






PEER REVIEW
ESTONIA
2016

Funded by
European Union
Civil Protection

PEER REVIEW
RISK MANAGEMENT CAPABILITIES
ESTONIA
2016

2015-2016 Programme for peer reviews in the framework of EU cooperation on civil protection and disaster risk management

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Civil Protection

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Annexes

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- *Commandant (OF-3) Paul Connolly, Staff officer in the Office of Emergency Planning Organisation, Department of Defence/Defence Forces, Ireland;*
- *Lendita Dika, State counsellor for industrial pollution and risk management, Ministry of Environment and Physical Planning, The Former Yugoslav Republic of Macedonia;*
- *Mikko Jääskeläinen, Senior Officer, Ministry of the Interior, Department for Rescue Services, Finland;*
- *Birute Pitrenaite-Zileniene Professor, Mykolas Romeris University, Lithuania.*

For the European Commission, Laura Schmidt from DG Humanitarian Aid and Civil Protection prepared the review and took part in the mission. A consortium led by Falck B.V. assisted the Commission in carrying out the peer review. Veronique Császár from Falck B.V was project manager for Estonia, providing technical and administrative support for the peers. Mette Helen Lindahl Olsson (UNISDR Europe Programme Officer, on secondment from the Swedish Civil Contingencies Agency (MSB)) participated in parts of the peer review mission.

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1. Introduction

Peer review is a governance tool where the disaster risk management system of one country ('reviewed country') is examined on an equal basis by experts ('peers') from other countries. The EU programme for peer reviews in civil protection and disaster risk management was set up following two successful pilot peer reviews of the UK (2012) and Finland (2013) undertaken jointly with the OECD and the UN International Strategy for Disaster Risk Reduction (UNISDR).

The EU peer review programme aims to facilitate the exchange of good practices and identify recommendations on how reviewed countries can improve their disaster management policy and operations. The programme encourages mutual learning and understanding and facilitates a policy dialogue both inside and between countries and among experts.

The 2015-2016 EU peer review programme offers three thematic priorities for review, one of them being risk management capabilities. Under the Decision on a Union Civil Protection Mechanism,[1] which entered into force on 1 January 2014, Member States agreed to carry out a number of disaster prevention actions, including the sharing of the '*…assessment of their risk management capability at national or appropriate sub-national level every three years following the finalisation of the relevant guidelines*'.[2] The Decision requires the Commission and the Member States to work together to draft guidelines '*on the content, methodology and structure of these assessments*'.[3]

'Risk management capability' is defined in the Decision as *the 'ability of a Member State or its regions to reduce, adapt to or mitigate risks (impacts and likelihood of a disaster), identified in its risk assessments to levels that are acceptable in that Member State'.* The Decision specifies that a risk management capability is assessed in terms of a Member State's '*technical, financial and administrative capacity'*, either at national level or the appropriate sub-national level, to carry out appropriate

a) risk assessments;
b) risk management planning for prevention and preparedness;
c) risk prevention and preparedness measures.

The assessment of risk management capability therefore covers the whole risk management cycle. Member States may assess risk management capabilities for individual risks or assess the overall risk management capability in a multi-risk approach.

The Commission assists Member States in fulfilling these objectives in a number of ways, including through facilitating the sharing of experiences on risk management

[1] Decision No 1313/2013/EU of the European Parliament and of the Council of 17 December 2013 on a Union Civil Protection Mechanism, OJL(347), 20.12.2013.
[2] Ibid, Article 6(c).
[3] Ibid, Article 5(f).

capability and its assessment.[4] This peer review is one way of achieving this. Estonia was the first country to volunteer for a thematic peer review on risk management capabilities.

Review process

Once Estonia's participation in a thematic disaster risk management capability review was confirmed, a call for nominations of experts was sent to countries participating in the EU Civil Protection Mechanism and eligible neighbouring countries. Three peers from EU Member States — Ireland, Finland, Lithuania — and a fourth peer from the Former Yugoslav Republic of Macedonia were chosen to participate in the review. The peers were supported in their tasks by the European Commission and a project team contracted by the Commission. A representative of UNISDR participated in the mission's inaugural meeting and the initial part of the mission itself.

The peer review mission was conducted over 5 days from 29 February until 4 March 2016. The review opened with a meeting with representatives of several Estonian ministries and agencies. The European Commission representative addressing the meeting expressed her appreciation to Estonia for its willingness to participate in the process and introduced the peer review team.

During the 5-day mission in the country, the peer review team met and interviewed stakeholders from many different organisations, governmental authorities and agencies, NGOs and academia. They also had access to a number of documents concerning risk assessments and disaster management, including legislation and guidelines. A full list of these documents is annexed.

Scope of the review

The peer review of Estonia focused on risk management capabilities and was based on the EU risk management capabilities assessment guidelines, in particular section 5 of the guidelines (questionnaire). Questions were reformulated as key indicators. The detailed framework is annexed to this report. The main areas covered were administrative, technical and financial capabilities for:

1. risk assessment;
2. risk management planning;
3. risk prevention and preparedness measures.

Diagram 1: Thematic review framework

[4] This could include bringing together an international group of experts to support the assessment at all stages of the process and setting up a peer review programme through which Member States can learn from each other on how to manage disaster risks.

This report identifies good practices and areas for improvement and proposes a series of recommendations. It is for the Estonian Government to consider and determine whether and how the recommendations should be implemented to contribute to their policy goals.

This report represents an analysis of the situation in Estonia as of March 2016. Later developments are not taken into account.

1.1 Key findings and recommendations

Estonia has a well-functioning disaster management system that includes well-informed and motivated stakeholders. There is a high amount of cooperation and trust among disaster risk management stakeholders, often built on personal relationships. This is one of the advantages of being a small country with a lean public administration.

Good practices

- The risk management system involves many stakeholders at the national level (e.g. governmental, non-governmental, private and scientific). Stakeholders support the system and know what their role is in risk assessment.
- Stakeholders generally cooperate regularly and successfully e.g. during the risk assessment phase. This fosters a good common understanding of the risk management process and joined-up implementation of the country's emergencies act.
- The system for risk assessment and emergency response planning is decentralised, with different risks assigned to different ministries. This means that each risk assessment and plan is owned by those with the best data and the most expertise.
- Estonia is working on a new security concept that will integrate defence and crisis management processes in order to use available civil and military capacities better and strengthen security.
- A civil protection task force is looking systematically at the risk management system to identify gaps and search for solutions.
- Estonia is also reviewing its risk assessment system. The risk assessment framework is being analysed after completion of the first two cycles of the national emergency risk assessment based on the 2010 risk assessment methodology. The review is taking place before the new risk assessment cycle is launched and includes steps intended to improve the existing framework.
- Vital service providers carry out risk assessments and develop risk management plans supervised by their competent ministry. The Ministry of the Interior coordinates the overall risk assessment process.

- The Estonian Rescue Board (ERB) has worked extensively on reducing accidents and disaster risks and statistics show that disaster losses have fallen over the last few years.

- Estonia has moved to a single emergency number — 112 — for emergency calls and dispatch for ambulance, fire and rescue services and police. The caller's location is specified using mobile network operators' cell towers. Estonia's Emergency Response Centre (ERC) is currently working on alternative technologies to specify caller location more precisely. User satisfaction is very high.

- The national climate adaptation strategy and action plan were developed in cooperation with Norwegian civil protection authorities. The results include long-term scenarios (until 2100) and a mid-term action plan (2030) that addresses impacts on different sectors.

Recommendations

- Improve public awareness of risk, teaching people how to act in an emergency and how to help themselves and others. Having a well-informed public is key to building a disaster-resilient society.

- Strengthen the risk management framework by strengthening inter-ministerial and inter-agency coordination and planning, a role currently played by the Ministry of the Interior.

- Clarify interdependencies between different actors for each risk and encourage systematic consultation of other relevant ministries for a given risk during risk assessment and risk management planning.

- Move to closer cooperation, not only horizontally across government (as per the previous recommendations), but also vertically, from national to regional and municipal level.

- Build up institutional knowledge e.g. by setting up platforms for information exchange and establishing procedures for knowledge sharing (including new technologies, IT platforms, models, etc.) to reduce the dependence of cross-governmental cooperation on personal relationships.

- Set up inter-ministerial working groups for risk identification, risk analysis and scenario development in order to ensure more coordination and integration of different risks including the identification of cross-cutting effects and possible cascading effects.

- Check whether other laws dealing with risk assessment/management should be revised alongside the emergencies act as part of the work towards creating a disaster-resilient society.

- Adapt the risk assessment methodology as necessary to make it easier to integrate and use risk assessments in risk management, emergency response planning and the development of new laws, strategies, plans etc. This should make it possible to better prioritise resources and finance for mitigating risks, beginning with the highest risks.

- Stimulate and support the involvement of academia and other experts in the risk assessment process.

- Increase the responsibilities and ownership of stakeholders in the risk management process.

- Strengthen resilience at the national level, by involving the local level and increasing local authorities' participation in the risk and crisis management process (risk assessment, risk awareness, capability building, prevention and mitigation measures etc.).

- Strengthen the role of the local level in crisis management so that local authorities can take greater responsibility for crisis management and ensure continuation of vital services. In order to do this, the responsibilities of local government in this field must first be more clearly established.

- Develop a national public communication strategy on the results of the national emergency risk assessment to increase public awareness of hazards and risks and contribute to the success of prevention campaigns. Authorities can implement the strategy in line with the decentralised system.

- Develop a systematic risk management capabilities training programmes (risk identification, risk assessment, risk mitigation etc.) to increase the capacity and knowledge of stakeholders' personnel. The ministries should systematically evaluate whether their specialists and those of supervised institutions have the necessary expertise to perform emergency risk assessments. Where necessary, ministries should plan training so that the appropriate level of skills and knowhow can be reached.

2. Risk management capabilities

2.1 Framework

After regaining independence in the 1990s, Estonia made a clear break with the past and built up a flexible and strong risk management system that fits the country's size and risk profile. As a small country, Estonia has a small network of risk management experts.

Estonia's **2009 emergencies act** defines 'emergency' as: *'an event or a chain of events which endangers the life or health of many people; or causes major property damage or major environmental damage; or severe and extensive disruptions in the continuous operation of vital services; and requires the prompt coordinated activities of several authorities or persons involved by them in order to be resolved'*.

The emergencies act, which was inspired by legislation in New Zealand and UK, governs all aspects of crisis management, including prevention, preparedness, response and mitigation. Other important legislative acts referring to risk management are the **rescue act**, the **fire safety act** and the **chemicals act**. Strategies have been developed for the ERB (2015-2025), for cyber security (2014-2017) and for climate change adaptation (2017-2030). There are also crisis management plans in place for epidemics, flood risk management and radiation safety.

The emergencies act is the legal basis for risk management processes such as risk assessment, preparing emergency response plans, organisation of continuous operation of vital services, and others. Concretely, the act provides the basis for:

- coordinating the work of crisis management committees;
- coordinating and preparing emergency risk assessment;
- issuing regulations and guidelines for preparing emergency plans;
- establishing requirements for the content of exercises and the frequency of organising regional and local government exercises;
- evaluating risks and threats;
- risk management cooperation at international level.

Estonia is currently in the process of reviewing the emergencies act.

The Ministry of the Interior (MoI) is responsible for internal security policy and coordination and has a central role in risk and crisis management. The ministry's role includes setting internal security legislation and guidelines, coordinating emergency risk management and contingency planning at national level, coordinating risk assessment and planning for the continuous operation of vital services, coordinating emergency management exercises at national level, and supervising a number of agencies including the Rescue Board and the Police and Border Guard.

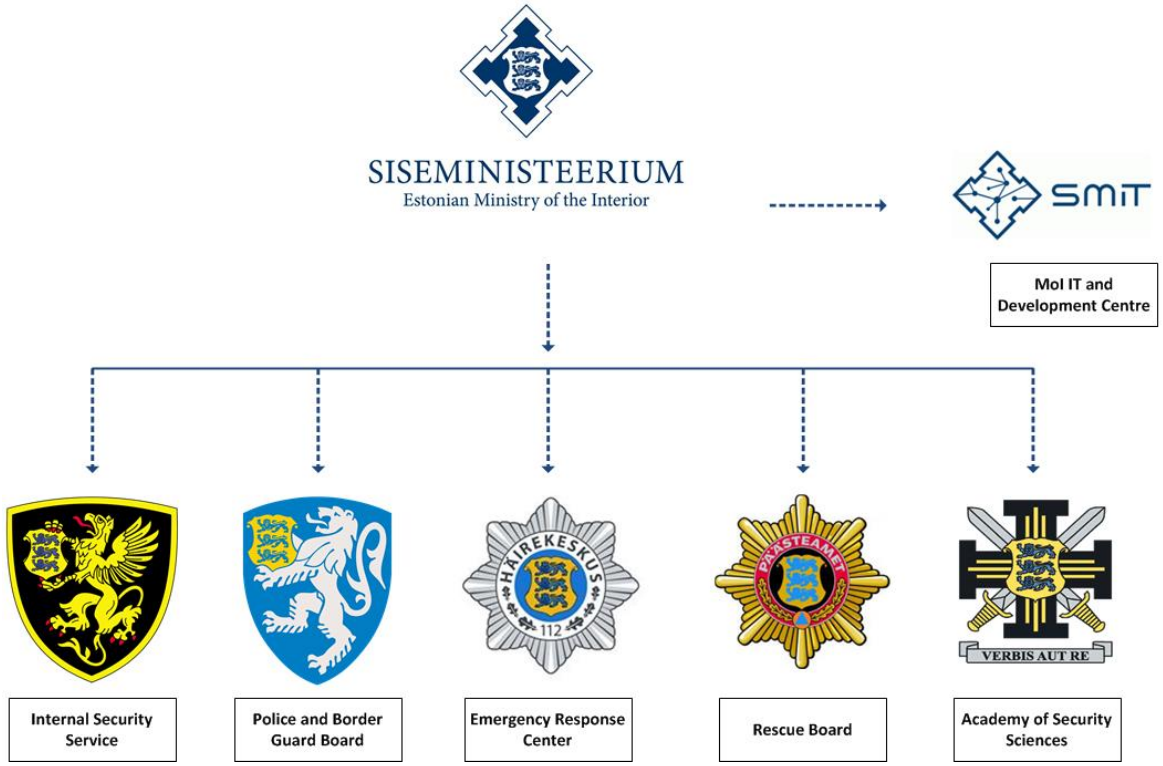

Diagram 2: Structure of the Ministry of the Interior

The government drew up a list of 27 emergencies for which risk assessments and response plans are to be prepared by different ministries, boards/agencies and other competent authorities. The list is based on four criteria:

- influence on health;
- influence on the environment;
- influence on assets;
- influence on vital services.

All ministries had the possibility to propose risks. Past emergencies were also taken into account. Under the emergencies act, the list of emergencies for which risk assessments are undertaken is supposed to be updated every two years. A review is currently under way, with a view to reducing the number of vital services covered by the act.

Organising the continuous operation of vital services is integrated into the overall framework for emergency management. Estonia has not designated European critical infrastructure as provided for under EU legislation but addresses the objectives of the Critical Infrastructure Directive through its rules on 'vital services'. The emergencies act contains a list of 46 relevant vital services, operated by 125 service providers. These service providers are obliged to prepare a risk assessment and a business continuity plan for the vital service they provide. Vital service providers also fall under other regulations covering secure operations (e.g. cyber security, environmental security, building codes, physical safety and sectoral legislation).

In this way, critical infrastructure is seen as a key part of the provision of vital services. The emergencies act and corresponding guidelines encourage cooperation between the authorities and vital service providers to improve society's resilience to emergencies.

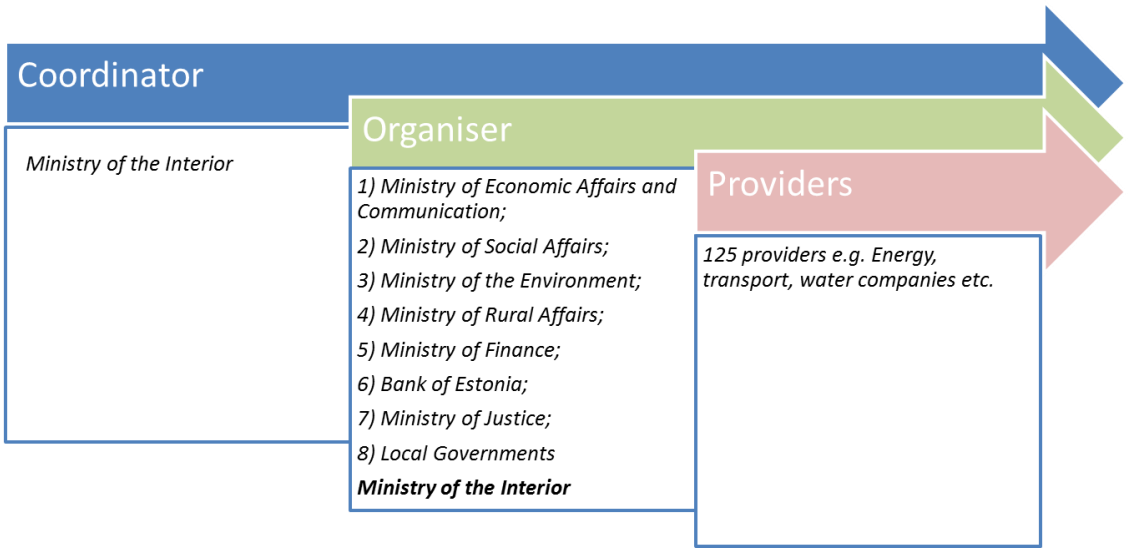

Diagram 3: Overview of vital services

A civil protection task force has been set up to create a new concept for Estonian civil protection. Its mandate runs from December 2015 to November 2017. The focus is on the protection of people and critical infrastructure against natural and technological disasters, terrorism, military conflicts and war. The 23 task force participants include ministries, agencies, the military, municipalities, different interest groups and NGOs. All the key players work towards a common goal.

Risk assessment

When carrying out a risk assessment, the aim should be to reach a common understanding with all relevant stakeholders of the risks faced and their relative priority. Under EU law, the risks identified, assessed and prioritised in the national risk assessment are the basis for risk management planning and the subsequent implementation of risk prevention and preparedness measures.

The current national risk assessment in Estonia started with the 2009 emergencies act. The main sections on risk assessment in the emergencies act cover:

- the risk assessment structure;
- the Government's obligation to develop a list of emergencies for which a risk assessment needs to be prepared and to appoint authorities to prepare emergency risk assessments;
- the frequency of and procedures for amendments of emergency risk assessments;
- establishing and regulating the composition and functions of permanent collective bodies involved in the emergency risk assessment process at different governance levels (the crisis committee of the Government, four permanent regional crisis committees, crisis committees of the local government);

- tasking the MoI with:
    - developing a methodology for risk assessment;
    - coordinating the process of preparing risks assessments;
    - summarising the delivered risk assessments;
    - submitting a summary of risk assessments to the Government Crisis Committee for approval.

Estonia has the ambitious goal of harmonising emergency risk assessments prepared under the emergencies act with national defence risk assessments, thus resulting in an integrated national risk assessment. It acknowledges the challenges involved in achieving this goal, which include overcoming differences between military and emergency management systems, differences of risk assessment mechanisms and information security issues.

Admittedly this process is complex. However, if the participating institutions manage to agree on a common framework, they stand to gain not only from the result but also from the process itself. Cooperation will build institutional and personal links between the emergency management system and the military and give both parties a common understanding of what is involved in ensuring state security. The process will also help to build an overall picture of security in the country. This is turn would provide the knowledge needed to prioritise planning, risk mitigation and emergency response and to ensure that these activities have the appropriate budget.

Risk management planning

The emergencies act does not include a definition of risk management planning. The emergencies act regulates the preparation of emergency response plans, but not the planning of risk prevention and preparedness measures as such. Instead, risk management planning activities are regulated by the rescue act.

The rescue act requires the involvement of various other stakeholders besides the rescue services, including other boards/agencies and the private sector, to undertake specific disaster risk management actions. There is no clear and common understanding of how risk assessment, the planning of risk prevention and preparedness, and the planning for emergency response are interlinked.

Risk prevention and preparedness measures

The emergencies act sets out the basis for emergency response planning. However, this is not integrated with the risk assessment framework. Consequently, risk assessments are not used to provide grounds for management decisions on necessary mitigation actions or for planning, including budgetary planning, for emergency response.

Under the emergencies act, the authority that leads the preparation of an emergency response plan has to:

- assess at least once a year whether the emergency response plan is up-to-date; and
- if necessary, make a proposal to the Government to amend the plan.

The guidelines for preparing an emergency response plan are drawn up by the minister responsible for the risk.

Good practice

- The emergencies act comprehensively addresses risk and emergency management at the national, regional and local level. A competent authority is designated to coordinate the risk management process.
- The responsibility for preparing a risk assessment is assigned to the authorities that have the most appropriate expertise in the specific field.
- The emergency risk assessment is interrelated with the continuous operation of vital services through analysing and assessing the consequences of the emergency. Authorities preparing risk assessments are obliged to assess the consequences on the continuous operation of vital services, as set out in the guidelines for preparing a risk assessment.
- Estonia's approach to critical infrastructure protection focuses on the continuity of vital services. The vital services provider has to prepare a plan setting out preventive actions and how to restore services after an interruption. Guidelines for preparing a business continuity plan are also available. The plan has to be based on a risk assessment.

Recommendations

- Link risk assessment more strongly to risk reduction in the emergencies act. Use risk assessments to inform relevant strategies, policies, laws, assessments and plans.
- Assess the current list of vital services to determine how critical and important they are to the sustainability of society. The assessment will need to be based on a more precise definition of vital services. The overall aim should be to reduce the number of vital services.
- Strengthen the cooperative approach to vital services. Governments and private-public sector partners can work together to clarify and define roles and responsibilities where needed and to build partnerships within and across sectors. Joint risk management activities will enable the Government to:
  - identify and address legislative and policy gaps;
  - provide owners and operators with more timely, accurate and useful analysis and information on threats and risks;
  - work with owners and operators to emphasise the benefits of investing in security measures and increasing resiliency;
  - provide tools, best practices and other guidance to support risk management activities within critical infrastructure sectors;
  - strengthen time-sensitive information sharing before and during an emergency.
- Improve risk management planning capacities in order to meet obligations for developing and implementing national strategies. This will involve setting goals for improving risk management planning and assessing the policies of all sectors involved in risk management.

2.2 Coordination

Estonia has a decentralised risk management structure. The Government appoints specific authorities to manage each risk. Each ministry is responsible for crisis management (risk assessment, response plans and exercises) in its own area of governance. The ministries are responsible for the policy-making process, while implementation is carried out by subordinated agencies (e.g. the Rescue Board, the Police and Border Guard, Internal Security Services, etc.). The MoI is responsible for overall policy, administrative supervision, coordination and guidance on crisis management.

Crisis committees at the national, regional and local level monitor national crisis management, including emergency preparedness and response and ensuring the continuous operation of vital services. Crisis committees have a crucial role in preparing for emergencies and provide support to the government organisation in charge. The crisis committees are formed as follows:

- Government Crisis Committee chaired by MoI;
- Regional crisis committees — the four regional committees are chaired by Chiefs of the regional Rescue Centres;
- Municipal crisis committees, chaired by the local mayor.

Awareness of risk assessment and management at local level is low. With 213 municipalities, Estonia has a large number of local government units given that its total population is 1.3 million. 80 % of municipalities have less than 5 000 habitants. At the local level, a rural municipality or city government must set up a permanent crisis committee. A local government unit with less than 40 000 inhabitants may form a joint crisis committee with one or several other local government units. There is currently a proposal to reduce the number of municipalities in Estonia. If the proposal becomes reality, it will enable better management of risks at regional and local level.

The number of different boards and committees at national level is quite high. This makes the structure of command and control and the division of responsibilities relatively complex. Nevertheless, everyone involved knows their responsibilities and tasks.

A civil protection task force is in place. The task force is managed by the Government Office and consists of 23 official partners (all ministries, NGOs, military organisations) and a number of interest groups. The new civil protection system is focused on protection of people and vital services against hazards and risks as natural disasters, technological disasters, terrorism and military conflicts.

Risk assessment

The emergencies act clearly lays down responsibilities and functions for risk assessment, which are assigned to:

- the Government;
- crisis committees at different levels;
- the MoI;
- competent authorities preparing risk assessments.

The act also lays down key procedures for approving and amending emergency risk assessments, for submitting the assessments and approving their summary. Responsibility for completing risk assessments for emergencies is assigned to the ministries and authorities under the ministries. The number of risk assessments appointed to a single authority varies from one to six.

Each ministry, agency/board and local government unit knows what its responsibility is in implementing the risk assessment activities. However, it is not exactly clear how much the different bodies cooperate when planning their actions.

The MoI does not have persuasive tools to influence either the process or the results of emergency risk assessments prepared by other ministries and their subordinate bodies. This means that successful coordination depends on good working relationships between the different authorities. There is a good partnership-based atmosphere between the authorities from different sectors, so even though MoI is not able to give orders, disagreements between institutions usually are resolved in a cooperative manner. Estonia plans to amend the emergencies act to strengthen crisis management supervision.

The guidelines for preparing a risk assessment specify which other institutions have to be invited to participate in developing risk assessments to ensure that the effects of risks on other areas are assessed. Most of the authorities responsible for preparing emergency risk assessments involved more stakeholders in the process than stipulated by the guidelines. There is also cooperation and involvement of academia and other government bodies not directly involved in the assessment process, such as the Estonian Academy of Security Science, the Environmental Research Centre, vital service providers and the Red Cross. However, the emergencies act does not clearly set out the role and responsibility of the private sector, NGOs and other stakeholders or how these should be involved. There are provisions on this in the rescue act, but these focus more on preparedness and response.

In some cases, stakeholder involvement in the emergency risk assessment is rather formalistic. The relevant stakeholders are not actively involved in preparing the risk assessment. Instead, what happens is that the already prepared risk assessment is sent by mail to the stakeholders whose involvement is stipulated in the guidelines. The stakeholders fill in missing parts or propose amendments relevant to their area of responsibility. Working in this way carries with it the risk of missing out on a common understanding of a particular situation and on certain important issues that cut across sectors, as these may emerge only from discussions in working groups. The involvement of the local authorities in the risk assessment process is quite weak.

Risk management planning

Like other risk and emergency management processes, the planning of risk management is under the responsibility of different ministries. Sectoral legislation regulates both the process and the content of planning. However, the overall risk management structure, the responsibilities of those involved and the linkages between them are not clearly laid out in civil protection legislation like the emergencies act. Making the strengthening of risk management capacity in specific sectors a priority significantly depends on political will rather than on a cross-sectoral capacity development strategy or long-term programme.

The risks identified in the risk assessments are shared with companies providing vital services. Vital service companies develop their own risk management plans. These, however, are not made public.

For many risks, stakeholders such as other ministries and agencies, research centres and academia are involved in risk management planning. One example of this is epizootic risk.

Risk prevention and preparedness measures

There is no mechanism for assessing the overall effectiveness and efficiency of risk prevention and preparedness. Each authority acting in this field carries out its own assessment It is not clear whether relevant stakeholders are involved in developing and assessing risk prevention and preparedness measures.

The Estonian Rescue Board (ERB) is responsible for the coordination of emergency response in Estonia. The ERB has a leading role in planning preparedness for emergencies and the operational management of four regional rescue centres. It has a role in risk assessments and continuity plans for 14 risks.

Estonia has moved to the single emergency number 112. The emergency call system model is very well organised technically and citizen feedback is good. The administrative and technical capacity of the centre is very good, drawing upon the expertise of all three rescue services (police, ambulance and fire service).

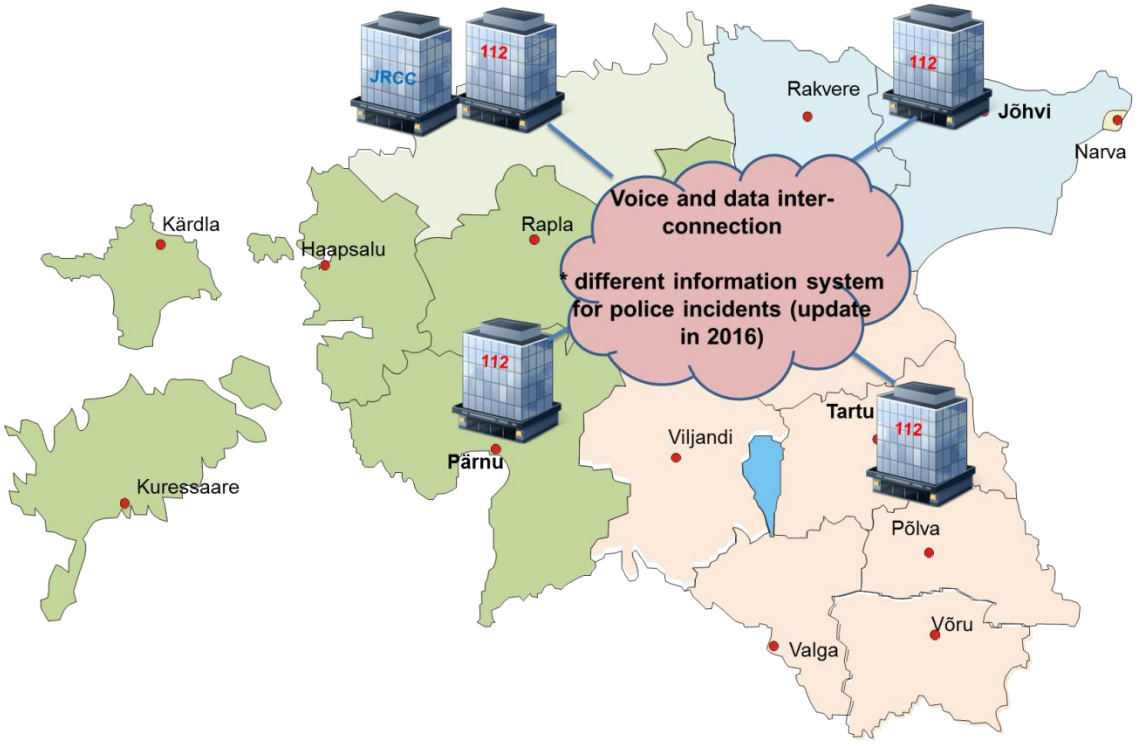

Diagram 4: Overview of the Estonian Emergency Response Centre

Good practice

- The competent authorities involved in the planning process across government know each other and their responsibilities. They adapt flexibly to different situations, using their skills and expertise.
- A lead ministry (the MoI) has responsibility for coordinating risk assessment and risk management processes at national level.
- Risk assessment guidelines are followed, albeit on a voluntary basis. Stakeholders to be consulted are identified in the guidelines.
- Key vital service providers, e.g. for heating and electricity transmission and distribution, are involved in the risk management process. Vital service providers show a high level of risk awareness and often work closely on risk management with local authorities (e.g. the city of Tallinn) and national authorities (e.g. the Health Board).

Recommendations

- Strengthen the supervision and coordination of risk management processes while ensuring sufficient financial and administrative capacity for the process. The aim is for legislation and guidelines on risk assessment and crisis management to be interpreted consistently and for risks and prevention actions to be prioritised at national level.
- Increase cooperation between the different sectors by setting up a platform for disaster risk reduction, as promoted in the Sendai Framework, for communication, coordination and cooperation between risk management actors. Regular dialogue and information exchanges between institutions will improve the risk management system. Use the new platform to improve intergovernmental cooperation at both local and national level.
- Explore mechanisms to ensure that all relevant stakeholders are closely engaged in risk management, including risk analysis and developing prevention measures. This will strengthen dialogue, information exchange and cooperation among all stakeholders (government and non-government actors, actors at the local level, vital services, academia and the private sector).
- Strengthen the local level so that local government units can take greater responsibility for crisis management and ensure continuation of vital services. In order to do this, the competences and responsibilities of local government in this field must first be more clearly laid down and training programmes should be developed at and for the local level.

2.3 Methodology

Under the emergencies act, the MoI develops a methodology for risk assessment that all sectoral ministries must follow for the risks under their responsibility.

Risk assessment

The guidelines for preparing an emergency risk assessment by the MoI have been in force since 2010. Therefore, since 2010 the risk assessments of all risks on the Government list are prepared following a single methodology. A risk matrix for Estonia has also been developed.

The methodology used in Estonia is based on the UK methodology. Under the guidelines, a risk assessment consists of the following parts:

1) a table of contents and a list of the people who prepared the risk assessment;
2) an analytical part;
3) the necessary tables and diagrams prepared for performing the assessment;
4) a risk matrix;
5) a summary of the risk assessment.

The preparation of a risk assessment for vital services is divided into the following stages:

1) description of vital services;
2) identification of critical activities in the provision of vital services;
3) determination of resources for critical activities;
4) assessment of the consequences of interruptions in critical activities;
5) description of the dangers causing interruptions in critical activities;
6) assessment of the probability of interruptions in critical activities occurring;
7) preparation of a risk matrix.

The 27 risks included in the national risk assessment are selected based on their influence on health, the environment, assets and vital services. Risks are divided into five categories on the basis of the probability of an emergency and an evaluation of the consequences. Probability is assessed through a standard methodology using statistical data and ranges from <0.005 % to >50 % within a 5-year period and is expressed as very high-high-medium-low-very low risk. Consequences to human live and health, property, natural environment and vital services range from 'insignificant' to 'catastrophic'. All possible consequences of the emergency must be described and analysed separately.

The MoI develops an emergency risk matrix based on probability and consequences including all 27 risks. The risk category is expressed by a specific number-letter combination. However, while the assessments take into account consequences, aspects such as recovery time for society or the amount of affected people are not taken into account. This gives rise, for example, to situations such as 'incident abroad' being classified as a high-risk high-impact event, when it would only affect a small number of people and by definition not the Estonian territory.

The combined national risk assessment does not consider cross-cutting consequences and multi-hazard risks, including those for the continuous operation of vital services. Having risk assessment carried out by bodies working in isolation

raises the question whether the assessments are conducted according to the same principles and are thus comparable and suitable for integration into the risk matrix by the MoI. Authorities preparing risk assessments are interested in having more interlinks between scenarios.

The current emergency risk assessment methodology does not include the notion of vulnerability, neither of the institutions involved in emergency management nor at societal or territorial level. Vulnerability is partly reflected through the analysis of consequences, but it is not specified in the guidelines. Moreover, a capacity analysis is not part of the process.

2.1. Emergency risk matrix in 2013

PROBABILITY	Insignificant	Light	Serious	Very serious	Catastrophic
Very high				incident abroad affecting a large number of Estonian citizens	
High		hot weather; mass influx of refugees	forest- or brush fire	maritime pollution; coastal pollution; maritime accident; epidemic outbreak; mass intoxication;	
Medium			storm; flood in a densely populated area; road accident; mass riot; epizootic outbreak; cyber incident; prison riot, sudden armed attack	extensive environmental pollution inland;	
Low		cold weather	accident during ice breakup; radiological accident with domestic origination	major chemical accident; fire, explosion or collapse	
Very low			railroad accident;	nuclear accident with cross-border impact;	aircraft accident

CONSEQUENCES

	Very high-risk emergencies
	High-risk emergencies
	Medium-risk emergencies
	Low-risk emergencies

Diagram 5: Risk assessment in Estonia

Assessment of cross-border risks is not a requirement in the guidelines, but the authorities preparing the emergency risk assessments often use information available from cooperation with bordering countries and other countries. However, the cross-border dimension plays more of a role in preparedness rather than in the risk assessment.

After completion of the first two cycles of the national emergency risk assessment based on the risk assessment methodology of 2010 and before launching the new cycle, the MoI is reviewing the risk assessment aspects of the emergencies act. Weaknesses and strengths of the current risk assessment framework are being analysed and activities are being planned to improve the framework. To involve the authorities participating in risk assessment process, the MoI plans to establish a working group on the risk assessment framework. This will keep the system of risk assessment developing, adapting to dynamic situations and improving.

Moreover, as part of the review of the emergencies act, the MoI is planning to revise the list of 27 risks. This is intended to be done in cooperation with all stakeholders so as to identify interdependencies between risks and actors. The revised list of risks will be shared with the Academy of Security Sciences for its assessment. Historical data are also used for the review. The list of 27 risks will be shortened given that some of the risks have not caused any emergencies in Estonia.

In addition to the guidelines for preparing an emergency risk assessment, the MoI has developed guidelines for preparing vital service risk assessments. These guidelines came into force in 2010. The notion of critical infrastructure is integrated into the concept of continuous operation of vital services in Estonia. Critical infrastructures are considered as resources for critical activities, alongside other resources such as personnel, information, finances, etc. The methodology for the emergency risk assessment considers the aspects of vital services by analysing an emergency's consequences on the continuous operation of vital services.

Providers of vital services have to prepare and submit these assessments annually to the organisers of vital services (a ministry, the Bank of Estonia or the local government unit, as specified in the emergencies act). In this way, the state authorities responsible for emergency risk assessments possess data on features and conditions of vital services. However, the methodologies for emergency risk assessment and vital service risk assessments are not clearly interlinked and loss of vital services is not included in the 27 risks.

Risk management planning

The prioritisation of risks in the national risk assessment should lead to clear risk management planning i.e. one that can be used to select and prioritise risk prevention and mitigation measures and influence the budgets of the authorities involved. However, there is no specific methodology for risk management planning.

The national climate adaptation strategy and action plan are a good example of risk management planning. The strategy is prepared by the Environmental Research Centre in cooperation with the Environmental Board and the Norwegian civil protection authorities, with the financial support of the EU. An action plan setting out the different areas of responsibility and the budget required to implement the strategy is under development. The results so far included national climate change

scenarios. The action plan will prioritise policy fields such as spatial planning, infrastructure, health, etc.

Risks related to current social emergencies like mass riots and mass influxes of refugees are dynamic and can hardly be aligned with the emergency risk assessment cycle as laid down in the emergencies act. Therefore, the strategy of the Police and Border Guard Board responsible for these risks requires flexibility in planning and implementing risk management measures.

Risk prevention and preparedness measures

The development of emergency response plans is regulated by the emergencies act, as are the duties of the authorities and persons participating in emergency response. The law also states which institutions are responsible for preparing these documents and which other institutions need to be involved. The responsible and participating authorities in emergency risk assessment may differ from those preparing the emergency response plan. Whether all these authorities play some role in the planning of risk prevention and preparedness measures was not clear.

Although there is no common methodology for planning and prioritising prevention and preparedness measures, these could be traced in sectoral laws and/or individual institutional strategies and their action plans. For example, most of the Rescue Board's objectives and strategic choices set out in the 2015-2020 strategy of the Rescue Board are of a preventive character.

There is a commonly shared perception of the importance of prevention and preparedness measures among the authorities. The commitment to reducing risks is observable through the number and variety of such measures being implemented by the authorities. However, it is not clear how prevention and preparedness measures on risk reduction are prioritised at the national level and across sectors.

In Estonia's decentralised civil protection system, the authorities monitor and analyse the security situation in their area of responsibility and search for the most adequate and effective ways of risk management. Therefore, strategies and methodologies to carry out risk prevention and preparedness measures vary from one institution to another and from one risk to another. Authorities such as the Health Board, the Rescue Board, the Food and Veterinary Board, the Police and Border Guard Board and others implement both risk prevention and preparedness measures in their field of responsibility. Some emergency risks require focusing more on preparedness, while other risks are managed through prevention measures. Therefore, the authorities responsible for a certain risk (or risks) plan and implement measures according to the specific characteristics of that risk. Prevention and preparedness measures are not planned and implemented in a cross-sectoral manner.

The ERB's comprehensive 2015-2025 strategic plan sets out an ambitious vision for bringing accidents and losses down to the level seen in the Nordic countries. The strategic plan includes performance indicators for evaluating the effectiveness of activities set out in the strategic plan. Results show that implementation has been successful. In future, the ERB aims to focus on:

- risk communication;
- consulting and training municipalities;
- supervision of enterprises handling hazardous materials;
- preparation of host nation support.

Estonia also possesses some very good technical capabilities such as tools for monitoring environmental incidents.

Internationally, there is very good cooperation on risk prevention and preparedness with other Baltic countries and especially with Finland. Estonia is a member of HELCOM (the Baltic Marine Environment Protection Commission — Helsinki Commission), a coordinating organisation based in Helsinki focused on monitoring and response to marine pollution. Estonia needs to provide monitoring and response capacities according to the guidelines of this organisation.

Current response plans are quite general. The new emergencies act will provide a more detailed framework for emergency response plans. The use of lessons learned from exercises and real incidents in reviewing the methodological guidelines is limited.

Good practice

- Estonia applies a global methodology to all risks. The methodology is well-known and understood among stakeholders.
- The guidelines for risk assessments and list of 27 risks are updated every two years. The current risk assessment framework is being analysed after completion of the first two cycles of national emergency risk assessment, based on the 2010 risk assessment methodology, and before launching the new cycle. Estonia plans to improve the guidelines.
- The national climate adaptation strategy and action plan were developed using a cross-governmental steering group and in cooperation with Norwegian civil protection authorities. Scenarios are well developed.

Recommendations

- Establish a working group for the national risk assessment and response plans that will agree on the prioritisation of risks and involve all stakeholders in the joint national risk assessment.
- Focus the revision of the risk assessment methodology on:
  - a more comprehensive approach to risks for which risk assessments should be prepared, e.g. through systematic horizon scanning to identify possible new risks;
  - refining the method to select risks for which risk assessments are compiled;
  - merging or using information on losses and accidents from existing databases so as to create a systematic disaster loss database managed by one agency or ministry.
  - better integration of the emergency risk assessment and the continuous operation of vital service risk assessment methodologies;
  - including on a systematic basis the analysis of cross-cutting effects and/or possible secondary effects on other sectors, including loss of vital services and cascading effects, in both the risk assessment guidelines and in drawing up the list of risks for which risk assessments are required;

  - promoting inter-agency planning and coordination across ministries, regional and local government;
  - a more integrated approach to cross-border aspects of risks;
  - inclusion of the vulnerability dimension and a capacity analysis.
- Develop methodologies and tools for sectoral and multi-sectoral risk planning, drawing on different methodologies deriving from EU directives and regulations (the Flood Directive, the Directive on industrial accidents involving dangerous chemicals, etc.).
- Develop a system to monitor implementation of the risk management plans/programmes/strategies. Implementation requires improving coordination between prevention, preparedness and response plans.
- Improve coordination between national, regional and local levels during risk management planning.
- Use lessons learned from national and international incidents and exercises and develop a methodology for post-emergency recovery planning and execution.
- Develop guidelines on how to implement national risk management planning. A catalogue of scenarios could be established in order to help the competent authorities dealing with risk management planning. Priorities set out in the national risk assessment should lead to risk management planning. Achieving better implementation of risk management planning may require additional multi-agency cooperation and the creation of cross-sectoral national planning frameworks.
- Translate strategies and plans into the organisational and risk management context ready for the operational level. One way to achieve this is by making emergency response plans more operations-focused.
- Interlink the risk assessment and the emergency response planning methodologies.

2.4 Expertise

The MoI decides whether a topic should be included in the annual plan of the competence development courses for public officials. The Estonian Academy of Security Sciences creates courses upon request, targeting the development and improvement of risk assessment competences for experts from state agencies, companies and local government working in this field. Risk assessment and risk management are topics that all students at the Academy have to follow. However, there is no uniform nationwide training system.

Under the emergencies act, national emergency exercises have to be organised at least once every four years. Training and exercises have to be prepared by each competent authority, but they are not always clearly planned and targeted. There is no cross-government programme of training. The SIIL 2015 Integrated National Defence concept exercise and CONEX 2015 table-top exercise organised in 2015 by the MoI and Ministry of Defence was the largest training exercise in the country's history, involving over 13 000 regular army soldiers, reservists, members of the *Kaitseliit* volunteer corps and troops from fellow NATO countries. The goals of the exercise were to:

- review strategic level response procedures;
- give the political level an opportunity to practise responding to complex crises;
- identify potential shortcomings in legislation.

It is unclear how lessons learned from exercises and real incidents are used. The results of lessons learned from exercises are implemented in an ad hoc rather than a systematic way.

Each field has a specialist who has in-depth knowledge. However, there is no systematic approach to ensure institutionalisation of this expert knowledge. Each expert acquires their own knowledge, which they keep in a personal database. Knowledge is easily shared between experts, but there is no long-term continuity planning to ensure that expertise is not lost when a person leaves the organisation.

Risk assessment

The level of experts' responsibilities in preparing risk assessment(s) vary from one institution to another. Some institutions responsible for preparing emergency risk assessments have full-time specialists to carry out the national emergency risk assessment and monitor and assess risks on a daily basis. In other authorities, covering different types of risks, and with limited human resources, risk assessment is an additional function to the main tasks of staff. For those less experienced in risk assessments there was a lot of learning by doing, and the process required more effort and took longer than expected.

Each authority responsible for carrying out the risk assessment assigned has sufficient training and experience to carry out the risk assessment. The Estonian Academy of Security Sciences provides the academic oversight and training for the risk assessment process. The current risk assessment methodology and research is developed to compare the national process against other EU Member States.

Knowhow is mostly built up not through specialised training, but from cooperation. The experts are well-informed about the task assigned and the guidelines to be followed, while coordination and endorsement procedures are in place. Due to the relatively small number of experts working in risk assessment across the country, everyone knows each other and has direct contacts and close cooperation with experts in this field from other sectors. This could lead to the concentration of organisational knowledge within a narrow cluster of experts if the processes of knowledge sharing within and between the authorities are not efficient enough.

Risk management planning

Risk management planning is part of different strategies and action plans (e.g. national strategy for adaptation to climate change, flood risk management plans, the national emergency plan for epidemics, etc.). Such strategies and plans are prepared in cooperation between different institutions by the relevant experts.

Risk prevention and preparedness measures

Exercises are included in the emergencies act and have to be prepared at the national level once every four years. Each authority develops its own training. In many authorities training is not planned regularly. For example, a chemical and radiation emergency exercise was conducted in 2008 under the name of ENVEX. Exercises for modelling dispersions of pollution are carried out by the Environmental Inspectorate or the Environmental Board and together with academia. The MoI coordinates state-level exercises and participates as an observer.

As Estonia has limited experience with large-scale emergencies, it gathers information and draws lessons from other countries. For example, Estonian police officers were sent to Slovenia to help with the refugee crisis and their experience is now being used in Estonia. The Rescue Board, the Health Board and the Police and Border Guard Board have international cooperation in place and use it to increase staff expertise.

Joint training takes place with the environment, rescue, health and police boards to help professionals in larger emergencies such as forest fires, flooding and large oil spills. Since there are many small municipalities, the Rescue Board has a training programme that includes specialised material for training local representatives.

There is also a significant voluntary pool for both firefighters and police, especially in rural areas. These volunteers receive training, particularly volunteer firefighters.

Call-takers for the 112 centre are trained at the Rescue School of the Estonian Academy of Security Sciences for one year. Estonia has developed a system that makes optimum use of its limited capacity. For example, the 112 emergency centres carry out their rota planning according to the estimated required capacity. Fire stations are categorised in different levels according to their capabilities. If an emergency appears to be larger than the capability of one station, it can request more capacity from another station.

The amended emergencies act will include provisions to improve the process of ensuring that the knowledge of experts planning prevention and preparedness measures is preserved and further developed.

Good practice

- Experience from other countries is gathered to support the development of risk assessments and disaster risk management procedures. For example, Estonian police officers supported Slovenia in the refugee crisis.
- In 2010 four training courses were organised to introduce the principles of the emergencies act, including risk assessment guidelines. This led to a good common understanding of the guidelines.
- At the Estonian Academy of Security Sciences, risk assessment and risk management are compulsory topics for all students. The Academy writes papers on and researches extensively into risk assessment. The use of modern equipment for civil protection is also taught.

- Some authorities (e.g. the Veterinary and Food Board and the Environmental Board) have contracts with specialised research institutes for the delivery of some risk assessments.
- Volunteers for the Rescue Board and the Police and Border Guard Board are involved in prevention and preparedness actions.
- Fire stations are categorised in different levels according to their capabilities.

Recommendations

- Develop a systematic sectoral and multi-sectoral programme (education, training and exercises) for all levels of emergency management based on knowledge and skills requirements. This programme could be based upon a two-tier approach:
  - a basic cross-governmental training programme could be developed to equip people with the knowledge, skills and awareness necessary for their role in crisis management at the national level;
  - preparation of regular training programmes by education and training institutions at national and local level to fit the needs of specific institutions.
- Collaborate with scientific and educational institutions on risk assessments, including data analysis. Utilise expert knowledge to further develop the risk management planning process.
- Consider the multi-dimensional nature of most risks when planning exercises and training, e.g. by including more ministries in preparations.
- Evaluate in a systematic manner the capacities of risk assessment specialists and plan corresponding training to achieve an appropriate level of competences. The MoI, in its role as coordinator of the overall risk assessment process, could advise other ministries on areas where it detects a lack of skills and knowledge and help them to organise training. Follow up on the personal development of staff and units e.g. using personalised 'licences' showing a person's expertise.
- Put more effort into building institutional knowledge instead of individual knowledge e.g. by putting in place a knowledge-sharing platform and establishing other procedures for knowledge sharing.
- Extend cooperation with research institutes. Their expertise could be used early in the planning phase.
- Develop mechanisms for systematic collection and analysis of lessons learned and their implementation at the appropriate levels to improve the training framework. This could be part of the overall coordination process for risk management.

2.5 Information and communication

Estonia faces few emergencies. Therefore public interest in risk management is low. However, the authorities acknowledge that the public's resilience must be improved. An important task of the civil protection task force is making the public more aware about the risks in their area and how to avoid, prepare and act in emergencies. Therefore, the civil protection task force is looking into effective ways of communicating the results of risk assessments to the public.

Risk communication takes place for specific risks. Especially in areas where there are plants or factories handling dangerous materials, people must be informed about the possible risks, how to prepare and what to do if there is an incident. The ERB has good crisis communication skills and tools. It operates a national radio communication system to facilitate information exchange between agencies. Publicly available data can be found at the Environmental Research Centre, which continuously monitors and measures the air and water pollution. In order to inform the public about the refugee crisis, daily news is provided by the Police and Border Guard Board.

A lot of information is available to the public over the internet. For example, the MoI provides information to the public about serious accidents and emergencies (www.kriis.ee). The website also contains instructions for different emergencies and related legislative documents. A live online sea level information system informing people of the sea level in different regions of Estonia is available at http://online.msi.ttu.ee/kaart.php?en. The epidemic emergency risk analysis is also available on the Health Board website: http://www.terviseamet.ee/fileadmin/dok/Kasulikku/Risk_Epid.pdf. The effectiveness of the risk communication approach was not evaluated.

Risk assessment

The summaries of the emergency risk assessments are available to the public on websites, both on the website of the authority that prepared the risk assessment and on the MoI website. However, the public shows little interest in the emergency risk assessments published on the websites of the relevant authorities. The Rescue Board is developing an integrated risk map, which could be used by the public to discover local risks and their characteristics.

There is no unified risk communication strategy for risk assessments. There is a distinction between ad hoc risk communication and communication of the results of emergency risk assessments. Like other parts of risk management, risk communication is decentralised. The authorities have communication plans for certain risks and educational materials on risk mitigation and preparedness. However, the results of risk assessments are not yet sufficiently integrated into risk communication strategies.

Direct information sessions such as meetings and workshops are organised for key stakeholders, for example the Health Board regional services in the case of food-borne emergencies.

Risk management planning

There are rules and procedures for information and communication in all Estonian acts dealing with risk management. The emergencies act covers the organisation of information exchange between authorities or individuals participating in emergency response and also covers informing the public about an emergency. Informing the public is covered in national emergency plans such as the plan for epidemic outbreaks as well.

Risk prevention and preparedness measures

Information and communication between sectors at national level seems to work well. For example, the Rescue Board receives information about ionising radiation models from the Environmental Board and information on air pollution from Environmental Research Centre. The Rescue Board then uses the data in its modelling. The Environmental Board also shares data on nuclear accidents. This information is also shared with partners in Baltic and Nordic countries, as well as with the IAEA and eCurie, for which the Environmental Board is a competent authority or 'warning point'. The Police and Border Guard Board also shares information through HELCOM.

A national cyber emergency response plan has been in place since 2011 and was renewed in 2016 (by government order). Instead of having a separate approach on cyber issues, there is an approach to security 'as whole'. Despite Estonia having strong e-commerce and e-governance, reducing the gap between public awareness and expert knowledge should certainly remain one of key priorities given the complexity of technological risks and the interdependencies of different services.

Many campaigns have been organised to inform the public on how to prepare itself for emergencies and what to do when disaster strikes. The ERB organised a survey to research people's knowledge and perceptions towards emergency risks, preventive measures and information needs in connection with security issues. The results of the survey will be shared with the civil protection task force. This will supply the task force with useful information that will help it design prevention-focused public communication programme(s).

There is more focus on raising awareness beforehand than actual warning when something happens. Under the emergencies act, the public must be immediately notified if failure to inform may endanger people's life or health, cause major property damage or otherwise significantly disrupt ordinary day-to-day life. For early warnings, Estonia does not have a nationwide warning system. In an ongoing emergency, people can be warned via radio, TV, internet, text messages and in some areas sirens.

Good practice

- Estonia organises campaigns to inform the public on how to prepare for emergencies and avoid personal risks such as drowning, house fires, etc. Mass media and the internet are also used to put across such messages.
- The civil protection task force has a strong focus on risk awareness and communication.

Recommendations

- Develop a national communication strategy for providing information on risks and emergencies to the public to improve public awareness at all levels. Based on the prioritisation of the risk assessments, the public should be informed about the main risks, corresponding prevention and preparedness measures and know how to respond. Stakeholders can implement the communication strategy through the decentralised system.
- Consider different and targeted communication channels to inform the public of the results of risk assessments.
- Strengthen the Government's communication capacity by setting up a crisis communication unit.
- Improve information sharing between competent authorities, including exchange of best practice on communication.
- Improve the public's risk awareness, teaching people how to behave in an emergency and how to help themselves and others.

2.6 Infrastructure, equipment and IT

The national IT infrastructure is developed by the State Information Authority.

Risk assessment

The key infrastructure needed for risk assessment is a good disaster loss database. For each emergency risk assessment, the authority required to prepare the risk assessment currently collects its own data and analyses the data using its own database(s) and/or ICT infrastructure. The authorities gather risk-monitoring data and information about incidents and analyse it. There is no centralised database or interface that could be used to combine individually gathered information. Therefore, each participating institution uses its own data for the risk assessments, which it collects using its own methods.

As Estonia has not experienced certain types of emergency, it does not have longitudinal data for the risk assessments of such emergencies. In such cases the authority preparing the emergency risk assessment uses information from other countries, adapting it to Estonia.

Risk management planning

Under the rescue act, the MoI has to establish a database called the 'rescue information system'. One of the six obligatory datasets focuses on supervision and prevention work. The rescue act determines:

- which institutions have the right to obtain data from the rescue information system;
- which dataset has to be available for these institutions; and
- why data are needed.

The following institutions have the right to obtain data from the specific datasets of the rescue information system: the Emergency Response Centre, the MoI, the Police and Border Guard Board, the Health Board, prosecutors' offices, the Ministry of Economic Affairs and Communications, the Technical Surveillance Authority and the Roads Administration. Data gathered for the rescue information system have multiple purposes, including for risk assessments, assessing resources, evaluating the effectiveness of prevention measures and planning new ones.

Risk prevention and preparedness measures

For risk prevention and preparedness, a wider range of equipment is needed. The authorities know what equipment and supplies are currently available on the market. However, it is unclear what equipment and supplies are lacking from the Estonian risk and emergency management system or whether the authorities intend to acquire any equipment they do not currently possess.

Estonia does not have a standard methodology for disaster loss data recording. The costs of damage are estimated, documented and stored, but not evaluated. No cross-sectoral statistics or database exist.

The Rescue Board consists of professional firefighting services, voluntary fire stations and reserve rescue units. The fire units have different response levels. Estonian disaster response teams are comprised of many units with different capacities. The system works at present but needs to adapt to the likelihood that the number of volunteers will fall in future.

The Environmental Board applies radiation dispersion modelling software, which provides impressive modelling tools for environmental incidents. Estonia's Environmental Research Centre runs the Estonian air quality management system. This system pools all continuous ambient air measurements in Estonia (both at national level and from company internal monitoring), air pollution modelling, air pollution index calculation and other air quality data. There is a mobile laboratory for environment pollution (ionising radiation, radon) at the disposal of the Environmental Board, the Environmental Research Centre, the Rescue Board and the Police and Border Guard Board. The Environmental Inspectorate has ICT for forecasting and backtracking of drift and spreading of pollution. This equipment could be used for environmental risk assessment.

Vital service providers take into account possible supply chain problems in their planning if they affect their continuous operation. However, there is no national supply agency to guarantee the supply of vital resources.

Good practice

- There are several good examples of risk management data sharing between different boards.
- The rescue information system includes datasets on prevention.
- In the light of emerging new threats, cooperation between the defence authorities and the authorities involved in emergency risk management is improving. For example, capacities available in healthcare are also listed as capacities for defence.

Recommendations

- Develop a common database of risks and emergencies to assist in risk management planning. The data would need to be analysed and could also be used for planning and identifying response and training capacities (technical, equipment, staff, etc.) Data on equipment and supplies could be collected using a standard methodology and analysed to identify possibilities for cross-usage of resources.
- Identify additional resource needs using the data gathered and feed this information into development plans and budgets. Assess opportunities and conditions for using international resources for the equipment and supplies that Estonia lacks.
- Consider whether a national supply agency could be a solution to ensure continuity, for example in securing the supply of vital resources such as fuel, raw materials for food etc., in an emergency.
- Ensure that legislation covering cyber security is kept up-to-date to keep pace with the rapid changes in this field.
- Improve the early warning capacity by reviewing the technical solutions and methods i.e. mobile phones, social media and television etc. and ensure that the early warning system covers the whole of Estonia. Investigate how to utilise RDS radio, television, social media and mobile phones to ensure timely dissemination of emergency messages to the public. Sirens can also be used if their coverage is sufficient and the warning signals are appropriate.

2.7 Financing

Budgeting for risk management covers a 4-year period and focuses on the main topics laid down by the Government. The annual budget is more detailed, but does not allocate separate funds to crisis management because each ministry is responsible for planning sufficient human and financial resources for crisis management in its own area of responsibility. A financial reserve for crisis situations and a 'stabilisation reserve fund' are in place. It is not possible to clearly identify funds needed to carry out and update risk assessments in the state budget.

Expenses for risk assessment activities are incorporated into the budgets of the responsible authorities.

More attention is given to recovery work after an emergency. The ministry in charge evaluates the need for resources and sends the request to the Ministry of Finance, which forwards it to the Government for the final decision. This is a practical solution since some recovery activities exceed the agencies' yearly budget.

There is an ongoing streamlining of public administration and the number of public officials is being decreased. The state authorities are therefore looking to increase their efficiency while ensuring that the technical, administrative and financial capacities necessary for risk management are in place.

Risk assessment

Authorities have personnel working on coordination and preparing risk assessments, functioning ICT for monitoring collection and analysis of risk related data and information, contracts with research institutions for implementation of specific tasks, etc. The authorities were generally satisfied with the available resources. However, it is not clear if the level of financing is sufficient to reach the desired quality of risk assessment.

Risk management planning

There is no financial planning process for risk management at national level. Each competent authority is responsible for estimating its own financial needs. Financial tools in the emergencies act are more focused on the cost of covering damage than on risk assessment and planning.

Risk prevention and preparedness measures

The Rescue Board and the Police and Border Guard are the key actors, providing full coverage of rescue service at the national and regional level. They need sufficient administrative and technical capacities.

There is no comprehensive estimate of the financing needs arising from the risk assessment and planning that could be incorporated into response planning. The implementation of prevention and preparedness measures does not include preparing agreements with partners to regulate the sharing of costs.

Good practice

- There is a government reserve fund to cover the unexpected costs of small-scale emergencies. A stabilisation reserve stabilisation fund has been established for large-scale crises and higher costs.
- The budget for risk management has been increased in recent years.
- The emergencies act regulates compensation for damage incurred during emergency situations.

Recommendations

- Develop a financial strategy by identifying the gaps in financial capacities and considering the potential role of financial tools in risk assessment, risk management and prevention and preparedness. For example, it would be beneficial to create incentives for risk reduction. The OECD disaster risk assessment and risk financing can support the development of this strategy.[5]
- Increase cooperation and transparency in financial matters to improve budgetary cooperation among authorities involved in risk management.
- Use the risk assessment to prioritise funding at the start of the financing cycle.
- Evaluate the costs and benefits of mitigation measures at the end of the financing cycle.
- Create greater links between research institutions and ministries by developing projects for joint funding.
- Improve financial capacity by developing joint projects (government, business and research institutions) to apply for external and international funding.
- Analyse financial implications for risk management planning and include a cost benefit analysis.

[5] https://www.oecd.org/gov/risk/G20 disasterriskmanagement.pdf.

Annex I Terminology and abbreviations

The following definitions are working definitions for the purpose of the peer review documents only. They are based largely on EU legislation and guidelines. Where official EU definitions were not available, UNISDR definitions have been used.[6]

Definitions

Contingency planning A management process that analyses specific potential events or emerging situations that might threaten society or the environment and establishes arrangements in advance to enable timely, effective and appropriate responses to such events and situations.

Disaster Any situation which has or may have a severe impact on people, the environment or property, including cultural heritage;

Emergency services A set of specialised agencies that have specific responsibilities and objectives in serving and protecting people and property in emergency situations.

Early warning system The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organisations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss.

Peer review A governance tool by which the performance of one country in a specific area (in this case risk management/civil protection) is examined on an equal basis by fellow peers who are experts from other countries.

Preparedness A state of readiness and capability of human and material means, structures, communities and organisations enabling them to ensure an effective and rapid response to a disaster. Preparedness is obtained as a result of action taken in advance;

Prevention is understood as:

(i) where possible, preventing disasters from happening;

(ii) where disasters are unavoidable, taking steps to minimise their impact.

Resilience The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential structures and functions.

Response Any action taken at national or sub-national level in the event of an imminent disaster, or during or after a disaster, to address its immediate adverse consequences.

Risk management capability The ability of a Member State or its regions to reduce, adapt to or mitigate risks (impacts and likelihood of a disaster) identified in its risk assessments, to levels that are acceptable in that Member State. Risk management capability is assessed in terms of the technical, financial and administrative capacity to carry out adequate:

[6] http://www.unisdr.org/we/inform/terminology.

(a) risk assessments;

(b) risk management planning for prevention and preparedness;

(c) risk prevention and preparedness measures.

Stakeholders with an interest in disaster risk management include: scientific communities (including engineering, geographical, social, health, economic and environmental sciences), practitioners, businesses, policy-makers, central, regional and local government and the public at large.

Sub-national level The regional, provincial or local government level tasked with disaster risk management.

Abbreviations

Abbreviation	Definition
CI	Critical infrastructure
CBRN	Chemical, biological, radiological and nuclear
DM	Disaster management
DRM	Disaster risk management
DRR	Disaster risk reduction
ERB	Estonian Rescue Board
EU	European Union
HELCOM	Baltic Marine Environment Protection Commission — Helsinki Commission
GPS	Global positioning system
MoI	Ministry of the Interior
NATO	North Atlantic Treaty Organisation
NGO	Non-governmental organisation
OECD	Organisation for Economic Cooperation and Development
UNISDR	United Nations Office for Disaster Risk Reduction

Annex II Overview of stakeholders

Representatives of the following institutions in Estonia were involved in the peer review:

- Elering — transmission system operator
- Emergency Response Centre (ERC)
- Environmental Research Centre
- Estonian Academy of Security Sciences (EASS)
- Estonian Rescue Board (ERB)
- Health Board
- Information System Authority (RIA)
- Ministry of Economic Affairs and Communications
- Ministry of the Interior
- Ministry of Rural Affairs
- Ministry of Social Affairs
- Police and Border Guard Board
- Tallinn Municipal Engineering Services Department
- Tallinna Küte district heating company
- Veterinary and Food Board

Annex III List of documents

The following documents were used to prepare for the review:

Nr.	Title	Category	Date	Language
1	Emergencies act	Law/regulation	2009	English
2	Rescue act	Law/regulation	2010	English
3	Police and Border Guard act	Law/regulation	2010	English
4	Chemicals act	Law/regulation	2015	English
5	Health services organisation act	Law/regulation	2001	English
6	Summary of Estonian national emergency risk assessments	Report	2015	English
7	Emergency risk assessment in Estonia	A Thesis Ants Tammepuu	2014	English
8	Guidelines for preparing continuous operation risk assessments	MoI/ Regulation	2010	English
9	Guidelines for preparing continuous operation plans	MoI/ Regulation	2010	English
10	Guidelines for preparing emergency risk assessments	MoI/ Regulation	2010	Estonian
11	Rescue and crisis management policy in Estonia	Presentation	2015	English
12	List of emergencies for which risk assessment and response plans must be prepared	Government order	2013	Estonian
13	Strategy of the Estonian Rescue Board 2015-2025	Strategic document	2014	English
14	Commission notice — Risk management capability assessment guidelines (2015/C 261/03)	EU Guidelines	2015	English
15	Country study: Estonia June 2013 — Analysis of Civil Security Systems in Europe	Study	2013	English

Annex IV Review framework for risk management capabilities

Peer reviews are conducted using standard frameworks that guide the peers in collecting information, analysing the disaster risk management structure in the country under review and understanding how policies are implemented. The standard frameworks consist of objectives, requirements and indicators relating to different disaster risk management areas. Example questions included in the frameworks can be used to guide the peer review team in the preparatory phase and during the mission. The teams can develop further questions during their review.

The objectives and to a lesser extent the requirements are the essential policy components under review. Review questions should therefore relate closely to the objectives, particularly those where the preliminary information received was not sufficiently clear or showed gaps. The indicators cover a wide area of policies, tools and methodologies and can be used by peers to help them identify examples of good practice, areas for improvement or possible gaps. The indicators do not represent a 'checklist' against which the country should be formally assessed.

No	Key Indicators
This thematic peer review for risk management capabilities is based upon the Risk management capability assessment guidelines (RMCA) (2015/C 261/03)	
Objective 1: Risk assessment capability. All administrative, technical and financial capabilities for risk assessment are available	
1.1 Framework: The risk assessment fits within an overall framework	
1.1.1	Framework: The risk assessment fits within an overall framework
1.2 Coordination: A risk management structure assigns clear responsibilities to all entities involved in the risk assessment so that overlaps or mismatches between responsibility and capability are avoided	
1.2.1	There are clearly defined responsibilities and roles/functions assigned to the relevant entities participating in the risk assessment
1.2.2	The responsibilities to assess specific risks are assigned to relevant entities
1.2.3	The cross-sectoral dimension of risks has been integrated into the risk assessments
1.3 Expertise: The experts carrying out the risk assessment have the competences and responsibilities and received adequate training to carry out the risk assessment	
1.3.1	The distribution of responsibilities for the assessment of the risks is regularly reviewed
1.3.2	The experts responsible for the risk assessment(s) are adequately informed, trained and experienced in the assessment of risks
1.4 Other stakeholders: Entities carrying out risk assessments cooperate with a range of stakeholders, including from the private sector, academia and other government entities not directly involved in the assessment process	
1.4.1	The relevant stakeholders are involved in the risk assessment process
1.5 Information & communication: An effective information and communication system for the assessment of risk is available	
1.5.1	The necessary administrative capacity is available to communicate the results of risk assessments to the public
1.5.2	The necessary administrative capacity is available at national and/or appropriate sub-national level to communicate internally the results of risk assessments, including scenarios lessons learned, etc.

1.5.3	The results of risk assessments are integrated into a risk communication strategy

No	Key Indicators
1.6 Methodology: A methodology has been developed to carry out risk assessments. Expected impacts of identified risks are assessed according to a methodology and risks accordingly prioritised	
1.6.1	The national or sub-national entity developed a methodology for risk assessment
1.6.2	The cross-border dimension of risks has been integrated into the risk assessments
1.6.3	The risk assessment considers infrastructure in the risk assessment
1.7 Infrastructure: The infrastructure and appropriate information is available to carry out the risk assessment	
1.7.1	ICT infrastructure is available to carry out risk assessments
1.7.2	Appropriate information and data (including historical data) are available to carry out risk assessments
1.8 Financing: Financing includes the identification, estimation and reservation of funds required to carry out and update risk assessments	
1.8.1	The appropriate financial capacity is available to carry out and update work on risk assessments
2. Risk management planning capability. All administrative, technical and financial capabilities for risk management planning are available.	
2.1 Leadership and coordination: A risk management structure assigns clear responsibilities to all those involved in the risk management planning, so that overlaps or mismatches between responsibility and capability are avoided	
2.1.1	Clearly defined responsibilities and roles/functions are assigned to the entities participating in the planning of risk prevention and preparedness measures
2.1.2	The responsibilities to plan for specific risks are ensured and regularly assessed
2.2 Expertise: Methodologies for workforce planning are in place so that optimal staffing is ensured. The experts tasked with carrying out the risk management planning have the necessary information and receive adequate training	
2.2.1	Sufficient human resources are available to carry out the planning of prevention and preparedness measures based on the risks identified in the risk assessment
2.2.2	There is effective training available for the experts at different levels responsible for the planning of prevention and preparedness measures
2.2.3	The experts involved in the planning of prevention and preparedness measures are informed about the overall policy objectives/priorities for disaster risk management
2.2.4	There is a process in place to ensure that the knowledge of experts tasked with planning prevention and preparedness measures is preserved and further developed
2.3 Methodology: A methodology has been developed to carry out risk assessments. Expected impacts of identified risks are assessed according to a developed methodology and risks accordingly prioritised	
2.3.1	The different responsible entities have developed methodologies for risk management planning
2.3.2	Methodologies for risk management planning include the identification of possible infrastructure relevant for the mitigation of identified risks

2.4 Other stakeholders: Various public and private stakeholders (such as disaster risk management agencies, health services, fire services, police forces, transportation/electricity/communication operators, voluntary organisations, citizens/volunteers, scientific experts, the armed forces, or organisations in other Member States) cooperate with each other and are involved in risk management planning	
2.4.1	The relevant public and private stakeholders are informed and involved in the risk management planning process
2.4.2	The risks identified in the risk assessments are shared with public or private companies. It is ensured that the planning of prevention and preparedness measures by public and these companies is encouraged
2.4.4	The national or sub-national entities are involved in cross-border planning of prevention and preparedness measures
No	**Key indicators**
2.5 Information & communication: Rules and procedures are in place that allow for information sharing, data sharing and communication with various stakeholders	
2.5.1	Relevant stakeholders, including citizens, are informed about the key elements of risk management planning
2.6 Equipment: Part of the technical capacity assessment evaluates whether equipment necessary to plan prevention and preparedness measures is available	
2.6.1	Equipment and tools needed to support and/or carry out the planning of prevention and preparedness measures are available
2.7 Financing: Financing comprises the overall identification, estimation and reservation of funds regarded necessary to meet potential financial obligations from the management of risks	
2.7.1	As part of the planning process, financing needs for the implementation of prevention and preparedness measures are estimated and possible sources of financing identified
2.7.2	As part of the planning process, future investment plans and the possible role of private sector financing are considered
2.7.3	As part of the planning process, procedures or plans are identified or established in advance to ensure financing is in place for the prevention and preparedness measures needed to mitigate the identified risks
3. Implementing the risk prevention and preparedness measures. All administrative, technical and financial capabilities for the implementation of risk prevention and preparedness measures are available	
3.1 Strategy/policy/methodology: The national or sub-national entities have developed approaches to carry out risk prevention and preparedness measures. Expected impacts of planned prevention and preparedness measures on risk reduction are assessed and measures accordingly prioritised and adapted	
3.1.1	The implementation of prevention and preparedness measures is linked to the risk management planning. The implementation of prevention and preparedness measures is part of a strategy or policy and a methodology has been developed
3.1.2	Methods for damage and human loss reporting are developed and the costs of damages are estimated, documented and stored
3.2 Leadership and coordination: A risk management structure assigns clear responsibilities to all those involved in the risk management planning so that overlaps, gaps or mismatches between responsibility and capability are avoided	
3.2.1	Clearly defined responsibilities and roles/functions are assigned to the entities participating in the implementation of risk prevention and preparedness measures
3.3 Expertise: Methodologies for workforce planning are in place so that optimal staffing is ensured. Staff performance management tools are in place and include regular reviews of training and development needs	
3.3.1	The distribution of responsibilities of personnel involved in implementing prevention and preparedness measures is up-to-date

3.3.2	Sufficient resources are available to implement prevention and preparedness measures based on the planning process
3.3.3	The personnel responsible for implementing prevention and preparedness measures is sufficiently informed, trained and experienced
3.4 Involving partners: A response network is in place that can mobilise all required capacities across a variety of partners	
3.4.1	The relevant partners are informed and involved in implementing prevention and preparedness measures
3.4.2	The national or sub-national entities are involved in implementing cross-border measures for prevention and preparedness
3.4.3	The prevention and preparedness measures are implemented by these public or private partners with sufficient quality to achieve the expected risk mitigation results

No	Key Indicators
3.5 Procedures: In the process of implementing prevention and preparedness measures, procedures are laid down that contribute to the reduction of risk	
3.5.1	The implementation of prevention and preparedness measures includes the development of procedures, for example for early warning, activation, dispatching, deactivation or monitoring
3.6 Information and communication: National or sub-national entities ensure that they have rules and procedures in place that allow for information sharing, data sharing and communication with relevant stakeholders including citizens at any time in the implementation of prevention and preparedness measures	
3.6.1	The necessary information is available and regularly exchanged inside the national or sub-national entity
3.6.2	Communication strategies are in place, including the use of various media tools (including social media) to effectively share information with citizens to increase awareness and to build trust and confidence
3.7 Infrastructure including IT: The infrastructure in place (such as roads, buildings, dams, rails, bridges, satellites, tubes, cables, hospitals, shelter facilities, early warning systems etc.) and regarded as relevant to the mitigation of the identified risks fulfils certain security, safety or performance standards	
3.7.1	The condition of the infrastructure relevant to the implementation of prevention and preparedness measures is analysed
3.8 Equipment and supplies: An assessment is made of whether the equipment used in prevention and preparedness fulfils the required standards necessary to implement prevention and preparedness measures	
3.8.1	An inventory of available equipment needed to carry out the planned prevention and preparedness measures is available
3.8.2	The implementation of prevention and preparedness measures includes the identification of possible equipment needs, based on the existing inventory of available equipment needed to carry out the planned prevention and preparedness measures
3.8.3	Supply chain risks are identified during the implementation of prevention and preparedness measures and measures are taken to reduce the risk of supply shortages
3.9 Technical expertise: The skills available and the methodologies developed for use in implementing prevention and preparedness measures are safeguarded, be it through documentation or sharing and learning	

3.9.1	The personnel tasked with implementing prevention and preparedness measures have the necessary technical expertise to ensure that the measures are properly implemented. Care is taken to ensure that this knowledge is preserved and further developed
3.9.2	The personnel tasked with implementing prevention and preparedness measures has the knowledge to apply procurement and logistics procedures to carry out these tasks and the staff is properly trained to apply these procedures
3.9.3	The personnel tasked with implementing prevention and preparedness measures has the knowledge to carry out life cycle and surge capacity planning. These methodologies are applied when reviewing the functioning of equipment and systems and to be able to increase capacity in an emergency
3.10 Financing of implementation measures: The financial means are available and can be quickly accessed to finance the response to likely emergency situations as identified in the risk assessment and planning	
3.10.1	When carrying out prevention and preparedness measures needed to reduce, adapt to and mitigate the identified risks, a budget, legal basis and procedures are identified or established to plan ahead for flexible resource allocation
3.10.2	The implementation of prevention and preparedness measures includes the preparation of agreements with partners to cover the sharing of costs