealing with the issues they presented. This, to a large extent, should be credited to responsible officers in SINRU, who put a lot of efforts to ensure attendance of representatives of other authorities. Regrettably, the State Emergency Service of Ukraine, the main responsible authority for the off-site emergency response, did not show particular interest in the event. In the future, MAMA-86 plans to work more with this actor to ensure that it addresses the nuclear EP&R issue adequately and there is proper coordination between different responsible authorities.

The information about the forthcoming Roundtable was posted on MAMA-86' and SINRU's websites, the website of the Cabinet of Ministers of Ukraine (the Government), various civil society web-portals, etc. The event was



also announced via different email lists of environmental and nuclear-related NGOs.

As a result of these joint preparatory activities, the event was very well attended, with 122 participants representing responsible central and local authorities, NGOs, research institutions, independent experts, media and others.

Agenda

9:30- 10:00	Registration of participants
10.00 - 10.30	Michelle RIVASI, Member of the European Parliament, Chair of Nuclear Transparency Watch
	Sergiy BOZHKO, Chairman of the State Inspectorate for Nuclear Regulation of Ukraine
	Anna GOLUBOVSKA-ONISIMOVA, Head of the Coordination Board of UNENGO "MAMA- 86"
10:30- 12:00	SESSION I. EMERGENCY PREPAREDNESS AND RESPONSE IN THE NUCLEAR SPHERE IN UKRAINE: LEGISLATION AND PRACTICE
	Moderator: Anna GOLUBOVSKA-ONISIMOVA, Head of the Coordination Board of UNEN- GO "MAMA-86"
	Reports:
	The legislative and normative basis for nuclear emergency preparedness and response at NPPs by Svitlana CHUPRYNA, expert of the State Scientific and Technical Center for Nuclear and Radiation Safety
	The system of emergency preparedness of the State Enterprise "National Nuclear Energy Generating Company "Energoatom" by Oleh KRIKLIVETS, Deputy Head of Department of Emergency Preparedness and Response of NNEGC "Energoatom"
	Messages:
	Problems of compensation for nuclear damage by Volodymyr ZAKHAROV , Executive Director of the Nuclear Insurance Pool
	Improving the normative and legislative basis for nuclear emergency and response in case of nuclear and radioactive accidents by Sofia SHUTIAK, legal expert of the International Charitable Organization "Environment; People; Law"
	Comparative assessments of environmental consequences of accidents at the Chernobyl and Fukushima nuclear power plants by Mark ZHELEZNYAK , Institute of the Problems of Mathematical Machines and Systems of the Ukraine National Academy of Sciences, Insti- tute of Environmental Radioactivity, Fukushima University (Japan)
	Questions and answers
	Discussion
12.00 - 12.20	offee break



12.20 - 14.00	SESSION II. INTERAGENCY COORDINATION, STAKEHOLDER ENGAGEMENT, AS WELL TRANSBOUNDARY COOPERATION IN EMERGENCY PREPAREDNESS AND RESPONSE
	Moderator: Oleksii ANANENKO , Director for Institutional Development of the Association "Ukrainian Nuclear Forum"
	Reports:
	The Unified State System of Civil Protection in Ukraine by Sergiy PALAHUTA, Chief Spe- cialist of the Department of Civil Protection of the State Emergency Service of Ukraine
	Ensuring iodine prophylaxis among the population and other countermeasures in case of an NPP radiation accident by Antonina MYSHKOVSKA , Head of Technogenic Safety and Medical Problems of the Chornobyl accident consequences, Ministry of Health of Ukraine
	Messages:
	Ensuring functions of the competent authority in accordance with the Convention on Early Notification of a Nuclear Accident by Nataliya BIZHKO , Head of the Division of Emer- gency Preparedness and Response - State Inspector of the Department of Safety of Nuclear Installations of the State Inspectorate for Nuclear Regulation of Ukraine
	Emergency preparedness and response: the view from local authorities by
	Andriy MELNICHENKO, Department of Civil Protection Kuznetsovsky City Coun cil; and
	• Oleksandr OVCHATOV, Head of Emergencies and Civil Protection Energodar City
	Council.
	Questions and answers
	Discussion
14.00 - 15.00	Lunch
15.00 - 16.30	SESSION III: EMERGENCY PREPAREDNESS AND RESPONSE, AS WELL AS RELEVANT PUBLIC PARTICIPATION AND RESPONSE, IN THE EU
	Moderator: Zoriana MISHCHUK, Executive Director, Ukrainian National Environmental NGO "MAMA-86"
	Demonster
	<u>Reports:</u>
	Reports: Public assessment of the emergency preparedness and response in the nuclear field: an overview of the NTW analysis by Nadja ŽELEZNIK, Director of the Country Office of REC in Slovenia, chair of the NTW WG EP&R (Slovenia)
	Reports: Public assessment of the emergency preparedness and response in the nuclear field: an overview of the NTW analysis by Nadja ŽELEZNIK, Director of the Country Office of REC in Slovenia, chair of the NTW WG EP&R (Slovenia) Emergency preparedness and response in the nuclear field: the French experience by Gilles HERIARD DUBREUIL, member of the ANCCLI and NTW Boards, Director of the MU-TADIS research group (France)
	Reports:Public assessment of the emergency preparedness and response in the nuclear field: an overview of the NTW analysis by Nadja ŽELEZNIK, Director of the Country Office of REC in Slovenia, chair of the NTW WG EP&R (Slovenia)Emergency preparedness and response in the nuclear field: the French experience by Gilles HERIARD DUBREUIL, member of the ANCCLI and NTW Boards, Director of the MU- TADIS research group (France)Emergency preparedness and response in the Slovak Republic: view from the technical support organisation coordinating stakeholders engagement process by Tatiana DU- RANOVA, Emergency Planning Expert of the Nuclear Safety Department, VUJE Inc. (Slovak Republic)
	Reports:Public assessment of the emergency preparedness and response in the nuclear field: an overview of the NTW analysis by Nadja ŽELEZNIK, Director of the Country Office of REC in Slovenia, chair of the NTW WG EP&R (Slovenia)Emergency preparedness and response in the nuclear field: the French experience by Gilles HERIARD DUBREUIL, member of the ANCCLI and NTW Boards, Director of the MU- TADIS research group (France)Emergency preparedness and response in the Slovak Republic: view from the technical support organisation coordinating stakeholders engagement process by Tatiana DU- RANOVA, Emergency Planning Expert of the Nuclear Safety Department, VUJE Inc. (Slovak Republic)Preliminary results of the PREPARE project regarding Aarhus Convention implementation in the context of nuclear emergency preparedness and response by Gilles HERIARD DU- BREUIL, member of the ANCCLI and NTW Boards, Director of the MUTADIS research group (France)



	Questions and answers
	Discussion
16.30 – 16:50	Coffee break
16:50 - 17:50	WRAP-UP SESSION: HOW TO IMPROVE EMERGENCY PREPAREDNESS AND RESPONSE, AS WELL AS PUBLIC INFORMATION AND PARTICIPATION
	Co-moderators:
	Tetiana KUTUZOVA , Head of the Emergency Preparedness and Radioactive Protection Department, State Inspectorate for Nuclear Response of Ukraine
	Zoriana MISHCHUK , Executive Director, Ukrainian National Environmental NGO "MAMA- 86"
17:50 - 18:00	ROUNDTABLE CLOSURE

Roundtable proceedings

The roundtable opening addresses were delivered by Anna GOLUBOVSKA-ONISIMOVA, Head of the UNENGO "MAMA-86" Coordination Board (MAMA-86); **Michèle RIVASI**, Member of the European Parliament and President of the Nuclear Transparency Watch (NTW); and **Serhii BOZHKO**, the Head of the State Inspectorate for Nuclear Regulation of Ukraine (SINRU).

Upon presenting herself, Member of the European Parliament and NTW President **Michèle Rivasi** told about her interest in nuclear safety issues, with which she deals for more than 30 years. She also recalled her visit to Ukraine in the year when the Chornobyl accident occurred. The attention to the 1986 accident had been caused not only by its disastrous consequences both for Ukraine and the whole world but also by understanding that no one is immune from such catastrophes. Nuclear safety is also a topical issue in France, with its numerous NPPs. Mrs. Rivasi also spoke about her recent engagement in projects in Ukraine focusing on providing support to children and pregnant women in the area near Chornobyl. She also made a brief introduction into NTW for the roundtable participants, giving an overview of its objectives and activities.

Serhii Bozhko, the Head of SINRU, in his welcoming remarks thanked NTW and MAMA-86 for the idea of holding such international roundtable and noted that, despite having such an event in a quite difficult period for Ukraine, it was a demonstration that "everything will be alright for us". "We are building the national system of nuclear and radiation safety according to the IAEA standards. We are implementing the European Union directives related to the nuclear and radiation safety requirements binding for our association and, I hope, in our subsequent European Union membership'. As he explained, emergency preparedness and response to nuclear accident is a part of the national system of nuclear power plant safety. Along with operational safety, it is intended to minimize risks of hardly probable but still possible accidents. "Consequences of nuclear and radiation accidents, with impacts not limited to a nuclear installation site, become a problem of regional, national and global levels". Lessons of the Chornobyl and Fukushima nuclear accidents, on the one hand, revealed gaps in the emergency preparedness system and, on the other hand, encouraged the creation and reinforcement of the international system of emergency preparedness and response. Inviting to a constructive dialog, Mr. Bozhko pointed out that "the regulator is open to a dialog with concerned civil society members and our colleagues from European countries, and considers this event as an opportunity for deepening cooperation based on the principles of partnership, transparency and respect for differing views and opinions for the purpose of finding understandable, effective and reliable safety systems". In conclusion, the SINRU Head emphasized that understanding of every citizen's



role and functions becomes especially important in the situation of challenges and growing terrorism threats.

In her opening speech, the founder of MAMA-86 and currently the Head of its Coordination Board **Anna Gol-ubovska-Onisimova** told in more detail about the NTW, which was established in 2013 at the initiative of the European Parliament members in development of the European process "Aarhus Convention in the Nuclear" (ACN). One of thematic priorities in the NWT activities consists of examining emergency preparedness and response to nuclear and radiation accidents. Within the framework of this priority, NTW promotes strengthening of civil society control over these issues.

Mrs. Golubovska-Onisimovaa also spoke about MAMA-86' participation in the NTW and the earlier ACN process. MAMA-86 is a NTW co-founder and was the only organization from the non-EU country actively participating in the ACN since 2010. The Head of MAMA-86 Coordination Board recalled the conclusions made by the ACN process participants after the five years of its activities:

Production of nuclear energy requires strengthened supervision of the level and state of safety that is ensured by extremely strict financial, technical, social, political and legal conditions, the volatility of which calls for continuous oversight in view of the accident potential of nuclear facilities' operation.

- Nuclear accidents take no notice of borders therefore vigilance concerning nuclear safety remains an extremely pressing issue for Europe's future.
- The Fukushima-1 NPP man-made disaster proves the need of maintaining public activity concerning the operational safety of nuclear facilities rather than only observance of formal and legal procedures.

Summing up, Mrs. Golubovska-Onisimova pointed out that many EU countries only begin to develop these practices and, to use the benefits of the contributions of public, authorities should recognize, encourage and support this potential. Mentioning as an example the local information commissions that have been overseeing the operation of the French nuclear facilities for more than 30 years by now, she voiced her hope for the successful implementation of a similar practice in Ukraine when more favorable conditions emerge for that.

Opening the roundtable **Session I "Emergency preparedness and response in the nuclear sphere in Ukraine: legislation and practice",** Anna Golubovska-Onisimova, who was the session moderator, encouraged speakers and other participants to remember the purpose of the event, which aimed at establishing a dialogue of stakeholders on emergency preparedness and response as well as involving the public in decision-making taking into account relevant European practices.

The first roundtable speaker, **Svitlana Chupryna**, expert of the State Scientific and Technical Center for Nuclear and Radiation Safety, made a presentation on **"The legislative and normative basis for nuclear emergency preparedness and response at NPPs".** She provided details concerning provisions of some regulatory documents that formulate the requirements regarding NPP emergency plans, NPP crisis centres, emergency response drills, and the procedure of notification in case of a NPP accident, first and foremost beginning with provisions of the Constitution of Ukraine and the Civil Protection Code of Ukraine. As the expert emphasized responsibilities for development and implementation of action plans on the protection of citizens, accident localization and elimination of its consequences at high-risk facilities are specified at the legislative level, in the Civil Protection Code of Ukraine, for central and local executive authorities and economic entities. The document regulating the interaction among central executive authorities in case of radiation accidents is the Radiation accident response plan. Its provisions were designed on the basis of the IAEA recommendations. The speaker briefed the audience about the content of the NPP emergency response plan and the functions of internal and external NPP crisis centres. In conclusion of her report, Svitlana Chupryna pointed out that the regulatory framework currently in force is not a dogma - it is being developed along with ever-changing conditions of our life and adjusted as the international community gains experience in response to accidents when they occur.

Mark Zheleznyak, representative of the Institute of the Problems of Mathematical Machines and Systems of the Ukraine National Academy of Sciences and the Institute of Environmental Radioactivity, Fukushima University



(Japan), presented a report on "Comparative assessments of environmental consequences of accidents at the Chornobyl and Fukushima nuclear power plants". After explaining the reasons that had led to the Fukushima NPP accident, he presented a review of differences between the two accidents, of which the principal ones included the scale of accident-affected areas, total quantity of radioactive releases, and natural conditions differences which had substantially complicated the post-accident developments. Among the similarities of the two accidents, the speaker pointed out the main propagation path of radiation, namely the water path, common both to the Chornobyl accident and the one at the Fukushima NPP. Another considerable difference consists of the people evacuation scale: the annual permissible irradiation exposure for the population in Japan is much lower; resettled people there believe they will be able to come back home quite soon; and their attitude also differs greatly, namely they have a considerably higher level of trust in the information provided by public authorities.

Oleh Kriklivets, Deputy Head of Department of Emergency Preparedness and Response of NNEGC "Energoatom" (the nuclear operator), noted at the beginning of his presentation called "The system of emergency preparedness of the State Enterprise "National Nuclear Energy Generating Company "Energoatom" that he was very much moved by the fact that the subject of emergency preparedness and response had caused such a keen interest and activity from all stakeholders and the public. He reminded that Ukraine is among the top ten countries with a developed nuclear power sector: four nuclear power plants in Ukraine operate 15 power units whereas the Zaporizhzhia nuclear power plant is the Europe's largest in terms of total capacity. Oleh Kriklivets told in his report about the place occupied by NNEGC "Energoatom" in the unified state civil protection system and about the way it should interact with outside organizations when emergencies occur. According to Mr. Kriklivets, "Energoatom" carries out active work to prevent any accidents of the kind having happened in Japan. With international experts involved, on-the-spot checks of the safety and emergency preparedness status – so-called stress tests – have been conducted at all Ukrainian nuclear power plants; the tests confirmed once again operating reliability of the plants. The speaker presented all structural units of NNEGC "Energoatom" to the roundtable audience, including its emergency technical center, and told about their functions and tasks. This year, the company will undergo an inspection by a WANO mission that will, inter alia, assess the current emergency preparedness in Ukraine. Such inspections are carried out on a regular basis, like, for example, an inspection conducted on 3 April 2014.

After some questions asked by the audience concerning the quality of tests and trainings as well as the entities' responsible for them, presentations were delivered by **Volodymyr Zakharov**, an Insurance Pool executive director, and **Sofia Shutiak**, representative of the International Charitable Organization "Environment. People. Law" (EPL).

Volodymyr Zakharov elaborated on the subject of **"Problems of compensation for nuclear damage"** in the framework of which he mentioned that Ukraine has a good loss recovery system described in a sufficient number of regulatory legal acts. He noted, however, that not all the provisions stated in the Law of Ukraine on Civil Liability for Nuclear Damage and Its Financial Provision were properly complied with, let alone the fact that the law itself is formulated in a rather general way lacking specifics. Besides, Volodymyr Zakharov pointed out that the operator's liability for nuclear power plant accidents is absolute. In addition, the extent of such liability, for example, in European countries, tends to increase.

Sofia Shutiak reviewed in her presentation some regulatory legal documents that govern the liability of different parties concerning emergency preparedness and response but at the same time illustrate some discrepancies in the way interaction should be organized when necessary. Guided by legal experience, the EPL expert called public authorities for closer cooperation and more active exchange of the information that is within the competence of each of them individually but at the same time is key to ensure NPP safety and efficient response to potential emergencies.

Session II "Interagency coordination, stakeholder engagement, as well as transboundary cooperation in emergency preparedness and response" was opened by Oleksii Ananenko, the Director for Institutional Develop-



ment of the Ukrainian Nuclear Forum Association, who moderated the session. He reemphasized the importance of efficient interaction among public authorities on emergency preparedness and response matters, pointing out that even the Ministry of Foreign Affairs of Ukraine and the Ministry of Transport and Communications of Ukraine must join response activities in one way or another.

The first speaker in the second session was **Serhii Palahuta**, Chief Specialist of the Department of Civil Protection of the State Emergency Service of Ukraine, who spoke on the subject **"The unified state system of civil protection in Ukraine".** He told about the regulatory legal acts governing the operation of the unified state system of civil protection in Ukraine, and about its components, particularly certain elements that make up territorial subsystems and functional subsystems composed of central executive authorities. The unified state system of civil protection is a set of management bodies, coordination bodies, and civil protection forces of central and local executive authorities, enterprises, institutions and organizations that ensure implementation of the state policy on civil protection. It includes, inter alia, notification, informing, the system **112**, emergency monitoring and forecasting, resource provision, staff training, education and skills improvement. In its report, the SESU representative highlighted each of the above-mentioned functions in more detail. Besides, he pointed out that the civil protection forces include an operational rescue service, an emergency rescue service, civil protection units, specialized civil protection services, fire rescue units, and voluntary civil protection units.

The subject of "Ensuring iodine prophylaxis among the population and other countermeasures in case of an NPP radiation accident" was covered by Antonina Myshkovska, the Head of the Sector of Technogenic Safety and Medical Problems of the Chornobyl Accident Consequences, Ministry of Health of Ukraine. Pointing out the difficult period in which the roundtable is being held, the MoH representative described who would be responsible for taking the countermeasures governed by the radiation safety standards in case of a radiation accident. As is known, all the countermeasures are conventionally divided into urgent, immediate and long-term ones. Having described them in detail to the audience, the speaker noted: 'All this is a complex of anti-radiation measures to be taken simultaneously, because iodine prophylaxis envisages only protection of the thyroid gland against radioactive iodine-131, and we know that a radiation accident entails release of a whole group of radionuclides into the environment, and the radionuclides have different points of accumulation in a human body under homogenous distribution and affect the body differently'. Antonina Myshkovska provided a list of the regulatory legal acts that govern iodine prophylaxis in case of a radiation accident, and reviewed the rules and regulations stated in the above-mentioned documents. In addition, she said that, upon analysing background experience, the MoH of Ukraine had developed a draft regulation on iodine prophylaxis, namely concerning the dosage, frequency and intake time of stable iodine preparations. She noted, however, that the production of the medicines, which would actually meet the iodine prophylaxis requirements, is currently rather limited.

Oleh Nasvit, the Head of the Department of Energy, Transport and Communications, Environmental and Technological Safety of the National Institute for Strategic Studies, delivered a presentation on **"Problems of emergency preparedness: have the lessons of Chornobyl and Fukushima been taken into account?"** As a representative of a policy research institute that deals with a wide range of security issues, he took a rather critical position compared to previous speakers from authorities: he said that the answer to the above question in 2013 had been unpromising. The speaker reviewed problems related to obtaining a planned exposure increase authorization and permitting the staff to perform emergency rescue works in case of a radiation accident, as well as problems with ensuring iodine prophylaxis. In addition, he pointed out specific features of the responsibility shared by many parties, which leads to some uncertainty in this matter, sometimes even to a lack of any decision-making procedure.

A viewpoint of local authorities on the emergency preparedness and response issue was presented by Andrii Melnychenko, representing the Civil Protection Department of Kuznetsovsk City Council, and Oleksandr Ovchatov, the Head of the Department for Emergencies and Civil Protection of Enerhodar City Council. These two speeches were very different in tonality from the presentations of central authorities: while the latter spoke about formal signs of adequate emergency preparedness and response (i.e. existence of legal provisions regulat-



ing this issue), local representatives were very critical about the actual possibility to implement these provisions on the local level, where the action should take place in case of a radiation accident.

The representative of Kuznetsovsk city told about difficulties with rapid information transfer, creation of a civil protection reserve and establishment of civil protection services, and urged to provide appropriate incentive conditions on the legislative level to ensure support for the latter. He noted, however, that interaction with the nuclear power plant in their city is well-established, as is a notification system working on a high level. *Andrii Melnychenko* also called central authorities to be more active in involving local authorities in cooperation and discussion of draft documents.

The same opinion was voiced by the representative of Enerhodar city, who spoke about difficulties in communication between different authority levels, resulting in considerable decrease of operating efficiency and in incompliance of regulated rules and standards with real capabilities of local authorities.

The following discussion was quite vivid. *Zoriana Mishchuk*, MAMA-86 Executive Director, speaking about the EP&R study on the actual emergency preparedness and response to which the Roundtable is intended to contribute, said that the two speeches of the representatives of the local authorities from the proximity of NPPs were the most interesting during the event because they address the reality of emergency preparedness and response and not what is written on paper. She also said that the previous desk work of MAMA-86, including legislation analysis, sending information requests to responsible authorities, etc. showed that there seems to be little coherence and coordination between different actors. She compared the nuclear emergency preparedness and having no clue what is drawn on the piece of another authority. In the challenging situation where an emergency has occurred, when there is stress and time pressure, it is highly unlikely that the pieces would be collected in the right manner and everybody will see the whole map. She also pointed out that the monitoring of websites of authorities, operator, NPPs, shows no signs of attempts to provide information to the population on what to do if a nuclear emergency occurs.

Session III "Emergency preparedness and response, as well as relevant public participation and response, in the EU" was moderated by Zoriana Mishchuk, UNENGO "MAMA-86" Executive Director. She recalled the conclusions of the official study on the Fukushima accident, which mentioned among the reasons of the catastrophe such Japanese habits as reflexive obedience, reluctance to question authority, and devotion to 'sticking with the program'. She said that when it comes to nuclear emergency preparedness and response Ukrainians tend to make the same mistakes. Considering that there were many words said during the first two sessions by representatives of the authorities about their openness to dialog with the public, she invited the audience to explore the EP&R topic from the public participation point of view. She introduced the third session speakers, almost all of whom represented the public viewpoint, and suggested discussing the state of affairs in Europe and lessons that we could learn from the European experience.

The first speaker was **Nadja Železnik**, Director of the Country Office of REC in Slovenia and the Chair of the NTW Working group on emergency preparedness and response, who delivered a presentation on **"Public assessment of the emergency preparedness and response in the nuclear field: an overview of the NTW analysis".** She told about the objectives of the Working Group on Emergency Preparedness and Response, the main objectives of which include assessing the current European and national provisions on emergency preparedness and response from the civil society's perspective, informing the public on the assessment findings, and providing guidance to all stakeholders on follow-up actions on this matter. This work aims at formulating a general NTW document on the state of affairs concerning nuclear emergency preparedness and response in Europe, as well as preparing a NTW report on the WG activities performed. She told about the international community's responses to Chernobyl NPP accident and presented major changes in views on emergency preparedness and response that had occurred in Europe after the Fukushima NPP accident. Nadja Železnik told about the key events that had taken place since the NTW project launch, and expanded on the conclusions and recommendations made and pre-



pared by the Working Group over the period of its activities.

Gilles Heriard Dubreuil, the member of NTW Board and the Director of the MUTADIS research group (France), told the roundtable attendees about **France's experience in emergency preparedness and response in the nuclear sector**. In his report, he focused on the public scrutiny and control of emergency preparedness and response. The speaker emphasized that stakeholders' active participation in nuclear matters could secure substantial improvement of the nuclear power plant safety situation because involvement of the public in addressing the matters would ensure closer attention to the subjects that otherwise could remain out of sight. To support his opinion, he quoted a provision from the Aarhus Convention: "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 is disseminated immediately and without delay to members of the public who may be affected". In addition, using a detailed diagram as an example, Gilles Heriard Dubreuil explained the structure of regulatory bodies and auxiliary organizations functioning in France.

The European experience and vision was also shared by **Tatiana Duranova**, Emergency Planning Expert of the Nuclear Safety Department, VUJE Inc. (Slovak Republic), who presented a report **"Emergency preparedness and response in the Slovak Republic: view from the technical support organization coordinating stakeholders engagement process".** The speaker told about specificities of the Slovak process on emergency preparedness and response. As she pointed out, the key objective of involving all the stakeholders in that process is to improve and strengthen emergency and post-accident preparedness as well as to provide efficient management to secure remedial measures. Active involvement of all stakeholders also promotes possible experience exchange concerning urgent assistance and rehabilitation measures as well as organization of emergency preparedness and response all over Europe. Tatiana Duranova provided details of the way such cooperation is arranged, and what exactly actors are involved in Slovakia. She elaborated on their duties and responsibilities. Summing up the Slovak achievements in the field of emergency preparedness and response, the speaker underlined that the Slovak established process of stakeholder interaction showed that they are capable of working together and engaging new opportunities for efficient cooperation.

The third session was closed by the report of **Gilles Heriard Dubreuil**, **"Preliminary results of the PREPARE project regarding Aarhus Convention implementation in the context of nuclear emergency preparedness and response".** The PREPARE project is a research project under the European Commission's 7th framework program as well as the European Atomic Energy Community's research and training activities; it's an innovative platform and toolkit to ensure preparedness for actions in case of radiation hazards and accidents at nuclear power facilities in Europe. Having presented the project's general structure to the audience, Mr. Dubreuil told about the project, namely: to analyze the conditions and means of providing reliable and true substantial information to the public in time and according to information needs, in case of a radiation hazard and in the course of overcoming its consequences, taking account of complexity and dynamism of information flows; to rely upon the data of empirical analysis of information dynamics concerning the Fukushima NPP accident (in Japan and Europe) as well as upon other available experience of the EU countries.

The final session on how to improve emergency preparedness and ensure proper public information and participation was co-moderated by Zoriana Mishchuk, UNENGO "MAMA-86" Executive Director, and Tetiana Kutuzova, the Head of the Emergency Preparedness and Radiation Protection Directorate and a State Inspector of the Department for Nuclear Installations Safety at the State Inspectorate for Nuclear Regulation of Ukraine.

Tetiana Kutuzova thanked all the attendees for having managed to find time for taking part in the discussion, and at the same time expressed her regret and concern about some reformation processes going on in Ukraine: '... At present, the culture of safety we have repeatedly mentioned today must be required from not only nuclear pow-



er plant operators but also from the President of Ukraine and those officials who make decisions about Ukraine'. Pointing out that discussion and the opportunity of hearing each other is of great importance in such matters, she invited the roundtable participants to send their proposals on the topics discussed to the event organizers.

A final discussion of the most alarming questions took place, and anyone had an opportunity of speaking out and hearing others. There were many recommendations suggested to amend the current legislation governing emergency preparedness and response, as well as wishes of more active cooperation and involvement of a wider spectrum of public figures, experts on nuclear matters and emergency response, and central executive authorities in the elaboration of response plans and other rules and regulations. Besides, the participants repeatedly pointed out particular importance of notifying the population on emergency preparedness and response measures, providing people with information on potential consequences of NPP operation, and informing on the opportunities of securing personal safety. A question of no less significance is strengthening people's trust in governmental information and supporting the information process with really authoritative and reliable sources. Besides, the public pointed to the importance of implementing well-thought-out and reasonable reforms that would meet our country's real needs, instead of thoughtless adoption of someone else's experience that does not fit in the realities of our life.

At the roundtable closing ceremony, Zoriana Mishchuk thanked the event attendees for their participation in the discussion and summed up some outcomes, noting that the focus of attention and the highest activity concerning improvement of the radiation accident preparedness and response process should be shifted to the field, that is to the places where people know about the most principal problems and gaps in the system from real practice. Besides, the MAMA-86 Executive Director told about the intentions of adopting in Ukraine the French experience of the local information commissions that could unite various stakeholders and provide a platform for holding discussions and addressing actual problems. Finally, she pointed out with a pity that a holistic vision of the emergency preparedness and response situation was still missing but assured that the public would carry out an analysis and try to gather as complete information as possible about the state of affairs, even though it's a rather challenging task that requires great effort.

The findings:

- Ukraine appears to follow the international standards (revised after Fukushima) with on-site emergency
 preparedness and response (there are necessary regulatory documents, regular exercises and drills, cooperation between responsible entities, and technical/personnel means to ensure adequate response).
- Off-site emergency preparedness and response, on the contrary, raises serious concerns, considering that the responsibility for it is scattered among different authorities, which do not seem to have much coordination between themselves and mostly suffer from tunnel vision
- The Ukrainian legislation on EP&R also lack a systemic approach: there are many by-laws, some of which contradict each other (for example, some documents speak about 30 km zone as the area of EP&R action and others about 50 km)
- Ukrainian officials/public servants tend to follow the rule that dirty linen should be washed at home; therefore in public discussions they present the picture of the EP&R in Ukraine from the normative point of view (what is supposed to be) avoiding speaking about realities (what is the actual preparedness).
- Officials from the agencies responsible for various aspects of EP&R on the central level seem to be totally detached from the situation on the local level, pretending not to know that local authorities lack capacity for implementing EP&R measures



- Responsible persons in local governance bodies need more guidance and support in EP&R measures; they are also interested in building multi-stakeholder dialogue and cooperation and learning from good foreign practices.
- There is practically no information (or it is extremely hard to find) on the websites of responsible authorities or NPPs on what should be the actions of ordinary people in case of a radiation accident.
- Local population is practically not involved into EP&R planning or other relevant measures.
- The national-level nuclear off-site emergency exercises, which are supposed to take place every 5 years, have never been conducted because of the lack of funding; therefore it is hard to judge on the actual ability of all responsible authorities to act in a coherent manner in case of an emergency.
- The current situation in Ukraine, with almost a million of internally displaced persons due to the fighting in Donbass region, is a real-life test for the civilian protection system of Ukraine, raising such challenges as fast evacuation of people, sheltering, provision of accommodation, clothing and food for the IDPs and people remaining in the war zone, etc. The result of the "test" is rather unsatisfactory: the system is not able to cope with this burden and, although a large share of it is carried by volunteers, the situation in some places is close to the humanitarian crisis.
- Yet, this situation may have a positive impact for the future EP&R in Ukraine, considering that the emergency system is now under close scrutiny of top officials and action is taken aiming at its improvement. Although this does not specifically refer to nuclear issues, authorities in different sectors and on different levels are ordered to take EP&R within their range of competence more seriously.
- The National Plan of Response to Radiation Emergencies is supposed to be revised this year, so there is a window of opportunity for some improvements

The conclusions:

- Ukrainian legislation governing various aspects of nuclear EP&R should be revised to cover the existing gaps and discrepancies between different documents
- In particular, the missing regulation on iodine prophylaxis should be adopted
- The dialogue between different stakeholders on nuclear EP&R should continue and, in particular, be brought to the local level, where the action is most important.
- Action should be taken to engage the public from communities close to NPP sites in EP&R measures in a systemic way, as opposed to the current state of theoretical passive possibilities
- Local information commissions, such as those that operate in France in NPP neighbourhoods, could be a good format for sustaining stakeholder dialogue and engaging the public into nuclear EP&R measures on the local level. In the coming months MAMA-86 will work on the idea of launching a pilot local information commission in cooperation with central and local responsible authorities
- More inter-agency coordination on the central level is also necessary to ensure that all responsible au-



thorities operate in a coherent manner and are aware of each other's responsibilities

- Regional/local emergency plans should be revised from the point of view of actual capacities (including transportation means and personnel) and not be a theoretical exercise detached from real-life limitations
- A more thorough study of the state of nuclear EP&R (including a comprehensive overview of the regulatory basis and existing emergency plans on different levels, the actual state of preparedness, as well as the study of the public awareness, etc.) is necessary to provide all stakeholders with a full picture

Presentations from the Roundtable (in their original language) could be downloaded from here - <u>http://www.mama-86.org.ua/index.php/en/ecologization/ecointegration-news/668-2015-01-28-16-44-01.html</u>

Pictures from the Roundtable could be seen here - <u>http://www.mama-86.org.ua/images/gallery/rt-atom-</u> ic-2015/

> Report provided by: Zoriana Mischuk

Kyviv, February 15 2015

A visit to the emergency and technical center of "Energoatom"

On January 27, 2015, there was a "bonus activity" to the Roundtable – a visit to the Emergency and Technical Center of "Energoatom" (ETC), located in Bilohorodka town near Kyiv. The registered Roundtable participants who expressed their interest in seeing the ETC with their own eyes where able to join this short trip. The visitors, which included representatives of the public, authorities and media, were taken to the ETC premises outside of Kyiv, where they listened to the presentation about the activities of the ETC and received answers to all their questions. They were also shown the equipment used by the ETC in its work (including different machinery and robotic tools) and had an opportunity to communicate with the numerous staff of the ETC, who were gathered specifically for this purpose.

The ETC, which is a separate unit of the Ukrainian nuclear operator Energoatom, is designed to ensure constant readiness of Ukraine to take rapid and effective action in case of a nuclear accident. It also performs actions aimed at decommissioning and preservation of nuclear installations and facilities intended for nuclear technologies utilization and radioactive wastes, as well as post-accident action in case of transport accidents during transportation of radioactive materials.

The principal tasks of the ETC include:

- management, preparation and performance of emergency work on post-accident clean-up;
- engineer and radiation survey of emergency objects, analysis and result summary;
- forecasting of radiation situation in emergency area and propositions on mitigation of a negative accident results for population and environment;
- decontamination of premises, buildings, and equipment, as well as dust reduction while performing



accident recovery work;

- development of new techniques and technology for increased radiation work and scientific and technical support of new technologies at a NPP;
- development and production of equipment and devices that provide for a special technologies use and force account in terms of increased radiation;
- development of technical and organizational/management documentation for the SS ETC in terms of increased radiation;
- personnel emergency response drill together with nuclear plants;- maintenance of special equipment, robotic complexes and remote-controlled mechanisms of the ETC;
- international scientific and technical cooperation on radiation accident management at nuclear and industrial facilities;
- shot operations while managing nuclear accidents and accidents during transportation of explosive materials, as well as at the request of other organizations;
- transportation of explosive materials to the shot area when managing nuclear accidents, as well as at the request of other organizations;
- diving operations while managing nuclear accidents, and accidents during transportation of explosive materials and nuclear power objects survey;
- radio communication service;
- participation in research and development work, introduction of scientific, engineering, technological and other developments.

The ETC has 270 highly qualified employees, many of whom participated in the Chernobyl accident liquidation activities or have worked at a nuclear plant, and currently spend a lot of time doing exercises aimed at developing and maintaining the skills necessary in emergency conditions. The ETC staff participates in emergency exercises and drills at NPPs, which ensures their familiarity with the situation on the ground.

The equipment that the ETC possesses (some of it is produced by their own engineers) does not seem to be at the world state-of-the-art level but it looks robust and capable of performing the necessary functions in conditions of a nuclear accident.

The visit was very well organized and the ETC staff was very welcoming and ready to provide as much information as possible. It should be noted that this was the first visit of the public to the ETC in its history; also some of the participating visitors from responsible authorities had never been there before. Therefore the visit was very much appreciated by everybody and it was a very positive sign of the commitment of responsible entities to ensure proper public information and participation.



Annex 8: Press releases from round tables

Press release:

Cattenom: In case of emergency forget the emergency plans

Luxembourg, May 2014. Emergency plans for the French nuclear power plant Cattenom are existing but in case of emergency they are not sufficient at all. This is the conclusion of the international Aarhus Round Table of the working group rkinggency preparedness & response" of Nuclear Transparency Watch (1) which took place on May 17th in Schengen/Remerschen in Luxembourg. sufficient at all. This is the conclusion of the international Aarhus Round Table of the working group rkinggency prepare" noted Roger Spautz from Greenpeace Luxembourg. (2) Cattenom should be phased out immediately. Poor safety culture is a risk and no power plant in the world will withstand a terror attack with an Airbus A 380 or a Russian bunker breaking weapon AT 14. Patrick Majerus, the official emergency officer of Luxembourg, mentioned the big problem of wasting time by translation and by different emergency plans in the different countries. Dieter Majer, former technical head of the German Nuclear Safety Office, criticized the water cooling system in Cattenom and the risk of earthquakes and flooding.

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Press release:

What if the nuclear power plant Temelin will explode today?

Temelin/ Paris/ Marktredwitz. September 2014. A meltdown in a nuclear power plant can happen in the next hour. Are there functioning trans boundary emergency plans? What are the concerns of the affected public? These questions will be clarified by **Nuclear Transparency Watch** (1) on 27th September 2014 on a public **trans-boundary on a public emergency plans? What are the concerns of the**in Hluboka nad Vltavou nearby the nuclear power plant of Temelin. Brigitte Artmann is German member of Nuclear Transparency Watch and organizer of the Round Table Temelin. She informs nforms nearby the nuclear power plant of Temelin. Brigitte Artmann is German member of Nuclear Transparency Watch and organizer of the Round Table Temelin. She informs nforms nearby the nuclear power plant of Temelin. Brigitte Artmann is German member of Nuclear Transparency Watch and organizer of the Round Table Temelin. She informs nforms nearby the nuclear power plant of Temelin. Brigitte Artmann is German member of Nue Government of Luxembourg are talking with Monsieur Hollande in Paris. Other round tables will take place in Bulgaria, Poland, Slovenia, France, Ukraine and Belgium. Nuclear Transparency Watch will forward a report to the European Commission and to the governments of the Member States.

Temelin has an evacuation zone of 13 km. The Temelin operator CEZ informs on its website with data's from 1998: Within a range of 14 km live 23.387 persons, within a range of 30 km 255.000 persons, 100.000 of them in 25 km distance in the city of Ceske Budejovice. Temelin unit 1 has a dangerous welding at the reactor vessel, the welding 1-4-5, file 15/2001/SUJB. (2) Temelin is situated 60 km east of the German border. That means with an evacuation zone of 100 km in Germany, also German emergency officers will have a problem. Are they prepared? What if 255.000 people are on the run, the wind will come from the east and the emergency case will last months and years? The German 100 mSv/y evacuation and resettlement level is far too high. In Japan this level is 20 mSv/y. The annual radiation dose of a worker in a NPP is 20 mSv/y, the lifetime dose is 100 mSv/y. How shall children and unborn babies survive these radiation levels? The conclusion of a study of the German Federal Office for Radiation Protection (BfS): A severe nuclear accident can have much wider ranging consequences than



previously officially supposed. The civil protection is not prepared at all. (3) Jan Haverkamp, Greenpeace: With the lifetime extension of ageing nuclear power plants we are entering a new era of risk. (4) This is the fact in Dukovany, a nuclear power plant with four old reactors without containment and an expected lifetime extension from 40 to 60 years. 32 km east of it is the city of Brno with 371.000 inhabitants. Dukovany is 30 km north of the Austrian border, 98 km north from Vienna.

Nuclear Transparency Watch invited the emergency officers and the members of the public from Czech Republic, Germany, Austria, Slovakia and Poland to this workshop. Whether the responsible nuclear emergency officer from SUJB and from CEZ NPP Temelin will participate is not yet clear. Participants from the civil society are: Ing. Edvard Sequens from Calla Czech Republic, Dr. Herbert Barthel FoE Bavaria, Bernhard Riepl Sonne& Freiheit Czech Republic/Austria, Patricia Lorenz FoE Austria, Milan Šimoník the Energy Working Group Coordinator at Green Party Czech Republic, members from Greens Czech Republic, the Greens Neustadt/Waldnaab, Bad Steben and Wunsiedel in Germany, BIWAANAA and Greenpeace Kronach. The Embassy of the Republic of Austria will be there to give report to the Austrian Government.

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Contact: Hilde Lindner-Hausner Phone: +49 (0) 9608 2 02, email: <u>hausner.roethenbach@t-online.de;www.biwaanaa.de</u> *BIWAANAA = Civil society movement against nuclear plants Weiden-Neustadt (former BI Wackersdorf)

Press release:

Emergency Preparedness and Response in Case of Nuclear Accident in NPP Kring

As the member of NTW(1) REC Slovenia carried out on October 20 2014 a round table on emergency and preparedness in case of nuclear accident in NPP Krško and its cross-border aspects (2).

Round table took place in Slovene town of Bre4 a round table on emergency and preparednelt was attended by 55 persons from all stakeholder groups from Slovenia and Croatia and the Slovene media. Both countries has an equal share of equity in NPP Krško, a joint venture of two federal republics of former Yugoslavia and situated in the Slovene town of Krško, very close to the border and in the vicinity of the city of Zagreb, a capital of Croatia with about 1 million of inhabitants.

The 696 MW Westinghouse designed PWR reactors that started its commercial operation in 1983 is considered as well operated in terms of safety and electricity generation and has already entered procedure to extend its design life time operation for additional 20 years, i.e. till 2043.

On the round table representatives of the NPP Krial operation in 1983 is considered as well operated in terms of safety and electricity generation and has already entered procedure to extend activities (3). In the discussion that followed the citizens and NGOs raised their **concerns regarding presumptions of the EP&R plans** in question and asked whether in reality the plans could be implemented. Special concerns were raised on the fact that although the local people have trust in safe operation of the NPP they are according to the public opinion surveys poorly informed on how to behave in case of an emergency and sceptical about their chances to escape the worst even when act properly.



Lack of regular information and communication on the issue on various levels, including direct communication between the operator of the NPP and nuclear emergency authorities in Croatia and lack of permanent and balanced dialogue on nuclear safety, including EP&R issues, between the plant operator and authorities on the one side and citizens, independent experts and NGOs on the other were identified as the issues of common concern and action. Contradiction between planned evacuation of pupils in schools and kindergartens and intentions of parents to evacuate with private cars together with their children was also identified. Citizens also demanded transparent and clear answers regarding long term relocation and damage compensation in case of a major accident in the NPP Krško.

The round table however also identified **progress in cross border cooperation**. Recently the cooperation stared between Slovene regulatory authorities and regulatory and emergency authorities in Croatia that first at the end of 1990ies initiated regulatory framework and capacities in the field. Within an EU sponsored project on evacuation in a case of a nuclear accident also the cooperation between Slovene towns of Krško and Brežice and the city of Zagreb started in 2012.

The participants were unanimous about the **necessity to organize similar events in the future to further discuss the open issues not only in Slovenia but also in the municipalities of Croatia that are situated within the emergency planning zones**. It was agreed that a proper strategies for approaching local citizens need to be found which would also enable responsible institutions to obtain their concerns and proposals. REC Slovenia will seek for possible support to enable further and better structured dialogue between local population, NGO, experts and authorities in the field.

Contact: Andrej Klemenc, REC Slovenia, e-mail: AKlemenc@rec.org; phone: +386 41 222 783

Press release:

Authorities and the Public Agreed to Cooperate on the Issue of Emergency Preparedness and Response in Case of Nuclear Accidents

On January 26, 2015 the International Roundtable on Emergency Preparedness and Response in the Nuclear Sphere was organized in Kyiv by the Ukrainian Environmental NGO "MAMA-86" (UNENGO ovenia will seek for possibspectorate for Nuclear Regulation of Ukraine, with the support of the Swedish International Development Cooperation Agency and the European public network Nuclear Transparency Watch.

25 years after the Chernobyl disaster, the 2011 Fukushima accident proved that no country which depends on the energy from nuclear reactors is immune to radiation accidents. While seeking to ensure a more secure energy future, we need to guarantee nuclear and radiation safety today. If there had been adequate emergency preparedness and competent response measures, the number of victims in both accidents could have been significantly smaller. For Ukraine, which will continue to suffer from the consequences of the Chernobyl accident for many decades more, nuclear emergency preparedness and response is a matter of the national level, and thus the interaction between the government and the public on this issue is very important to ensure effective security policy.

The responsibility for nuclear emergency preparedness and response in Ukraine is shared by different authorities and other bodies — "Energoatom", which operates the nuclear power plants, the State Inspectorate for Nuclear Regulation of Ukraine, the State Emergency Service of Ukraine, the Ministry of Health and other central executive bodies, as well as regional and local authorities. Therefore the round table was attended by a wide range of stakeholders, representatives of central and local authorities, NGOs, the operator, research institutions,



independent local and European experts, the media and others - 122 participants in total.

Representatives of "Energoatom" and the responsible authorities (the State Inspectorate for Nuclear Regulation of Ukraine, the State Emergency Service of Ukraine, the Ministry of Health and others) reported about the action taken in their areas of competence to minimize public health and environmental risks in case of a radiation accident at an NPP. The public and journalists were able to express their critical comments and ask sharp questions about the main challenges in this area — how to enable effective implementation of evacuation plans; iodine prophylaxis; staffing and logistics needed to carry out the necessary work in case of accidents and so on. Participants discussed ways to improve the regulatory framework, interagency coordination and cooperation with local authorities, cross-border cooperation and other issues.

The foreign speakers, including representatives of the Nuclear Transparency Watch (NTW), which brings together civil society experts from nuclear EU countries and Ukraine, insisted on the importance of public control of the activities on emergency preparedness and response in order to ensure their effectiveness. NTW experts presented the results of the assessment of the situation with nuclear emergency preparedness and response in the EU, and described the practices of some European countries.

A particular attention of civil society experts was focused on the challenges of public information and participation relating to emergency preparedness and response action. Roundtable participants agreed on the necessity of systemic interaction to continuously inform citizens about the provision of effective emergency preparedness and response. The Roundtable findings will be disseminated among all stakeholders.

On January 27, 2015, Roundtable participants had an opportunity to visit the Emergency and Technical Center of "Energoatom" (ETC), located in Bilohorodka town near Kyiv. The Center, which has 270 employees (many of whom participated in the Chernobyl accident liquidation activities or have worked at a nuclear plant) is designed to ensure constant readiness of Ukraine to take rapid and effective action in case of a nuclear accident. Visitors, which included representatives of the public, authorities and media, listened to the presentation about the activities of the ETC and received answers to all their questions. They also were shown the equipment used by the ETC in its work.

Based on the summary of the findings of the International Roundtable and the study visit, "MAMA-86" will prepare a report to be published on the website, as well as the analysis, which will be included in the public assessment of the situation with emergency preparedness and response in Europe produced by NTW. In addition, the Roundtable conclusions and recommendations will be summarized and communicated to relevant actors.



Annex 9: Minutes of NTW Emergency Preparedness & Response WG Final Meeting, Brussels

January 22-23 2015

Aim of the meeting:

The aim of the NTW EP&R WG final meeting was to review and to agree about the final contents of two documents:

- Position Paper of the NTW on EP&R basic document which will be published and is intended for presentation to different stakeholders and EU institutions (European Parliament and European Commission) and
- **Draft NTW Report** on EP&R intended for discussion with EPR members and summarizing work performed within the group.

Beside that the meeting was aimed to talk about the future of NTW EP&R working group.

Participants: 15 NTW members' representatives (signed list of participants is attached in Annex 1).

Venue and date: European Parliament, January 22, 23 2015

General agenda: (detailed agenda is attached in Annex 2)

Day 1:

- WG EP&R activities presentation of baselines and results
- Position Paper of the NTW on EP&R presentation of the final draft
- Discussion on the final draft of the Position Paper
- Final wording of the Position Paper

Day 2:

- Presentation of the structure of the NTW report on EP&R and the results of the seminars
- Presentation of national desk-top investigation on publicly available information on EP&R and results of questionnaire based investigations
- Presentation of Outcomes of the Round Tables
- Conclusions: what else should be done and when to be delivered?
- Prospects for the Future

Course of the meeting and conclusions

DAY 1

Final Meeting of the Working Group on nuclear emergency preparedness and response was chaired by Ms. Nadja Železnik, REC Slovenia. After a short welcome address and logistic information, she presented main aims and the agenda of the meeting.

Due to the fact, that Ms. Michelle Rivasi was not available at the first day of the meeting it was agreed to switch



the agenda and to start discussion about Report first and to continue next day with the Position Paper.

Meeting continued with brief introduction about objectives of the EP&R WG work, activities done so far and the work performance. It was emphasized that key challenges were identified already, and the first contact was established with DG energy in order to discuss future support for WG work. Ms. Železnik thanked the members who were active and had prepared very good contributions for the Report, and mentioned also some problems which were identified. Namely the discussions with officials were quite challenging, and they were not ready to provide the information to public although it is part of their duties. In the future the opportunities should be investigated within EC calls and common investigation with EC should start based on the Position Paper. It is proposed to have clear picture about the opportunities by mid-2015. It is clear that without serious support the work will not improve. Detailed presentation of performed work is attached in Annex 3.

After the introduction the meeting continued with a presentation on the structure of the current NTW Report, and with detailed presentations of particular parts. The following content of the Report is proposed:

- 1. Introduction (why and how it was formed, what were the objectives and how the research was done)
- 2. Background information (will provide legal requirements which are linked to EP&R, specially the role of civil society (CS), ICRP standards, EC legal frame which is in place connected to public involvement, access to the information as soon as the accident happens, idea behind and lessons learned from Fukushima, activities of the civil society until the NTW WG was formed ANCCLI work in France and projects performed with municipalities in Slovenia, Croatia and Romania, information will be added about nuclear associations who are publishing the ATHLET approach which increased zoning areas up to 100 kilometers).
- 3. Methodology (will present how the work was done and who was involved)
- 4. Results of EP&R investigations (Seminars, Results of desk top investigation of publicly available information on EP&R in NTW countries, Results of questionnaire based investigations and Outcomes from the Round tables)
- 5. Comparison of findings of NTW EP&R investigations with findings of ENCO study
- 6. Findings and viewpoints of NTW
- 7. The recommendations and the proposals
- 8. Conclusions
- 9. References
- 10. Annexes (presentations from the countries, minutes from the roundtables, etc.)

Conclusions from the discussion about the Report:

Chapter 4 needs to be improved: seminars are not problematic, but the text should be reduced, agendas and minutes should go under the annexes, but key findings will be included in the main part of the report. Results of the desk top investigation: currently we have the overview for Slovenia, but we are still missing the data from other countries. The question was do we stay with this at general level (as the formal system is similar in other countries) or shall we get rid of it? Discussion was opened on it.

Comments:

- Some aspects are better in some countries and some aspects in the other countries. It makes sense to
 pick up good practices from all countries (e.g. evacuation circles, reaction time) and make the best emergency plan, not to compare facilities among them. No assessment of the plans.
- It would be good to share good practices with the European Commission.



- In Slovenia Post Accident Strategy was adopted by Nuclear Regulatory Body, but it creates more problems than solutions. The position is that some things could not be prepared in advance (because nobody knows how far it will go, what will happen, what will be the effect, etc.).
- Currently there is a report prepared for Belgium and in few months it will be ready also for Canada and India. But we do not have time for wait for this. We could ask our group to provide good examples and then put it together. David will send the materials for Belgium which will be used.
- We can also use the indication that it is not necessary to have a law on preparedness, but support or initiative of the government is enough (if there is willingness).

Conclusion 1: The group agreed to have a look at the comparison of the emergency provision in different countries which was developed by David and ACRO and use it in this part of the Report. Afterwards we'll ask David to check if the text was transformed correctly.

Next part of the contributions considered the results based on questionnaire investigation. The text needs to be reduced and we'll put in the report just a summary. Whole contribution will be put in the appendixes. We can see there different responses from different countries, but some analytical work still needs to be done to get the proper findings out of it.

Next question was if we could expect something else besides Belgium, France, Germany, Luxembourg and Slovenia that we already have. Bulgaria also received few responses from the questionnaire and materials will be completed with the results of investigations. There will be 3 MPs from the neighboring countries (Serbia, Macedonia and Romania) using the questionnaire for preparing the questions for official police in the countries, like parliamentary questions.

It was stated that the questionnaire is quite exhaustive. Some countries succeeded to receive responses, but we can see it more as a roadmap. For Bulgaria it seems more to be the first step into the emergency preparedness issue. We do not have all the answers, but the questionnaire presents a good overview on what's at stake. If we do not have all the answers we could present it in the Report as a beginning of the process. We should value also the process, not only the results.

It will be stressed also in the introduction and methodology chapters as well as in conclusions. Questionnaire could also be a tool for NTW WG future work for each newcomer which will join.

Conclusion 2: This questionnaire will serve in the future as a tool for the process and data collection, to present the status of EP&R in each country.

We are talking about participation, but we never discussed background conditions for participation. Precisely with this process we start to address these conditions. Slovenia broadened the research with sending the questionnaire to different groups (local and national level) in order to obtain different answers addressing this issue and to get a multidimensional research. One of results of the roundtable in Slovenia is a request from Brežice community mayor to help them to prepare a strategy for properly addressing communication issues, because people are not informed.

Conclusion 3: The questionnaire needs to be repeated to see if there any additional conditions arise. European standards should be applied (basic safety standards directive).



In general we have very good results and contributions in this part. Also the outcomes of the roundtables are very good, findings are very useful. Quality checking of the report needs be done, and the value should be given to the process.

Conclusion 4: Group agreed to add in chapter 5 the general part showing how the ENCO study on comparison was developed and it shall be considered as completed. If there are no additional civil society positions, no other contributions are needed.

Conclusion 5: The chapter 6 should be adopted and harmonized with the conclusions, recommendations and proposals in Position Paper. Good overview and conclusion need to be done. Conclusion 6: In the last chapter under the annexes we'll put everything that was done but was not listed in details before in the core text (minutes, roundtable minutes, questionnaires, etc.).

Currently there are 70 pages of the text available, together with the annexes it will increase to approx. 150 – 200 pages, which is a serious investigation already.

In continuation four presentations were given:

David Boilley, ACRO: Shortcomings of the EP&R plans in Belgium: lessons from Fukushima are ignored, emphasizing that a severe accident is possible, that's why emergency zones need to be extended, focus should be given on the protection of vulnerable people, emergency plans should be scientifically assessed and discussed with stakeholders, and prepared with reference to long-term consequences.

Boris Sandov, Bulgaria: Round table "Aarhus &Nuclear III" emergency preparedness & Response on Balkans, concluding that every next RT has better results, and that RT in Bulgaria was well attended by Bulgarian institutions, while neighbor countries didn't send many participants. The RT was very well perceived by participants, but also shown that there is lack of co-operation between responsible institutions.

Yves Lheureux, ANCLI France: Emergency Preparedness and Response in France, talking about perception of nuclear emergencies, legal framework of nuclear emergency, response and communication strategy in nuclear emergency, strategy for the protection of population, local intervention plans for each nuclear facility, iodine tablets distribution, and presenting very concrete recommendations carried by civil society (CLI / ANCCLI) to improve emergency management.

Zoriana Mischuk, UNENGO "MAMA-86": EP&R in Ukraine - Roundtable preparation and desk-top work, presenting an overview of the Desktop study, governance system and challenges, key issues and the details about next roundtable.

All the presentations are attached in Annex 4 and will be included in the Report.

DAY 2

After briefly summarizing previous day's work and main conclusions, participants were invited to provide any additional comments regarding the Report. As there were no additional comments given, the work was continued on the POSITION PAPER prepared by NTW EP&R WG.

It was emphasized that is a focused document, which will present the situation and the needs for future work and support. So far all members of EP&R contributed their suggestions, and the draft document presents a summary of all individual opinions.



General remarks about position paper:

- No need to have 2 or 3 executive summaries, but it would be good to add conclusions coming from all the roundtables, namely people see similar level of problems, so it is not a theoretical situation. This to be put in the introduction part and when it comes to conclusions. Jan will be consulted about the text to be put in the introduction.
- In the introduction we have to put also lessons that could be taken from Fukushima to be integrated in European documents.
- Competences for emergency respond are not in all institutions, but they should be under the same authority. It is a problem in case of accident.
- The question of liability which is very important should be pointed out, although the group did not work on it. We will do further work on it.
- The question of availability of financial sources in case of accident should be considered. Discussions at different round tables showed the need for ensuring cash flow. Should be added: the need for cash flow directly after an accident is not guaranteed.
- There are a lot of paragraphs in the text concerning conclusions and recommendations, but the message seems to be a bit confused. In order to avoid this, the new structure of the document was proposed:

Findings

Evaluation of EP&R provisions (EU & Ukraine)

- EP provisions remain outdated, inadequate, delusional, and not real in many cases (2)
- Evacuation (large scale) not possible in many cases (4)
- Lack of efficient radiation monitoring devices (10)
- Lack of local authorities (and local population) awareness and training (12)
- Inadequate medical support (14)
- (CS not involved in the planning)
- (Main concerned actors at local level, not aware, not trained)
- (capacity of self-protection scarcely taken into account)
- (EP&R provision not based on people is an illusion)

Assessment of Plans, including Citizens and stakeholders

- Lessons of Emergency exercises & drills are not taken into account (13)
- Absence of Emergency plans updating (15)

Trans-boundary dimension of nuclear accidents

- EP&R is dealt at national level, with little trans-boundary cooperation (NTW has organized trans-boundary round tables) (1)
- Heterogeneity of existing EP&R provisions is a real threat (6)



Emergency information

- Information for people to protect themselves, a legal requirement (Aarhus Convention) (3)
- Paragraphs (8) and (11) are not clear enough they need clarification.

On-site emergency management

• Paragraph (7) is unclear, but there we have several questions: Questions on the availability of human resources? Protection of workers? Technical tools? – to be added by Eva and Michele.

Post-accident consequences not addressed (5)

- Nuclear accidents have (very) Long Term complex consequences that need to be addressed
- Nuclear Post-accident situations necessitates complex recovery processes involving the population

 to be added
- Post-accident perspective only addressed by very few countries today (like France, with minor scenario).

Liability (9)

- We have not work at that, but at the first glance we could put:
- Abyssal gaps between accident costs and existing insurance provisions,
- Need for investigations on actual costs of accidents based on recent Fukushima experience (level of compensation, scale of an accident),
- Does public liability replaces private liability?
- Need for future NTW investigations

Discussion:

- Concrete examples should be included at all levels if possible in the Report and in the Position paper, that the document will be readable also for member organizations.
- The updating of food contamination standards should be addressed during emergency after Fukushima (different system in France for people living in the vicinity of the accident),
- The problem of a standard of X100 Bq for children; does not work in practice, people will not find uncontaminated milk for their children.
- Confusion between different pieces of EU legislation harmonization and clarity is needed (example with the mushrooms standards from Japan,
- Total lack of communication between different concerned administration services (civil security, radiation protection, nuclear safety, etc) - example of Bulgaria (vignette), Duties of local implementation are not clear. Emergency plans in Europe remain, but not for the worst scenarios. Evacuation plans need to be revised and adapted.
- We have basic problems with European standards, which should be mentioned. Food is a major issue. Existing standards at EU level would go for 1000 Bq/l while in Japan there is 500 Bq/l during emergency case adopted already. It should be discussed in detail as actual situation is confusing. Feeling is that they



want to keep high level as a communication tool. Harmonization and clarity should be pointed out.

- Total lack of communication and dialog among authorities/institutions to be added in the text.
- It would be good to show the contradictions in the boxes (mushrooms, lack of dialogue with concrete examples),
- Would be good to provide 3 pages document with references to position paper (summary note) to interest people to read the position paper. Executive summary will be prepared and will serve as a trigger.
- Need to encourage sharing information among people,
- The group should propose to EC to use public consultation. They do not involve us, we have to be critical to that: in case that an accident happens in France they will not tell the Germans. European structure of involvement is missing. We should go a bit further with it it is not going far enough. In Belgian parliament the approach was very technocratic, completely ignoring the point of civil society. NTW should state that we have to start from the public concerned. This report must show that civil society must be legally involved at every level of the process. This must be a proposal. We have to change the planning. Years ago nuclear was a private and secretive thing, we improved little by little.

Recommendations

EP&R provisions (EU & Ukraine)

- Need for detailed CS evaluation in each country (2) strength of the NTW approach at local-national-EU levels based on civil society engagement and concrete evaluation to move out of the "formal" system (which is set in each of the country). We start from the citizen views should be a strong recommendation.
- Need for CSO and public engagement in planning and management at local, national trans-boundary levels (12)
- Need for developing a legal framework involving CSOs at each level of preparation and decision in the spirit of the Aarhus Convention. Voice of civil society must be a legal requirement EP&R system cannot be improved without public and CSOs at national and local levels (SEE the PIPNA REPORT HERE that proposes a governance framework – Generic inclusive governance patterns) for emergency management)
- Efficient EP&R can only be co-action of the concerned stakeholders at territorial level. Plans are not enough. Even plans elaborated with representatives of CS are not enough. EP&R only efficient if various stakeholders and the public ready to co-manage the situation (means they are aware before, they agree on the measures taken, they will use their own resources (eg their personal car)
- Review should integrate trans-boundary cooperation
- Need for appropriate resources (CSO, local communities)
- Need for quality control procedures (QA/QC) including feed-back of new events (back-up on EU research, e.g. PREPARE), exercises & drills (learning process – 13, 15)



- Reconsider evacuation process in the case of large urban area (NTW position needs to be taken 4) SEE discussion below
- Create an EU radiation protection Task Force (10)
- Integrate rescue and radiation experts in civil protection staff (11)
- Train medical staff (11)

Trans-boundary dimension

- Harmonize emergency provisions (emergency zoning on evacuation, sheltering, iodine distribution)
 (6)
- Develop a EU wide policy on EP&R (1) EC should take the lead (like for updating of nuclear safety after Stress Tests)

Emergency information

• NTW position on the 3 Steps of the HERCA-WENRA approach

On-site management

- Creation of a EU task force (7)
- Technological development (7)

Develop Medium- & Long-Term post-accident policies

• Back up on EU research

Liability

• Create a civil society-European Parliament cooperation to investigate

Discussion

- As concerns evacuation, new concept should be integrated: people have cars, internet, what to do in schools, shelters, need for bus. It has to be a co-evacuation process, not a top-down evacuation. Local actors must be involved in the preparation, and share the roles. There is a need for serious re-evaluation of the time-frame(s) for evacuation (based on scientific models). Recommendation from Radioprotection Commission in Germany is 5km evacuation should be done in less than 6 hours; 20 km evacuation should be done in less than one day.
- HERCA-WENRA (H-W) task force recommendation: the documents are not adapted to the present situation, they do not take into account lessons learned in Fukushima. It is not an incentive for national authorities to improve their safety provisions under existing emergency plans. But on the other side it is a revolutionary that all the regulators did this exercise. It is of significant importance that all EU authorities adopt a common position (with some independence of national authorities).

H-W did not incorporate CS in the preparation of the report although it is their duty. They changed their



position because they were pushed by the CS saying the EP&R does not work. There is a need for a structure at EU level involving the population. To avoid loss of credibility, if accident occurs before harmonization, each country will adopt the standard of the country where the accident takes place. It is not realistic, but it is written in the ATHLET report. The problem is that there is not time limitation to take the activities in the new ATHLET proposal. In the view of NTW we need to challenge them.

 Objective of the report should be to get support from the EC and DG ENER, but also to criticize MEPs lack of attention on EP&R.

PRIORITIES SETTING

Yves

- Regarding preparation and management of EP&R civil society must be systematically involved
- Need for a systematic trans-boundary arrangement
- Need for cash provision for early intervention support of evacuated people

Michel

- Role of systematic engagement of CS in EP&R, at local, national, EU levels
- Need for EU consistency of EP&R provisions
- Post-accident: totally new issue not taken into account

Jan

- Sufficient and harmonized EP&R plans that will guarantee a minimum of risk for all inhabitants and workers
 at and around nuclear: better and functioning harmonized cross-boundary EP&R and realistic plans for,
- Sufficient and workable systems for timely compensation cash flow for damages to citizens in case of nuclear accident,
- Inclusion of functioning public participation in the reconstruction and maintenance of EP&R plans on all levels.
- Consequences in decisions concerning infrastructure planning (energy, research, others) in case sufficient EP&R cannot be guaranteed.

Phil

- A Quality Control/Assurance approach to be introduced similar to what already exists in healthcare and education. In those contexts if the regular reviews show that quality standards are not maintained the facilities are restricted or closed.
- EP&R system must be subject to timely review incorporating views of public
- Aarhus principles should be implemented here as the basis for the quality insurance system

David

- Acknowledge that severe accident possible: extend emergency zone
- Focus on the protection of vulnerable people
- Assess EP&R plans scientifically and with stakeholders, local professionals CS and CSO, the one who will do the job
- Prepare for long-term consequences

Peer

- International Nuclear Events Scale -INES 7 (communication tool Fukushima level)
- NTW group of knowledgeable people with different angles very effective



Nadja

- Improvement of EP&R involving people essential
- Harmonization of EP&R provisions in the EU
- Lack of Post-accident preparation

Gilles

EP&R provisions today are resulting from closed door discussion. As a result-not realistic- EP&R provisions will not be real if not grounded on local actors capacity to co-manage emergency situations (including self-protection capacities)

Fukushima experience has not been taken into account by the EU yet. Nuclear safety Stress Tests have been turned into action plans and EC has played his role in this action. Totally different picture is for EP&R that is part of the nuclear safety framework. EC has undertaken ENCO study, and now? I would expect EU institutions to play their role and to turn this into an action program to be implemented at EU and member states levels Large scale evacuation (in urban areas) is not realistic. This point should be addressed. Notably when considering extension of NPP lifetime (versus alternatives).

FUTURE WORK:

- Roundtable for media by the end of this year (or better next year during 30 years from Chernobyl and 5 years from Fukushima).
- In April 2015 there will be an event in the Netherland, where Report could be presented.

The NTW WG on EP&R will produce 2 main outputs:

- Position paper of NTW on Emergency Preparedness & Response (EP&R) situation in Europe
- Report of NTW on Emergency Preparedness & Response (WG EP&R)

The work will be finished in February 2015 (2 months later than planned)

Future activities:

- Participation in HORIZON 2020 projects
- Proposition to EC to open EP&R activities which can be performed by NTW
- Looking for other calls
- New members to WG will be invited (synergies with other clusters and WG of NTW)

Minutes prepared by: Mateja Jeršič, REC, 15 February 2015







