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# Orange

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# Book

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# Two

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Nuclear Safety in the Baltic Sea Region:  
Laying the Ground for a Macro-Regional Approach

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# Editors' Letter

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This Notebook is one of nine in the Fourteen Point Three Notebooks collection brought together by the European Union Strategy for the Baltic Sea Region flagship project 14.3 (read: fourteen point three).

Eight Notebooks will present you with findings from our project's four different working groups (named Task Groups C, D, E and F), and one Notebook will introduce a general overview of the whole project.

We hope that the collection as a whole will give you a sense of the unfolding diversity and complexity of the project, whilst retaining homogeneity as a single vision and ideal.

The singular Notebooks present concrete results (studies, workshop reports, developed methodologies and scenarios). The structure of the entire collection intends to act as a mirror for the project as a whole, and to reflect on the process as much as the output. Each of the books can be read singularly as a study presenting concrete findings from working groups, at the same time they can be read as a collection. Manifested together we view this as the symbolic added value brought to the macro-regional conversation by the project 14.3.

These values could be: the network, the will for cooperation in general terms, the challenges in finding a uniform language among different civil protection cultures and traditions, and the motivation to find commonality amongst the different departure points.

Orange Book One and Two bring you the outcomes of the Task F work. Task F, one of the three area specific tasks of the project 14.3, investigated current nuclear safety preparedness and risk with an aim to identify gaps in the Baltic Sea macro-regional context. It is our duty to acknowledge here that nuclear and radiation safety related cooperation has a long and vivid tradition in our region. The longest running pan-Baltic civil protection working body was established in 1992 by the Council of the Baltic Sea States – it is now known as Expert Group on Nuclear and Radiation Safety (EGNRS). The main contribution of the 14.3 project and its Task F was, however, a first of its kind attempt to begin identifying risk and gaps in a truly macro-regional way, a process which can only be enabled by inquiry into an accident that is cross-border in its nature. Orange Book Two brings forward a study that was carried out by Task F experts, assessing the nuclear accident scenario developed in the first stage of the group's work (the scenario was presented in Orange Book One).

It is our pleasure and honour to be sharing with you this vision of cooperation through our Orange Books in particular, and the Fourteen Point Three Notebooks in general.

Editors of Fourteen Point Three Notebooks  
Egle Obcarskaite – Anthony Jay Olsson

Was the First Time that the Countries Around the Baltic Sea Worked Together on Macro-Regional Risk\*

14.3 was a project implemented under the EU Strategy for the Baltic Sea Region (EUSBSR), Priority Area Secure (Priority Area 14 in the 2009 version of the EUSBSR Action Plan). The whole priority area calls for an insurance that contributions in the field of civil protection encompass the overall Strategy objectives (save the sea, connect the region, increase prosperity). The project 14.3 responds specifically to the objectives through addressing the necessities of bringing together and coordinating civil protection stakeholders and bolstering the capacity of individual countries, in order to ensure our region's uniform resilience to macro-regional risks.

**14.3 was developed from a belief that considering the nature of the world that we live in today, only by ensuring a proper level of resilience on a macro-regional level can we ensure a higher level of resilience and preparedness on the national level as well.**

Not only for addressing the topic of macro-regional risk in the Baltic Sea region (before this project there wasn't even a common concept discussed among the countries in the region), or for bringing up a complex all-hazards approach, but also for bringing together a partnership consisting of all countries in the region, to not only discuss and share but develop together a strategic approach to civil protection. As such, it thus constitutes a shift in the whole paradigm of the way civil protection may be conceived on a macro-regional level.

Some say because there was previously never this level of openness in sharing information on civil protection tools and methods among different countries in the region; this could not have been imagined twenty or even five years ago. Others say it was because countries in our region finally openly recognized their individual vulnerability, as well as the fact that there may be situations to which even the most resourced country would face the need to ask for assistance from a neighbour. 14.3 partners came together admitting it straight: it is not enough to ask – you have to be ready to receive assistance.

This was especially visible in how the all-hazards approach had to be adopted for the project. All-hazards approach is a challenging claim even on national level, as it requires crossing administrative and institutional boundaries. Which is the best way to achieve this? The answer is yet to be formulated.

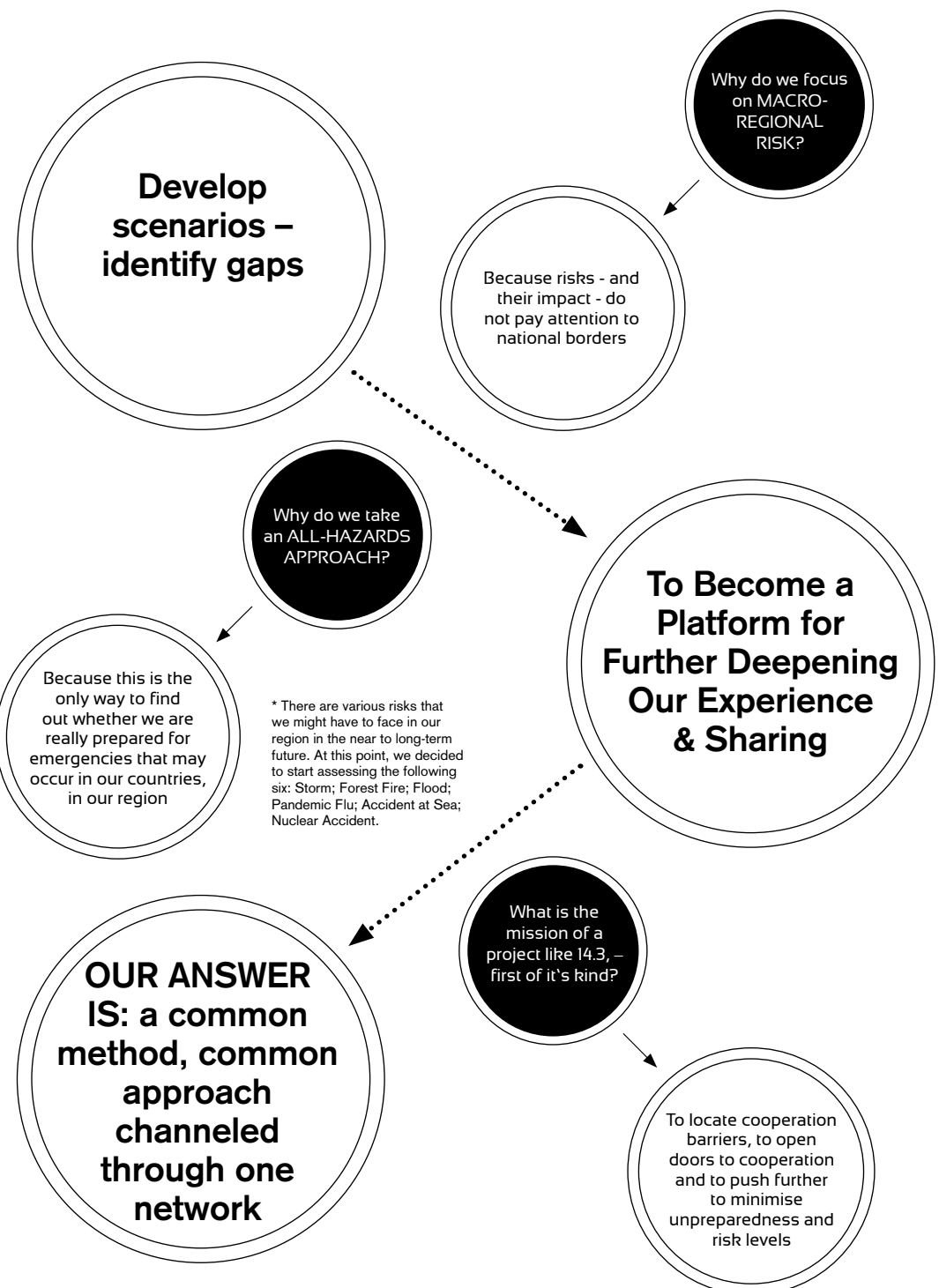
Project 14.3 proposed to take one step at a time and responded to the all-hazards challenge through structuring the project in four thematic tasks. There were three tasks dealing with the following hazards: floods, forest fire and nuclear accident. Whereas one task – Task C – engaged in an overall strategic discussion on how can risk be assessed and analysed on a macro-regional level, and how a common risk-discourse can decrease societal vulnerability of each singular country in the Baltic Sea region, as well as that of the macro-region as a whole.

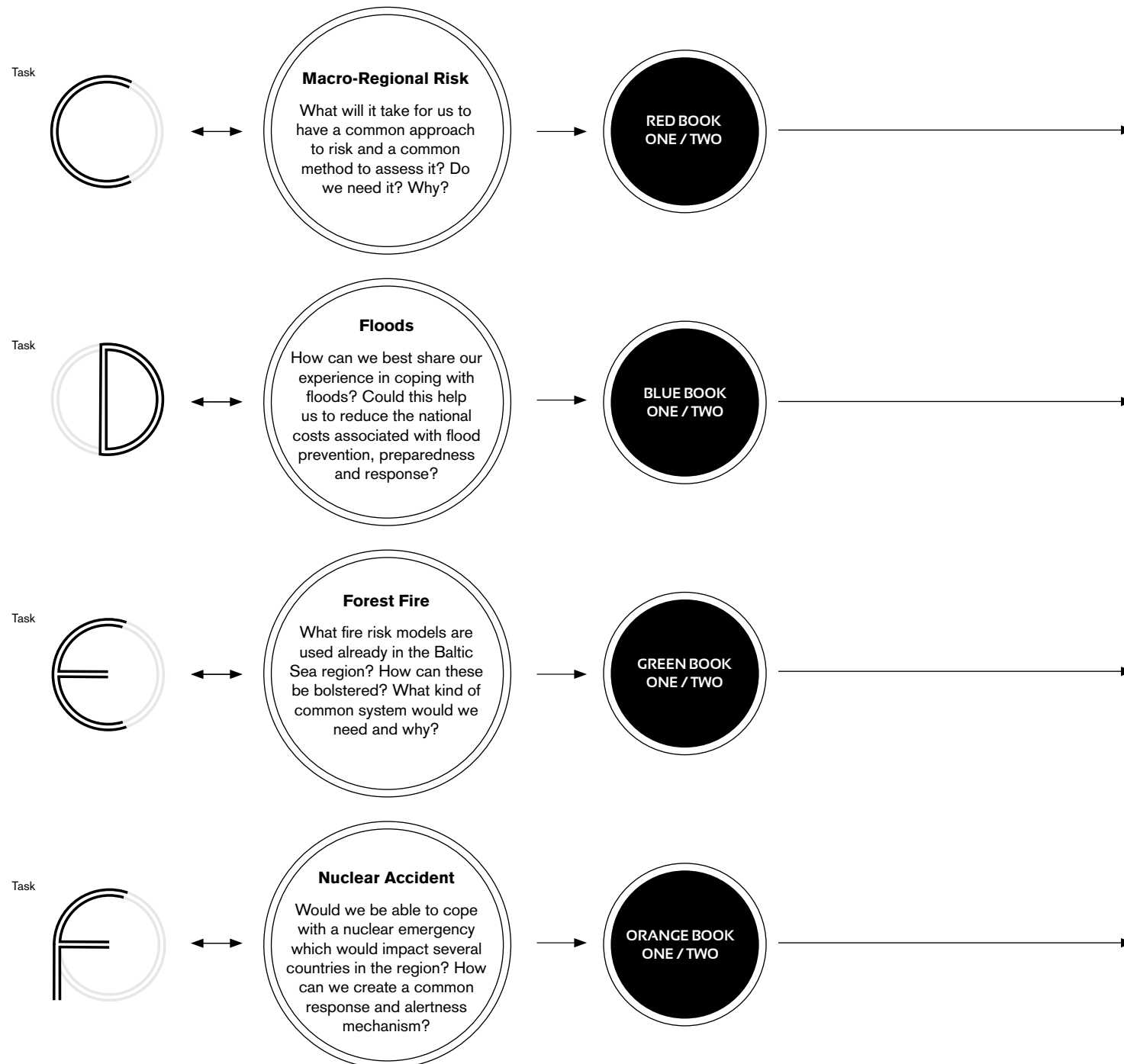
Working Together on Macro-Regional Risk.

Project 14.3 was a pioneering effort.

Why it is only now that 14.3 could have happened?

Pioneering efforts also meant that 14.3 was a daring effort.





## Fourteen Point Three Notebooks

Collection of Fourteen Point Three Notebooks is Set to Launch a CIRCULAR LOOP in which ONE PART Manifests The Whole and THE WHOLE Manifests One Part →

### ... Red Books represent the contribution

from our Task C experts whose main concern centred on beginning a discussion on the risk-assessment challenges in the Baltic Sea Region; a discussion that, for the first time, would include all countries from the area. In their two Notebooks they bring to us an insight on how our countries meet the challenge of assessing overall risk. They also question and explain what methodology can be used together, and they bring us their first attempt to develop a common language by drawing six different risk scenarios.

### ... Blue Books represent the outcome

from the Task D Grouping who have discussed flood prevention practice in the Baltic Sea region. Floods are an annual occurrence for most of the countries in our region, and each one of them has developed a strong national know-how of coping with this type of emergency. However, the discussions focused on how can we increase the effectiveness of our actions in dealing with this emergency by sharing experiences of individual singular-country specific cases? The Blue Books give us a picture of various flood prevention experiences in the Baltic Sea region, as well as their conclusions and recommendations for further know-how sharing.

### ... The Green Books focus on our regions foliage,

vegetation and forest cover and what happens when fire occurs. As our Task E experts discovered, all countries that participated in the work of Task E have their own national fire risk systems. These systems are both, similar and different at the same time. The question asked of experts was whether the region needs to have one fire risk system for the whole region? What would that system entail and how would that system borrow elements from other systems already developed elsewhere? This is to be decided in the future. For now, we have made a first step in this process providing you with an overview of existing fire risk systems in the Baltic Sea region.

### ... Our Orange books investigate nuclear accidents

The nuclear question is probably one of those regional questions which we cannot afford to overlook in a macro-regional context judging by its potential impact. To show you why this is so, Task F experts developed a scenario for an hypothetical accident in Finland that may have severe consequences on other countries in the region. The second part of their task work was to assess this developed scenario and provide recommendations for further activities that would increase our preparedness towards accidents of this complex kind. The scenario and workshop report are both delivered to you in our Orange Books completing the circle.



# Task F Fact Sheet

18 Months of...

## Two of the most important 'firsts'

### ...partnership of diverse

civil protection actors from every country of the Baltic Sea region was built

### ...the focus

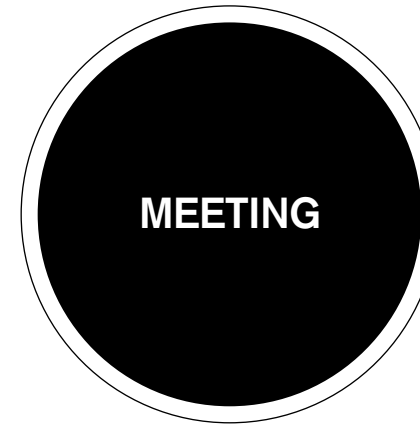
of the project was concentrated on an all-hazards approach through a macro-regional lens

## The questions we asked ourselves were

How can we acknowledge and communicate the project's complexity, and capture it without reducing or subordinating it at the same time?

How can we talk about the methods and the substance of inquiry at once, whilst keeping both on an equal footing?

Orange Book Two presents you with a study-report that was carried out on the basis of the Task F nuclear accident scenario for the Baltic Sea region (published in Orange Book One). One may read this study as an example assessment of cross-border nuclear risk in the Baltic Sea region. Another way to read this study is, however, to take a contextual perspective – as the first step to create a Baltic Sea region nuclear and radiation safety cartography that would reach beyond regular preparedness and cross-border assistance procedures, into a space of common actions undertaking nuclear risk assessment activities based on a truly macro-regional approach. →



Helsinki → Stockholm → Helsinki

The Task was led from Helsinki, Finland



Finnish Radiation and Nuclear Safety Authority (STUK) – Ministry of Interior, Finland – Helsinki City Rescue Department – Finnish Meteorological Institute – Finnish Government Security Services – Main School of Fire Service (SGSP), Poland – Federal Ministry of the Interior, Germany – Radiation Protection Centre, Lithuania – Norwegian Directorate for Civil Protection DSB

Task F work was endorsed and supported by the Council of the Baltic Sea States Expert Group on Nuclear and Radiation Safety (CBSS EGNRS)



**(Core Group of Experts)**  
 Juha Rautjärvi, Martti Annanmäki, Jorma Sandberg, Juhani Lahtinen, Roy Pöllänen, Raimo Mustonen, Pekka Visuri, Timo Härkönen, Janne Koivukoski, Simo Wecksten, Ville Estlander, Mikko Jääskeläinen, Eero Kytömaa, Minna Rantamäki (FI) – Peer Rechenbach (DE) – Kristina Mikalauskiene (LT) – Tone D. Bergan (NO) – Marcin Smolarkiewicz (PL)

## JUHA RAUTJÄRVI Task F Leader:

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“There are agreements to cooperate in case of major disasters. In terms of nuclear and radiation safety, there are regional forums, ongoing exercises. But the idea of risk *there* isn’t addressed as a macro-regional concept.

We need to build a macro-regional approach because the complexity and scale of risks such as the one we investigated in the hypothetical Task F scenario can only be coped with on a macro-regional level. How to deal with it in the most efficient; i.e. cost-effective way – we just don’t know yet. Therefore we need a new methodology – macro-regional methodology. Which would be as dynamic as the ever changing threat and risk itself. This can only be done by thinking in macro-regional terms, and the Baltic Sea region can be a pioneer in this.”

## TASK F Gave Us

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- The first case of a macro-regional nuclear accident risk scenario for the Baltic Sea region.
- A study of this scenario that in turn provide us with concrete recommendations on how to move further.
- An initial gap identification of our preparedness to cope with a macro-regional nuclear accident and its associated risks.
- The first precedent in the Baltic Sea region by way of defining nuclear risk and associated preparedness gaps in terms of a macro-regional hazard and macro-regional response.
- A foundation for integrating a macro-regional approach into ongoing processes of nuclear and radiation safety cooperation and experience exchange in the Baltic Sea region.



<sup>1</sup> This study has been compiled and written by Juha Rautjärvi, Pekka Visuri, Martti Annanmäki (Finnish Radiation and Nuclear Safety Authority STUK), on the basis of the work implemented under the EUSBSR flagship project 14.3 working group on Task Group F

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The countries in the Baltic Sea region have different ways of coping with disasters and catastrophes. Sometimes a catastrophe affects one country, sometimes it affects several countries. In an emergency situation affecting several countries, there might be obstacles or gaps which prevent the involved countries response services from performing at their optimal level.

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EUSBSR flagship project 14.3 Task F was set to:

- prepare a general macro-regional risk assessment focusing on nuclear and radiation safety;
- to prepare a set of scenarios to test the prevention status;
- to develop methodological tools to deal with the scenarios and
- to prepare a macro regional strategy (*recommendations*) for enhancing prevention methods and filling the gaps.

The work was done by producing a reference scenario to be used as a basis when identifying risks and major gaps in current disaster prevention and coping strategies, and by organizing several expert workshops. Based on the results and findings of the workshops a list of possible gaps was generated. It was recommended that a Baltic Sea region-wide process should be initiated to determine any state-level gaps, and also a regional workshop should be conducted to prepare an appropriate strategy to cope with any of the arising major disasters. To support these undertakings several actions were also recommended to be taken. It was concluded that the Model Worst-Case Scenario, developed for this study, was an efficient tool to discover the obvious major gaps regionally, and that it could also be used a model for state-level identification of potential gaps. The results were also discussed in the regular meeting of the Council of the Baltic Sea States (CBSS) Expert Group for Nuclear and Radiation Safety (EGNRS) (20-21 May 2013, Stockholm; the meeting was chaired under the CBSS EGNRS Finnish Presidency<sup>2</sup>). The outcomes were appreciated and the importance of the further work in this area emphasised, including evaluation and a more concrete definition of the findings as well as necessary work on technological information and communication tools for facilitating efficient collaboration in the Baltic Sea region.

<sup>2</sup> CBSS EGNRS Presidency rotates every three years. 2012-2015 EGNRS is chaired by Finland.



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Different countries have different ways of coping with disasters and catastrophes. Sometimes the catastrophe is not only limited to one country but affects several countries. Examples of these kinds of catastrophes in the Baltic Sea region are forest fires, floods, winter storms and nuclear accidents. Dealing with a severe catastrophe may need cooperation between countries and possibly also the use of shared resources.

If faced with an emergency situation affecting several countries, it is not easy to cope with it separately by using only national means. There are some obstacles or gaps – as they are called in this study – which prevents or hinders an optimal response performance by the different countries involved.

The EUSBSR flagship project 14.3 was launched to study these items. The main objective of this project, which is based on an all-hazards and macro-regional approach, is to map those hazards/threat scenarios which either have macro-regional and/or cross-border dimensions. The working group within the project 14.3 which produced this study – Task F – addressed the topic *Nuclear safety risk scenarios and gaps in a macro-regional context*.

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The leader of Task F was The Radiation and Nuclear Safety Authority (STUK), Finland. The work was assisted by:

- a sub-contracted group of Finnish experts representing the Prime Minister's Office and the competent civil protection authorities;
- a sub-contracted group of experts from several Baltic Sea region countries representing not necessarily their regulatory nuclear safety bodies but rather more general civil protection institutions;
- the CBSS Expert Group on Nuclear and Radiation Safety (EGNRS), representing the region's competent nuclear safety authorities.

## Scenario

The experts of STUK – Mr. Juhani Lahtinen, Mr. Roy Pöllänen and Mr. Jorma Sandberg - prepared a reference scenario<sup>3</sup> to be used as a basis when identifying risks and major gaps in current disaster prevention and coping strategies. The scenario was prepared for the representatives of the different Baltic Sea region countries to be used as a model. They would then potentially add their own country specific features and threats, and thus obtain several modified scenarios.

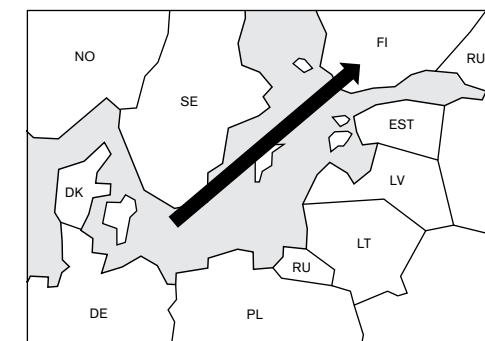
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The reference scenario presented a situation where several risks and threat potentials combined to affect a nuclear power plant as well as societal infrastructure thereby having a large scale effect.

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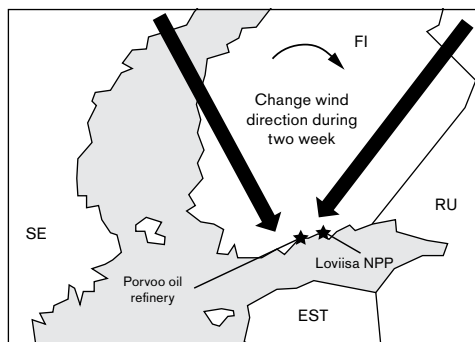


- ① Low pressure area with a strong winter storm enters Finland after passing over the southern parts of the Baltic Sea region. The storm lasts one day.

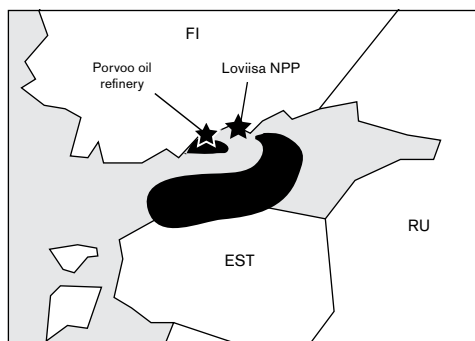


<sup>3</sup> The full Task F scenario is provided in Orange Book One of the Fourteen Point Three Notebooks.

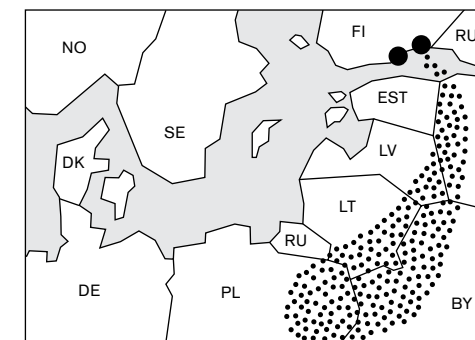
- ② After the winter storm wind changes rapidly and brings cold high pressure air from the north. The high pressure area remains over Finland and nearby territories for about two weeks, during which time the wind direction changes gradually from northwest to northeast. The wind is much weaker than during the preceding storm, especially during the first four days.



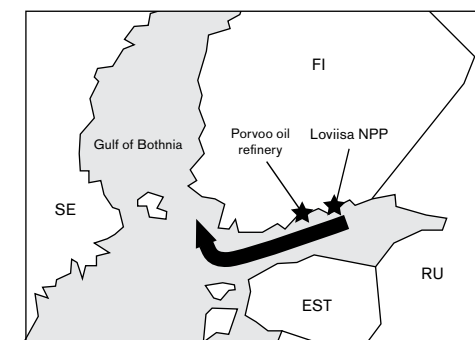
- ③ Dispersion of oil release from both accidents in the sea. The minor release is due to the fire at the Porvoo oil refinery and the major one is caused by the collision of an oil tanker and a cargo ship close to the Loviisa nuclear power plant (NPP). The figure represents the situation after a week or so. Note that the dispersion depicted here is forced by the wind, not by the sea currents.



- ④ Approximate area affected by the radioactive cloud at three-four days after the particles initial release. After a couple of more days the cloud will also reach Germany, Denmark and the southernmost parts of Sweden and Norway depending on the wind and dispersal/weather conditions.



- ⑤ Movement of radioactive substances released directly to the sea. The Gulf of Finland has a counter-clockwise water current that flows into the Gulf of Bothnia (thick arrow) which also has a counter-clockwise current. The speed of the current at the surface is 0.1 kilometres per hour. For the scenario purposes one can assume that at the western part of the Gulf of Finland a small part of the release is forced by the wind to move to the southwest (thin arrow) where it is captured by a current flowing towards the island of Gotland and the Swedish east coast.



At Loviisa NPP a long-term loss of off-site power takes place. The fuel is damaged in one of the units after four days of the loss of external power. Radioactive material is released (1 day release) into the sea and to the outdoor air soon after the fuel degradation. Highly volatile and gaseous radioactive materials are released, the airborne trajectory of the material firstly moves towards Russia and eastern Estonia and later on all of the Baltic Sea Region. The amount of the released material into the air and its radionuclide composition is approximately the same as in the Fukushima accident. The concentrations of radioactive materials in the sea water are approximately the same as reported in the Fukushima accident.

The underlying idea of the reference scenario is that the threat evolves from several minor incidents into a major disaster. The situation will last over an extended time period, leading to escalating difficulties. The effects are not only limited to Finland, but they are extended to other Baltic Sea region countries as well. The disaster affects the whole Baltic Sea region.

The reference scenario is based on extreme but realistic weather conditions, which are possible but not necessarily very likely.

**The scenario will provide a circumstantial framework of particular conditions which have the potential to cause incidents and accidents on land and at sea that will be followed by the incident at the nuclear reactor which culminates in a release of radioactive substances into the environment.**

To identify risks and gaps in current disaster prevention and coping strategies of different Baltic Sea region countries, two workshops were organized.

### Workshop I

The first workshop was organized in Helsinki 18-20 September 2012. The participants were mainly Finnish experts and included representatives from the Ministry of the Interior, Department for Rescue Services, Rescue Services Unit and from the Finnish Meteorological Institute. One of the participants was from the Directorate for Civil Protection (DSB), Norway.



Workshops →

Mr. Pekka Visuri gave a presentation on European crisis management systems and lessons learned. He also presented several cases of disasters from the last decennium.

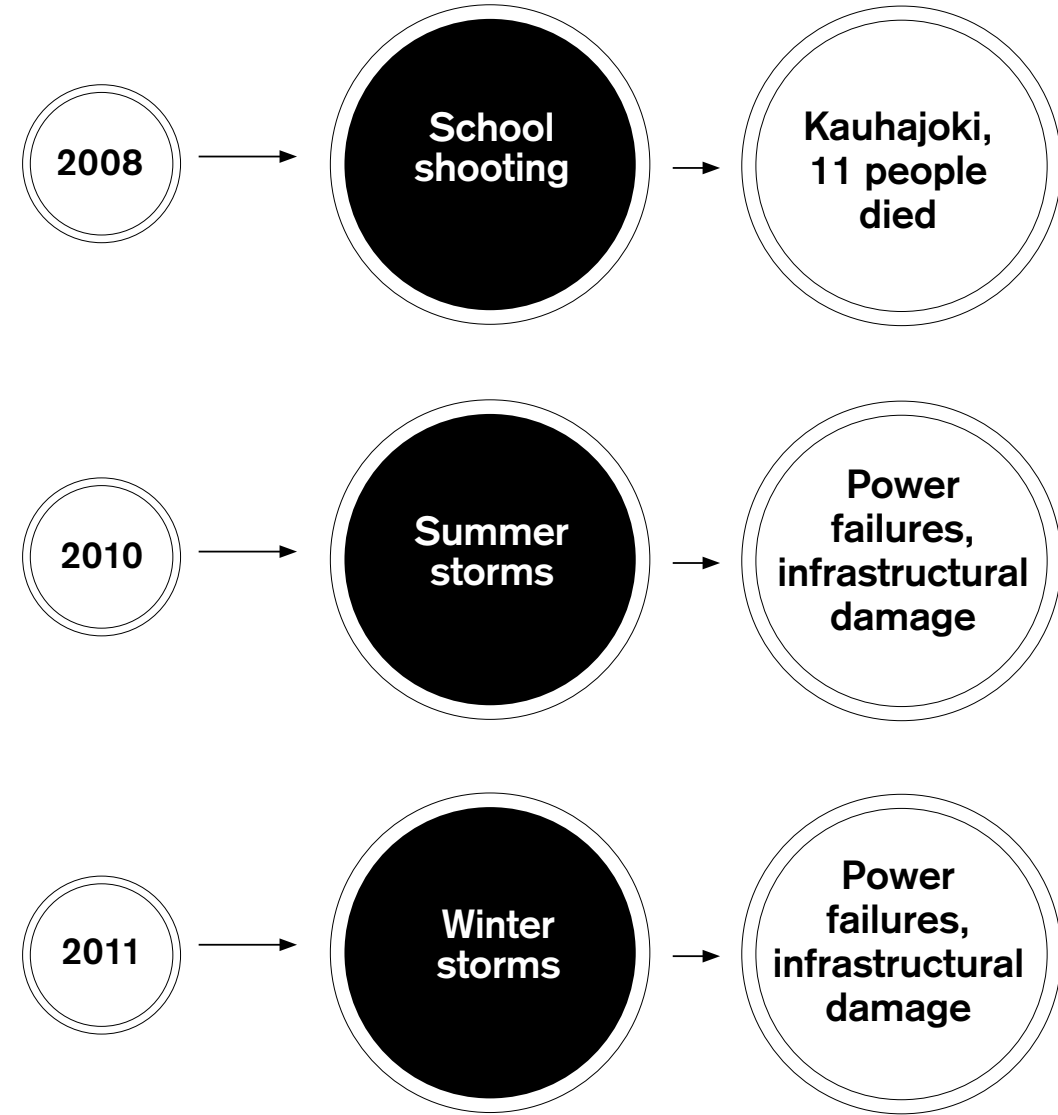
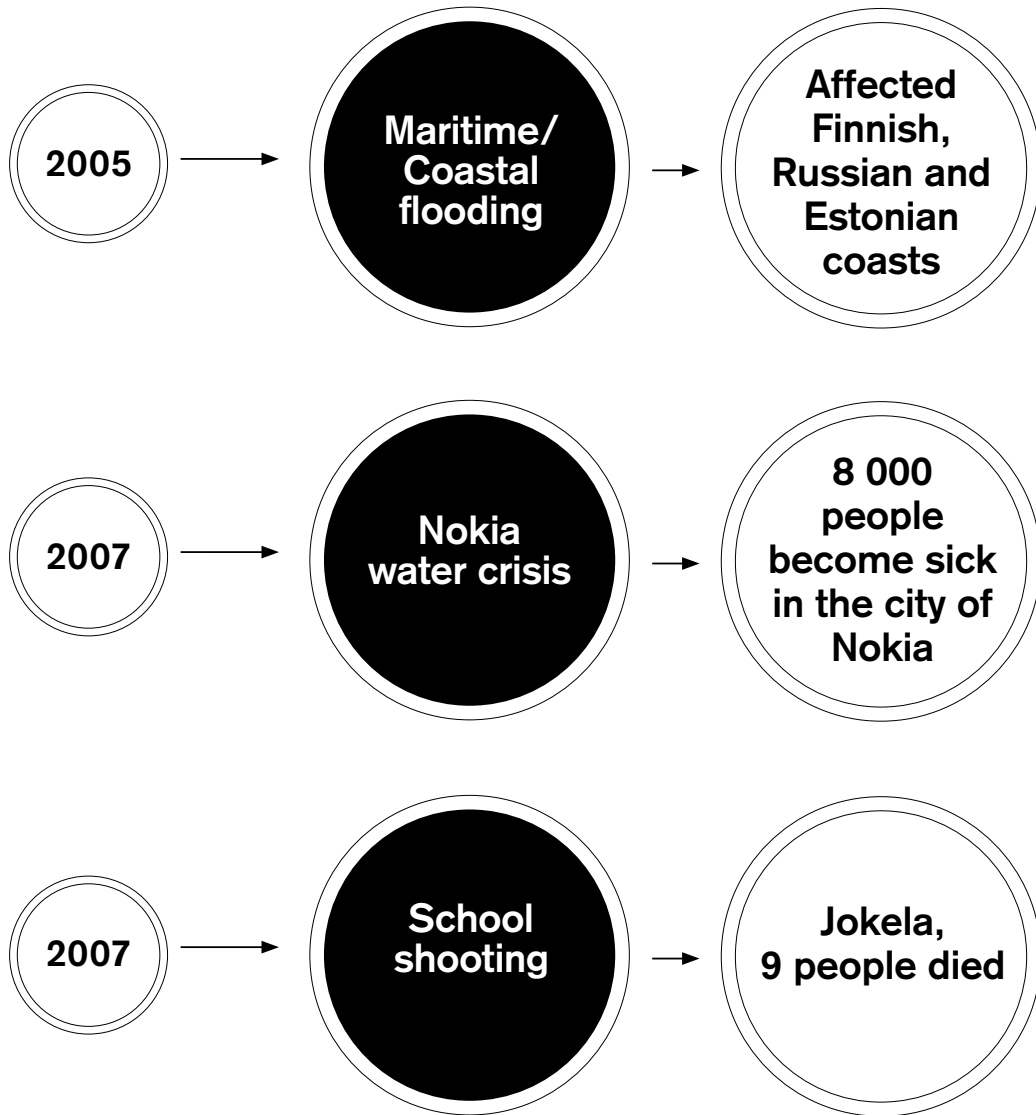
The presentation on European Crisis Management provided general information about the system and experiences, including information about the issues that already have been identified as those to be addressed when considering improvements to the efficiency of preparedness, particularly in the measures of prevention.

Such issues included the following general trends in the European Union:

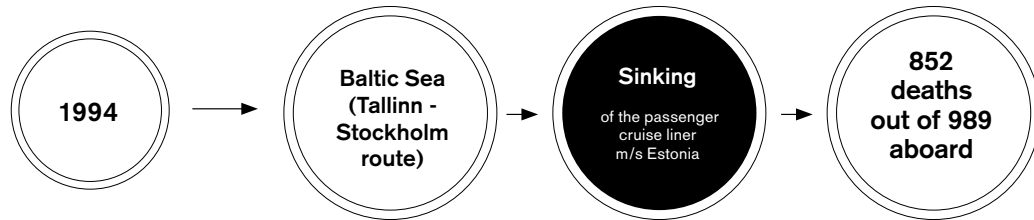
- from the early 1990 s a clear emphasis has been placed on the prevention of and response to peace-time disasters and counteracting terrorism;
- a trend towards an all-hazards approach in crisis management; more centralization and integration of crisis management leadership and coordination for civil-military cooperation;
- in many EU countries the crisis management systems have been fundamentally modernized during the last years;
- an emerging trend is to standardize crisis management structures and practices, but the process is advancing slowly;
- situational awareness is the essence for all crisis management and response measures in the EU;
- observing and sharing early warning signs within and between Member States ensures rapid situational awareness building and accurate response;
- crisis response and coordination arrangements (earlier "crisis coordination arrangements", ) in the framework of the *European External Action Service* are still seemingly not sufficiently familiar to Member States.

**The following incidents and disasters from recent history provide general examples of the type of emergencies which either had a direct or indirect effect on the Baltic Sea region and the national perception of risk:**

**Incidents especially concerning Finland that have  
occurred to in the last decade**

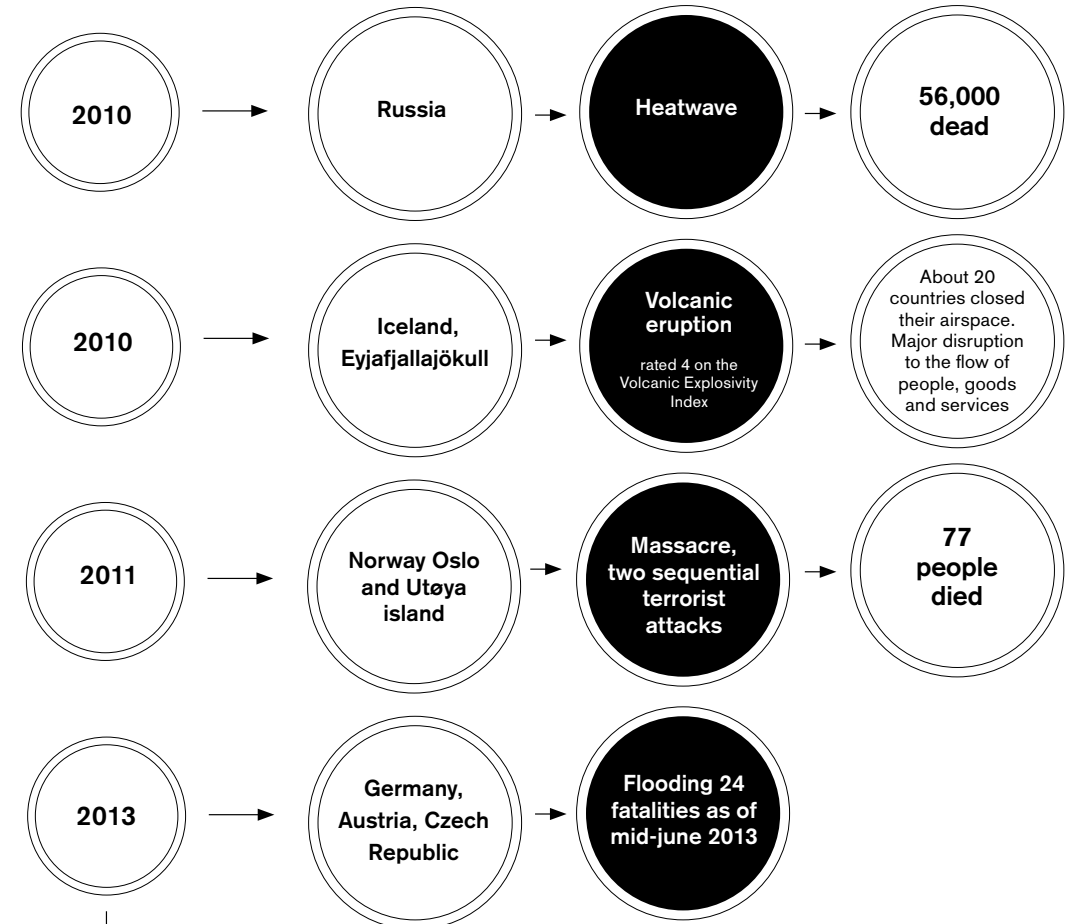
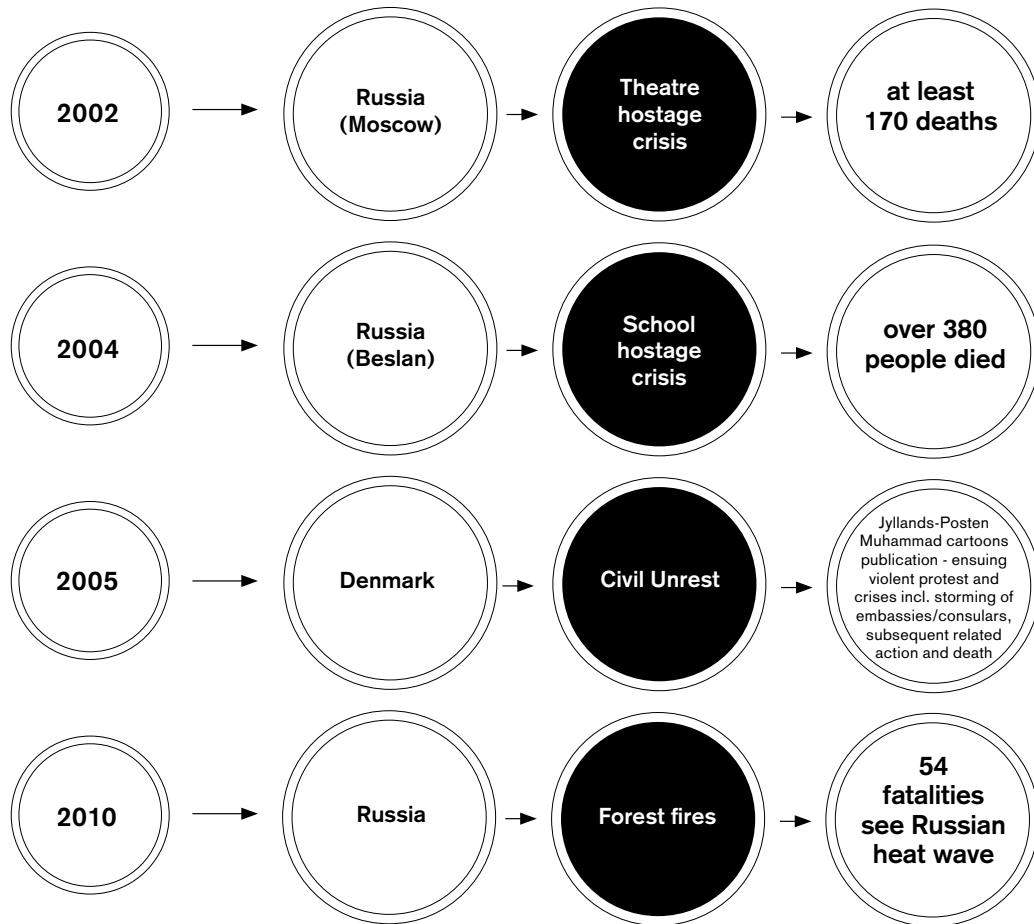


**Baltic Sea Region Context**



**M/S Estonia**

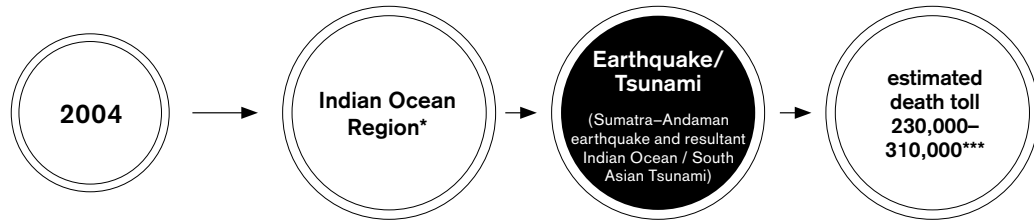
The cruise liner sank in the Baltic Sea en-route. It is one of the worst maritime disasters of the 20th century and the deadliest shipwreck disaster to have occurred in the Baltic Sea in peacetime. A truly Baltic Sea region disaster with fatalities amounting to 501 Swedes, 285 Estonians, 17 Latvians, 11 from Russia, 10 Finns, 10 from Germany, 6 from Norway, 5 from Denmark, 3 from Lithuania, amongst other nationalities.



Ongoing flooding in Central Europe began after several days of heavy rain in late May and early June 2013. Flooding and damages have primarily affected southern and eastern German states (Thuringia, Saxony, Saxony-Anhalt, Lower-Saxony, Bavaria and Baden-Württemberg), western regions of the Czech Republic

(Bohemia), and Austria. Switzerland, Slovakia, Belarus, Poland, Hungary and Serbia (Vojvodina) have been affected to a lesser extent. The flood crest then progressed down the Elbe and Danube drainage basins and tributaries, leading to high water and flooding along their banks.

**Externality and Emergency Preparedness in a Regional Disaster**



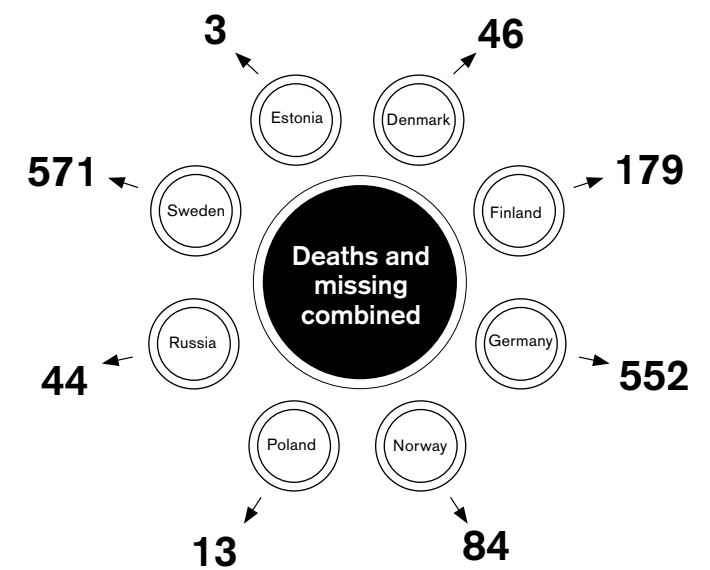
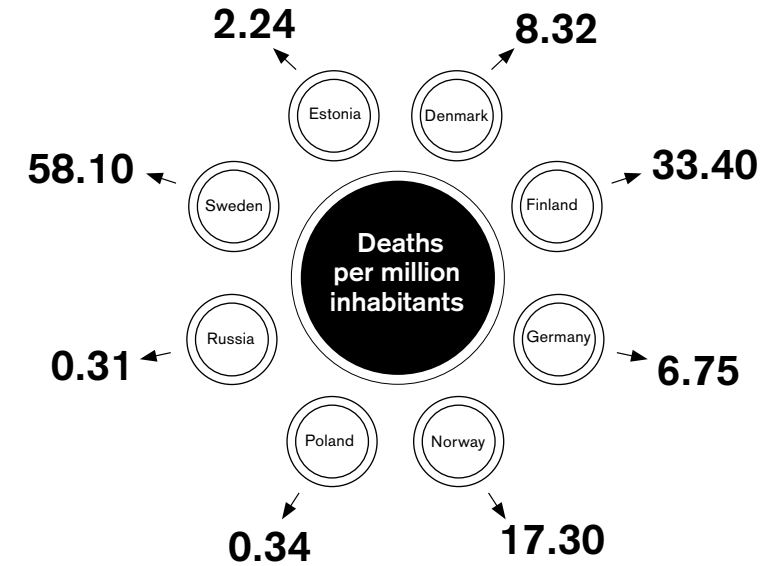
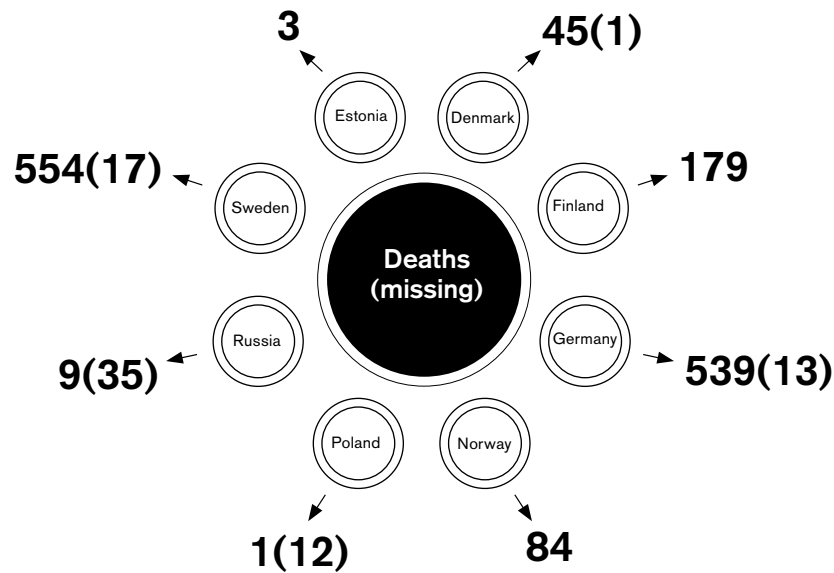
\*Indonesia (mainly in Aceh), Sri Lanka, India (mostly in Tamil Nadu), Thailand, Maldives, Eastern coast of Africa (mostly by tsunami, especially Somalia)\*\*

\*\*\*According to Swedish authorities, due to the winter tourist season, some 20,000-30,000 citizens were in the tsunami-affected areas at the time, making Sweden probably the most affected country not physically affected. 543 persons are stated as deceased, mainly in Thailand (Khao Lak and Phuket), and there were over 1500 injured in need of emergency medical help and transportation home, which the Swedish authorities provided at the scenes.

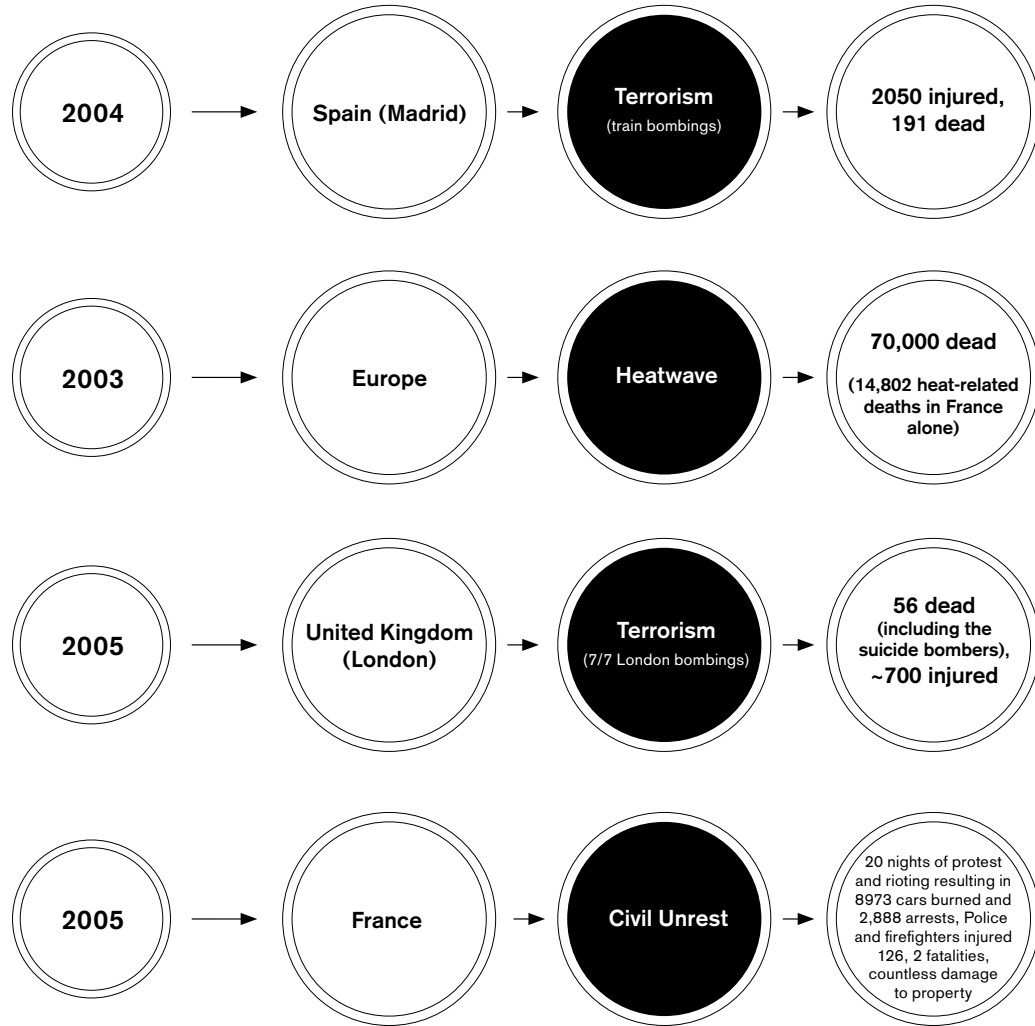
\*\* Countries of the region mostly affected in terms of damage and major casualty in order of devastation. Many other countries were also affected in the region and beyond.

In terms of fatal casualty and persons missing Sweden, Finland and Norway lost a disproportionate amount of their citizens in terms of deaths per million inhabitants 58.10, 33.40 and 17.30. The amounts of German fatalities in numerical terms were second to Sweden of countries not geographically located in the region directly affected.

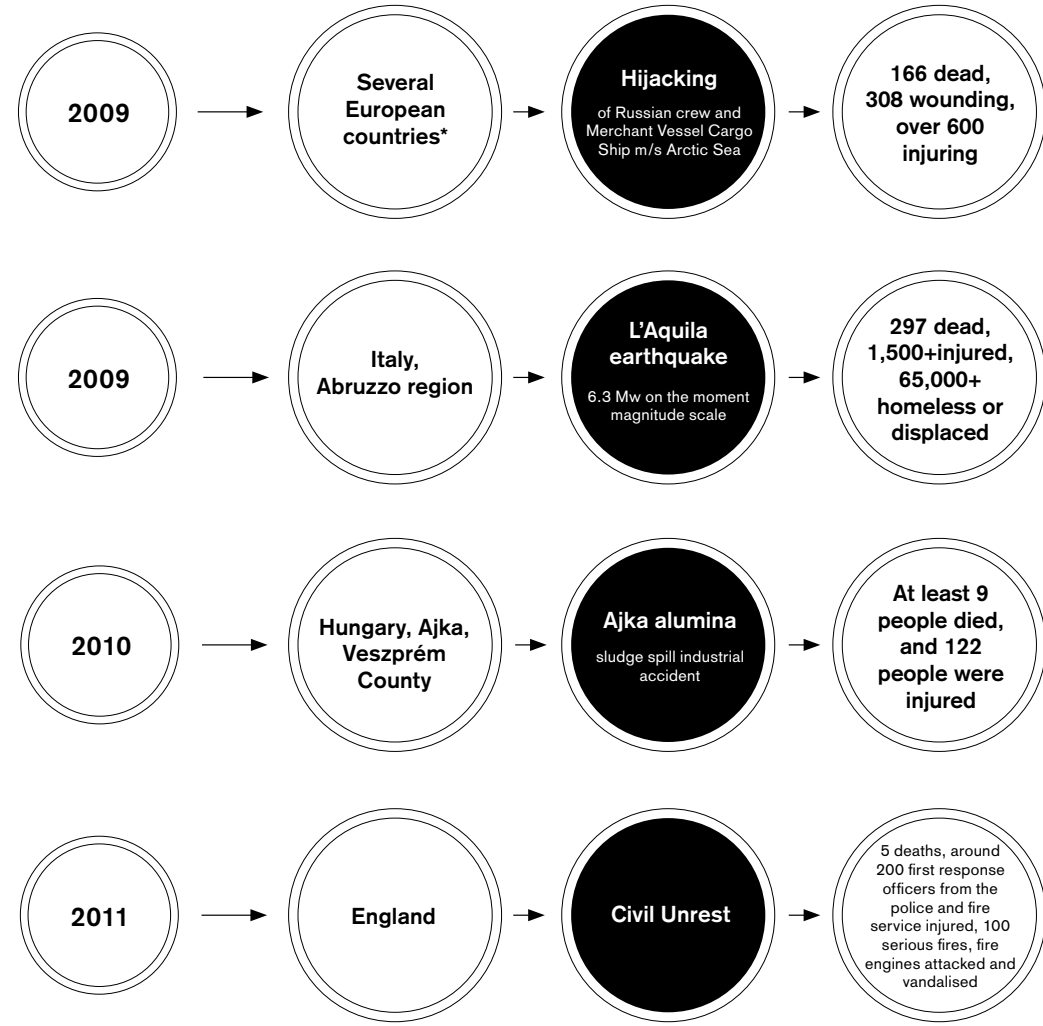
**Selected CBSS Member States death toll**



**Diverse European Emergency Situations and Crises**

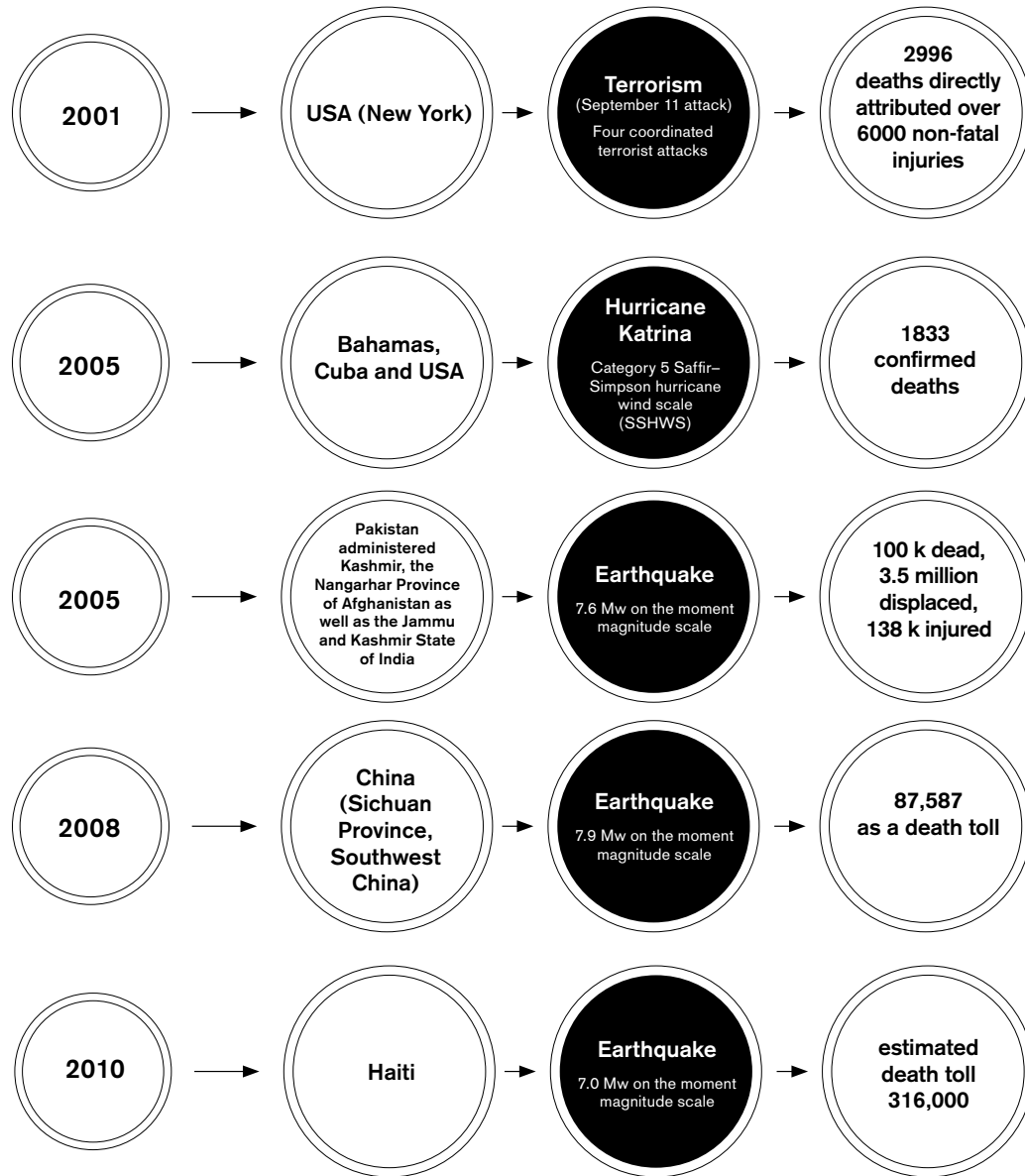


\* including Sweden, Finland and Russia from the Baltic Sea region





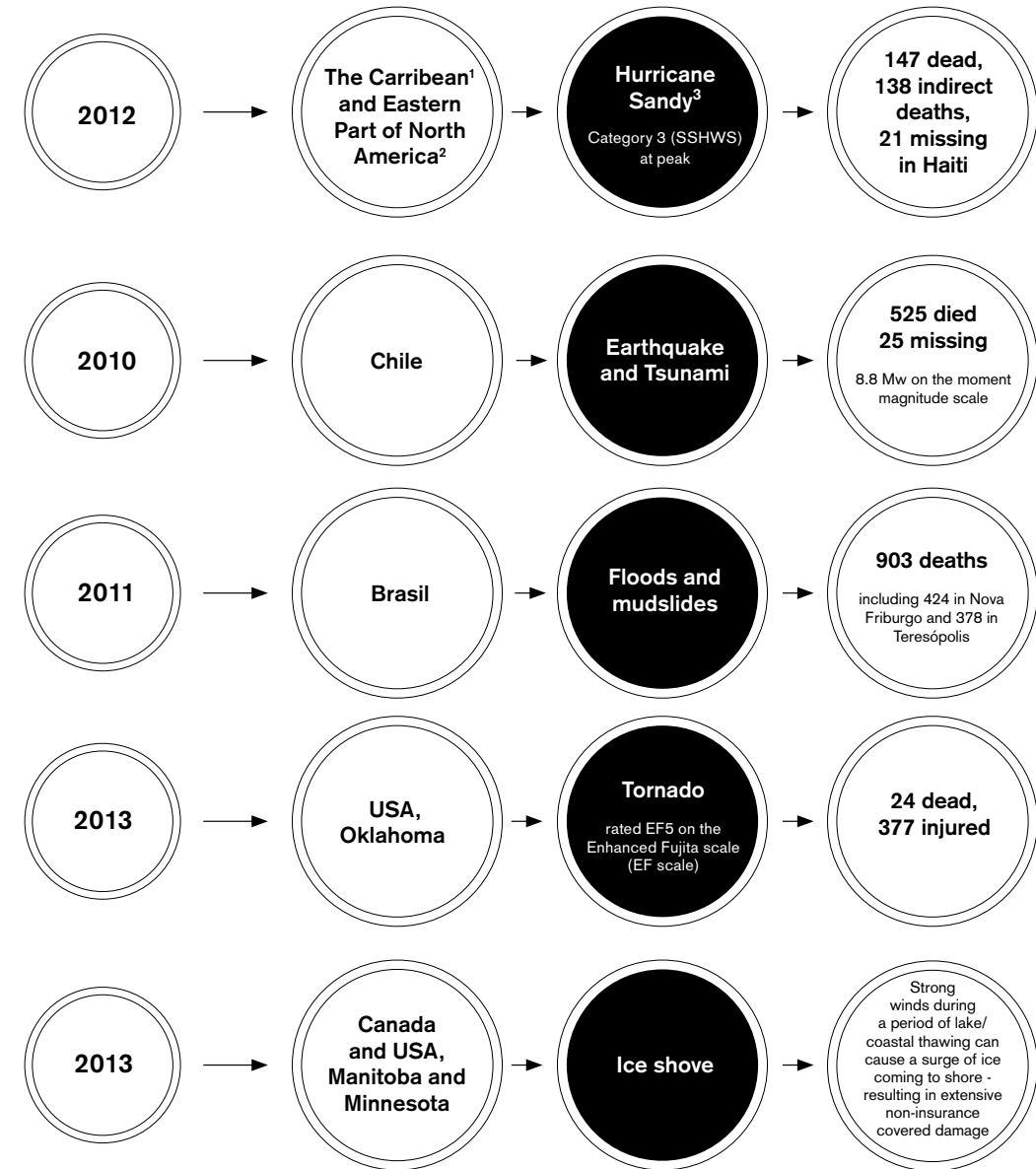
**Selected emergencies and disasters from around the globe**



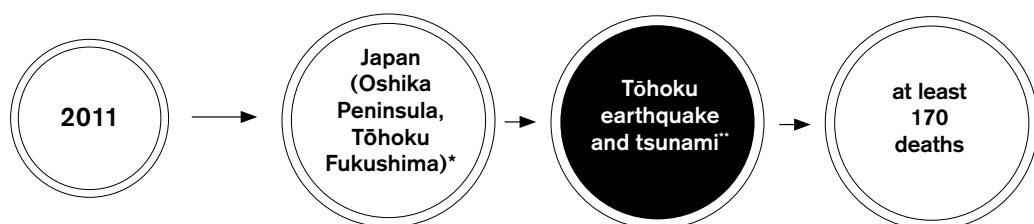
1 Greater Antilles, Cuba, Jamaica, Bahamas, Bermuda, Haiti, Dominican Republic, Puerto Rico

2 Most of the United States of America (especially the coastal Mid-Atlantic States), Bermuda, eastern Canada

3 Currently the second costliest Hurricane in US history after Hurricane Katrina



### Nuclear and Radiation Safety Catastrophe emanating from combined Natural Disaster



\*The Fukushima Daiichi nuclear disaster was a series of equipment failures, nuclear meltdowns and releases of radioactive materials at the Fukushima I Nuclear Power Plant, following the Tōhoku earthquake and tsunami on 11 March 2011. It is the largest nuclear disaster since the Chernobyl disaster of 1986 and only the second disaster (along with Chernobyl) to measure Level 7 on the International Nuclear Event Scale.

Within days of the March 2011 Fukushima Daiichi nuclear disaster, large anti-nuclear protests occurred in Germany. Chancellor Angela Merkel promptly "imposed a three-month moratorium on previously announced extensions for Germany's existing nuclear power plants, while shutting seven of the 17 reactors that had been operating since 1981". Protests continued and, on 29 May 2011, Merkel's government announced that it would close all of its nuclear power plants by 2022. Galvanised by the Fukushima nuclear disaster, first anniversary anti-nuclear demonstrations were held in Germany in March 2012.

\*\*9.0 Mw on the moment magnitude scale and constituted an undersea megathrust earthquake

On 12 September 2012, a Japanese National Police Agency report confirmed 15,883 deaths, 6,145 injured, and 2,671 people missing across twenty prefectures, as well as 129,225 buildings totally collapsed, with a further 254,204 buildings 'half collapsed', and another 691,766 buildings partially damaged the tsunami caused damage to nuclear facilities, including the level 7 meltdowns at three reactors at the Fukushima Daiichi Nuclear Power Plant complex

Information presented on pages 24-34 has been sourced from various national authorities and ministry reports of both CBSS Member States and third countries. A selected bibliography can be sourced from the CBSS Secretariat upon request or is available online at [www.14point3.eu](http://www.14point3.eu)

The cases noted above were used as examples to help to understand which kind of accidents and disasters may happen or have impacts also in the Baltic Sea region. The list is not comprehensive, but it shows the great variety of risks and threats which must be taken into account in emergency planning.

Mr. Janne Koivukoski made a presentation on the latest developments in the area of off-site nuclear emergency planning and preparedness. Such planning had started already in 1976, at the time when the first nuclear power plants were under construction in Finland. The legislation was renewed in 2011 and the required measures were undertaken to enforce the new safety requirements.

At the level of instructions, the main focus is on integration. Earlier all various authorities were guided by separate instructions for all different types of emergency situations. The supervisory responsibility was given to the Ministry of the Interior. In that capacity the Ministry provided directives to the authorities responsible for addressing and managing emergencies. Other authorities, municipalities, institutions, companies, property owners and private individuals were also required to plan and prepare for possible emergency situations and accidents.

Finland is continually reviewing its national level of preparedness in the face of major disasters, also those involving nuclear and radiation accidents. The following key elements are being addressed and are in place:

- preparedness and planning,
- training and practice,
- material for emergency management,
- personal protective equipment,
- information to public,
- conventions and agreements,
- assistance to/from abroad.

The Finnish national response to any large-scale emergencies involving radiation is organized in the following manner:

- *General management of operations*, including decisions on measures is undertaken by the *Ministry of the Interior* with support from such governmental organizations like the *Finnish Meteorological Institute* and the *Radiation and Nuclear Safety Authority – STUK*. The relevant other parties including NGO's will be kept informed of the situation and be provided with situation relevant instructions.

Workshops →

- *Regional State Administrative Agencies (6)* provides for regional coordination and supervision as well as for resource management.
- *Regional Rescue Services (22)* will direct the rescue operations, including decisions concerning the protection of the population. Authorities, local administrations and relevant organizations of the municipalities are implementing the required measures.
- Food manufacturers, businesses and various municipal services are to take care of adequate level of preparedness for self-help.

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## Workshop II

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The second workshop was organized in Helsinki 5-7 March 2013 and along with the Finnish experts, experts from Lithuania, Poland and Germany representing various disciplines participated in the workshop.

Ms. Kristina Mikalauskiene presented the Civil Protection System in Lithuania – Emergency Management. Her presentation covered emergency commissions, emergency operations centres, state emergency management plan and exchange of information on emergencies.

Mr. Peer Rechenbach presented the Civil Protection arrangements in Hamburg. The presentation covered federal (Bund) level, state (Bundesland), county and municipality responsibilities, federal regulations, regulations by the states and disaster response management.

Mr. Pekka Visuri represented Task F of the EUSBSR flagship project 14.3 in the international seminar organized by the CBSS Civil Protection Network under the Russian Presidency entitled *Studying Emergency Risks Common for the CBSS Countries* which was held in Kaliningrad on 11-12 December 2012. The seminar covered various topics ranging from the organization of crisis management in the Kaliningrad region to more general risks of emergency situation in the Baltic Sea region. At the Task F workshop held in March, Mr. Visuri briefed participants on the topics dealt with at the CBSS seminar. The presentations in Kaliningrad showed that risk analyses carried out within the Baltic Sea region by the CBSS Member States are made profoundly, and the emergency planning and preparedness for disaster response at EMERCOM<sup>4</sup> are very comprehensive, although there are still areas that need attention..

<sup>4</sup> Ministry of Emergency Situations of Russia, which is the responsible body chairing the CBSS Civil Protection Network during the Russian CBSS Presidency July 2012- June 2013.

The EMERCOM Kaliningrad section presentations were available for other participants to be used in preparedness planning:

- Organization of crisis management in the Kaliningrad region, Main Office of EMERCOM of Russia;
- General risks of emergency situations in the Baltic Sea region;
- The Baltic Nuclear Power Plant, by Chief Fire Safety Inspector of the Kaliningrad region Vladimir Patrakeev;
- The automated system of recording of the illegal trafficking of the radioactive materials in the Kaliningrad region.

Mr. Ville Estlander from the Helsinki City Rescue Department presented "Rescue and civil defence arrangements in Finland – Helsinki".

The presentation covered rescue services, especially in the Helsinki City rescue department, risk analysis of the rescue services, fire fighters' training, accident prevention and civil defence arrangements.

The above mentioned reference scenario was presented by Mr. Juhani Lahtinen to facilitate the discussion in order to be able to identify gaps of macro-regional relevance.

With reference to the results of September 2012 workshop, as well as to those emanating from the EUSBSR flagship project 14.3 Task C workshop<sup>5</sup> (held in Riga, 4-5 December 2012) including the above referenced Kaliningrad seminar, together with the discussions during Workshop Two workshop, allowed the Task F experts to conclude the reference scenario and the working method served as a useful tool to disclose issues.

The third Task F workshop was organized in Stockholm 20-21 May 2013 back-to-back to the with CBSS EGNRS Meeting. The purpose of the workshop was to evaluate the findings of the two previous workshops and identify the most important gaps (in the opinion of the Expert Group).

Workshops →

Workshops →

## Workshop 18-20 September 2012

The discussion during the workshop disclosed the following issues to be taken into account in the study:

- lack of trust between Baltic Sea region countries;
- cost-efficiency and a concerted use of assets cannot always be ensured;
- lack of standardized procedures (at national level and in the Baltic Sea region in general);
- need for real efficient inter-agency cooperation among authorities (internally and externally);
- fragmented intelligence;
- different kinds of warning systems;
- different kinds of information systems;
- ad-hoc crisis management (caused by possible deficiency in preparedness);
- nowadays transport vehicles are owned by private companies and not by communities themselves;
- human resources are not available for an extended operation;
- expert support is not timely in availability for field operations and decision-making at all levels;
- influence of media to the decision makers and decisions;
- lack of knowledge among journalists about radioactivity;
- need for simplified but accurate information for the public;
- different constrains hampering readiness to ask for help and the ability to accept help;
- deficient capacity to resort to self help when need arises;
- too frequent rotation of personnel in organizations and institutes of civil protection.

### Workshop 5-7 March 2013

As a result of the workshop the following ten major issues were identified. These are partly complementing the issues identified in connection with the first workshop conducted in September 2012:

- 1 → || communication inside a country and between the Baltic Sea region countries is not ensured;
- 2 → || decision making aimed at prevention is not efficient;
- 3 → || major gaps exist between the politico-strategic and operational levels;
- 4 → || current mind-sets, programmes and projects at all levels are still predominantly oriented to response and consequence management, not to prevention;
- 5 → || EU Civil protection mechanisms have a limited role in providing support for prevention;
- 6 → || there is a lack of knowledge about well functioning practices in the Baltic Sea region that when shared would enhance prevention capability;
- 7 → || expert knowledge is not available in a timely manner to provide information (preparedness and prevention) for people in need;
- 8 → || deficient learning process: i.e. transfer of knowledge and experiences from one generation to the next in terms of passing on responsibility is not taking place effectively;
- 9 → || reference approach and system aimed at efficient prevention is missing;
- 10 → || there is a need to better understand the added value in investing in preventive measures.

### Workshop 20-21 May 2013

Based on the results and findings of the two previous workshops the following list of potential gaps with macroregional implications was generated for discussions in the brief EGNRS workshop that was conducted in connection with the regular meeting in May 2013. As a result the list has been enhanced with information about the potential needs and possible actions:

- Lack of trust between Baltic Sea region countries prevents an efficient cooperation for counteracting the disaster at hand. The practical collaboration in the future will build the required confidence.
- Human and material resources are not adequate to counteract the disaster at hand. The existing capabilities and their availability is not yet known well enough.
- Influence of media affects decision-making at all levels. Coherent strategy for dealing with the media is not available to guide communications.
- There is a lack of experts (CBRNE<sup>5</sup> respectively) when media or citizens need specialists to explain the situation and its possible consequences to the public. A pool of experts trained to communicate with the media is not identified, maintained and not readily available when the need arises.
- Human and material resources are not used efficiently (cost-efficiently, concertedly). Roles and functions, operative concepts and required tools are not identified and maintained /available for use.
- The readiness to ask for help from neighbouring countries on a routine basis is not established enough, and it prevents effective countermeasures. Any existing modalities need to be proven in praxis, enhanced and exercised.
- The unwillingness to accept help from neighbouring countries prevents effective countermeasures. Constraining factors need to be better understood and appropriately addressed.
- Real time expert support (communication, measurements, interpretation of results etc.) should be used more often. Availability of information and communication technology tools need to be assessed, selected for use, applied and implemented.
- Inability of authorities (inside country and internationally) to cooperate prevents effective counter measures and efficient use of resources. Constraining factors need to be better understood and appropriately addressed.

<sup>5</sup> CBRNE – Chemical, Biological, Radiological, Nuclear and high - yield Explosives

- Communication between Baltic Sea region countries should be improved, in order to enhance the ability to cope with the situation at hand. Information and communication technology tools need to be identified and tested for use, ultimately applied and implemented.
- Communication inside nationally should be improved to cope better with the situation at hand. Constraining factors need to be better understood and appropriately addressed.
- Mind-sets of decision makers are primarily oriented to response and consequence management and not to prevention. Follow-up discussion on macroregional threat and risk assessment is expected to direct attention more to prevention.
- EU Civil protection mechanisms have too small a role in providing support for prevention. This may well be the situation that needs to be complemented by regional capacity.
- There is lack of knowledge about well-functioning practices in the Baltic Sea region, that when shared would enhance prevention capability remarkably. The respective knowledge base is still to be established and will need to be maintained to remain accessible.
- Management of non-radiological threats (panic, mass movements of people etc.) is not sufficiently foreseen. Management of such situations and associated risks need to be addressed as part of an overall societal security management plan.
- Decision makers of civil administration are not necessarily trained to act in disasters. In developing and maintaining preparedness, care must be taken that competent people are in gear when the modus operandi changes to address disasters.
- Bilateral agreements for cooperation between countries at a local level (municipalities) should be a common praxis. The necessary agreements and other arrangements to enable efficient collaboration must be prepared in advance.
- Countries may have different priorities in a crisis situation, and this may prevent effective countermeasures. When discussing and agreeing on a macro-regional coping strategy also questions relevant to prioritization of resources and subsequent utilization need to be resolved.

The discussions at the EGNRS directed attention to a need for a continued effort to evaluate the above identified potential gaps at the level of individual states. As a result of such evaluation areas can be identified where improvements are needed. Subsequent discussions, also at macroregional level, will result in identification of the concrete means and ways as to how and by whom the gaps may be taken care of most efficiently.

### Categorization of the findings (obvious gaps)

The following categorization of gaps was used for a better understanding of the implications of the observations made by the experts:



A brief reflection suggests that each of the above categorisations identified of individual gaps could refer to many of the above categories. The above gaps are therefore understood to be elements of an overarching or major gap to be discovered at state level for consideration and to be given subsequent macro-regional elaboration.

## Conclusions

- 1 → The process of the project and the developed scenario, Model Worst-Case Scenario (MWCS), proved to function well as a tool to discover potential major gaps.
- 2 → MWCS, as adapted, can be applied to particular conditions, at the first place, to state-level identification of capability and readiness gaps in the Baltic Sea region .
- 3 → The methodology used in conducting the workshops as well as the one used for preliminary analysis served the purpose of the project efficiently.
- 4 → The set of potential major gaps identified through this study can be used as guidance when developing further analysis and evaluation of particular State-level elaboration.
- 5 → Subsequently, a Baltic Sea regional workshop can be conducted to better understand what can be undertaken at the macro-regional level to address the deficiencies determined at the state level.
- 6 → Information and communication technology tools are available for pilot application with the aim of facilitating regional communication and collaboration in capacity building.

## Recommendations

- 1 → A Baltic Sea region-wide process to determine the state-level gaps should be initiated. The work can be coordinated with the threat and risk assessment work. The undertaking should be facilitated by the CBSS Expert Group on Nuclear and Radiation Safety. The results should be at hand one year after inception.
- 2 → A Baltic Sea region-wide macro-regional workshop on strategies to cope with major disasters in the region should be subsequently conducted. The results of State-level determinations should provide the basis for the considerations. The workshop is expected to make recommendations for action to be taken to enhance capability and to ensure the efficient use of all resources available in the Baltic Sea region.

- 3 → Information and communication technology tools should be made available to enable efficient communication and collaboration at the macro-level. Pilot applications should be developed and tested. The results should preferably be available for the Baltic Sea region workshop identified above under point 2.
- 4 → In order to support the above mentioned major undertakings, the following action/projects should be initiated and undertaken without delay:
  - a. A study on existing practices, approaches, measures, resources and tools available in the Baltic Sea region countries for maintaining the situation picture.
  - b. A study on existing informal arrangements to cope with various cross border situations calling for support from the neighbouring country or countries.
  - c. Exercises to test such cross border arrangements that are generally considered to represent good practice.
  - d. The network of competencies needs to be established. Potential platforms and tools for the network need to be identified and demonstrated.
  - e. Complexity associated with a potential major macro-regional disaster calls for networks of experts that are maintaining the situational awareness and are able to integrate information from different "sectors".
  - f. A focused study on existing operative concepts and technical capabilities available to support the creation of real-time knowledge for the management to provide expert support for field operations and for politico-strategic decision-making.
  - g. It is suggested to identify examples of national approaches and systems aimed at efficient prevention. Lithuania and Finland could possibly provide two examples. An innovative workshop should be organized to characterize the reference approach and system.

The two Orange Books of the 14.3 project were ostensibly the outcomes of Task F discussions and investigative work. We note in our Editors Letter at the beginning of each colour-coded notebooks that each can be read separately or as a collection. During the course of Task F a scenario was developed and different points were raised not just about nuclear and radiological threats and risk but accompanying cascading effects relating to different emergency preparedness complications.

The results, conclusions and recommendations of the project's forth Task Group presented here in the latter half of Orange Book Two detail several converging themes selected by the authors of the report and which are categorized on page 33 into eight fields.

In further summary the Editors would highlight six which cross-cut over the project in general, taking us full circle and lead us to our ninth publication detailing 14.3 in general from the perspective of the Lead Partner and Task B Lead Team.

- 1) Prevention as a tool and method
- 2) The creation of a mindset which enables sharing, trust and cooperation
- 3) Inter-agency relations nationally vis-à-vis cross national agency relations between neighbouring countries from an international and macro-regional perspective
- 4) The challenges and opportunities of outsourcing and privatization of service provision and the necessary coordination between state apparatus and privately owned or managed service provision in times of crises and disaster which will become more acute and necessary
- 5) Media relations in general, education, training and liaison with media outlets and engagement with social media as well as developing technologies teamed with the use of mobile applications
- 6) Societal security definitions – mass movements of people due to civic unrest, protest, panic, and or evacuation mirrors developments in other parts of the world for different reasons as a growing priority for nation states – not only in terms of prevention and the other points listed here but also in terms of how to understand, handle, manage and negotiate this relatively unfamiliar terrain of usually diffuse motivations and unexpected outcomes.

If we give one example related to Task F then specific prevention and preparedness recommendations tied to a potential nuclear disaster could be elaborated further using these as factors. Or the work could take specific actions, like the transfer of spent fuel and transit of nuclear waste in to consideration as these pose direct challenges not only environmentally but also in terms of protest, blockage of route and crowd safety (as seen in Germany) as well as media communication. The movement of radiological materials and end placement / storage / containment of materials also give way to the potentials of attack (terrorist) or staged attack en-route or towards the end facility.

If we take a broader view then overall challenges to what emergency and rapid response units define as societal security in terms of implication is therefore one of the meta-narratives that over-arch all of the work. Drawing upon the Task F conclusions these will have to be balanced with capacity, financing and prioritization among governments in the region. The above dilemma also touches on the grades of externality (as shown by the chosen examples of different types of crises on pages – to – ) to which Member States will ultimately have to decide whether to engage or non-engage with. Crises can either emanate from abroad whilst encroaching on national borders. Or a crises that is in actuality located abroad, sometimes faraway, but which still has a distinct impact on citizens of the country as well as on the national psyche, such as the 2004 earthquake and tsunami or the M/S Estonia tragedy. Another aspect is the impact that external events like the earthquake in Japan and the subsequent Tsunami have on national policy review – especially regarding nuclear and radiation safety. Linked to this, of course, are distant events like the earthquake in Haiti where a global effort is required to give and keep emergency pledges of financial aid combined with technical and professional assistance on the ground. The mix of emergency governmental response is tremendously multi-faceted spanning over numerous ministries, agencies, authorities as well as private stakeholders and non-state actors.





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**Project partners**

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- Estonian Rescue Board
- Finnish Radiation and Nuclear Safety Authority (STUK)
- Hamburg Fire and Rescue Service (Germany)
- State Fire and Rescue Service of Latvia
- Fire and Rescue Department under the Ministry of the Interior of the Republic of Lithuania
- Norwegian Directorate for Civil Protection and Emergency Planning (DSB)
- The Main School for Fire Service in Warsaw (SGSP)
- Swedish Civil Contingencies Agency (MSB)
- Swedish Institute



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