Risk and vulnerability analyses

GUIDE FOR GOVERNMENTAL AGENCIES

SEMA RECOMMENDS ■ 2008:3

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Preface

Our insight into vulnerabilities in society and the threats and risks we face influence the focus and prioritisation of emergency preparedness. The necessary knowledge can be obtained through, for example, risk and vulnerability analyses.

Risk and vulnerability analyses cannot, however, be conducted independently from the crisis management system's other functions. This diagnostic work should be used as an initial link in a chain that leads to a reduction of vulnerability in society and improvements to our capability to deal with crises.

The aim is therefore that society should have good knowledge of the threats, risks and vulnerabilities that can affect society's capability to function and that the societal consequences have been analysed. Work with risk and vulnerability analyses is intended to increase awareness and knowledge on the part of decision-makers and agency leaders of the existing threats and risk, to minimise them and to improve emergency preparedness.

Municipalities, county councils, as well as governmental agencies are responsible for conducting risk and vulnerability analyses. This guide is oriented to governmental agencies. We have prepared a special guide for municipalities and county councils (SEMA's Educational series 2006:2). It is our hope that this will be helpful in your work with risk and vulnerability analyses. The key word is preparedness.

When the unthinkable occurs ...

Lars Hedström
Director General, Swedish Emergency Management Agency

1. About this guide

All governmental agencies shall conduct risk and vulnerability analyses according to the ordinance on emergency preparedness and heightened state of alert (2006:942), referred to henceforth as the emergency preparedness ordinance. This guide is an aid to governmental agencies in conducting risk and vulnerability analyses. It describes both how they should conduct the analytical process and how they should present the results. The guide is of an advisory character.

The guide should be seen as one of several ways for the Swedish Emergency Management Agency (SEMA) to contribute to strengthening society's emergency preparedness. SEMA is required to compile risk and vulnerability analyses and to conduct general analyses of these. The risk and vulnerability analyses are used, for example, as supporting materials for assessment of society's capability to deal with exceptional events, for compilation of threats and risks in society and for focusing emergency preparedness. SEMA also holds courses and seminars, and presents good examples in the area.

1.1 Supersedes earlier guides from SEMA

Since 2002, governmental agencies have been required to conduct annual risk and vulnerability analyses. Knowledge has systematically increased and methods have been developed. The goal is that the analyses will be able to be used as input in establishing focus and prioritisation. For this to be attained, however, they must be presented in a more uniform manner than is the case today. In 2006, the government adopted a new ordinance that in part, places clearer demands on focus and reporting.

SEMA is therefore releasing a new guide for governmental agencies. This replaces the guide from 2003 (SEMA Recommends 2003:1). The guide has been entirely revised and is more detailed in all areas. We have placed special emphasis on explaining the significance of agencies' areas of responsibility and how the results of risk and vulnerability analyses should be presented. A new structure for presentation is included in the guide's appendix.

The guide does not include any practical advice on how tasks should be prepared and conducted. The reason for this is that governmental agencies have considerable organisational differences. For general advice and recommendations concerning preparations and the significance of having support within the organisation, see the corresponding guide for municipalities and county councils (SEMA's training series 2006:2).

1.2 Guide structure

The guide is divided into seven chapters (including this introductory chapter) and an appendix.

Chapter 2 addresses risk and vulnerability analyses as a part of governmental agencies' security efforts and as a means of preventing risks and preparing for exceptional events. *Chapter 3* presents a detailed discussion on what a risk and vulnerability analysis should embrace based on various agencies' roles and areas of responsibility. The discussion relates to the definition of critical societal functions from an emergency preparedness perspective. *Chapter 4* provides guidance in the initial part of the analysis phase: identification of threats and risks. *Chapter 5* is about assessing and ranking identified threats and risks based on their probabilities and consequences. *Chapter 6* is devoted to assessing governmental agencies capabilities to deal with various types of situations. *Chapter 7* addresses the needs for measures that arise from a completed risk and vulnerability analysis, and how concerned parties should be made aware of this information.

The appendix to the guide presents SEMA's recommendations for a reporting structure for the annual presentation to the Swedish Government Offices and SEMA.

Additional information

- The Swedish Defence Commission, *A strategy for Sweden's security – The Swedish Defence Commission's proposal for reforms* (Ds 2006:1).
- Government bill, *Co-ordination in the event of emergencies – For a safer society* (bill 2005/06:133).
- Swedish Emergency Management Agency, *Risk and vulnerability analyses, 2006 – Summary and analysis* (0131/2007).
- Swedish Emergency Management Agency, *Risk and vulnerability analyses – Guide for municipalities and county councils* (SEMA's training series 2006:2).

2. Preventive and preparatory security work

Threats against and objectives for our security, as well as means of strengthening security, are more complex and multi-dimensional today than previously. What is to be protected, what threatens and the means for strengthening security must be viewed in a single context to strengthen societal security. Strengthening security can be considered as a process chain than includes a number of phases – preventive, preparative, operative and restorative.

In the security strategy that the government presented in 2006 – as well as in this guide – the emphasis is on societal security. It concerns events and conditions that damage societal functions and for which individuals lack the prerequisites for dealing with themselves in full. According to our security strategy, the general objectives for our security should be to safeguard:

- the population's lives and health.
- societal functions.
- the capability to maintain our fundamental values, such as democracy, law and order, and human rights and freedoms.

The democratic state ruled by law, as well as health and medical care, information and communication systems, energy supply, flows of goods and services, and other critical societal functions, are necessary for a functioning society and must not become inoperable.

2.1 Comprehensive view of governmental agencies' security work

Governmental agencies conduct security work from various perspectives, for example, through reducing property damage and personal injury, establishing physical fundamental protection and continuity planning.

The ordinance on governmental agencies' risk management (1995:1300) requires that the agencies work with risk management and have knowledge of and can calculate their risk costs. The agencies are to summarise results in a risk analysis and take appropriate measures to limit risks and prevent damage/injury or loss. The Swedish Legal, Financial and Administrative Services Agency provides support and guidance concerning the ordinance on governmental agencies' risk management.

The agencies also have plans for taking care of their personnel in conjunction with peacetime emergencies. They strive to be able to inform users and restore affected functions in the event of emergencies that result in operational disturbances. Many agencies have checklists for how personnel shall conduct themselves in the event of threats, violence or hostage situations.

In a security analysis according to the ordinance on security (1996:633), governmental agencies are required whenever applicable to have assessed and documented which information in their organisations that is to be kept secret with consideration to national security, and which facilities require security protection. The Swedish Security Service provides support and guidance in regard to the ordinance on security.

The security work of governmental agencies is to be viewed as a whole. It is therefore important to call attention to related directives that contribute to increased security awareness. This guide henceforth focuses, however, on exceptional events and the ordinance on emergency preparedness and heightened state of alert (2006:942).

2.2 Ordinance on emergency preparedness and heightened state of alert (emergency preparedness ordinance)

Governmental agencies' obligation to conduct risk and vulnerability analyses is stipulated in section 9 of the emergency preparedness ordinance. Governmental agencies shall – for the purpose of strengthening both their own and society's emergency preparedness – conduct annual analyses of whether vulnerabilities, or threats and risks, exist within their areas of responsibility that could severely degrade operational capabilities. In conducting this analysis, special consideration shall be taken to:

- situations that arise quickly, unexpectedly and without warning, or a situation in which there is a threat or a risk that such a situation can arise.

- situations that require rapid decisions and co-ordination with other parties.
- that the most necessary critical societal functions can be maintained.
- the capability to deal with very serious situations within the agency's area of responsibility.

The emergency preparedness ordinance is applicable for all governmental agencies. with the exception of the the Swedish Government Offices, committee activities and the Swedish Armed Forces.

It primarily deals with governmental agencies being able to guarantee that they can maintain functions that are needed to uphold emergency preparedness capabilities, even when exceptional events occur. This can entail that requirements that are sufficient for ordinary operations are not sufficient when exceptional events occur, and that the agencies therefore require enhanced capabilities, such as expanded command and information capacities. Certain agencies also need enhanced capabilities for operating in, for example, contaminated environments in order to save lives, or on the short-term, to restore operability to necessary supply systems, and on the longer term, to repair destroyed infrastructures.

To improve society's collective capabilities to prevent or reduce the effects of exceptional events, it is important that we have knowledge of what the threats and risks are, and where society is vulnerable. We can gain this knowledge by conducting risk and vulnerability analyses. Both municipalities and county councils, and governmental agencies are responsible for conducting risk and vulnerability analyses. Within the EU and in many other countries, work is being conducted in a similar manner to survey threats, risks and vulnerabilities.

The objective is that society will have good knowledge of threats, risks and vulnerabilities that can affect the capabilities of societal functions and that the societal consequences have been analysed.

The purpose of risk and vulnerability analyses is to reduce risks and vulnerabilities, and to strengthen society's emergency preparedness. This work is also intended to increase awareness and knowledge on the part of decision-makers and agency heads in regard to which threats and risks exist in their respective operative areas.

2.3 Terms and definitions

Some of the terms used in the emergency preparedness ordinance and in this guide can be difficult to interpret and to relate to practical analysis tasks. What, for example, is the difference between a vulnerability, threat and risk? The purpose of this guide is to facilitate agencies' efforts. We are therefore providing explanations of the most significant terms.

Exceptional event is an event that deviates from the norm, which entails serious disruptions or impending risks for serious disruptions to critical societal functions, and that requires prompt responses.

Capability in this context refers to the robustness and capacity that is needed to avoid and deal with serious emergencies. This emergency preparedness capability is divided into crisis management capability and the capability in critical societal functions to resist serious disruptions. **Crisis management capability** refers to an organisation's capability during serious disruptions to lead its own operations, to make decisions within its area of operations or responsibility, to quickly distribute correct and reliable information, and when necessary, to be able to co-ordinate with other parties and their actions. **Operative capability** refers to the capability that entities deployed "in the field" need to initiate and conduct the measures required to assist, protect and lessen the effects of that which has occurred as quickly as possible. **The capability in critical societal functions to resist serious disruptions** refers to the capability needed for operations to be conducted at such a level that society – despite a serious disruption – can still function and ensure fundamental service, security and care.

Threat embraces an entity's capacity and intention to conduct destructive actions. It is sometimes referred to as a threat assessment. A threat can even consist of an event or phenomenon that in itself produces danger to something or someone without there being entities with the capacity and intention to cause damage in the context.

Critical dependency is defined as a relationship in which the dependent organisation is quickly and lastingly affected by a substantial decline in function during a reduction or severe disruption in the providing organisation. A condition for the dependency being considered as critical is that the providing organisation cannot be easily replaced

with another organisation. Another condition is that the societal consequences of the dependent organisation's functional reduction becomes sufficiently serious that the current emergency cannot be dealt with in an acceptable manner.

Risk can on a purely technical plane refer to a weighing of the probability that an event will occur and the (negative) consequences that this event can produce. In relation to threats, a risk is to be viewed as a more concrete effect of various occurrences. Climatic changes (threat) can, for example, entail an increased probability for, and greater consequences of, for widespread flooding (risk).

Risk analysis can be described as a systematic method of identifying risks and evaluating them with regard to probability and consequences.

Vulnerability denotes how much and how seriously a society or parts of a society are influenced by an event. The consequences that an entity or society – despite certain capabilities – does not manage to foresee, handle, resist or recover from indicates the degree of vulnerability.

Vulnerability analysis can be described as a systematic method of evaluating and determining vulnerability.

In this guide, we consider **risk and vulnerability analysis** as *a* term in the sense that the analysis is conducted in *a* process and presented in *a* report.

Two terms having significance for the scope of analytic tasks are **area of responsibility** and **critical societal functions**. The terms are difficult to interpret for many agencies. We will therefore devote the next chapter to closer study of critical societal functions from an emergency preparedness perspective and the significance of area of responsibility.

Additional information

- Ordinance on emergency preparedness (2006:942) and heightened state of alert (2006:942).
- Ordinance on governmental agencies' risk management (1995:1300).
- Ordinance on security (1996:633).

3. Agency roles and areas of responsibility

This chapter explores the implications of agencies' areas or responsibility and critical societal functions from an emergency preparedness perspective – and how this influences the scope of work with risk and vulnerability analyses.

3.1 What is covered by a governmental agency's' area of responsibility?

Due to agencies having widely differing societal functions and duties, the needs vary for analyzing threats, risks and vulnerabilities. An agency's area of responsibility influences the scope of the risk and vulnerability analysis. To put it in somewhat simplified terms, a governmental agency's responsibilities related to the requirement to conduct risk and vulnerability analyses can be divided into three categories:

1. **The agency's risk management**. All governmental agencies have a fundamental responsibility to identify and assess threats and risks, including such threats and risks that can seriously degrade capabilities in their own organisations.
2. **Regulatory and supervisory.** Certain agencies have an expanded responsibility due to their entitlement to issue directives and to serve in a supervisorial capacity. Tools for exercising authority in this category include, for example, directives, controls, inspections, permit issuance, and the provision of advice and instructions.
3. **Administration or control of resources.** Certain agencies' responsibilities are in administering or controlling a public sector activity,

resource or function. Operation and administration of infrastructures or installations and storage and distribution of materials are examples of activities within this area of responsibility.

An agency can hold one or more roles that bear on risk and vulnerability work within its area of responsibility. Sometimes these roles coincide; sometimes they are distinctly and organisationally separated from one another.

The three roles tend to overlap, and it is not always evident as to which role a certain resource or function in a governmental agency belongs. In section 3.3, we will take a closer look at the implications of a governmental agency's role and area of responsibility based on these three categories, and what this means in regard to the scope of a risk and vulnerability analysis. However, it is first necessary to clarify the meaning of critical societal functions based on an emergency preparedness perspective.

3.2 Critical societal functions from an emergency preparedness perspective

When a governmental agency's area of responsibility is surveyed, it must be determined if there are functions within its area of responsibility that are critical societal functions from an emergency preparedness perspective. All agencies have duties that are in some way important to society. However, not all agencies' functions can be classified as critical societal functions from an emergency preparedness perspective.

According to the emergency preparedness ordinance, all agencies must take special consideration to maintaining critical societal functions. One way of doing this is to establish fundamental security levels. The ordinance also stipulates that the purpose of risk and vulnerability analyses is to strengthen agencies *and society's* emergency preparedness. The analyses shall thus include such threats, risks and vulnerabilities that can affect societal functions.

A differentiation can be made between what is a critical societal function from a more general perspective and what is a critical societal function from an *emergency preparedness perspective*. A large number of societal functions – both in the public and private sectors – are critical societal functions from a general perspective. In regard to emergency preparedness, certain societal functions are more important than others. These are both the functions that must be operable so that we can avoid serious emergencies, and the functions that are to deal with emergencies once they have occurred. Critical societal functions from an emergency preparedness perspective are functions that fulfil one or both of the following conditions:

1. A shutdown or several disruption in the fuction, single-handledly or in combination with other similar events, can rapidly lead to a serious emergency in society.
2. The societal function is important or essential for responding to an existing serious emergency and minimizing the damage..

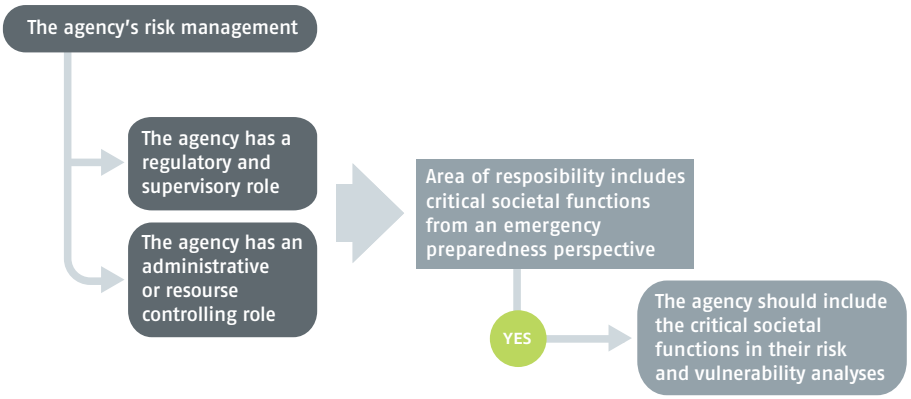
Functions that must be operable for preventative purposes are energy supply, water supply, electronic communications, payment systems and health and medical care. There are also functions that are not especially important for being able to deal with an emergency. Information to the public and co-ordination of emergency tasks must, for example, be operable.

Inversely, if all or parts of a governmental agency's functions become inoperable for one or more weeks without this affecting society's basic capability to function on the short term, they are probably not critical societal functions from an emergency preparedness perspective. Furthermore, if the agency does not have special duties or authorities intended to prevent the occurrence of larger emergencies (for example, through regulatory or supervisory duties), or that are needed to deal with a serious emergency, the agency's functions are most likely not critical societal functions from an emergency preparedness perspective.

EXAMPLE: A museum is charged with the care of irreplaceable collections and with the help of these, to enhance and distribute knowledge and experiences of the cultural heritage, and in doing so, provide a perspective of societal development. A museum's work with security is vital in protecting the collections from theft, fire and damage due to moisture. At first glance, it might seem self-evident that societal functions would not be threatened if a museum was forced to close for a week. However, certain countries – such as Australia, Canada and the US – consider national symbols and buildings and places where many people gather as critical societal functions from an emergency preparedness perspective. In which way can we see corresponding symbolic values in Sweden?
We need to answer questions of this type, to gain clarity as to whether a governmental agency conducts critical societal functions from an emergency preparedness perspective.

3.3 What should a governmental agency's risk and vulnerability analysis embrace?

The interpretation of a governmental agency's area of responsibility and existence of any critical societal function is a process that step by step determines what the agency's risk and vulnerability analysis should embrace.



The scope of a risk and vulnerability analysis is determined by the agency's role and occurrence of critical societal functions within its area of responsibility.

Agency risk management

All agencies shall determine whether threats and risks or vulnerabilities exist that can seriously degrade its operative capability. This entails that the agencies analyse threats and risks that are less probable, but which can produce major consequences for their capabilities to maintain operations. It can concern risks of an internal character such as wide-scale personnel absences and information security-related risks, but can also concern external risks such as disruptions in technical supply systems and antagonistic threats. It is important that the agency considers which of its functions must be constantly maintained because, for example, there are special demands for them being operable.

It is advisable that the agency co-ordinates the analysis of threats, risks and vulnerabilities within its own organisation with other security work (see section 2.1).

EXAMPLE: Regional social insurance offices administer social insurance and are responsible for the majority of societal financial security systems. Approximately one-fourth of private consumption in Sweden originates from social insurance. It is therefore very important that the function is always operable. To be able to maintain operations, both in normal situations and when exceptional events occur, the regional social insurance offices work with several different areas related to internal risk management, for example, information security, physical security, reserve power supply and continuity planning.

Regulatory and supervisory

Agencies that are entitled to issue directives or serve in a supervisory capacity in regard to critical societal functions from an emergency preparedness perspective should include these functions in their risk and vulnerability analyses. This refers to threats, risks and vulnerabilities associated with external functions that are subject to a governmental agency's supervision and control.

EXAMPLE: The Swedish National Board of Health and Welfare's role as a supervisory agency entails that through standardisation, supervision and the conveyance of knowledge, principals and the working population are affected. The Swedish National Board of Health and Welfare has a number of specific duties oriented to principals, professional groups and individuals. In the Swedish National Board of Health and Welfare's role as a regulatory and supervisory body, among other things, the Swedish National Board of Health and Welfare issues directives and general advice, is responsible for supervising health and medical care and its personnel, and is responsible for protection against infectious diseases in the country through supervision.

Is this a critical societal function from an emergency preparedness perspective?

Answer: Yes, functions that are sorted under the the Swedish National Board of Health and Welfare's regulatory and supervisory roles (such as health and medical care) fulfil both criteria for critical societal functions from an emergency preparedness perspective. A loss or serious disruption of functions can solely or together with corresponding events in other functions, quickly lead to a serious societal emergency. The functions are necessary or very important in dealing with a serious emergency that has already occurred so that the resulting damage is as minor as possible.

Administration or control of resources

The governmental agencies that administer or control a public sector resource that is considered as critical for society from an emergency preparedness perspective should include this resource in their risk and vulnerability analyses. It can be a matter of a governmental agency controlling special personnel or material resources, such as those employed in responding to accidents or making repairs. It can also be a matter of the agency serving in an administrative capacity for some form of technical infrastructure.

EXAMPLE: The Swedish National Rail Administration administers the state's railroad facilities, which constitute approximately 80 percent of the railroad network. The Swedish National Rail Administration is also responsible for the approximately 13,000-kilometre long fibre optics cable network. The Swedish National Rail Administration leases a large portion of the network's capacity to various telecom operators, which entails that a certain part of the country's data communications and mobile telephone traffic are via the Swedish National Rail Administration's network.

Is this a critical societal function from an emergency preparedness perspective?

Answer: A requirement for a functioning society is functioning transports, both under ordinary circumstances and to an increasing degree, when society is subjected to exceptional events. Functions sorted under the Swedish National Rail Administration's role fulfil both criteria for critical societal functions from an emergency preparedness perspective.

3.4 County administrative board's role and area of responsibility

The county administrative boards are the only governmental agencies that have a so-called geographic area of responsibility. We can compare the responsibility with the general duties of county administrative boards to co-ordinate various societal interests within the agency's area of responsibility based on a national comprehensive perspective.

An important duty is to support the entities in the county – especially the municipalities – in work with risk and vulnerability analyses. The municipal risk and vulnerability analyses are an important foundation for the county administrative boards' risk and vulnerability analyses, along with the work that the county administrative boards conduct in co-ordination with other entities in their counties.

- County administrative boards are charged with preparing regional risk and vulnerability analyses in accordance with their geographic areas of responsibility on the regional level. County administrative board instructions and the emergency preparedness ordinance regulating geographic area of responsibility. Among other things, it is stipulated that a county administrative board must have a co-ordinating function between local entities and the national level within its geographic area.
- County administrative boards supervise several areas that constitute critical societal functions from an emergency preparedness perspective, for example, municipal fire brigades and social services. County administrative boards are responsible for annual follow-up of emergency preparedness on the local level, reporting the measures taken and presenting an assessment of their effects.
- County administrative boards are responsible for emergency services in the event of the release of radioactive substances (as a result

of, for example, nuclear technology accidents) and may take over responsibility for municipal emergency response operations according to the Civil Protection Act. If a response involves national emergency services, the pertinent county administrative board shall be responsible for co-ordinating the response. County administrative boards also has overall responsibility on the regional level for the protection of animals against infectious diseases according to the epizootiology act.

- By virtue of having special responsibility for emergency preparedness, county administrative boards shall take special consideration to the capability to maintain necessary aspects of critical societal functions and to the security requirements for the technical systems necessary for performing their duties.

Of all governmental agencies, the county administrative boards have the most extensive responsibility in regard to risk and vulnerability analyses.

Additional information

- Ordinance with county administrative board instructions (2002:864).
- Swedish Emergency Management Agency, *Critical to society! An initial proposal for defining critical societal functions from an emergency preparedness perspective* (0253/2005).

4. Identification of threats and risks

Threats and risks that we do not identify cannot be analysed either. Identification is thus very important to the validity and quality of risk and vulnerability analyses. This chapter deals with how identification can be performed, provides examples of various types of supporting information that governmental agencies can use and factors that are especially important to keep in mind.

In security work conducted by many governmental agencies, work deals to a great extent in analysing and taking positions in regard to events that occur relatively often. However, analysis of situations that occur less often but that have much more serious consequences are not conducted to the same extent. Such situations can be difficult to identify in advance.

4.1 Which types of threats and risks should be identified?

Identification is to be based on a governmental agency's area of responsibility. Even if an agency has no roles other than internal risk management, it is important to try to indentify threats and risk within the agency's area of responsibility that other entities are expected to deal with. In a corresponding manner, it is important to include threats and risks beyond the area of responsibility but that can nonetheless affect the agency's function. It is no longer meaningful to draw a distinct line between "internal" and "external" security. Serious

contagion, extreme natural disasters, technical collapses, organised crime and international terrorism are not stopped by administrative boundaries.

The objective of identifying threats and risks can be to:

- increase a governmental agency's knowledge and awareness for the purpose of strengthening its own and society's emergency preparedness.
- find the reasons and conditions that permit an event to escalate into a situation that seriously degrades the capacity for operations in an area.
- discover critical dependencies within and between sectors and geographic areas.

4.2 Information for identification

It is impossible to specify which method should be used when identifying conceivable threats and risks according to the emergency preparedness ordinance. Identification shall, however, be based on well-grounded information.

This information can consist of domestic or international examples jointly produced by several different governmental agencies. Learning activities such as training and use of simulation models, as well from experiences from previous emergencies, provide important knowledge that should be of assistance in working with risk and vulnerability analyses. Supervision and control, and surveying of critical societal functions can be worthwhile means of obtaining information. Work with associated legislation can also contribute to identification of conceivable threats and risks.

The following is a description of how various information can be used in identifying threats and risks within areas of responsibility.

Supervision and control

In cases in which a governmental agency conducts some form of control or supervision, the results of this constitute a natural base of knowledge for inventorying threats and risks. County administrative boards, for example, supervise municipal fire and rescue service in accordance with the Civil Protection Act, and follow up municipalities' work with emergency preparedness. The National Food Administra-

tion conducts inspections to protect the supply of drinking water. The National Board of Health and Welfare exercises supportive and investigative supervision of health and medical care.

Supervisory activities can also reveal conditions that have entailed or can entail security shortcomings. This can result in injunctions or warnings that lead to improved security and that consequently change applied practices. Governmental agencies should document this; see chapter 7 for more information about needs for taking measures.

Lessons from past emergencies

Lessons drawn from past emergencies are important sources of knowledge for strengthening societal security and improving emergency preparedness, regardless of if one's own agency has been involved or not. Regardless of whether Sweden or another country was affected and regardless of emergency type, past emergencies can contribute to identifying threats, risks and vulnerabilities. Governmental agencies with special responsibility for emergency preparedness in accordance with section 11 of the emergency preparedness ordinance are required to take special consideration to the need for experience feedback from past emergencies.

In all public and private organisations, the importance should be emphasised of systematically utilising experiences from past emergencies as a way of strengthening security and emergency preparedness. Investigations and assessments that are conducted after emergencies have occurred can result in recommendations for changed routines, improved equipment or other measures that can increase security. The results can also entail changed legislation or changed agency directives.

Training activities and simulation models

Training activities conducted by governmental agencies should have a clear connection to work with risk and vulnerability analyses. Training exercises, and the lessons that an agency draws from them, are important sources of information in revealing threats, risks and vulnerabilities. Inversely, training activities can test and elaborate analysed situations. Alarm exercises, staff exercises, decision-making exercises and co-ordination exercises are four types of exercises that can all be used to gain supporting information in indentifying threats and risks.

An alarm exercise (also referred to as an alert exercise or system exercise) is primarily intended to train emergency preparedness organisations in quickly activating and staffing their organisations.

Staff exercises are intended to improve the capability to work with internal preparatory, staff and information routines so as to create a common perception of situations and to suggest decision-making data.

A decision-making exercise is primarily used to practice use of the decision-making process within an organisation, meaning the capability to make prompt and clear decisions, to make decisions when working against the clock and to initiate co-ordination between those in charge and other concerned parties.

In a co-ordination exercise, training is primarily in collaboration through co-ordination. Co-ordination exercises can be conducted for entities with geographic areas of responsibility, and within and between co-ordinating areas. Co-ordination exercises can also be conducted in smaller formats, within or between a few governmental agencies.

Suitably prepared exercises with the concerned parties in various areas can provide experience that leads to reassessment of fundamental security levels in an activity. See chapter 7 for how governmental agencies should report needs for measures in risk and vulnerability analyses. Training activities contribute to a high degree in developing concerned parties' capabilities to deal with emergencies. For more information on capability assessment, see chapter 6.

Governmental agencies sometimes use data-based simulation models for technical systems for the purpose of revealing the effects on entire systems that can be caused by the a loss of certain system components. Simulation models are often an effective means of identifying risks in technical systems.

Surveying critical societal functions and critical dependencies

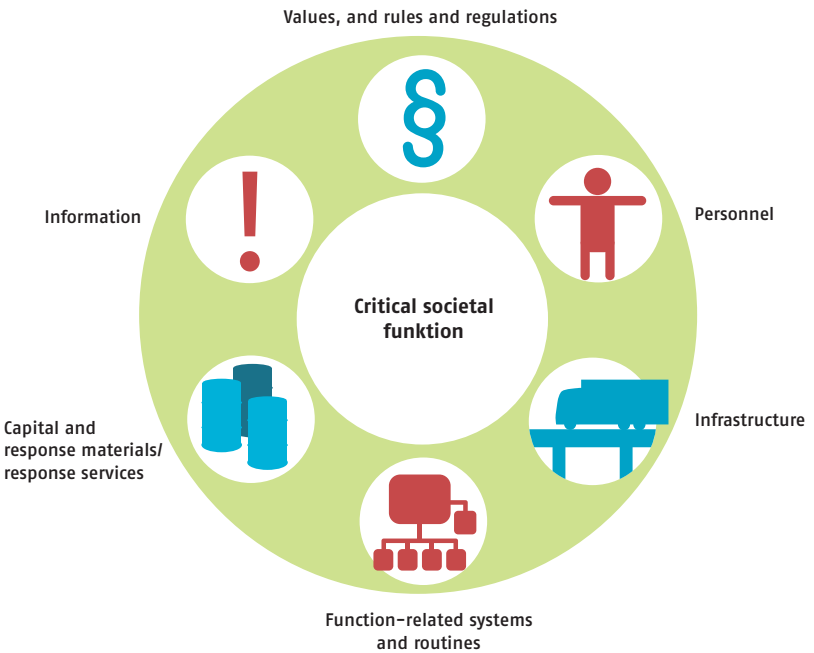
In section 3.2, we addressed the issue of whether there are functions within a governmental agency's area of responsibility that are critical to society from an emergency preparedness perspective.

Sometimes the identification of critical societal functions from an emergency preparedness perspective is intuitive. At other times, one is interested in determining if critical societal functions occur within a sector or geographic area, and if so, which sector or area. In these cases, special surveying is necessary. Attention is then focused on facilities and functions that are especially important to protect from threats and risks. Consequently, an aspect of risk and vulnerability analyses can also be to inventory the occurrence of critical societal

functions from an emergency preparedness perspective and to establish in advance, the fundamental security levels within a governmental agency's area of responsibility.

When surveying one's "system", it is important that dependency conditions are not overlooked. Dependency in this context refers to a relationship between two functions – a dependent function and a providing function – which are characterised by one or both functions requiring access to the products or services that the other produces to be operable.

In most cases, however, disruptions that influence the dependency are elements of irritation rather than societal risks. An interruption to the supply of electricity for an hour or so has few lasting effects. An interruption of a few hours in stock market trade cannot be considered as critical from a societal perspective either. The dependencies that are primarily of interest to identify and analyse from an emergency preparedness perspective are those that can lead to more extensive consequences.



The "requirements wheel" is a tool that can be used to concretise a function's requirements and to identify to what degree – and in which way – these satisfy external functions.

Infrastructure refers to a general system that is "publically" accessible and that can be used by a function without any greater special adap-

tations. This concerns, for example, power grids, telecom networks, road networks and utilities provided by the municipalities. *Capital*, *response materials* and *response services* refer to access to working and investment capital, and the physical goods and services that a function consumes or requires to conduct its operations. *Information* refers to such information that is important for a function's operations – both externally and internally. *Values* and *rules and regulations* refers to such information that is important for a function's operations – both externally and internally. Needs for skilled *personnel*, including key personnel, to a sufficient degree that the function can be kept in an operable state. *Function-related systems and routines* refers to systems and routines that a function needs and controls. This primarily concerns systems that are especially adapted to a specific function, for example, control and regulation systems or certain administrative systems.

Risk management tasks as stipulated by other legislation

Governmental agencies are obligated to conduct various types of analyses that are all important elements of security work. Knowledge from, for example, work with risk management according to the ordinance on governmental agencies' risk management (1995:1300), and security analyses according to the ordinance on security (1996:633) can contribute to the identification of threats and risks in accordance with the emergency preparedness ordinance. See section 2.1 for more information about how risk and vulnerability analyses relate to governmental agencies' work with security in a wider perspective.

Importance of continual open-source intelligence

The European integration and developments in our region have strengthened Sweden's security. At the same time, there are several potential threats to our security. Regional armed conflicts, terrorism and the occurrence of weapons of mass destruction threaten international security and can subsequently threaten Sweden's security.

The emergency preparedness ordinance stipulates that governmental agencies shall also take consideration as to whether there are threats or risks that can develop into a situation that

can seriously degrade operative capabilities. It is therefore important to always maintain a sense of openness to what can develop into a threat in the future and to prepare for the unexpected. Many agencies conduct some form of open source intelligence. SEMA regularly issues a publication on current threats and risks. The threat and risk report is a way for SEMA to distribute information through open source intelligence.

In section 18 of the emergency preparedness ordinance, it is stipulated that certain governmental agencies also have a special responsibility prior to and during heightened states of alert. These agencies shall conduct open source intelligence and risk and vulnerability analyses, as well as the development tasks needed for the agencies to handle their duties during heightened states of alert.

Additional information

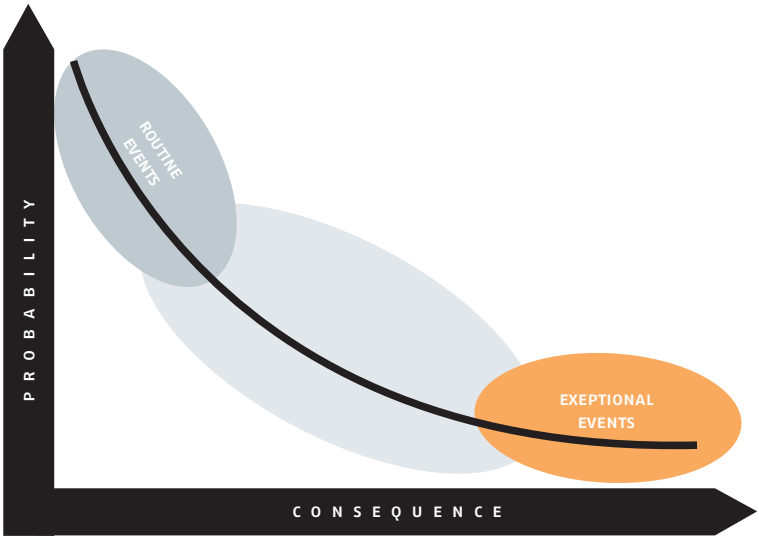
- Abrahamsson, Marcus & Magnusson, Sven Erik, *Risk- och Sårbarhetsanalyser – utgångspunkter för fortsatt arbete* (SEMA's research series no. 2, 2004).
- Swedish Emergency Management Agency, *Så vill vi utveckla övningsverksamheten – en strategi för utveckling av generell krishanteringsförmåga i samhället* (SEMA recommends 2006:3).
- Swedish Emergency Management Agency, *Hot- och riskrapport 2006* (SEMA's theme series 2006:7).
- Swedish Emergency Management Agency, *Hot- och riskrapport 2005* (SEMA's theme series 2005:11).
- Swedish Emergency Management Agency, *Hot- och riskrapport 2004* (SEMA's theme series 2004:6).
- Swedish Emergency Management Agency, *Omvärldsexempel 2005* (0280/2005).
- Swedish Emergency Management Agency, *Metod för kommunikationssäkerhetsanalys* (1054/2007).
- Swedish Emergency Management Agency, *Basnivå för informationssäkerhet* (SEMA recommends 2006:1).
- Swedish Rescue Services Agency, *Handbok för riskanalys* (2003).

5. Evaluation of threats and risks

Once a governmental agency has identified threats and risks within its area of responsibility, the next step is to assess the probability of them occurring and the negative consequences that they can produce. Evaluating threats and risks entails taking a position as to how they relate to one another. This can be achieved by using a matrix.

Characteristic of situations that shall be analysed in accordance with the emergency preparedness ordinance are such states that entail serious disruptions to critical societal functions and that require a coordination of responses from several different governmental agencies and organs to be able to deal with these situations and therewith limit the consequences.

Exceptional events seldom occur. It therefore suffices to conduct a general assessment of how probable that an event will occur. The focus should instead by on analysing the consequences and assessing whether capabilities are sufficient for dealing with the consequences.



Exceptional events seldom occur, but produce very serious consequences. The range between routine events and exceptional events illustrates the fact that it is often difficult to define in advance, just what an exceptional event is.

5.1 Assessment of probabilities

How probable is it that the situations that are attributable to identified threats and risks will occur? An agency can assess this frequency by calculating or estimating probability in different ways. To put it in somewhat simple terms, it can be said that two main principles can be discerned in probability assessment:

- **Quantitative assessments.** In cases in which they appear, empirical estimates (based on, for example, statistical material) constitute a recognized basis for assessment of probability. The probability of, for example. an accident with dangerous goods occurring logically increases with the number of transports.
- **Qualitative assessments.** In many cases, expert assessments must be used to estimate probability, either to complement empirical data or as the sole relevant source. Probability is assessed based on the subjective estimates of persons with good knowledge of the pertinent conditions.

The probability of an exceptional event occurring can be assessed on the short, medium or long term. Short term in this context is considered as two years; medium term, two to four years; and long term extends up to fifteen years into the future. An estimate's degree of accuracy tends to decrease with increased time perspectives. A period of one or two years is sometimes far too short to permit measures to be taken. There is thus reason to primarily assess probability on the medium term (perspective of two to four years).

An example of a very simple scale based on a qualitative description of probability is presented in the following figure.

Level	Description of probability on medium term
1	Very low probability
2	Low probability
3	Medium probability
4	High probability
5	Very high probability

5.2 Assessment of consequences

We deal with emergencies – besides by preventing imminent chains of events – by responding to their consequences as we encounter them. Assessing consequences concerns anticipating the direct and indirect (negative) effects that can arise based on certain given conditions.

In some cases, it is possible to relate an assessment of consequences to established classification systems. This enables more objective risk and vulnerability analyses. The INES (International Nuclear Event Scale) used in reporting nuclear power incidents is an example of such a classification system. Another example is the power utilities' guidelines for dam safety (RIDAS). RIDAS takes consideration to risks for loss of human life or serious injuries, and the social, environmental and economic values that can be lost when a dam breaks. In many areas, there are thus established classification systems that can be advantageous to utilise as points of departure.

Based on the general objectives for Sweden's security (see chapter 2), a situation's consequences can endanger human life and health,

threaten fundamental values and damage societal functions. This can subsequently lead to an undermining of the democratic society.

Depending on a governmental agency's area of responsibility, it can be relevant to assess the consequences in relation to other types of values than those above, for example, environmental care, animal life and and health, and economic values. Each agency should therefore, based on its area of responsibility, attempt to identify the types of values that an exceptional event might endanger. What is important is that there is a clear connection between the consequences and what is worth protecting within an agency's area of responsibility.

For certain governmental agencies, it suffices with qualitative descriptions, while other will need quantitative consequences in regard to, for example, number, scope or size. A proposal is provided below for how such a classification and description can be formulated.

Level	Conse-quences	Description
1	Very limited	Minor direct health effects, very limited disruptions to societal functionality, passing distrust of single societal institution.
2	Limited	Moderate direct health effects, limited disruptions to societal functionality, passing distrust of several societal institutions.
3	Serious	Significant direct or moderate indirect health effects, serious disruptions to societal functionality, enduring distrust of several societal institutions or changed behaviour.
4	Very serious	Major direct or significant indirect health effects, very serious disruptions to societal functionality, enduring distrust of several societal institutions or changed behaviour.
5	Catastrophic	Catastrophic direct or major indirect health effects, extreme disruptions to societal functionality, firmly rooted distrust of societal institutions and general instability.

Three general objectives are used here for Sweden's security to exemplify how different types of consequences can be described.

Life and health of the population

The life and health of the population should be protected against threats and risks as much as possible. We can describe the consequences for the life and health of the population in terms of direct health effects (number of people affected, injured, dead, psychological effects) and indirect health effects due to excessive burdens on health and medical care.

Societal functionality

The consequences for societal functionality can be described in terms of inability to provide welfare. Disruptions to transports, disruptions to the financial systems, disruptions to the supply of food, electricity or fuel, and disruptions to electronic communications are examples of situations that in one way or the other, threaten societal functionality. These situations can escalate to even threaten fundamental values.

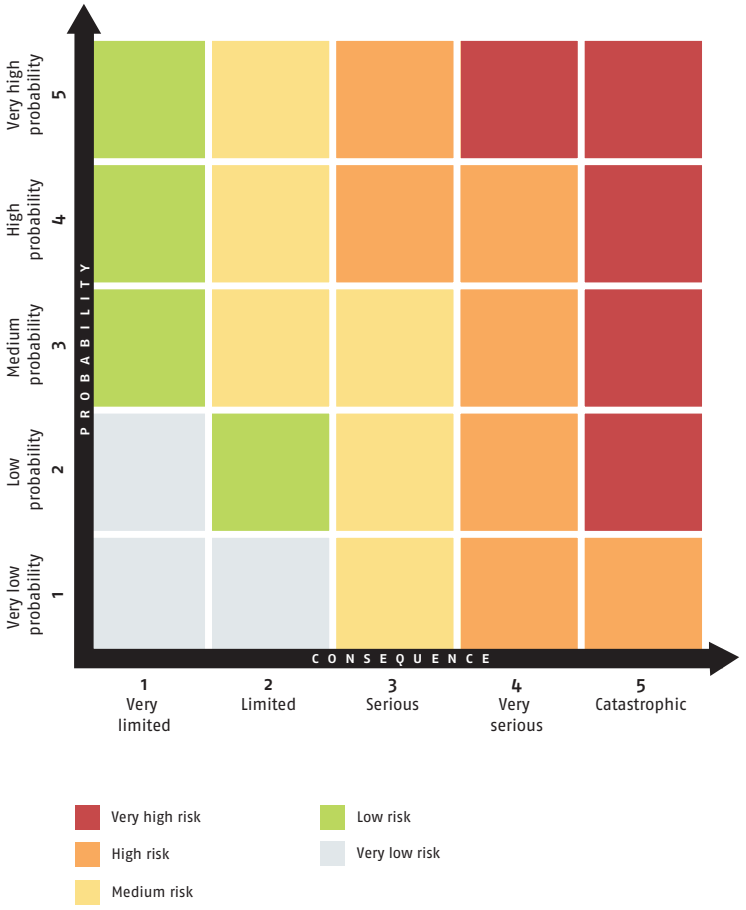
Fundamental values

Fundamental values to a large extent concern the public's trust in society's institutions. We can describe the consequences for fundamental values in terms of general instability in society due to uneasiness or fear. It can concern changed or irrational behaviour (changed transport usage, absences from work, spreading of rumours, stockpiling).

5.3 Evaluation of threats and risks

Evaluation is intended to rank the threats and risks that have been assessed based on probability and consequence. Evaluation and categorisation can be conducted in different ways and with different methods. To make an evaluation more surveyable,we use classes in which we assess probability on a scale from one (very low probability) to five (very high probability). We assess the consequences in a corresponding manner, from very limited to catastrophic consequences.

By presenting the results in a matrix, we show how risks relate to one another in an easy-to-grasp manner. This facilitates matters for other entities in easily utilising the results of a governmental agency's evaluation.



Additional information

- Abrahamsson, Marcus & Magnusson, Sven Erik, *Risk- och Sårbarhetsanalyser – utgångspunkter för fortsatt arbete* (SEMA's research series no. 2, 2004).
- Swedish Rescue Services Agency, *Handbok för riskanalys* (2003).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6. Capability assessment and analysis of vulnerability

It is only after an agency has assessed its capability to deal with exceptional events that it can fully determine the consequences and express the grade of vulnerability. That an agency assesses its capability is thus a central aspect in a risk and vulnerability analysis. By taking measures to improve its capability, an agency can consequently contribute to reducing society's degree of vulnerability. We must be able to deal with many different types of emergencies. The objective is to attain good, general emergency preparedness capabilities.

To obtain a good perception of general emergency preparedness capabilities, capabilities should by analysed in relation to all threats and risks that are evaluated. Depending on a governmental agency's role and area of responsibility (see chapter 3), it may be necessary for the agency to assess capabilities within the sector or geographic area. Governmental agencies with special responsibilities for emergency preparedness in accordance with section 11 of the emergency preparedness ordinance shall plan and make preparations to create the capabilities necessary to deal with exceptional events, to prevent vulnerabilities and to stand against threats and risks.

SEMA is required to present society's collected capability to deal with exceptional events. SEMA therefore requests information on an annual basis from governmental agencies with special responsibilities for emergency preparedness for such an assessment. The agencies also report their capabilities in risk and vulnerability analyses to the Swedish Government Offices and SEMA.

The reason that they must for the time be handled in separate reports is that SEMA lacks regulatory rights within the area. SEMA encourages, however, governmental agencies with special responsibilities for emergency preparedness to include the scenarios that are in the request concerning capability assessment in their risk and vulnerability analyses.

6.1 Three components of emergency preparedness

The capability that is needed to avoid and deal with serious societal emergencies – emergency preparedness capability – consists of three components:

- crisis management capability.
- operative capability.
- capability to resist serious disruptions in critical societal functions.

In risk and vulnerability analyses, governmental agencies should assess these three capabilities for all identified risks. Depending on an agency's role and area of responsibility, the importance of the different three capabilities can vary. All governmental agencies are expected, for example, to have an operative capability.

How is an agency's emergency preparedness capability assessed? The systematic use of indicators in capability assessment provides better knowledge of which factors are to be considered. This also makes it easier to compare agencies' capability assessments with one another and over time. Which indicators are relevant vary both between agencies and from scenario to scenario.

The indicators for the respective capabilities that are described below are general and assessed to be applicable for the majority of governmental agencies. For certain agencies, it can be necessary to further break down or complement the indicators to more agency-adapted criteria.

EXAMPLE: The Swedish National Board of Health and Welfare has developed a tool for assessing capabilities in the field of disaster medicine. As a point of departure, the Swedish National Board of Health and Welfare uses a care chain that

describes the different elements that are necessary in caring for the injured and for distributing information during an emergency. The most important links in the chain are care at the incident site, transport of the injured, reception at emergency wards, capacity of operation wards and access to beds at intensive care wards, but also that there are functioning management functions at the various levels and functioning internal and external information.

The Swedish National Board of Health and Welfare considers the following indicators to be relevant in assessing capabilities in the field of disaster medicine:

- Alarming
- Mobilisation of supporting resources – decision
- Mobilisation of supporting resources – availability
- Care at incident site
- Ambulance medical care and transports
- Operations and intensive care
- Care of lightly injured
- Psychological/psychiatric care
- Information

Crisis management capability

There shall be a good capability within the area of responsibility during serious disruptions so that an agency can lead its own operations, make decisions within its area of operations or responsibility, quickly distribute correct and reliable information, and when necessary, be able to co-ordinate with other entities and their measures. Crisis management capability thus concerns the capability to lead, co-ordinate and inform of the measures that society takes in dealing with serious emergencies. Crisis management capability also includes preparatory elements. Knowledge build-up is therefore important to good crisis management capability.

General indicators for crisis management capability fall within the frameworks of the following areas: lead, co-ordinate and inform; alert; opens source intelligence; rules and regulations; and practical experience.

Indicators

Lead, co-ordinate and inform

- There is a current crisis management plan that is familiar to members of the organisation.
- There is a crisis management organisation that is trained and regularly conducts exercises.
- Crisis management has necessary resources in the form of premises, technical systems for, among other things, communications and situational profiles, at it's disposal and can operate around the clock for at least one week.
- There is a network for co-ordination, and co-ordination exercise are regularly conducted.
- There are routines and technical support for information to the public and media, and for internal information.

Alert

- There are practiced alert routines.
- Fully trained management personnel are always on call and prepared for duty.

Open source intelligence

- There is open source intelligence that can provide early warnings of serious emergencies.
- There are routines and technical support for quickly spreading information within the agency and to other entities.

Rules and regulations

- There are legal grounds for how the agency (sector) is to deal with the situation.
- There are guidelines and policies for how the agency (sector) is to deal with the situation.
- There are agreements that apply during the situation.
- The distribution of authority between agencies has been determined.

Practical experience

- An experienced, actual incident had similarities with the analysed situation.
- A conducted exercise had similarities with the analysed situation.

Operative capability

There shall be good capability within the area of responsibility to initiate measures as quickly as possible to deal with or to contribute to dealing with the consequences of occurred emergencies, and to conduct the measures necessary to assist, protect and to lessen the effects of that which has occurred. The agencies and sectors that are to prevent and deal with an emergency, and those that are to prevent and deal with an emergency's other societal consequences shall have an operative capability.

General indicators of operative capability are within the following areas: lead, co-ordinate and inform; alert; material resources; personnel resources; rules and regulations; and practical experience.

Indicators

Lead, co-ordinate and inform

- There is a is fully trained management organisation that can lead operative responses.
- The management organisation has necessary resources in the form of premises, technical systems for, among other things, communications and situational profiles, at it's disposal and can operate around the clock for at least one week.
- There are routines and technical support for information to the public and media, and for internal information.

Material resources

- There are material resources available soon after a situation has occurred.
- There are material resources for at least one week.
- There is a capability to reallocate internal material resources, and a capability to receive external supplementary material resources.

Personnel resources

- There are fully trained personnel resources available soon after a situation has occurred.
- The personnel resources can operate for at least one week.
- There is a capability to reallocate personnel resources within the agency (sector), and to receive external supplementary personnel resources.

Rules and regulations

- There are legal grounds for how the agency (sector) is to deal with the situation.
- There are guidelines and policies for how the agency (sector) is to deal with the situation.
- There are agreements that apply during the situation.
- The distribution of authority between agencies has been determined.

Practical experience

- An experienced, actual incident had similarities with the analysed situation.
- A conducted exercise had similarities with the analysed situation.

CAPABILITY TO RESIST SERIOUS DISRUPTIONS IN CRITICAL SOCIETAL FUNCTIONS

There shall be good capability within the area of responsibility to stand against serious disruptions so that operations can be conducted at such a level that society can still function and ensure fundamental service, security and care if serious disruptions should occur. This entails that the agency and sector are charged with dealing with any of the emergency's consequences relating to own operations, especially those parts that can be described as critical to society from an emergency preparedness perspective (see section 3.2 for more information).

General indicators of capability in a critical societal function to stand against serious disturbances are fundamental security level; redundancy and robustness in communications systems; backup power; ability to move the critical societal function to another location; material resources; personnel resources; rules and regulations; and practical experience.

Indicators

Basic levels of security

- There are minimum levels for what the function shall be able to deliver.

Redundancy and robustness in communications systems

- Information technology.
- Telephony.
- Radio connection.

Back-up power

- Tested back-up power is available that can remain operative for at least one week.

Ability to moved the critical societal function to another location

Material resources

- There are material resources available soon after a situation has occurred.
- There are material resources for at least one week.
- There is a capability to reallocate internal material resources, and a capability to receive external supplementary material resources.

Personnel resources

- There are fully trained personnel resources available soon after a situation has occurred.
- The personnel resources can operate for at least one week.
- There is a capability to reallocate personnel resources within the agency (sector), and to receive external supplementary personnel resources.

Rules and regulations

- There are legal grounds for how the agency (sector) is to deal with the situation.
- There are guidelines and policies for how the agency (sector) is to deal with the situation.
- There are agreements that apply during the situation.
- The distribution of authority between agencies has been determined.

Practical experience

- An experienced, actual incident had similarities with the analysed situation.
- A conducted exercise had similarities with the analysed situation.

6.2 Capability assessment scale

When relevant indicators have been selected for a particular situation, the next step is to "rate" the capability. An assessment shall be conducted for one, two or all three capability types, depending on the agency's role and area of responsibility (see above). SEMA uses the resulting data to be able to compile a comprehensive picture of how capabilities can be developed within various areas from year to year, to make comparisons between different agencies and sectors, and to weigh together the various agencies' assessments into a collective assessment of society's capability. The assessment scale consists of four steps:

Level	Description of capability
1	Capability is good
2	Capability is primarily good, but has certain deficiencies
3	There is a certain capability, but it is insufficient
4	There is no or very insufficient capability

An assessment that the capability is **good** does not entail that an emergency passes unnoticed, but rather that the agency (and sector) is assessed to have resources and the capacity to be able to resolve the issues that are critical to society during an emergency.

That the capability **is primarily good but has certain deficiencies** means that societal service to a certain degree is put aside to prioritise a more acute function. This can, for example, concern certain operations at hospitals being cancelled or that transports of persons and goods are significantly delayed. The agency (and sector) does not have sufficient resources to perform its duties in a satisfactory manner. For those affected, it is perceived that society is not fulfilling its duties.

Insufficient capability can, for example, entail that transports of persons and goods are cancelled, that the public is subjected to noticeable financial losses or that some form of rationing is implemented. The agency's (and the sector's) resources are considerably less that what is needed to resolve the issues that are critical to society during an emergency.

That there is no capability, or that there is **very insufficient** capability, means that society is virtually unprepared.

Be sure to clearly indicate what the assessment is based on. If the situation that the capability is assessed against has occurred recently, the assessment's validity is very high. Realistic exercises also provide a good perception of actual capability. A solely theoretically analysed capability has somewhat lower validity. If the capability is only estimated without empirical or analytical data, the assessment has low validity.

Additional information

- Swedish Emergency Management Agency, *Indikatorer på krisberedskapsförmåga – Slutredovisning av uppdrag i Krisberedskapsmyndighetens regleringsbrev för år 2007* (0433/2007).
- Swedish Emergency Management Agency, *Utvecklad förmågebedömning – Slutredovisning av uppdrag i Krisberedskapsmyndighetens regleringsbrev för år 2006* (0206/2006).
- Swedish Emergency Management Agency, *Samhällets krisberedskap – förmåga 2006/2007* (Planning process 2007:3).
- Swedish Emergency Management Agency, *Samhällets beredskap – förmåga och genomförd verksamhet 2005* (Planning process 2006:1).
- Swedish National Board of Health and Welfare, *Förmågeanalys för det katastrofmedicinska området – rekommendationer för hälso- och sjukvårdens planering* (2006).

7. Measure needs and reporting

Results and reporting are just as important as the analytical process. Well-functioning emergency preparedness must be built up and continually maintained for preventive and preparatory purposes through rules, methods, entities and technology being in place and configured in an effective and appropriate manner.

This chapter covers analysis results in the sense of measures taken and indentified needs for measures. The chapter also addresses reporting and information in conjunction with the yearly report.

The results of a conducted risk and vulnerability analysis primarily constitute a tool for governmental agencies' own emergency preparedness work. It is advisable that agencies conduct a follow-up in conjunction with ordinary activity planning. Moreover, it is important that the government, SEMA and others that can be affected gain knowledge of agencies' results. Not the least, this is because it is advantageous that the chain of reasoning – from identification of threats and risks to proposals for measures that can reduce vulnerability – can be clearly followed in a report.

7.1 Which measures need to be taken?

Based on identified and evaluated threats and risks, and the results of capability assessments, there will often be needs to take measures to strengthen an agency's and society's emergency preparedness. A governmental agency's planned measures and an assessment of the need

for further measures (that you or someone else should take) shall be indicated in the report. Proposals shall concern such measures that are intended to either prevent one or more of the analysed situations, or to reduce the consequences of them (for example, by strengthen emergency preparedness capacity).

SEMA recommends that all governmental agencies categorise measures as follows. The categorisation simplifies matters for various target groups in quickly seeing which measures concern them.

1. **Rules and regulations:** Measures that concern reviewing and adapting laws, rules and agreements that regulate and influence the capability to operate effectively during an emergency.
2. **Methods and ways of working:** Measures that are intended to develop and implement methods and routines that make operations secure and robust, and that lead to an agency effectively and appropriately being able to lead, co-ordinate, co-operate and inform during an emergency.
3. **Actors:** Measures that are intended to establish and maintain knowledge and skills through, for example, training and exercises.
4. **Technology and infrastructure:** Measures that are intended to develop and invest in technology that makes critical societal functions robust and guarantees optimal technical support in crisis management.

7.2 How are measures financed?

Emergency preparedness is based on there being fundamental security and robustness in society. Fundamental security is financed by the actor that is responsible for a function. This can be anything from industry and associations to municipalities, county councils and governmental agencies that are responsible for a function.

Critical societal functions from an emergency preparedness perspective must also be possible to be handled and to function during events. Special state funds are allocated for building up this strengthened capacity. The state funds are handled in the planning process for emergency preparedness that SEMA is responsible for administering.

For governmental agencies with special responsibilities for emergency preparedness, there is reason to co-ordinate the needs for measures that arise from risk and vulnerability work with data for the planning process for emergency preparedness. It is impossible to

entirely merge these processes due to the planning process being coupled to special financing principles, and the measures that are identified in risk and vulnerability analyses can be of the type that are to be financed in another manner (usually by the entity responsible for operations). The requests for funds received by SEMA in the planning process shall as a rule, be based on the needs for measures that have been identified in the agency's risk and vulnerability analyses.

7.3 Yearly report to the Swedish Government Offices and SEMA

According to the emergency preparedness ordinance, a report based on the risk and vulnerability analysis shall be submitted to the Swedish Government Offices (the department that the agency belongs to) with a copy to SEMA. The report shall be submitted at the same point in time as the annual financial report. The ordinance places special emphasis on the report including the agency's planned measures and assessment of needs for additional measures.

SEMA recommends that all agencies use the structure presented in the appendix of this guide when preparing reports based on the analysis. Uniform reporting greatly facilitates the preparation of comprehensive analyses and compilations.

The Swedish Government Offices and SEMA use the analyses in several different contexts The government needs to know if their are significant deficiencies in society's collected emergency preparedness. The government is also interested in gaining knowledge concerning deficient capabilities and significant barriers that make it difficult for individual agencies to perform their duties. It is in such cases a matter that is subject to the government's assessment of any changed prioritisations. SEMA uses risk and vulnerability analyses, for among other things, as supporting materials for assessment of society's capability to deal with exceptional events, for compilation of threats and risks in society and for focusing emergency preparedness.

7.4 Informing concerned entities of the results

Besides the Swedish Government Offices and SEMA, there are other entities that are affected by your results. For this reason, clearly document the agency's needs for co-ordination in the report. These entities

should naturally be provided with information from your report. More than fifty agencies have augmented demands on information dispersal and co-ordination:

- **Governmental agencies with special responsibilities for emergency preparedness** according to section 11 of the emergency preparedness ordinance shall, among other things, co-ordinate with the county administrative boards in their role as agencies with geographic areas or responsibility. A risk and vulnerability analysis from agencies with special responsibilities for emergency preparedness should therefore include information about regional variations in regard to vulnerabilities, threats and risks.
- **A county administrative board** has a special role as a co-ordinating function between local entities and the national level. It is therefore natural that county administrative boards present their analysis results to, for example, municipalities, county councils and trade and industry within the respective counties.

The county administrative boards need planning prerequisites from agencies on the national level so that the county administrative boards and municipalities will be able to assess a given situation's consequences for their own county. Information is especially important in areas where there are no natural contact points on the regional level, or where private-public co-ordination only occurs on the national level.

7.5 Considering needs for confidentiality

The basic rule in Sweden is that public documents shall be accessible. The information in governmental agencies' risk and vulnerability analyses may, however, be classified as confidential. According to chapter 5, section 8 of the Official Secrets Act (1980:100), confidentiality applies to this type of information if "the public sector's capabilities to prevent and deal with peacetime emergencies would be compromised if the information is revealed". The information could be used for criminal activities, such as burglaries, fraud, malicious damage, sabotage or acts of terrorism. It could thus lead to security in society decreasing and the purpose of the risk and vulnerability analyses being counteracted if sensitive information was revealed.

Each agency must weigh openness against confidentiality. To facilitate co-ordination it can be appropriate that agencies report especially sensitive information in a separate appendix.

If an agency provides information that is subject to chapter 5, section 8 of the Official Secrets Act (1980:100) to another agency, the receiving agency shall also observe the rules for confidentiality. Governmental agencies may even need to release information that is subject to confidentiality according to, for example, rules regarding associations and concerned business enterprises. Such release can be conducted with restrictions and penal liability according to chapter 14, section 9 of the Official Secrets Act.

Additional information

- Official Secrets Act (1980:100).
- Swedish Emergency Management Agency, *Hemligt? Krisberedskap och sekretess – informationsdelning mellan företag och offentlig sektor* (SEMA's training series 2007:3).
- Swedish Emergency Management Agency, *Samhällets krisberedskap – förmåga 2006/2007* (Planning process 2007:3).
- Swedish Emergency Management Agency, *Samhällets beredskap – förmåga och genomförd verksamhet 2005* (Planning process 2006:1).

Appendix on structure and content of yearly reports

In order for risk and vulnerability analyses to be fully utilised as information for focus and prioritisation, they must be presented in a uniform manner. SEMA therefore recommends that all governmental agencies use the reporting structure below in preparing yearly reports based on the analyses.

1. Comprehensive assessment

The report should begin with a chapter – Comprehensive assessment – with collected observations on how work was conducted. The chapter serves as a summary with the most important conclusions of the analysis results. Here the reader should be able to quickly gain a perception of the biggest threats and risks within the agency's area of responsibility, which capability the agency has to deal with them (and the degree of vulnerability) and which measures are planned.

2. Undertaking and limitations

The next chapter – Undertaking and limitation – shall include a description of how the undertaking has been conducted. Chapter 2 of this guide provides the background to the undertaking. Give special attention to the following:

- Describe the work method that the agency has used. Does it primarily concern qualitative or quantitative studies?
- Which bases of information has the agency used (for example, books, reports, open source intelligence, exercises, past events, seminars, statistics and interviews)?
- Specify any limitations. The yearly report might not encompass an analysis of all threats and risk within the area of responsibility – specify the selection principles and prioritisation.

- Which disciplines have been involved in the process? Has the agency conducted the analysis in collaboration with external entities (other governmental agencies, municipalities, county councils, associations or business enterprises)?
- How does the agency disperse knowledge and reports? Take special consideration to any confidentiality aspects. See section 7.4 in this guide for more information about the significance of notifying concerned parties of the results. Section 7.5 is about confidentiality.

3. Role and area of responsibility

A determining factor is that the agency clearly describes its role and area of responsibility. Chapter 3 of this guide deals with this. "The system" – in this case the structure of the sector or county – must be clearly described, especially in regard to what should be protected. Give special attention to the following:

- The occurrence of critical societal functions from an emergency preparedness perspective within the area or responsibility.
- The limits of the area of responsibility in relation to other entities. Who does what?
- Include private actors in the area of responsibility description.

4. Overview of threats and risks

Before the various analysed situations are described, it is worthwhile with a general review of the threats and risk that are within the area of responsibility. Give special attention to the following:

- Has the agency's own or other entities' open source intelligence within the area or responsibility identified trends or changes in other parts of the world that are of significance to emergency preparedness? See page 30 for the importance of continual open source intelligence.
- Which events have actually occurred within the area of responsibility during the year and what is their significance for the agency?
- Which threats and risks has the agency identified within its area of responsibility? See chapter 4 of this guide for more information on this subject.

5. Analysed situations

This chapter should be divided into sections for each analysed section, for example *Pandemic influenza* or *Substantial releases of chemical substances*. Chapter 5 of this guide deals with evaluation of threats and risks. See chapter 6 for more information about capability assessment and vulnerability analysis. Give special attention to the following:

- Each situation shall be thoroughly analysed with probability and consequence descriptions. Be sure to refer to that which should be protected within the agency's area of responsibility when the consequences are described.
- Any critical dependencies and fundamental security levels should be emphasised.
- The capability to deal with the respective situations is constituted by crisis management capability, operative capability and the capability in critical societal functions to resist serious disruptions. It is advisable to use the indicators as guides. See section 6.3 on how capabilities are "rated".
- Planned measures and needs for additional efforts are reported according to categorisation by rules and regulations, methods and ways of working, entities, and technology and infrastructure. Proposals for measures shall refer to such proposals that are intended to either prevent one or more of the analysed situations, or to reduce the consequences of them (for example, by strengthen emergency preparedness capacity). See section 7.1 for more information about this. Try to detect any needs for resource reinforcement.

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