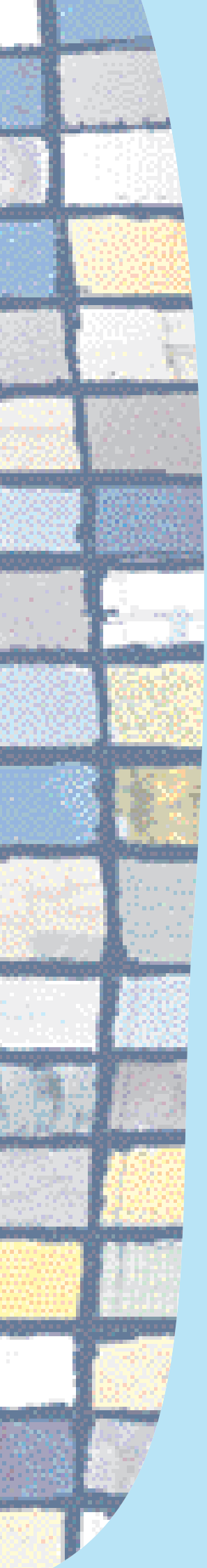

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National risk regimes in Norway, Sweden and Iceland

SIFO

Project Note no 4 – 2015

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Summary

This position paper is a deliverable from the first work package, WP 1 National risk regimes: The role of citizens, of the HomeRisk-project. The main aim of work package 1 is to identify the expectations and responsibilities of citizens in national risk plans in the three participating countries Norway, Sweden and Iceland. The basis for this report is the three National reports on this matter from the main partner in each country; SIFO (Norway), Mid Sweden University (Sweden) and University of Iceland (Iceland). The three reports are presented as individual chapters in this report. First, we briefly describe the three national risk regimes in these countries, and then we present and discuss how actors such as households, citizens and consumers are understood in them.

Based on these reports, we find that the three countries have much in common. First of all, that there actually are a number of plans and laws in place. Further, that all three national governments have built up and sustain national and regional capabilities in case of emergencies. Within the scope of the HomeRisk-project, we have studied three kinds of actors: households, citizens and consumers. We note that households are hardly mentioned in any of the national plans or laws. It is citizens or the general public that it is referred to. With regard to consumers, we note that the general public only is referred to in this role, when it comes to ICT fallouts. This in contrast to electricity fallouts, where it appears that the general public is framed as *citizens*, rather than as consumers. There are of course differences between the countries as well, one of them is that there is more of an implicit expectation that Norwegian public authorities will step in if crises occur. In Sweden, The Law on Protection against Accidents('Lag om skydd mot olyckor'), specifies that (only) for individuals who are not able to handle an event, then the public authorities are obliged to help. Whereas in Iceland, the implicit expectation is that households should be (must be) able to handle crisis on their own.

Stikkord

Keywords

Risk regime, households, electricity and ICT breakdowns, risk management, risk assessment, emergency plans.

National risk regimes in Norway, Sweden and Iceland

The role of citizens

av

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Preface

This position paper is a deliverable from the first work package, WP 1 National risk regimes: The role of citizens, of the HomeRisk-project. The project runs from October 2014 to April 2017 and is funded by Samrisk II programme, Norwegian Research Council, grant number 238059.

The data that are presented are collected from the National Risk Assessment plans, National Emergency plans and the official websites for crisis communication in the three participating countries: Norway, Sweden and Iceland.

Oslo, October 2015

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Contents

1 Introduction - The HomeRisk-project

This position paper is a deliverable from the first work package, WP 1 National risk regimes: The role of citizens, of the HomeRisk-project.

Overall, the theme of the HomeRisk project is the role of citizen-consumers in modern risk perception and risk assessment. As the household is the crucial setting in everyday life we will focus on household vulnerability in situations where infrastructures break down, with prolonged fallouts of public services as a result.

More specifically, the project concentrates on energy service systems and Information and Communication Technology (ICT). Within this framework we ask how individuals/households can prepare themselves for breakdowns in such fundamental societal services. To maximize the utility of the anticipated findings the project applies a comparative approach along two dimensions: (i) vertically by linking households' management with national crisis plans, thus addressing the relationship between planning and reality; and (ii) horizontally by comparing risk regimes in Norway, Sweden and Iceland.

These three countries are interesting both due to their similarities, but also for their differences: Norway and Sweden face many of the same types of risks. However, they differ significantly with respect to the resources put into risk management – Sweden spending 18 times as much as Norway – as well as on the rural-urban-distribution of populations. A comparison should reveal both differences and similarities in how authorities relate to risk, and how citizen-consumers/households are included in risk management plans. Iceland, on the other hand, faces more crises and is more vulnerable in terms of geographical isolation. Thus, risks are larger but both authorities and people are more used to handling crises. A comparison between Iceland and the other countries can be expected to generate interesting data on the interplay of geo-reality, people's perceptions and risk governance.

In all three countries, public institutions have developed plans and scenarios on how to deal with crisis situations of this kind, plans that with necessity influence ordinary citizen-consumers' crisis handling. Yet, these plans are of a rather simple form and often unrealistic as practical aides for people. This constitutes a serious security problem as they will be of limited help in crisis situations. This project thus starts from the contention that a serious shortcoming of crisis planning is that there is a lack of knowledge about how ordinary people will behave and what resources they represent in coping with crises (e.g. DSB 2012).

The household is central in people's lives, hence necessitating studies of what characterizes life in households, the resources that are linked to domestic life and how such resources can be put to use in crisis situations. The Homerisk project places a special focus both on the technology-related vulnerabilities that everyday life entails, as well as social networks that all households are woven into. It is maintained that only on the background of such information the authorities will be able to develop effective, life-saving plans for crisis management. The project is designed to maximize the utility of the findings so that the knowledge generated from the project can be of significant value to crisis planning.

The research theme thus links to three main topics

- focusing on households it addresses the interplay of social structures, values and trust;
- studying the interplay of everyday practices and various institutions it attends to questions concerning cooperation, management and organization;
- focusing on electricity and ICT networks it addresses everyday life's increased dependency on these infrastructures, hence dealing with changing threats and risk.

The main aim of work package 1 is to identify the expectations and responsibility of citizens in national risk plans in the three participating countries Norway, Sweden and Iceland. The basis for this report is the three National reports on this matter from the main partner in each country, SIFO (Norway), Mid Sweden University (Sweden) and University of Iceland (Iceland). The three reports are presented as individual chapters in this report. We will first briefly describe the three national risk regimes in these three countries, then present and discuss how actors such as households, citizens and consumers are perceived within in them.

1.2 National risk regimes and preparedness systems – a Nordic comparison

With the term National risk regime we understand the organization, actors and responsibilities in National preparedness systems. Here in WP 1 of the project we intend to give an overview of these points. Although the individual national reports, given in the subsequent chapters, may not be considered to give a complete national risk regime, they still represent good overviews, and allow for some interesting comparisons. Of course, there are national differences in these three aspects: in the organization, what actors are involved and who is it has responsibilities. We will not list these differences here, it will become evident in the following comparison.

For our comparison, we have emphasized on the part of the national preparedness systems that are communicated to the public via official websites in the three countries. The reason for this focus, is that this is where one would assume that the expectations to the public in the event of crisis and in the preparations for a crisis would be most clearly articulated. For those interested in more details on the individual country, we refer to the National reports: The Norwegian national report can be found in Chapter 3, the Swedish report is in Chapter 4 and the Icelandic National report is given in chapter 5.

1.3 Comparing National preparedness systems in Norway, Sweden and Iceland

In the following we have tried to differentiate between main similarities between all three countries, as they appear in the National reports.
We start by listing the main similarities between (all three) countries.

Table 1: Main similarities

Check lists	**House-holds**	**The pub-lic**	**Consum-ers**	**Citizen**	**ICT+electrict y**
All countries check-lists include: • Radio	This unit is addressed only to a very lim-	Mostly addressed as indi-viduals	The public is ad-dressed as consumers	The pub-lic is ad-dressed	Limited dis-cussion on the connectivity between elec-

• Flashlight • First aid kit	ited extent		when it comes to ICT	as citizens when it comes to electricity	tricity and ICT

There are even some over-arching similarities that we will return to under discussion. What is shown here are some specific issues that are similar between the documents. The official websites in all countries have checklist for citizens. They are different in number of items, and specificity of these items, however all include the three listed in Table 1. In the HomeRisk project we focus on the households, and in this work package we have specifically investigated to what extent this unit is addressed in the plans. In Table 1, we conclude that they are hardly mentioned. Further the project partners looked for to what extent the "public" is mentioned. We find that the public in most cases are referred to as individuals.

Interestingly, there appears to be a difference to how the public is addressed with regards to ICT and electricity: On ICT the public is addressed as 'consumers', when it comes to electricity the public usually is referred to as citizens. What could be the cause(s) of this difference, is not clear. A speculation could be that electricity is understood as vital infrastructure, and has been so for several decades. Arguably, ICT has become a vital infrastructure for households. However, such realization or framing is much newer, and is therefore not yet reflected in the plans. Further we could speculate that ICT is fully commercialized and open for competition, whereas the national grid for electricity, hardly can be a fully functioning market due to the significant investments, and it probably would not makes sense to build up several such grids.

Another point of the HomeRisk project is that there is a connectivity between ICT and electricity. If the electricity breaks down, so will much of the ICT infrastructure. This is hardly reflected at all in the national plans.

When only two countries are similar, country codes are used (NO, SW, IS)

Table 2: Similarities between 2 countries.

	Check list items (NO and SE)	**Check list items (SE and IS)**	**Designated public webpages for both preparedness and a crisis situation (NO and SE)**
	• Drink water • Candles • Dried, durable food • Match sticks • Camping stoves	• List of telephone numbers	Webpages for a crisis situation: www.kriseinfo.no www.krisinformation.se Webpages on preparedness www.sikkerhverdag.no www.dinsakerhet.se

Here we have listed the instances where similarities exists for only two of the countries. The main source used for this are the official public webpages in the countries. In Iceland, the public web page is a combination of preparedness and crisis situations. However, this resource has very limited information on preparedness and on actual crisis response on electricity or ICT fall-outs.

Table 3: Differences between all countries

	Individual responsibility in the event of a crisis	**Country specific check list items**
NO	*Modest expectations regarding the responsibility of individuals – greater role for public authorities*	• *Fire wood*
SE	*Outspoken and clearly articulated responsibility of individuals during the crisis, and in preparing for it. However, if you are unable to deal with the crisis, the authorities will assist you*	• *Kerosene lamp* • *Specification of the radio: with handle or solar cells* • *Handle operated mobile phone charger* • *Heater* • *Hygienic articles* • *Sleeping bag, blankets and hot clothes* • *Cash* *In addition a detailed list of suitable food during electricity breakdown*
IS	*Not explicitly stated responsibilities, however individual responsibility is implied, and recognized by citizens/individuals. Resilience of the public will have to increase.*	• *First-aid instruction manual.* • *Your own emergency plan for the family/workplace*

In this table there is both an overarching difference (*Individual responsibility in the event of a crisis)*, and a more specific one (*Country specific check list items*).

Regarding check lists, Sweden is more or less in a league of its own. The number of items on the Swedish list is both larger than for the two other countries, but also rather more specific. An example is *handle operated or photovoltaic radio*. In addition, the webpage *Din säkerhet of the Swedish MSB authority*, also extensively lists suitable foods that should be available in case of an electricity breakdown. This is listed on a per person basis, examples include 0,5 kg of freeze dried milk, 0,5 kg of freeze dried mashed potatoes and 0,5 kg of canned/preserved fruits and berries.

It also appears that in the items specific for Iceland, there is a reflection of the implicated responsibility of individuals with First-aid instruction manual, and emergency plan.

1.4 Discussion and conclusion

Based on a reading of the three national reports, we may distinguish between three different ways household can be perceived.
1. In a *capable* framing: Households are perceived as capable to assume responsibilities for themselves in the events of crises.
2. In a *resource* framing: Households are perceived to be positive resources in the event of crises.
3. In a *precarious* framing: Households are potential victims during crises, and they are more or less unable to look after themselves, and will need protection and assistance.

Regarding 1., on capability of households, this is quite explicitly stated in Sweden and Iceland, and to some extent even in Norway, but little or no reference is made to the household as an entity. On 2., it is fair to say that there are some elements of this in the Norwegian risk management plans, more specifically in the Civil Protection Law ('Sivilbeskyttelsesloven). Under evacuations, the general public is required to make available transport means and shelter, i.e. private houses. These are assets that we would argue should be understood as material assets of households, even though household have more resources, both material and immaterial that are not mentioned in this law. The point is that there is no reference to households as an entity in The Civil Protection Law, as it is referred to as a requirement to the general public. In a corresponding Swedish law , The Law on Protection against Accidents('Lag om skydd mot olyckor'), an official duty ('tjänsteplikten') of the general public is mentioned. Citizens are responsible to warn and call for help is an accident is discovered. The official duty does also include to be of assistance in emergency responses, if the emergency manager asks of this. In the civil protection law in Iceland, The National Commissioner of the Icelandic Police, in the state of emergency, may summon any adult person, which is available, for immediate assistance with work for civil protection. The nature of this assistance is not specified as in the Norwegian case.

On the third and last category (3. precariousness) there is more of this in the Norwegian case, than in Iceland. There is more of an implicit expectation that Norwegian public authorities will step in if crises occur. In Sweden, The Law on Protection against Accidents('Lag om skydd mot olyckor'), specifies that (only) for individuals who are not able to handle an event, then the public authorities are obliged to help.
The 3 categories above should be viewed as more of analytical tools or noting, rather than absolute framings that can be found empirically. In the latter case it will to different extent be a mixture of these framings, depending on nature of the impending crises.

So, to conclude:
Based on the three national report of the National Risk regimes, we find that our three countries have much in common. First of all, that there actually is a number of plans and laws in place. Further that all three national governments have built up and sustain national and regional capabilities in case of emergencies. At the same time; all the national plans and laws are somewhat of a reflection of accidents that have occurred. To put it bluntly; they are all preparing for the last war. There is little anticipation of what events that could happen next time. On the other hand, this is probably hard to avoid: If an event occurs that is similar to a recent one, and the respective public authorities would repeat the (potential) mistakes it made the last time, public authorities would certainly receive strong criticism. In addition are there a large number of possible crises that could occur, and it will be nearly impossible to prepare for each and every one of these. .The most important is probably to have a resilient organization and general plans that are flexible enough to deal with various situations.

In the frame of the HomeRisk-project, we have especially looked for three kinds of actors: households, citizens and consumers. We note that households are hardly mentioned in any of the national plans or laws. It is citizens or the general public that it is referred to. With regard to the consumers, we note that the general public only is referred to in this role, when it comes to ICT fallouts. In contrast to electricity fallouts, where it appears that the general public is framed as citizens, rather than consumers. This fact may be due to another similarity of our three countries: the general public have great trust in their governments. Electricity utilities used to be part of of, or rather owned and run by national governments. This is no longer the case. However, the people of the three countries may still regard them as under governmental control. A slightly different interpretation is that electricity, more than ICT (although this is probably changing), is apprehended as infrastructure, where the notion of 'consumer ' may have limited validity. Usually, we do not think about ourselves as consumers of other infrastructure, as roads for instance.

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2 National Risk Regime in Norway: The Role of Citizens

By Dag Slettemeås

2.1 Background

2.1.1 Main goals and structure of the report

In this report we address WP1 of the Homerisk project and specifically concentrate on the presenting and discussing the 'national risk regime' in Norway. It also links directly to RQ1: What expected roles and responsibilities do citizens have in national risk plans? In a later document this description of risk regime and household roles will be compared with descriptions from Sweden and Iceland.

Hence, as a way to navigate this document we organize the material in the following way:

- First we present an overview of the organization, actors and responsibilities – and their interlinkages – in the Norwegian 'civil security and preparedness system' (samfunnssikkerhets- og beredskapssystemet), from the national to the local level.
    - We specifically address preparedness responsibilities in the electricity and ICT sectors
    - We present a graphical sketch to identify the main actors/roles in the Norwegian 'risk regime'

- Then we present the role of households/citizens in this 'risk regime'.
    - We identify how these entities are identified as 'actors' in public documents and websites.

Although the domain of civil security and preparedness is comprehensive, involving both 'natural' as well as 'intentional' risks, the main focus – and hence delineation – of this report (and in line with the *Homerisk* project) will be crisis situations that directly relate to 'natural' hazards, such as storms and major fires, and their consequences. In addition we hold a specific focus on electricity and ICT infrastructures in this regard, and on household/citizens as actors.

2.1.2 The sources the report is built on

In order to identify and assess the points addressed in section 1.1 we rely on different kinds of documentation. The key sources used in this report are central government websites, governmental documents, and secondary sources.

- The key source in this regards is the official governmental website 'regjeringen.no' (government.no), which is the main portal to information published by the sitting (and previous) governments and by the ministries. This portal also provides direct links to the other sources found below.
- Draft resolutions and bills[1] (Proposisjoner til Stortinget; Prop. S). Draft resolutions are used when the Government makes a proposition to the Parliament to decide on new laws (or repeal laws) or the budget. It can contain suggestions about law decisions or Parliamentary decisions.

[1] https://www.regjeringen.no/nb/dokument/prop/id1753/

- White papers[2] (Meldinger til Stortinget; Meld. St.). White papers are official documents from the Government to the Parliament about issues that the Government wishes to inform the Parliament about, or that the Governments wants to be debated in the Parliament, without any ready propositions to be decided on. White papers suggest either future policy directions for the Government or report on official public activities within a sector.
- Official Norwegian reports[3] (Norges offentlige utredninger; NOUs). NOUs are investigations or reports published by a selected group of experts within a field, which have been appointed by the Government or by a ministry.
- Acts and regulations[4] (Lover og regler, found on the external website Lovdata.no).
- Secondary sources – such as official websites or documents from administrative authorities/directorates (direktorater), from county councils (fylkeskommuner) or from municipalities (kommuner).

    - We address how electricity and ICT are related to the household/individual context
    - We outline the expectations and responsibilities of households/citizens in these documents

2.2 The dynamics of the Norwegian 'risk regime' related to civil security and preparedness

In order to get an understanding of how the proposed 'risk regime' related to civil security and preparedness in Norway works it is crucial to see how it has evolved over time. By reviewing various documents and web sources from the past 10 to 15 years it seems clear that this domain is continuously evolving. It is also typical that changes in legislation, authority or organization often coincide with large crisis situations. In this way we can say that the risk regime we seek to identify and grasp is a moving target that is continuously redefined in order to respond to the present risk perceptions (and increasingly through future risk scenarios). If we look at the how civil protection/ societal safety/ societal security ('samfunnssikkerhet') has been addressed over time in public documents, there have been several White papers to the Parliament (Stortinget) that directly relate to this overarching issue:

- St.meld. nr 17 (2001-2002) Samfunnssikkerhet – Veien til et mindre sårbart samfunn (Civil security – the road to a less vulnerable society).
- St.meld. nr 39 (2003-2004) Samfunnssikkerhet og sivil militært samarbeid (Civil security and civil military cooperation)
- St.meld. nr 22 (2007-2008) Samfunnssikkerhet, samvirke og samordning (Civil security, coordination and cooperation)
- Meld. St. 29[5] (2011-2012) Samfunnssikkerhet (Civil security)
-

These White papers are important documents (although they address issues that the Government wishes to inform the Parliament about or to be debated in the Parliament). They are important as they; 1) suggest future policy directions for the Government, 2) reports on official public activities within a specific sector, and 3) provide substantial and detailed infor-

[2] https://www.regjeringen.no/nb/dokument/meldst/id1754/
[3] https://www.regjeringen.no/nb/dokument/nouar/id1767/
[4] https://www.regjeringen.no/nb/dokument/lover_regler/id438754/
[5] After 2009 the White papers changed title from 'Stortingsmelding' (St.Meld.) to 'Melding til Stortinget' (Meld.St.)

mation beyond that presented on Governmental websites or in Draft resolutions and bills (Proposisjoner til Stortinget).

In this chapter we specifically consult the latest White paper on civil security (Meld.St. 29 [2011-2012] Samfunnssikkerhet). Although the latest draft resolutions by the present government (Prop S's) contain the most up to date policies, this White paper holds contains substantial relevant information relevant to the Homerisk report. Hence, in this White paper it is pointed out how the different (already listed) White papers are connected and that they follow up recommendations from relevant public reports (i.e. NOUs).
The main message of the White paper is that of the need to further strengthening the work on civil security and preparedness, based on a *widening and encompassing risk and threat picture*, and based on *specific incidents* that have occurred recently, such as terrorist attacks, natural disasters, health threats, cyber security threats, etc. – as well as generally *increased complexity and inter-dependency of societal sectors*. This is partly due to developments in ICT such as convergence enabled by digitalization and codependence of previously separated infrastructures (e.g. electricity and ICT).

These changes have over time lead to increased responsibilities for the *Ministry of Justice and Public Security* (Justis og beredskapsdepartementet - JD). Hence, JD has become the main responsible for coordinating efforts related to crisis situations and management, and for being a driving force for other ministries and public authorities, delegating responsibility to these and making them aware and prepared for handling crisis situations. This involves the whole chain; planning, coordinating, cooperating with, preparing, organizing and managing crises situations prior to, during and after the crisis has occurred (Meld. St. 29 [2011-2012]:8).

In the effort to consolidate the aims of the government for the civil protection and preparedness work, it has been important to strengthen and clarify the role of the lead ministry for this sector. Hence, in January 2012 the *Ministry of Justice and Police* changed name to the *Ministry of Justice and Public Security* (JD). A previous White paper (St.meld. 22 [2007-2008] Samfunnssikkerhet, samvirke og samordning) has emphasized the need and importance of proper *cooperation and coordination* between ministries in this area, partly by pointing at the *specific incidents* that understate this priority, as well as the general increase of *cross-sectorial interdependencies* (as introduced above). These factors contribute to greater *complexity, vulnerability and loss of overview* (as seen through increasingly interconnected and co-dependent infrastructures). In Meld. St. 29 (2011-2012) it is also stated that the *main principles* of the civil security and preparedness work – responsibility (ansvar), proximity (nærhet) and equality (likhet) – need to be extended. Hence the fourth principle of cooperation/ interaction (samvirke) was introduced. We refer briefly to the content of these four principles:

- *Principle of responsibility* (ansvarsprinsippet) – those responsible for a sector in a normal situation is also responsible for handling unwanted/extraordinary incidents and crises in the same sector.
- *Principle of equality* – (likhetsprinsippet) – the hierarchy of responsibility should be as similar as possible in a crisis situation as in a normal situation.
- *Principle of proximity* (nærhetsprinsippet) – unwanted/extraordinary events or crises situations should in organizational terms be handled at the lowest level possible.
- *Principle of coordination/cooperation* (samvirkeprinsippet) – every actor/unit has an independent responsibility to cooperate in the best way possible with relevant actors in preventing, preparing and in managing crises.

2.2.1 Official reports and political priorities over time

Meld. St. 29 (2011-2012):10 also lists how different official documents show the *priorities* in the area of civil security and preparedness over time. Specifically there are two Official Norwegian Reports (NOUSs) that assign a range of measures to strengthen the work on civil security:

- NOU 2000:24 *Et sårbart samfunn* (a vulnerable society) [by Sårbarhetsutvalget]
- NOU 2006:6 *Når sikkerheten er viktigst* (when security comes first) [by Infrastrukturutvalget]

Furthermore, three White papers were presented to the Parliament from 2002 and onwards on civil security (listed in the previous chapter [four White papers including the one referred to here]) while two specific White papers addressed the tsunami catastrophe and fire safety. These White papers are briefly presented below:

- St.meld. 17 (2001-2002) *Samfunnssikkerhet – Veien til et mindre sårbart samfunn*

This White paper followed up the recommendations from NOU 2000:24 *Et sårbart samfunn*, providing a broad perspective on societal vulnerabilities. It also followed up recommendations from NOU 2001:31 *Når ulykken er ute,* which addresses the organization of operative rescue and preparedness resources. This White paper also introduced the first three principles of civil security (responsibility, proximity, equality).

- St.meld. 39 (2003-2004) *Samfunnssikkerhet og sivil militært samarbeid*

This White paper puts particular emphasis on the 'total defence' capabilities and civil-military cooperation. As part of the parliamentary treatment of this White paper it was in 2004 decided that a 'central crisis management unit' should be examined/investigated (utredet).

- St.meld. 37 (2004-2005) *Flodbølgekatastrofen i Sør-Asia og sentral krisehåndtering*

Following from this White paper the Parliament supported the Government's suggestion of strengthening the crisis management apparatus abroad, and of establishing a Crisis Support Unit (Krisestøtteenhet).

- St.meld. 22 (2007-2008) *Samfunnssikkerhet, samvirke og samordning*

In this White paper particular attention was given to the significance of cooperation and coordination nationally and internationally to prepare for future risks, threats, and vulnerabilities.

- St.meld. 35 (2008-2009) *Brannsikkerhet – Forebygging og brannvesenets redningsoppgaver*

Based on this White paper national targets for fire safety work was established, and emphasis was put on increased preventive, preparedness and management capability.

2.2.2 Cooperation and coordination – National level

A major part of White paper Meld. St. 29 (2011-2012) is assigned to the effects of the July 22, 2011 terrorist attack, and in particular the role and improvement of the police (ch. 3). This is however not directly relevant to Homerisk, and is left out in this presentation. In ch. 4 *cooperation and coordination* is highlighted, based on increasing societal complexity and cross-sectorial interdependency. This was also specifically addressed in the previous White paper (St.meld. 22 [2007-2008] Samfunnssikkerhet – samvirke og samordning). The White paper St.meld. nr 17 (2001-2002) introduced the *first three principles* of civil security (responsibility, proximity, equality), but these were not considered sufficient for coordinated efforts between key responsible actors, and the need to see the total resources of society in context. Hence the coordination/interaction (samvirke) principle was built in as a fourth key principle.
The White paper (Meld. St. 29 [2011-2012]) also introduces the *new procedure* (instruks) for the work of the ministries on civil security and preparednness, and the coordinating and central crisis management role of JD (which was notified in St.meld. nr 22 [2007-2008] Sam-

funnssikkerhet, samvirke og samordning). The main changes between the old and the new procedure relate to;

- establishing a 'national risk assessment' (nasjonalt risikobilde) – a common framework for the work on civil security
- formalized requirements for ministries to develop risk and vulnerability evaluations (ROS)
- more frequent exercises
- formalization of the four principles of civil security and preparedness
- and JD being permanent lead department in civil national crises.

A main ambition of this recent work is that ministries should keep overview over risks in their own sector and develop plans and assessments to manage crisis situations. This includes imposing sub-sectorial units to have their own plans and ROSs. In refining this work the *Norwegian Directorate for Civil Protection* (Direktoratet for sikkerhet og beredskap – DSB), being the main executive authority in this area, is developing *a model* as a tool for national, regional and local authorities to identify critical infrastructure and critical societal functions (see DSB 2012b)[6]. It is noted in the White paper (Meld.st. 29 [2011-2012]:44) that all actors that operate critical infrastructures should plan to maintain their core deliveries through continuity planning, as a way to reduce vulnerability in case of *loss of electricity or telecommunications*. Here, as one of the few instances, the 'population' (befolkningen) is addressed, but primarily as a collective 'actor', demanding that civil sector manages complex and critical crisis situations.

As a way to be more responsive and to strengthen coordination in case of crises situations, the government decided to establish permanent, periodical administrative meetings at the highest level in the Crisis Council (Kriserådet – previously Regjeringens kriseråd. Furthermore, The Norwegian Directorate for Civil Protection (DSB)[7], supporting JDs coordination role, has been mandated to keep a perspective that transcend sector borders in crisis management. Also, The Directorate for Emergency Communication (DNK) was established in 2007, responsible for building a new digital communication infrastructure (Nødnett)[8] in Norway. All these efforts support the national coordination capacity in this area.

2.2.3 Cooperation and coordination – Regional/local level

The regional/local level is also highlighted in the White paper (Meld.St. 29 [2011-2012]), and the significance of these levels concerning the work on public security and preparedness.
The County governor (Fylkesmannen) is the government's highest representative at the county level, responsible for coordinating, promoting and guiding the civil security and preparedness work in the county. The County governor is also the key link between the national and the local level authorities. The White paper illustrates the central role of the County governor in large crises situations that affect the all levels of a region and where many actors must work together. The Dagmar extreme weather in December 2011 is used as an example to illustrate this. According to the Civil protection law (sivilbeskyttelsesloven) the County governor has supervisory authority, and can impose municipalities to perform comprehensive ROSs and prepare holistic preparedness plans based on the ROSs. The County preparedness body (Fylkesberedskapsrådet) is the main agency for coordinating preventive efforts and for managing crises, containing actors from the police, the Armed Forces, the Civil Defence, voluntary organizations as well as national and county level agencies (however other unor-

[6] DSB – KIKS report: http://www.dsb.no/Global/Publikasjoner/2011/Rapport/KIKS.pdf
[7] DSB is also a specialist and supervisory agency (fag- og tilsynsorgan) for JD within the civil security and preparedness area (Cf. Kgl.res. 24 June 2005. Ref: http://www.dsb.no/Global/Publikasjoner/2008/Andre/koordinering_storulykker.pdf).
[8] Nødnett was operative in parts of Norway as of 2010 and is gradually to be developed until 2015

ganized volunteers are not mentioned specifically as resources). It is pointed out in the White paper (being a crucial point to the Homerisk project) that actors operating critical infrastructure (e.g. power supply and telecom) are not participating, but they *should participate* in the County preparedness body (Meld.St. 29 [2011-2012]:54).

Furthermore, the *municipalities* are considered to be the pillars of the civil security and preparedness work in Norway. It is imperative that their crisis management is up to date, as they are central in protecting the population and in upholding central societal functions. In 2010 a new law on municipal preparedness was implemented (sivilbeskyttelsesloven), compelling municipalities to see and plan preparedness work from a *holistic perspective*. Additional responsibility was attributed to the municipalities for more systematic and continuous work in this area, to be included in ROSs and preparedness plans. In 2012 a *guide for municipal preparedness* was ready, supporting this work. Municipalities thus have to evaluate *natural* and *intentional risks*, as well as *future challenges* (e.g. climate adjustment[9]), and integrate this in area planning (arealplaner) and building matters (byggesak) (Meld.St. 29 [2011-2012]:56).

2.2.4 Communication

Meld.St. 29 (2001-2012) emphasizes the criticality of *communication* in preparedness work and crisis management (ch. 5). The new emergency communication infrastructure (Nødnett) is one of the largest investments in the civil security area ever, aiming to provide a common digitalized radio communication system for the fire, health and police sectors. It is a robust system, with backup solutions, but it is still using transmission infrastructure from commercial providers. Again the Dagmar hurricane is used as an illustration for the *need for increased capacity* to receive emergency calls, also to inform the general public.
In terms of notifying the public in crisis situations, broadcasts (radio and tv) are still the core solutions. A recent evaluation by DSB suggests that in the future today's concept should be furthered – implying that radio, TV and the internet (social media[10]) will continue to be the most important channels for rapidly notifying the population with important messages (mobile phone messaging is also suggested as a future option). DSB has recently published a new guide for risk and crisis communication (DSB 2014)[11] to support the work of public authorities about key issues when communicating with the public.

Regarding risk and crisis information, the White paper (Meld.St. 29 [2001-2019]) states that in order to be prepared for handling crisis situations, the population must *be informed*, be *aware of how to prevent crises* and *how to manage them*. The channels for informing about this depend on the type of emergency. In Meld.St. 29 (2001-2012):50 it is highlighted how a specific incident – the *ash cloud* generated by the volcanic eruption in Iceland in April 2010 – made DSB issue a new report that identified the need for more *coordinated and user-centered information to the public* about the consequences and durability of the ash cloud (and similar incidents). JD thus commissioned DSB to develop a web-based crisis portal to

[9] In a national public report provided by the Ministry of Environment (NOU 2010:10 *Tilpasning til eit klima i endring (Adjustment to a changing climate)*, society's vulnerability to the consequences of climate change is addressed, and the need for adjusting policy and society to the climate. This is nothing new, but the speed and scope of expected climate change is historically unprecedented, implying that related risks and vulnerabilities are changing fast. Hence it is necessary to make adjustments already, i.e. making buildings and infrastructures more robust and capable of functioning of facing future climate consequences (such as natural disasters).

[10] Se also the report (commissioned by Deltasenteret) on the limitations of the Government's risk and crisis communication in social media, due lacking customization for people with disabilities: http://www.ialloffentlighet.no/utredninger/risiko-og-krisekommunikasjon-tilpasset-personer-med-nedsatt-funksjonsevne.pdf

[11] DSB, risiko- og krisekommunikasjon: http://www.dsb.no/Global/Publikasjoner/2014/Tema/risiko_og_krisekommunikasjon.pdf

provide a holistic picture of crisis situations to the public. Hence 'Kriseinfo.no' was launched in 2012. This is now the general population's main portal to the Government's risk and crises information *prior to, during and after a crisis* – and should provide a coordinated picture of the situation, disregarding which authority is handling the situation (Meld.St. 29 [2001-2012]:65). Kriseinfo.no has high capacity/security making it useful for relieving other Governmental websites in crisis situations. If internet access is unavailable, TV and radio are alternative sources.

2.2.5 Electricity and ICT/telecom

Meld.St. 29 (2001-2012):63 specifically addresses the 'pinseflommen' in eastern Norway in June 2011, where the mobile networks collapsed (due to floods and landslides) and the 'Dagmar hurricane' in December 2011 causing major power losses, and subsequently making fixed line and mobile networks fall out. This led to communication trouble both between government authorities, and between the government and the general public/civilians. Based on these two incidents the Government mandated DSB and Nkom (Norwegian Communications Authority) to investigate the vulnerability of key preparedness actors to fallouts of electronic communication, including mobile infrastructure. The investigation reports conclude that there is high dependency on electronic communication (ekom) services, but that this dependency is not seen in risk and preparedness plans.

2.2.6 Central crisis management

A last relevant point of Meld.St. nr. 29 (2001-2012) is how it describes the efforts to *strengthen central crisis management*. It is pointed out that the tsunami disaster in December 2004 consolidated the need for stronger central crisis management, and the present government decided to establish a new administrative apparatus for central crisis management in the ministries, based on three main elements:

- Crisis Council (Kriserådet KR) – administrative apparatus for the government in crisis situations; highest coordinating unit on the administrative level.
- Lead Ministry (Lederdepartementet) – JD will be permanent Lead Ministry in case of civilian national crisis situations, unless otherwise is decided.
- Crisis Support Unit (Krisestøtteenheten – KSE) the government wants to strengthen KSE, as a facilitator for CC and JD, by establishing a 24-7 situation center at JD.

2.3 Organization, actors and responsibilities in the Norwegian 'civil security and preparedness system'

In the previous section we got into some details of key areas, priorities and historical development of the civil security and preparedness system in Norway. We now turn to the government website, in particular that of the Ministry of Justice and Civil Security (JD), and the information it provides on civil protection and preparedness.

2.3.2 Risk regime as presented to the public (government website)

The central government is naturally the main authority in terms of crisis management. The *Ministry of Justice and Public Security*[12] (Justis- og beredskapsdepartementet [JD]) is the central executive ministry of this area. The government website[13] addresses public security ('samfunnssikkerhet') and preparedness ('beredskap') as one of several 'topics' on its website. The information provided under these headings is brief and seems to address the general public:

1. The principles of the preparedness work and the central organisation of crises management[14]

The four main principles of preparedness is listed – responsibility (ansvar), equality (likhet), vicinity (nærhet) and cooperation/coordination (samvirke). Furthermore the ventral organisation of crisis management; The government, the JD, the Crisis Council (Kriserådet), and the Crisis Support Unit (Krisestøtteenheten – a permanent secretariat for the Crisis Council).

2. The chain of responsibility regarding civil protection[15]

The government is preoccupied with establishing a 'holistic framework' in terms of civil security and preparedness, and thus regards this area as a 'chain'. In this chain a range of actors are involved safeguarding various parts of the preparedness work; Emergency units (nødetatene), the Civil Defence (sivilforsvaret), the County governor (Fylkesmannen), the Armed Forces (Forsvaret), private actors, volunteer organisations, etc.

3. Preparedness and the public website Kriseinfo.no[16]

This link on the government website is directed away to the dedicated communication website Kriseinfo.no. This is considered to be the main, and the primary, communication channel from the government to the Norwegian population prior to, during and after a crisis has occurred. DSB is responsible for operating and updating this web-based resource, gathering information from a wide range of public authorities.

2.3.3 Main responsibility, coordination and cooperation

We now present the most recent documentation stating the main organisational features of the civil security and preparedness system or regime, primarily drawing on the latest budget propositions (Prop S) presented by the government (through the respective sector ministries) to the parliament.

2.3.4 JD – main political authority/central executive

The main attributes of this sector-transcending domain is that the government – and *Ministry of Justice and Civil Security* (JD) [17] – as the lead ministry, view civil security and preparedness as a 'chain'. This stresses the importance of sufficient overview of relevant risks and vulnerabilities, of efficient and targeted prevention, of sufficient preparedness and crisis management capacity, the ability to restore pre-crisis functions, and to learn from actual crises and exercises. The chain perspective furthermore implies that a range of actors are involved in the preparedness regime, such as the emergency units (nødetatene), the Civil Defence (Sivilforsvaret), the County governor (Fylkesmannen), the municipalities, the National Armed Forces (Forsvaret), private actors, volunteer organisations, etc. JD has the main re-

[12] https://www.regjeringen.no/en/dep/jd/id463/
[13] https://www.regjeringen.no/nb/tema/samfunnssikkerhet-og-beredskap/id1120/
[14] https://www.regjeringen.no/nb/tema/samfunnssikkerhet-og-beredskap/innsikt/hovedprinsipper-i-beredskapsarbeidet/id2339996/
[15] https://www.regjeringen.no/nb/tema/samfunnssikkerhet-og-beredskap/innsikt/samfunnssikkerhets--og-beredskapskjeden/id2340021/
[16] http://www.kriseinfo.no/
[17] https://www.regjeringen.no/en/dep/jd/id463/

sponsibility and manages the primary resources/capacities. It also has a coordination role and functions as a promoter for the rest of the civil sector.

Although coordination and cooperation is the mantra the government it still emphasizes the importance of a *clear line of responsibility* between the sectors in the work on civil security. This is materialized in a map of responsibilities for the different ministries. There are also regular preparedness conferences in the government, and regular meetings in the Crisis Council (Kriserådet) and other coordination forums (Prop. 1 S [2014–2015] JD:17). Crisis management capacity has increased through a civil situation center at the Crisis Support Unit (Krisestøtteenheten), which (as of April 2014) has 24-7 staffing. JD has also been become permanent Lead Ministry (in crisis situations) unless otherwise is decided. In the proposition there are generally increased budgets in this sector, signaling how this has become a priority area for the government[18].

In addition to general preparedness, various 'situations' are addressed, such as 'extreme weather' (along with 'terror', 'cybercrime', etc. but these are less relevant to the Homerisk project). It is acknowledged that extreme weather situations are increasing in scope, demanding more knowledge on threats and vulnerabilities that must both be communicated to authorities and to the population in general. Overviews of critical functions and their vulnerabilities must also be maintained. Coordination and cooperation between actors at all level is thus critical – between ministries – between national, regional, local authorities – between governmental, private, and volunteer actors. This complex actor composition, and increasing cross-sectorial dependencies, demand high level of coordination and management (Prop. 1 S [2014–2015] JD:18).

However, it is found through reviews of the civil security work by the ministries that much responsibility for preparedness lies with non-governmental actors, either municipal or private. Hence it is stressed that ministries take responsibility to *control* the work of non-governmental actors (Prop. 1 S [2014–2015] JD:174). Under section 5.2 on status of the civil security and preparedness work, it is among other things emphasized the importance of updated and coordinated plans (planverk). Point 5.2.2.1 specifically addresses the challenge of keeping these updated and coordinated with so many actors involved, but they still are critical for keeping overviews of available resources. It is stated explicitly that the experiences from the extreme weather situations 'Dagmar' and 'Hilde' and 'pinseflommen' how important it is that the plans take account of *prolonged loss of power/electricity and telecom-services* (Prop. 1 S [2014–2015] JD:175).

The municipal level is interesting to Homerisk, as this is where the main operative actors interact in crisis situations. In *Prop. 1 S (2014–2015) JD:176* it is pointed out that DSB conducts yearly surveys for municipalities. In 2014 91 % of the municipalities claimed to have an overarching preparedness plan, but only 30 % of these fulfill the main demands, such as complete risk and vulnerability analysis (ROS), and coordination plans with other actors. JD claims in the proposition that there is room for improvement for i.e. handling extreme weather/natural hazards, fires, terrorist attacks, etc.[19]

[18] It should be noted that much of the budget increase has come in other areas such as preventing terrorism and cybercrime, new equipment (rescue helicopters, Emergency communication system [Nødnett], etc), and investigations of digital vulnerabilities in society (through 'Sårbarhetsutvalget').
[19] In 2014 DSB published a new guideline for complete municipal ROS.

2.3.6 DSB – operative general responsibility for civil security and preparedness

While the *Ministry of Justice and Public Security* (JD) is the main political responsible for emergency and crisis preparedness and management, it is the *Norwegian Directorate for Civil Protection* (Direktoratet for sikkerhet og beredskap – DSB)[20] that is the main executive authority in this area. DSB is subordinate to JD and supports JD in coordinating civil security ('samfunnssikkerhet') and preparedness ('beredskap'). This implies developing national risk scenarios, plan and execute exercises, as well as coordinate a range of other initiatives in this area.

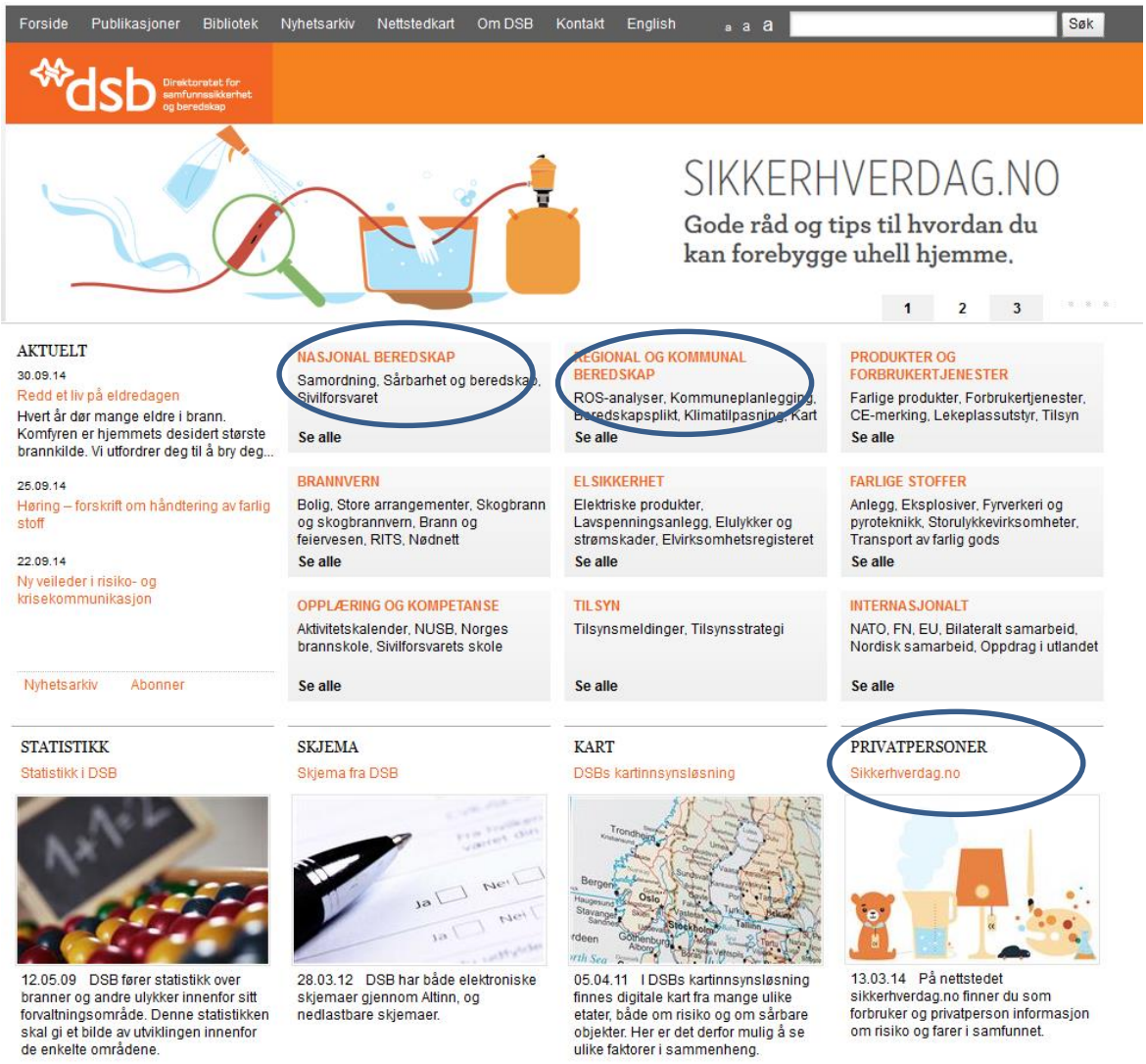
Figur 1: Source – www.dsb.no

From the screenshot above much of the information and responsibilities that DSB administers are thematically organized. By looking at each theme there is information that addresses households, private/volunteer organisations, and public authorities/actors. The areas of responsibility for DSB are thus extensive, including national security (coordinating these efforts on behalf of JD and supervising other ministries), local and regional safety, fire and rescue, electricity safety, industry/business safety and hazardous materials, the civil defense, operative support, international work and safety in everyday life. This last point includes fire/explosions/electricity, consumer product safety, and – as they describe on the website[21]:
'DSB works to *clarify the responsibility that the individual has for fire and electricity safety in the household* and to *enhance the understanding of the risks* associated with using various products.'

Furthermore DSB directly address the topic of *crises situations*:
'DSB also works to *provide sufficient information to the individual citizen* about risks in society and about *how to act in case of a crisis.* Additionally DSB seeks to enhance the knowledge in the population about the *criticality to have certain preparedness for unexpected incidents*, even in terms of brief losses of electricity and water.'

In addition to the official government website (Regjeringen.no), the DSB website contains a great amount of information and sources, e.g. to national preparedness, regional and municipal preparedness, as well as to topics relevant to individuals (private personer), such as sikkerhverdag.no (see screenshot below):

[20] http://www.dsb.no/
[21] http://dsb.no/no/toppmeny/Om-DSB/Ansvarsomrade/



Figur 2: Source – www.dsb.no

In addition to the areas of responsibility, the website provides direct access to the laws and legislations that DSB administers[22], and the statutory legal authority of DSB:

[22] http://dsb.no/no/toppmeny/Om-DSB/Lovgrunnlaget/

Lovgrunnlaget

DSB forvaltar desse lovverka med tilhøyrande forskrifter:

Publisert 05.11.2012 - 15:14 | Oppdatert 05.11.2012 - 15:17

Skriv ut

- Lov om vern mot brann, eksplosjon og ulykker med farleg stoff og om brannvesenets redningsoppgåver (brann- og eksplosjonsvernlova)
- Lov om tilsyn med elektriske anlegg og elektrisk utstyr (el-tilsynslova)
- Lov om kontroll med produkt og forbrukartenester (produktkontrollova)
- Lov om kommunal beredskapsplikt, sivile vernetiltak og Sivilforsvaret (sivilvernlova)

Andre relevante heimlar for DSBs arbeid:

- Kongeleg resolusjon av 15. juni 2012 om departementa sitt arbeid med samfunnstryggleik og beredskap, Justis- og beredskapsdepartementets samordningsrolle, tilsynsfunksjon og sentral krisehandtering
- Kongeleg resolusjon av 24. juni 2005 om DSBs generelle koordineringsansvar og ansvaret for koordinering av tilsyn med aktivitetar, objekt og verksemder med potensial for store ulykker
- Forskrift om tiltak for å førebyggje og avgrense konsekvensane av storulykker i verksemder der farlege kjemikaliar førekjem (storulykkeforskrifta)
- Forskrift om systematisk helse-, miljø- og tryggleiksarbeid (internkontrollforskrifta)

Figure 3: Source - http://dsb.no/no/toppmeny/Om-DSB/Lovgrunnlaget/

In terms of protecting civilians it is the Civil Protection Law (Sivibeskyttelsesloven) that most directly addresses the responsibilities of public and private actors regarding the protection of civilians in case of war or undesirable incidents in peacetime.

Figure 4: Source - https://lovdata.no/dokument/NL/lov/2010-06-25-45

One key definition in the law is that of *self-protection measures* (egenbeskyttelsestiltak) under §3. Under §5 it is specified that the individual citizen is committed to take part in efforts to secure life and values, and make available one's own property (including homes) when the Civile Defence (Sivilforsvaret) demands it. Under §§ 14 and 15 the municipality must map potential local risk scenarios, their probability and effects, and how they may affect the municipality and its citizens.

From this a risk and vulnerability analysis and civil protection/societal safety and preparedness plans should be developed. The preparedness plans should be concrete, specifying e.g. crisis management officers, notification lists, available resources, evacuation plans and *plans for informing citizens and media*. It is further specified under §18 that *the general public (almennheten)* is required to give support in case of evacuation, and to make available to the

authorities transportation means or private houses for such purposes (e.g. evacuation and shelter). § 24 readdresses *self-protection measures* §3) (egenbeskyttelsestiltak), stating that owners of property can be required to prepare *self-protection measures* on/of the property.

Hence we see that individuals/households are both viewed as 'receivers' of protection from the government and municipalities, while they are also considered as 'resources' (both individual and collective/household) providing e.g. transport and shelter to others (as fellow responsible citizens), and they are considered responsible for their own protection (through self-protective measures).

2.3.7 SD – responsible for ICT/telecom

As the *Ministry of Transport and Communications* (SD) is responsible for electronic communication infrastructure and services (ekom), we have also looked at *Prop. 1 S (2014-2015) SD.* This proposition addresses civil security (as all ministries are obliged to do) under section 7.1. The ministry is responsible for keeping overview over, and for strengthening the robustness of, critical infrastructure and functions. Hence, SD has conducted various projects for analyzing vulnerabilities and risks together with government agencies (etater) and relevant companies, mapping infrastructural components and conducting ROSs on a regular basis.

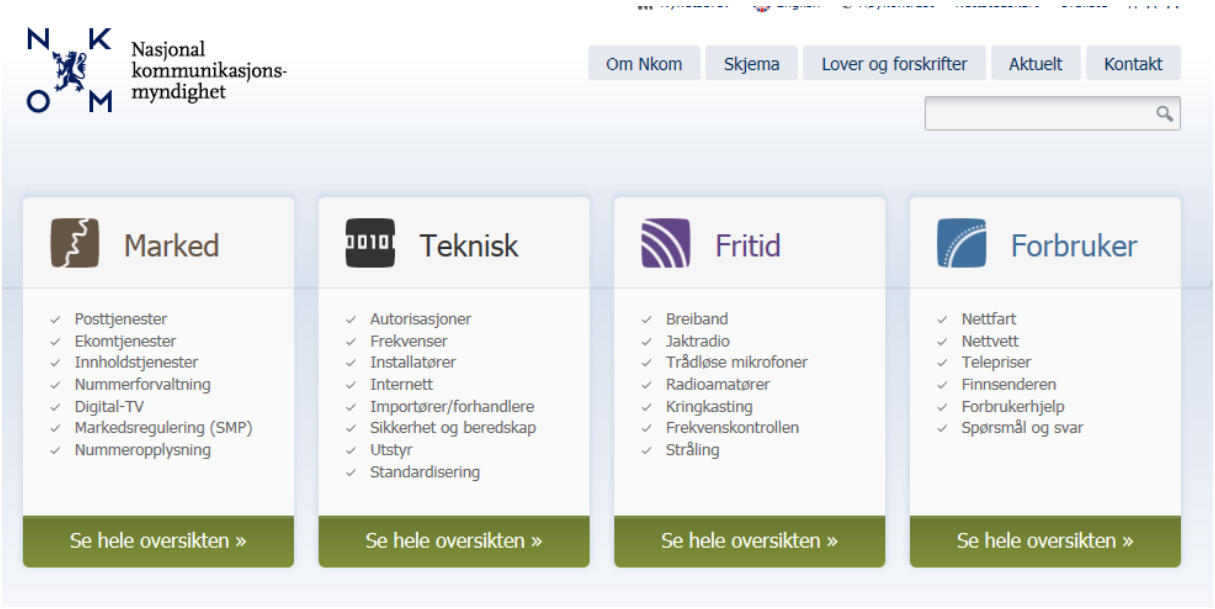
In the proposition it is specifically addressed that 'extreme weather' is one of the main causes for loss of telecom, and that climate change generally eats away at infrastructure. Hence, a main concept is 'climate adjustment'. In 2014 the supervisory authority Nkom[23] (National Communications Authority) established a minimum capacity requirement on mobile networks to make them more robust in the case of loss of power, and the costs should be taken by the providers. In 2014 a program was launched to strengthen backup power capacity. This capacity should be positioned in specific spots in each municipality to prepare for crisis situations, and are financed by governmental grants (Prop. 1 S [2014-2015] SD:233).

Hence we see that in the case of electronic communication, much responsibility is given to municipalities (for securing that vital functions are upheld) and to suppliers/operators (for keeping infrastructure and services robust and stable).

2.3.8 Nkom – operative responsibility for ICT/telecom

The SD ministry has the main political and executive authority in terms of ICT/telecom infrastructure and serviecs. However, Nkom – the National Communication Authority (Nasjonal kommunikasjonsmyndighet), has the operative responsibility and administers the law on electronic communication (ekomloven)[24].

[23] http://www.nkom.no/
[24] https://lovdata.no/dokument/NL/lov/2003-07-04-83

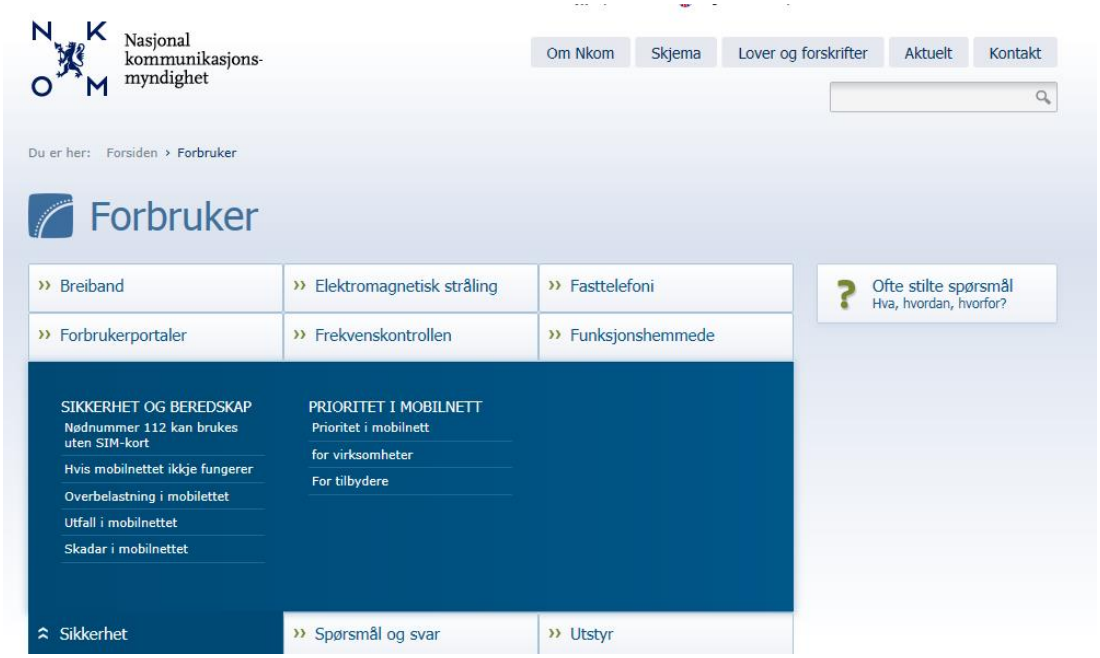


Figur 5: Source – www.nkom.no

Nkom's work on security and preparedness regarding electronic communication networks and services implies continuous mapping and supervision of network infrastructure in order to evaluate the level of security and preparedness in the sector[25]. Nkom also performs risk and vulnerability assessments (ROSs) of critical infrastructure to increase the preparedness level. In addition the authority arranges and takes part in cross-sectorial exercises, cooperating closely with NVE, DSB and NSM. There is also extensive cooperation with the power industry due to the interdependence between the ICT/telecom (ekom) and the power industries. NKom also leads a Cooperative group for security and preparedness in ICT/telecom networks (SBEN) (Samvirkegruppen for sikkerhet og beredskap i ekomnett)[26], which is an informal group where Nkom and relevant actors orient each other about measures, vulnerabilities, and projects. Nkom also has the responsibility for preparedness guard (beredskapsvaktordning) and establishes alerts when needed, for example in the case of extreme weather.

In addition to this Nkom supervises the telecom network providers in terms of their responsibilities for maintaining security and preparedness in networks and service delivery[27]. These obligations are mainly laid down in the electronic communication law (ekomloven[28]), the electronic communication regulation (ekomforskriften), the classification regulation (klassifiseringsforskriften) and the regulation on priority in mobile networks (forskrift om prioritet i mobilnett). The most central obligations relate to; proper security and preparedness, classifying and securing network plants, taking part in preparedness plans and exercises, prioritizing services, notifying Nkom when access to services are reduced, supervising priority in mobile networks, and checking minimum demands on backup power in mobile networks.

[25] http://www.nkom.no/teknisk/sikkerhet-og-beredskap/ekomsikkerhet/pts-arbeid-med-sikkerhet-og-beredskap-i-nett
[26] http://www.nkom.no/teknisk/sikkerhet-og-beredskap/ekomsikkerhet/pts-arbeid-med-sikkerhet-og-beredskap-i-nett
[27] http://www.nkom.no/teknisk/sikkerhet-og-beredskap/ekomsikkerhet/tilbyders-sikkerhets-og-beredskapsplikter
[28] https://lovdata.no/dokument/NL/lov/2003-07-04-83



Figur 6: source - http://www.nkom.no/forbruker

There is also information provided to citizens by Nkom through the Nkom website. In this case the citizen-related information addresses the 'consumer', and a dedicated sub-page makes a link between 'security and preparedness' and e.g. fallout of the mobile network. In this case Nkom describes how a fallout situation may occur and provides a check-list of what the individual consumer can do in such cases.

2.3.9 OED – responsible for power supply

The Ministry of Petroleum and Energy (OED) has a section on civil security and preparedness in their proposition to the Parliament (*Prop. 1 S [2014-2015] OED*). Under section 7 the preparedness work/responsibilities of OED is described. OED has the overarching responsibility for important societal functions and in particular preparedness responsibility for power supply. This work includes prevention of damage caused by dams, floods and landslides. Section 7.3 specifically addresses the reliability of power supply, stating that stabile and efficient power/electricity supply is considered a central part of Norwegian critical infrastructures, as this also affects other critical societal functions in crises situations.

The operative responsibility for power supply preparedness is delegated to the *Norwegian Water Resources and Energy Directorate* (NVE). NVE is the preparedness authority (beredsskapsstyresmakt) according to the Energy law[29]. NVE also leads the Power Supply Preparedness Organisation[30] (kraftforsyningens beredskapsorganisasjon – KBO) where all actors in power supply participate. Statnett[31] is responsible for the power system and has the authority to take measures in short term balancing of power supply and demand, but also for developing necessary instruments for balancing power in challenging situations, e.g. in situations where the risk of *power rationing* is high (Prop. 1 S [2014-2015] OED:136).

[29] Energiloven: https://lovdata.no/dokument/NL/lov/1990-06-29-50
[30] http://www.nve.no/no/Sikkerhet-og-tilsyn1/Kraftforsyningsberedskap/KBO/
[31] www.statnett.no

Under section 7.5 OED addresses the central crisis management and the role of OED in preparedness work. OED refers to 'Kgl.res. June 15 2012' – the procedure[32] (instruks) for the ministries' work on societal security and preparedness, and the coordination, supervision and central crisis management role of JD (samordningsresolusjonen [DSB 2012a]). OED responds to the demands of the procedure, stating that OED will keep updated preparedness plans, a robust organisation, frequent preparedness exercises, be prepared for all types of crises, provide support to other ministries, and take the role as lead ministry when needed (Prop. 1 S [2014-2015] OED:137).

2.3.10 NVE – operative responsibility for power supply

It is OED that is the political and executive authority of power supply and electricity infrastructure. *Norwegian Water Resources and Energy Directorate* (NVE) is the operative authority and is responsible for following up the energy law (energiloven[33]), the water resources law (vannressursloven), and the preparedness regulation (beredskapsforskriften[34]). The energy law provides the framework for the organisation of power supply in Norway, and contains regulations from a wide range of laws[35].

In terms of security, supervision and preparedness, NVE provides a direct link to this topic from the main page of the official website (nve.no). It is emphasized that secure transmission of power/electricity is vital for upholding critical functions and activities in society. It is further stated that NVE controls that the power companies have preparedness plans against breakdowns, and they secure that the role of power supply is maintained in the civil preparedness regime. NVE also supervises and controls relevant actors. NVE and DSB have also established a supervisory forum to achieve a more coordinated supervision of power/network companies[36].

Under the main heading of 'security, supervision and preparedness' on the NVE website there is a topic on 'preventive security and preparedness'[37]. There are several sub-themes and one relates to KBO (the Power Supply Preparedness Organisation), which was mentioned in ch. 3.2.3. As NVE is responsible for coordinating preparedness planning and for leading the national power supply resources in case of crises, the nation-spanning KBO was established, involving NVE and power supply actors at all levels. All participants in KBO have independent obligations to secure efficient security and preparedness of own services. In peace time the main duties relate to damages on power plants due to natural or intentional conditions.

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[32] Samordningsresolusjonen: http://www.dsb.no/Global/Publikasjoner/2012/Andre/Kongelig_resolusjon_15_06_2012.pdf

[33] https://lovdata.no/dokument/NL/lov/1990-06-29-50

[34] https://lovdata.no/dokument/SF/forskrift/2012-12-07-1157

[35] http://www.nve.no/no/Om-NVE/Lover-og-forskrifter/

[36] http://www.nve.no/no/Sikkerhet-og-tilsyn1/

[37] http://www.nve.no/no/Sikkerhet-og-tilsyn1/Kraftforsyningsberedskap/KBO/

Figur 7: Source - http://www.nve.no/no/Sikkerhet-og-tilsyn1/Kraftforsyningsberedskap/Hva-skjer-nar-strommen-blir-borte/

Another sub-theme on the NVE website (above) addresses the population and organizations more generally. This is called 'What happens when the electricity falls out?'[38]. This page contains information about what may happen to the general public/households, to private and public organizations, and to societal functions in the case of electricity fallout. It also explains the power grid in Norway and how this is divided between the central grid, the regional grid and the local distribution networks where power is distributed the households and to public.

Notwithstanding this information, the role of households is mainly addressed in context of *tariffs* and *power rationing*[39], where households are required to reduce their overall electricity consumption.

2.4 Graphical presentation of the 'risk regime'

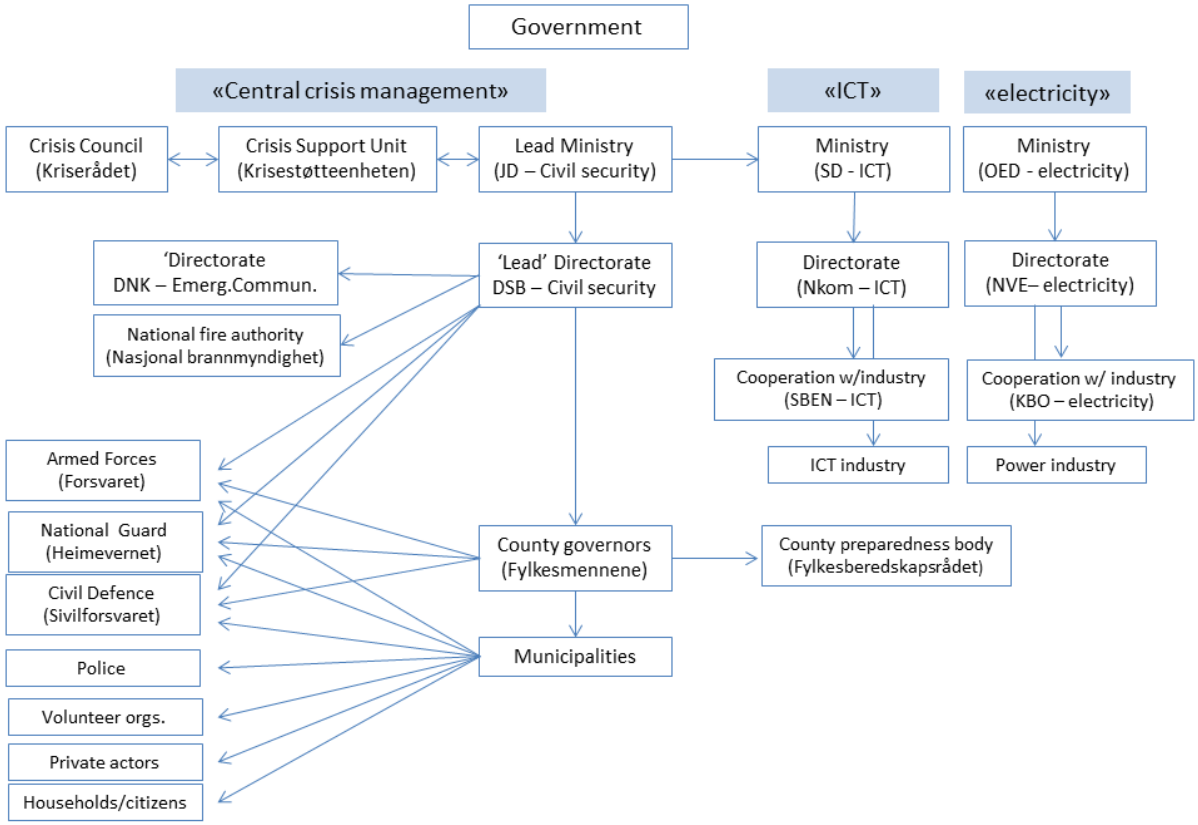
In the proposition (Prop. 1 S [2014-2015] JD) by the Ministry of Justice and Public Security the government acknowledges that there is a significant number of actors/institutions that take care of different parts of public security. It also emphasizes that there should be a clear division of responsibility. In the proposition an overview of the different areas of responsibilities for the various ministries is presented. In terms of 'extreme weather' the government emphasizes the need to improve knowledge on, and communication of, different threats and vulnerabilities to different authorities and to the general public (including citizens). A good cooperation between, governmental, regional and municipal actors, and in many instances even civilians and volunteers, is stressed as 'a precondition' for an effective public safety and security.

In Table 1.7 'Responsibilities between ministries for the different areas in the work on public security' (Prop. 1 S [2014-2015] JD), we find the following structure relevant to the HomeRisk-project:

[38] http://www.nve.no/no/Sikkerhet-og-tilsyn1/Kraftforsyningsberedskap/Hva-skjer-nar-strommen-blir-borte/
[39] http://www.nve.no/no/energi1/kraftsystemet/rasjonering/

Areas	*Overarching responsible, co-ordinating ministry*	*Executive institutions/public administration levels with significant responsibility*	*Other Ministries with responsibility*
Central steering and crisis management	Ministry of Justice and Public Security	Police Directorate (POD), the police, Norwegian Directorate for Civil Protection (DSB), Norwegian National Security Authority (NSM), County governors (Fylkesmennene), municipalities, National broadcaster (NRK), etc.	Ministry of Foregin Affairs (UD), Ministry of Defence (FD), etc.
Electronic communication infrastructure and services	Ministry of Transport and Communication (SD)	Norwegian Communications Authority (Nkom), Directorate for Emergency Communication (DNK), Norwegian Armed Forces	Ministry of Justice and Public Security (JD), Ministry of Defence (FD)
Power supply	Ministry of Petroleum and Energy (OED)	Norwegian Water Resources and Energy Directorate (NVE); The Power Supply Preparedness Organisation (KBO)	Ministry of Justice and Public Security (JD)

We have seen from previous White papers that beyond this central organization there is a more specific organizational structure. Hence we have developed a graphical presentation, based on the information presented in this report, that appear specifically relevant to crisis management, civil security and preparedness – and that specifically involves the ICT/telecom and the power/electricity sectors. This graphic is presented below:



2.5 The role of households in national preparedness documents

2.5.1 How households are addressed in risk preparedness documents

In the review of White papers (Meld.St.), Draft resolutions and bills (Prop. S), Official Norwegian reports (NOUs), laws and regulations (Lovdata), guidelines and procedures, as well as official governmental websites – households and individuals are addressed in different ways and play different roles depending on what focus the documents/websites have.

In the White papers households are not mentioned at all, while individuals are mostly addressed as a collective unit – as 'population' (befolkning). In some contexts the population is addressed as citizens demanding that the public sector can manage complex crisis situations. They are also considered subjects that need 'protection', i.e. they are viewed as potential victims of crisis situations. In other situations they are considered subjects that should be 'informed' – recipients of public information about crises situations and about how to deal with these (outreach). Overall, the focus on 'user-centered' information has increased, as seen in the implementation of Kriseinfo.no. Citizens are also viewed as 'active communicators' that need well-functioning telecom networks in order to communicate with each other and with public authorities during a crisis (dialogue).

In the information provided by DSB, mainly through the web sources, individuals and households take on a more active role. It is stated that DSB has a role in making individuals becoming 'responsible citizens', both in taking care of themselves and their household, i.e. through safety measures regarding fire and electricity. In addition they are addressed as 'knowledge subjects' in the sense that DSB works to enhance the understanding of risks in the population. This also implies being 'prepared' for unexpected incidents, such as loss of electricity and water. Most of these 'roles' are part of household contexts although this is not stated explicitly.

In the civil protection law document (Sivilbeskyttelsesloven) there is a clear emphasis on the 'protection' part where citizens are considered potential victims. In addition to this more 'passive' or receiving role there are also 'active' roles attributed to individuals. One role is the requirement that people should support evacuation efforts and to provide transport and shelter when demanded by public authorities. Here the household is somewhat implied through collective objects such as cars (transport) and houses (shelter) that individuals should provide. In this context the role of citizens is reversed, from being 'passive and receiving' to being 'active and resourceful'. Another active role can be seen in the law text specifying that citizens should not only behave responsibly towards others, but also towards themselves, by taking self-protective measures.

Furthermore, through the web sources of the directorates Nkom and NVE we found other role attributions. From Nkom the individual was addressed as 'consumer', i.e. through check-lists provided by Nkom of what the public should do in case of mobile network fallout. Here consumers of mobile services are encouraged to be active in checking and preparing for potential fallouts. From the NVE website 'consumers' and 'households' were addressed, as we interpret it, both through requirements of power rationing (households) and through tariffs (households/consumers).

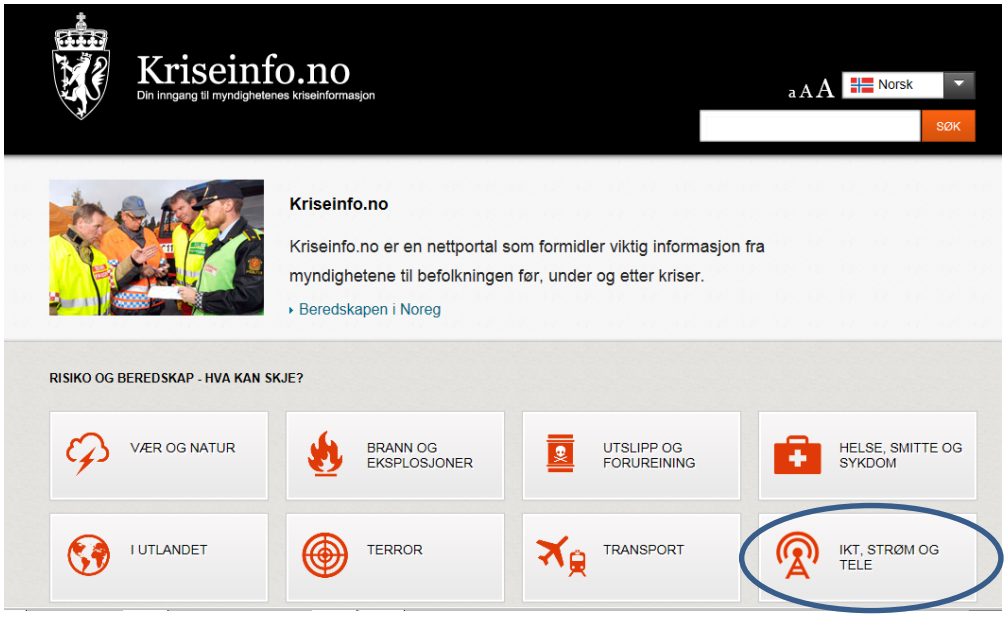
In addition to these instances in public documents/websites addressing citizens/households sporadically, we now move to two main sources that more specifically address citizens/households both in terms of crisis situations and in terms of preparation for crises. These sources are **Kriseinfo.no** and **Sikkerhverdag.no**, both developed and administered by DSB.

2.5.3 Kriseinfo.no – communicating with the public in crisis situations

Under the 'About Kriseinfo' the purpose of the net portal Kriseinfo.no[40] is described. It is specified as a resource base for communicating both *permanent information/content* as well as *information related to specific incidents/crises*. If the government perceives and incident to have consequences for the general population, it will be published at this website. Kriseinfo.no is supposed to provide a complete picture of what happens, *what the individual should do*, and what the government is actually doing. Furthermore, all the content has already been published on other governmental websites, so DSB is responsible for redistributing this information and providing links to relevant original sources. By providing this information, Kriseinfo.no seeks to be as accessible and user friendly as possible for the population[41].
Prior to a crisis, people can read about the preparedness system in Norway, what may happen in terms of crisis, *what the individual can do to reduce the consequences of an incidents as far as possible*, and information about areas of responsibility for public authorities.
During a crisis, updated information will be provided to the public, as well as links to other governmental information sources and responsible actors.
After a crisis, the site will provide information of how central authorities continue to work for those affected by the crisis and *what can be done to return to everyday normal life* (for those affected). All relevant documentation (reports and evaluations) are also supplied for interested parties.
The net portal can also be found on social media, like the Facebook page 'Kriseinfo.no: Information from the authorities to the public before, under and after crises'. This page has 10 729 likes[42], which implies that people 'liking' the page will receive new information automatically in their news feed on Facebook. However, the information provided is only a brief and links to the official website kriseinfo.no.

At Kriseinfo.no 'ICT, Electricity and telecom' is one of eight main categories[43]. Clicking on this label gives you two choices: 'ICT and Telecom' and 'Electricity', as well as a list of five national authorities: Norwegian Water Resources and Energy Directorate (NVE); Norwegian Communications Authority (NKOM); Norwegian National Security Authority (NSM); Norwegian Directorate for Civil Protection (DSB) and The Financial Supervisory Authority of Norway (Finanstilsynet). However, nothing is said about the hierarchy of authorities.

[40] http://www.kriseinfo.no/Utils/Om-Kriseinfo/
[41] It is interesting to note that in Denmark the related kriseinfo.dk was closed down as of January 1 2012 ensuing a political deal. From now on, in case of major crises, the government will inform its citizens on the government's own web pages or on the police web page www.politi.dk. Ref: http://brs.dk/omstyrelsen/presse/nyheder/pages/2012_01_01.aspx (March 24 2015)
[42] As of 27.02.2015
[43] The 7 categories: Weather and Nature; Fire and Explosions; Health, contagion and diseases; Abroad; Terrorism; Transport.



Figur 8: Source – www.kriseinfo.no

2.5.4 ICT/telecom – addressing households/individuals

Clicking on the first link 'ICT and Telecom'[44] provides four additional links related to this topic. One of them is directly addressing citizens by providing information of what to do when mobile communication falls out. The reference to the information provided stems from Nkom (see ch. 3.3.2. above).

Turning back to the net portal Kriseinfo.no, what kind of roles and descriptions are given to the households? By choosing the label 'Telecom and Data' we may choose from four different options:

1. What can you do if the mobile network falls out?
2. How do cyberattacks strike?
3. What are the motivations behind cyber attacks?
4. Vulnerability in the ICT-system

Options 2, 3 and 4 will not be treated here, as they all address information security (intentional ICT attacks) and not vulnerabilities caused by physical damage due to natural hazards.
The information provided to the general public under option 1 focuses on what to do when the mobile network falls out. This information directly addresses the individual citizen:

- You may still reach the emergency number 112, if another network than yours is up and running

[44] http://www.kriseinfo.no/IKT_strom_tele/Tele-og-data1/

- If your are together with others with subscriptions from a different provider, you can borrow their phone for important calls
- If the power is out, you can charge your phone from batteries, for instance your car
- You can investigate what network your provider uses, and then buy an additional SIM-card from a provider that uses a different network.

Concerning mobile network overload, people are informed that this may happen in cases of major crises or other incidents where a lot of phone calls are made simultaneously. This may cause problems of calling or receiving incoming calls. It is suggested that:

- One should only make emergency phone calls. Repeated attempts at calling will overload the network even more
- Make calls if you have vitally important information. In case of overloaded networks SMSs or e-mails sent by mobile phone will take longer time.
- Rather call from a fixed line phone if you have access to this.

Physical damages to the mobile network may occur, usually caused by environmental incidents such as floods, landslides or extreme weather that damages cables etc. Such cables can transport traffic data for several electronic services simultaneously, and repairing damages may take time. The individual can get an overview of the situations by:

- Looking up information about service disruptions on the homepage of your provider (some also use social media actively during service disruptions)
- Contacting customer service of your provider by phone
- Electronic newspapers are usually rapidly updated in the case of larger fallouts.

All these tips and hints on mobile networks are rather commonsensical and practical, and may well be important in many situations. However if people in an emergency situation only have their phone, and the phone network falls out, electronic information is of little help. Such information is particularly pronounced under 'physical damages'.

2.5.5 Power/electricity – addressing households/individuals

By clicking on the second link 'Electricity'[45] citizens are also given four additional links, where one is directly addressing what to do when there is electricity fallout. The sources of information on this page are DSB (see ch. 3.2.2) and NVE (see ch. 3.3.1).

Under the label 'Electricity' we find the following options:

1. What do you do when the electricity network breaks down?
2. What is power rationing?
3. Power rationing – how may the public experience it?
4. Breakdown of the electricity network and power rationing in Steigen munipality

[45] http://www.kriseinfo.no/IKT_strom_tele/Strom/

Options 1, 2 and 3 will be treated here, as option 4 is s giving information about one specific incident and is not relevant to all citizens.
Concerning option 1 – what do you do when the electricity network breaks down[46] – the information provided is both informing about what to *specifically check at home*, as well as more *general information* about extreme weather conditions and long-lasting electricity break-downs. The specific suggestions/information is household-related:

- First check your residual-current device (RCD)
- Then check whether a fuse is opened.
- If these are OK, check if your neighbours have power. If they have power contact your electricity supplier.

The information about extreme weather conditions and long-lasting electricity break-down make direct reference to the Dagmar hurricane. It informs that extreme weather regularly hits Norway. In such situations it may be hard to tell when the power returns. It is important that each and everyone are prepared to handle the situation in the best way possible: Extreme weather is always forecasted on TV, radio etc. The check-list of what is important to think through is also here household-related:

- What possibilities you have for alternative heating
- If you have enough alternative sources of light
- If you will have the opportunity to cook food
- If you have the medication you need.

Regarding option 2 – what is power rationing – the information provided centers on informing about why such rationing may be necessary, and that it implies reduced access to electricity for households. The ways rationing may be implemented is through quotas or through rolling disconnection. The net site states that if governments introduce quotas to households, each household is provided a certain amount of electricity each day, while excess use is very costly. Rolling disconnection means that households have access to electricity only parts of the day (mornings and evenings). Rationing is usually due to limited water in water reservoirs, or due to failures in power distribution caused by damage on infrastructure.

In terms of option 3 - power rationing: how may the public experience it – this page provides similar information as option 2, and also on how households may have to prioritize when using electricity. It is stated that power rationing may last for weeks and that ICT-systems such as internet, fixed line phone and mobile phone networks may be affected. In addition regular 'consumer activities', such as paying with cards in shops, getting cash through ATMs, and filling gas may be affected. This may also cause people to stock up food supplies and gas.

2.5.6 Weather and nature – addressing household/individuals

In addition to ICT/telecom and power/electricity there is another information source for households that can be accessed through the thematic label 'Weather and nature'[47]. This information source is more' fact' based, providing information about 'extreme weather', 'avalanches/ landslides', 'floods', 'volcanic eruptions', 'sun storms', and 'earth quakes'. For the purpose of our project we limit our focus to the first option 'extreme weather'.

[46] http://www.kriseinfo.no/IKT_strom_tele/Strom/Strombrudd/
[47] http://www.kriseinfo.no/Vaer-og-natur/Ekstremvar/

When accessing this site there are additional information categories on:

1. What is extreme weather
2. Notification of extreme weather
3. Damages caused by extreme weather
4. List of extreme weather incidents in Norway
5. What is a storm
6. Security measures prior to a storm

As we focus specifically on how the households/individuals are addressed (and how they are supposed to act/behave in case of a crisis situation), we focus primarily on option 2 and 6. Regarding option 2 – notification of extreme weather – it is stated that the general public is notified about extreme weather through media, and always through the weather forecasts on TV, radio and on the internet.

More general information is also provided, e.g. about how the storm on new year's day 1992 caused massive damages and that from then on preparedness plans were made for notifying the public about extreme weather. In terms of responsibilities, it is the Norwegian Meteorological Institute that is obliged to send out notifications about extreme weather. The first receivers of notifications are 'Flomvarslingstjenesten' at NVE and the County governor (Fylkesmannen) in the affected counties, in addition to the two Joint Rescue Coordination Centers (hovedredningssentralene[48]) in Stavanger (south) and Bodø (north). Notification is further sent to JD and directorates with responsibility for transport, communication and electricity, as well as the police and municipalities in areas affected by storms.

Information is also given on crisis management, and how this implies a range of actors. However it is initially the municipality and local police that have the primary responsibility during a crisis. If the crisis is more extensive, and extra resources are demanded, regional authorities are activated (through the County governor). In highly demanding situations additional assistance can be requested by municipalities, i.e. from the Armed Forces (Forsvaret), the National Guard (Heimevernet), the Civil Defence (Sivilforsvaret) and volunteer organisations.
In terms of option 6 - Security measures prior to a storm – this webpage provides a brief 'what to do' list in case of extreme wind. This list is typically directed at households:

- Make sure that large constructions are securely anchored
- Boats on land, windbreaks and garages can be damaged by wind
- Loose objects must be secured as they can cause dangerous situations
- Buildings under construction must be secured

The reason why we have chosen to have such a close look at this net portal (kriseinfo.no) is that this is the main communication channel for information from the authorities to the public, a site that people are urged to consult both prior to, during and after a crisis situation. The question is still how well known this web source is among the general public, and if it actual-

[48] http://www.hovedredningssentralen.no/english/index.asp

ly can be accessed when a storm hits and electricity and/or telecom (fixed line/mobile) falls out.

2.5.7 Sikkerhverdag.no – communicating with the public about preparedness

The website Sikkerhverdag.no does not concentrate on extreme weather or crisis situations like Kriseinfo.no. Rather it holds a household perspective providing information about products or preparedness themes that individuals/households can consult to improve everyday security.
It is however relevant to our project as it refers to several links concerned with preparing for certain crises situations. There are several main thematic categories that can be consulted. These are; 'Fire', 'Electricity', Fireworks/explosives', Your preparedness', 'Toys and children's equipment', 'Leisure', 'Gas', and 'Safe products'.

Figur 9: Source - http://www.sikkerhverdag.no/

Under the category 'Fire' there are several relevant topics, such as how to prevent fires, how to distinguish fires, how to install and check fire alarms and how to makes sure there are escape routes.

The other relevant category is 'Your preparedness'. This category has three main headings; House and cabin, Weather and environment, and Incidents and crises – and sub-category 2 and 3 are most relevant for our purpose.

Figur 10: Source – www.sikkerhverdag.no

2.5.8 Weather and nature

Under this sub-category there are two themes that appear relevant:

1. 'How to prepare for electricity fallout'
2. 'How to prepare for storms'.

Concerning theme 1 (preparing for electricity fallout) it is stated that you (the household) should prepare to be without electricity for several days and to think through what you actually use or need electricity for. Then a list of preparation measures is provided:

- Heating: woodstoves/fireplaces (or gas heaters) are good alternatives for heating; keep extra wood and matches/lighters
- Food/beverage: Water supply can disappear when electricity fall out. Always keep water stored. For cooking, gas appliances can be used.
- Light: keep torches in accessible places, in addition to light bulbs, batteries, candles or oil lamps.
- Radio (battery-driven): to access news from and information from the government (or use the car radio).
- Emergency power: if necessary keep an emergency generator (and safely stored fuel).

Concerning theme 2 (preparing for storms) there is also a list of what to do:

- Secure objects and tidy up things that can be damaged/cause damage (outdoor furniture, tents, trampolines, toys, flowerpots, etc).
- Check roofs and walls, e.g. roof tiles and wall plates, and also antennas, roof gutters, etc.
- Divert water away from the house, check clogged roof gutters and drains.
- Keep indoors with windows shut when the storm hits.

2.5.9 Incidents and crisis situations

Under this category there are two particularly relevant themes:

1. 'Crisis information from the government'
2. 'Preparedness in the home'

Regarding theme 1 (crisis information)[49] it is basically informed that kriseinfo.no is the main portal for information prior to, during and after a crisis incident. Information comes from several government authorities while Kriseinfo.no gathers and compiles this information so that you (the citizen) will find all relevant information.

Regarding theme 2 (preparedness)[50] this sub-theme basically sums up some of the other preparedness issues from the previous chapter. It asks the individual/household to think through various scenarios and how oneself is exposed and may be affected. It also asks people to be prepared, in particular if electricity fails, as this is needed for heating, lighting, cooking food, heating water, various electrical appliances etc. Hence one should keep a small stock of food, water and heat sources.

[49] http://www.sikkerhverdag.no/din-beredskap/hendelser-og-kriser/kriseinformasjon-fra-myndighetene/
[50] http://www.sikkerhverdag.no/din-beredskap/hendelser-og-kriser/beredskap-i-hjemmet/

Figur 11: Source - http://www.sikkerhverdag.no/din-beredskap/hendelser-og-kriser/beredskap-i-hjemmet/

The Sikkerhverdag.no web source seems to address most issues relevant to households concerning safety measures, both related to 'domestic' hazards and related to external hazards such as extreme weather. In other words the public is addressed both as individuals and as households, and as consumers and citizens.

The tips and check lists from Sikkerhverdag.no may seem obvious but are still relevant as reminders to most households. We still do not know how many actually follow these tips, or if households take other measures that they have come up with themselves. Sikkerhverdag.no also makes a cross reference to Kriseinfo.no, while this does not seem to be the case the other way round.

2.5.10 Preparing households – the DSB website

The DSB website also makes 'markets' the Sikkerhverdag.no on its main page through revolving information on the top banner and through the link 'private persons'. While Sikkerhverdag.no is easy to find through the DSB website, Kriseinfo.no is hard to find. It is not placed or linked to on the main page, and is not figuring under the sub-links to main links such as 'National preparedness' and 'Regional and municipal preparedness'. A search using the search function on Dsb.no (keyword: Kriseinfo) only gives information about publications. By going through e.g. the 'National preparedness' link there is information about 'Coordination' (Samordning) and about 'Vulnerability and preparedness (Sårbarhet og beredskap). Non of these have references to Kriseinfo.no. Under the latter link there is a theme on 'Preparedness at home'. This provides the same basic list about what to keep at home if there is electricity fallout – but there is no further reference to Kriseinfo.no. However, we saw from the chapter 3.1.3 that the central government website provided direct link to Kriseinfo.no.

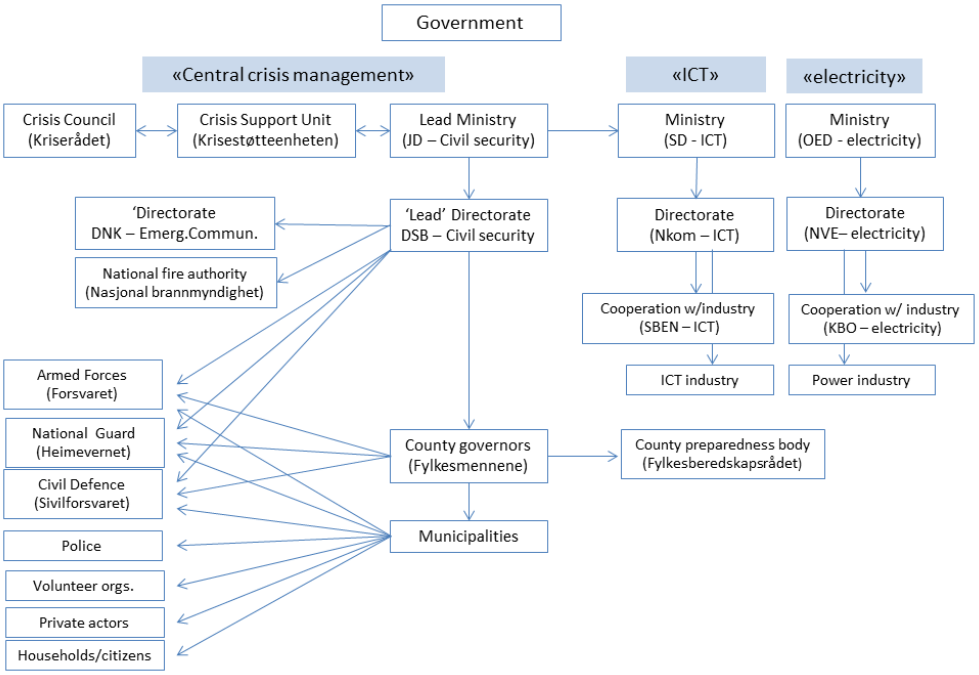
2.6 Conclusion

The main findings of this document relates to the following:

1. **The Norwegian risk regime related to 'civil security and preparedness':**

- It appears that over time risks and vulnerabilities are becoming increasingly *more complex* and *sector transcending.*

- This development leads to amplified needs for *cooperation and coordination* of efforts (preparedness and crisis management), but also increased *delegation of responsibilities.*
- Hence more responsibility is being attributed to the regional and local levels (such as municipalities), both in terms of crisis management, coordination and preparedness (i.e. through ROS and formalized cooperation with local actors).
- *Communication* is becoming more central, both among governments/public sector themselves and between the government/public sector and citizens (increased requirements for outreach and dialogue).
- It appears that up until recently preparedness responsibilities in the electricity and ICT sectors have not been properly addressed. This is now changing, and the suppliers are more involved in the regime.
- The risk regime as identified in this report is summed up in the following graphic:



2. The role of households in the Norwegian 'risk regime':

- From the review of various governmental/official documents and websites it appears that households and individuals are rarely addressed.
- In fact, households are not directly addressed at all (only implied) while 'citizens' or 'the population' are the most common references.
- The population (as individuals or aggregates) is attributed different roles depending on the focus of the specific documents/websites.
- In *crisis situations* individuals are addressed as:
  - subjects in need of 'protection' (potential victims of crisis situations).
  - subjects to be 'informed' (recipients of public information about crises situations).
  - subjects that are 'active communicators' (in need of well-functioning telecom networks).
- In *preparedness situations* individuals are addressed as:
  - subjects to be educated as 'responsible citizens' (in practical terms; taking care of themselves, their household, others).
  - 'knowledge subjects' (in general terms; enhancing their general understanding of risks and unexpected incidents in society).

  - ‘consumers’, primarily related to telecom (consumers) and electricity (consumers/households).
- In *civil protection* laws individuals are addressed as:
  - subjects in need ‘protection’ (potential victims).
  - ‘resourceful subjects’ (required to support evacuation efforts, and to provide transport/shelter for others).
  - ‘independent subjects’ (taking care of themselves through self-protective measures).
- The two main information sources directed at the general population, and which more specifically address citizens/households, are **Kriseinfo.no** and **Sikkerhverdag.no**
- Both sources hold a great amount of information; kriseinfo.no is primarily dedicated to ‘crisis situations’ while sikkerhverdag.no is directed at ‘preparedness efforts’.

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NOU 2006:6 *Når sikkerheten er viktigst - Beskyttelse av landets kritiske infrastrukturer og kritiske samfunnsfunksjoner* (by Infrastrukturutvalget). Ref: https://www.regjeringen.no/contentassets/c8b710be1a284bab8aea8fd955b39fa0/no/pdfs/nou200620060006000dddpdfs.pdf

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Prop. 1 S (2014-2015) OED Proposisjon til Stortinget (forslag til stortingsvedtak). Olje- og Energidepartementet. Ref: https://www.regjeringen.no/contentassets/91e64b2e87c545449dddb852ec7cf0d5/no/pdfs/prp201420150001oeddddpdfs.pdf

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St.Meld [Meld. St.] 29 (2011-2012) Samfunnssikkerhet (Civil security). Ref: https://www.regjeringen.no/contentassets/bc5cbb3720b14709a6bda1a175dc0f12/no/pdfs/stm201120120029000dddpdfs.pdf

3 National Risk Regime in Sweden: The Role of Citizens

By Linda Kvarnlöf

3.1 National risk regimes in Sweden

Swedish Civil Contingencies Agency (MSB) is the government agency in Sweden whose task is to develop community capacity to prevent and manage crises and emergencies. Swedish crisis management rests upon three principles: the principle of responsibility, the principle of proximity and the principle of equality (SFS 2006: 942). The principle of responsibility means that the person or organization responsible for an activity under normal circumstances has a similar responsibility in crisis and conflict situations (Prop. 2009/10: 1). In other words, no agency or organization has overall responsibility for crisis management and crisis preparedness, the responsibility is on the contrary distributed over several different actors in society, both in the public and private sectors.

The principle of proximity means that a crisis, as far as possible, should be managed where it occurs, by the concerned and responsible actors (SFS 2006: 544). This means that a crisis in the first instance should be managed by the municipality or municipalities where the crisis occurred. Municipal crisis preparedness and management is therefore very extensive and includes both fire and rescue services and crisis preparedness and management as performed by municipal departments such as health and social services and public schools. If necessary, the County is obliged to support and coordinate municipal crisis management (SFS 2006:942). This is many times the case when a crisis affects several municipalities at the same time or when the municipal resources are scarce. If the crisis cannot be managed at county level, central agencies such as MSB or Swedish Armed Forces can offer their support at a national level. The division of responsibilities within Swedish crisis preparedness and management can thus be described as bottom-up, where the responsibility for crisis management first and foremost lies at the local/municipal level and then, if necessary, can be shifted to regional or national level.

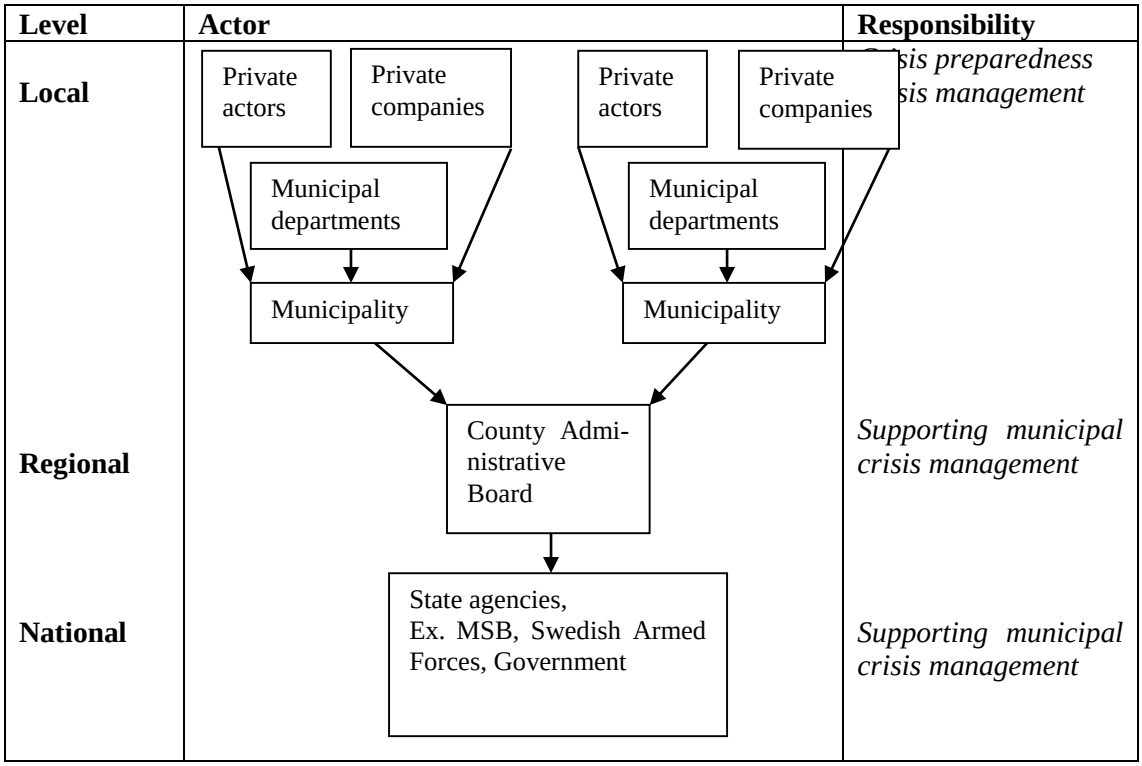

Figure 1. Actors and functions in Swedish crisis preparedness system

The principle of proximity is an expression for the local responsibility that permeates Swedish crisis preparedness, meaning that those local, regional and national actors responsible for a sector in normal conditions are responsible for managing those risks or crisis that might affect this sector. In other words, municipalities, counties and government are responsible for their respective geographical area and the necessary planning, cooperation and coordination that comes about as well before as during a crisis. This local responsibility includes focusing, prioritize and coordinate the inter-sectoral actions that are necessary for a strong crisis preparedness and management (SFS 2006: 942). However, inherent in the local responsibility of crisis management is the fact that no authority is superior to any other, or overall responsible when it comes to crisis preparedness and management: the keyword here is *coordination*.
The third principle, the principle of equality, means that organizational crisis management, as far as possible, should be built upon the organizations normal functions, tasks and responsibilities.

In summary, the responsibility for crisis *preparedness* primarily lies on municipalities, counties and individual businesses, companies or organizations. Crisis management at the regional and state level are activated only when the municipalitys' own resources for some reason is not enough. Therefore, the division of responsibilities in large part is governed by what kind of crisis situation that caused the activation of crisis management. For example, in extraordinary events such as the tsunami in 2004 or the Västmanland wildfire in 2014 both regional (e.g. county) and state actors (MSB, Swedish armed forces) where activated to support, or in some cases even take over, the crisis management, while local stakeholders and local crisis managers are responsible for "everyday" emergencies and crises. In relation to both the tsunami and the wildfire in Västmanland, however, both the County Administrative Board and State agencies were criticized for reacting too late and too slow (see Boin, 2005; Landgren & Borg Lund, 2014).

3.2 National systems and actors relevant to outages of electricity and ICT

3.2.1 The Swedish Energy Agency

The Swedish Energy Agency is a government agency for national energy policy issues. The Agency's mission is to promote an energy system that is sustainable and cost-effectively with a low negative impact on health, environment and climate. The Swedish Energy Agency is also responsible for the development and coordination of crisis preparedness regarding the energy system and supports other actors with expertise in the area (ER 2014: 24). The Swedish electricity infrastructure can be described from three functional system levels: national (stamnät), regional (regionnät) and local (lokalnät) (ER2013:25). On a national level the electricity infrastructure is connected to neighboring Nordic countries as well as Poland and Germany. On a regional level, the electricity network supply electricity to large customers and to local networks. The local networks then transmit electricity from the regional networks to households, most industries and businesses in the service sector.

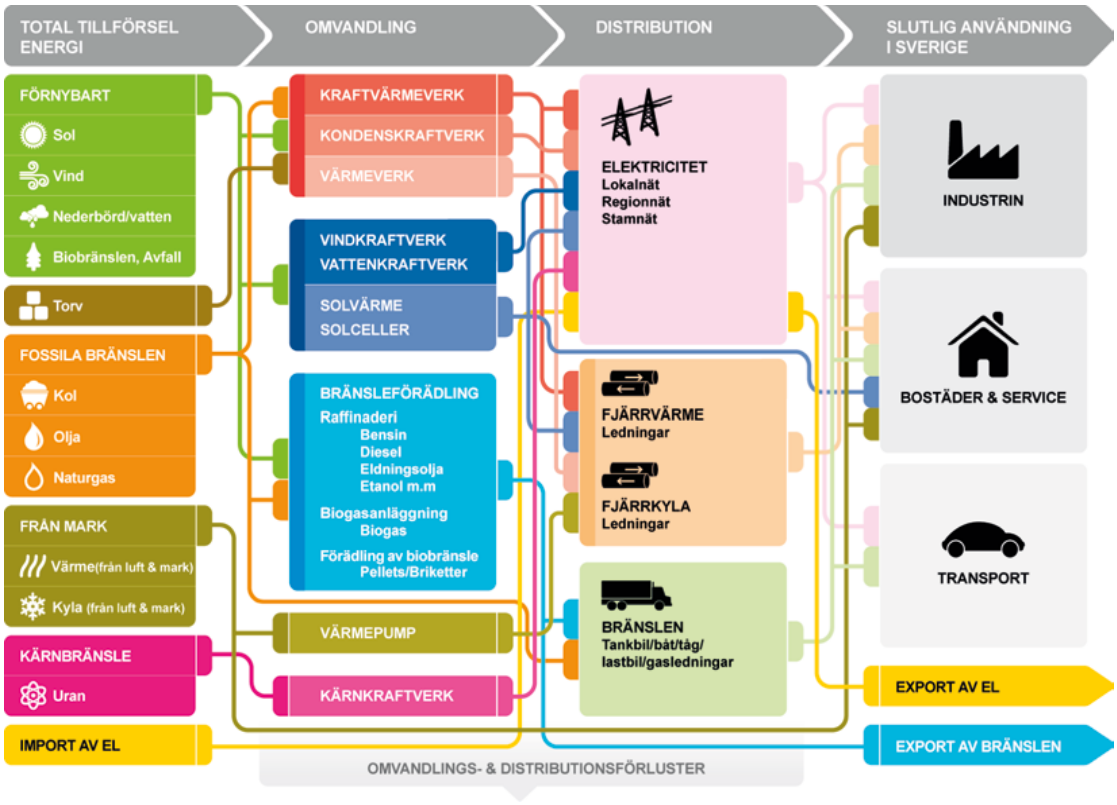

Figure 2. Systematic overview of the Swedish energy infrastructure (ER2013:25, p.15)

The Swedish energy market mainly consists of the following actors: producers, traders, distributors and users. A *producer*, in this context, is an actor who produce electric power and is connected to the power system (kraftnätet). The producer mainly sells electricity to the electricity exchange and only a small proportion to electricity suppliers or customers. There are, since the deregulation of the electricity market in the 1990s, no constitutional requirement for electricity producers to produce electricity. Electricity producers choose if, when and to what extent they produce electricity. This applies at least as long as the consumption regulation of electricity has not been introduced. In a situation where power rationing is introduced, the government can provide that Swedish Kraftnät will be responsible for long-term planning and direction of electricity, which could mean that the Swedish Kraftnät in this position may require a company to produce electricity.

Electricity *traders* buy and sell electricity for consumption, they are the providers of electricity. Through the electricity law (1997:857) 8 chap. 4§, electricity traders are obliged to supply as much electricity as needed by their consumer, where the amount of electricity consumption is specified through a contract between the consumer and the trader. *Distributors* are the electricity companies that connects and transmits electricity to the consumer's electrical installation. The electricity law (1997:857) puts demands on distributors when it comes to both compensation for electricity outages, functional requirements and quality. For example, the electricity companies are obliged to both compensate the customers at long term power outages and recompense those injuries caused by the outages.

Overall, the Swedish Energy Agency has a strategic responsibility for the security of energy supply, however not being a superior agency with the overall responsibility for energy crisis preparedness (ER2013:25). Rather, the principle of responsibility and proximity that governs Swedish crisis preparedness in general (cf. SFS 2006:544) means that actors responsible for energy supply under normal conditions are responsible for energy supply in crisis situations as well. This also means that the responsibility for securing their own energy supplies is first and foremost at the local level: the consumers and the communities within which they live.

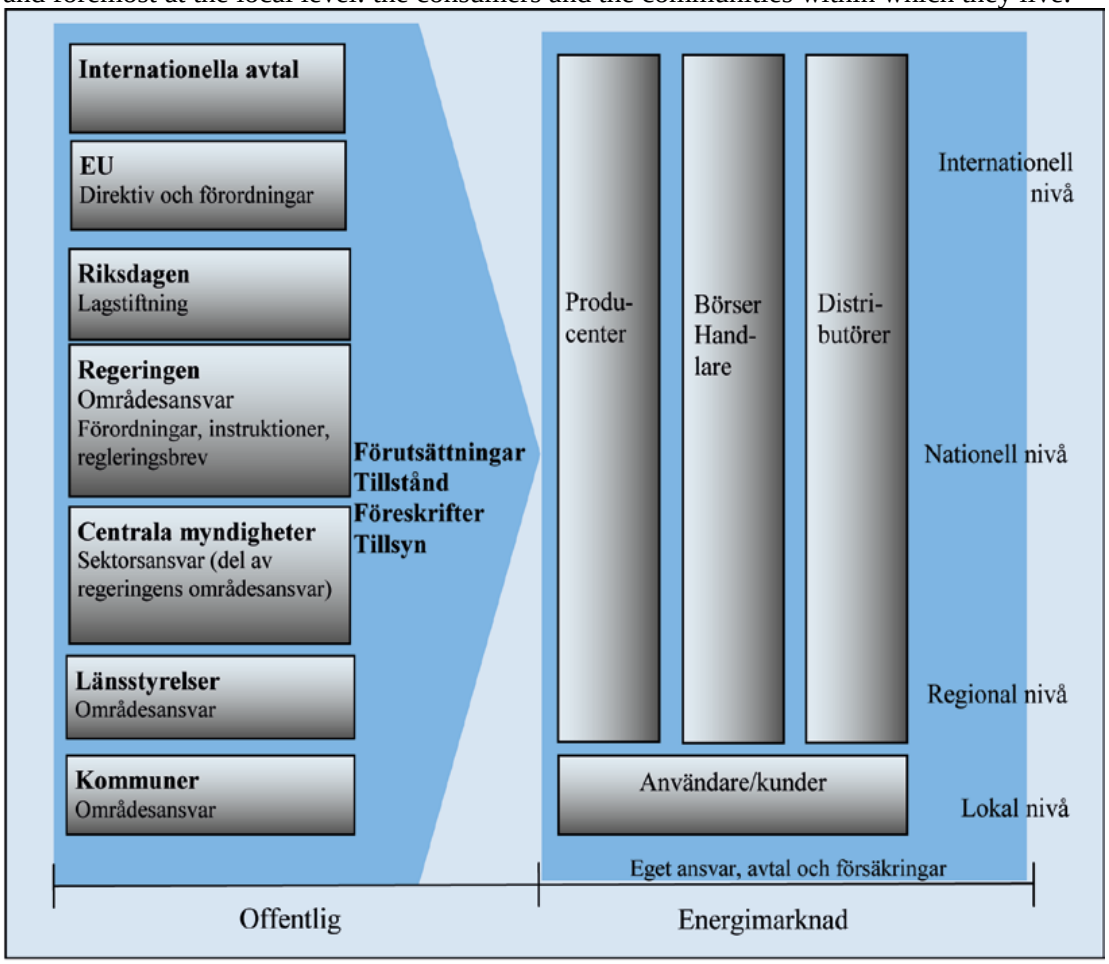

Figure 3. Distribution of roles and responsibilities between public sector and the energy market (ER2013:25, s.10)

The public sector exerts a direct influence on the energy market in four levels by setting the conditions and limits of market behavior. Through both general and sector specific laws and regulations, which are often based on EU directives, the authorities, county councils and municipalities are given different responsibilities (see figure 3). The Swedish Energy Agency (2014) emphasizes that the principle of responsibility also includes the individual's responsibility in emergencies and crises: while the government are responsible for national energy

security, individuals and companies also have an important role in emergency preparedness efforts not least when it comes to securing one's own energy supply.

A recent risk and vulnerability analysis from the Swedish Energy Agency (2014) shows that power outages lasting longer than the statutory requirement of 24 hours occurs annually in Sweden and that such outages usually are a result of weather-related events such as heavy storms. The risk and vulnerability analysis also shows that power outages very seldom are caused by disruptions in the national electricity infrastructure (stamnät), but usually depends on disruptions in the local electricity networks. Thus, the local networks and its users are much more vulnerable to power outages compared with the national network and its users. In other words, rural residents are more often affected by long term power outages compared with urban residents connect to regional or national networks.

3.2.2 The Swedish Post and Telecom Authority (PTS)

The Swedish Post and Telecom Authority (PTS) is a state administrative authority organized under the Ministry of Industry, with overall responsibility in the postal and electronic communications (telecommunications, IT and radio). PTS describes their responsibilites in terms of four different goals, where the forth one specially enlightens the authority's responsibility for crisis management and preparedness: (1) long-term consumer benefit, (2) long-term sustainable competition, (3) effective use of resources and (4) secure communications (PTS 2012:13). PTS responsibility for secure communications are specified in the regulation (2007:951) with instructions for PTS, where one of the main tasks for the authority is to promote the access to secure and efficient electronic communications (p.1) as well as to strive for robust electronic communications and to reduce the risk for ICT breakdowns and to promote increased crisis management capacity when it comes to ICT breakdowns (p.15).

Just like the energy market, the Swedish telecom market was deregulated in 1993 and the Swedish Post and Telecom Authority (PTS) replaced the former governmental *Televerket.* However, *Televerkets* former overall responsibility for the national net infrastructure (stamnätet) was dissolved. Instead the responsibility for net infrastructure was distributed to each net operator for which PTS is only a monitory agency. The Swedish ICT net infrastructure rests upon three different kinds of networks: *stomnät* (national), *stadsnät* (regional/local networks that provide access to the national network), *lokalt accessnät* (provide access between consumers/net users and the regional/local networks). While the national net infrastructure is operated by four central actors (Banverket, Svenska Kraftnär, Telia and Teracom), there are hundreds different local networks and thousands local access nets. Since each network operator is responsible for the network infrastructure within which they operate, the primary responsibility for safe and robust communications lies on each individual operator – in times of normality as well as in times of crisis and ICT breakdowns (PTS 2012).

Since the deregulation of the Swedish telecom market, the number of tele operators have exploded and in 2014 there was about 150 registered tele operators on the market. In a recent risk- and vulnerability analysis (PTS 2014:28) the majority of the net operators on the telecom market are estimated to have a good crisis management capacity and a good capacity to prevent long term breakdowns. Small scale operators, with a not yet fully developed crisis management capacity, seems to be more vulnerable than larger operators. More so, the risk- and vulnerability analysis points out long term electricity breakdowns, storms, lightning, flooding and overload situations as possible threats to ICT communications. Here, PTS underlines the fact that, more than causing breakdowns in communications, the different weather related threats many times causes extensive restoration work.

3.3 The role of households in national preparedness documents

3.3.1 The role of citizen and households at MSB website

In Sweden, the Department of Justice is the department responsible for crisis preparedness. The Swedish governments' website[51] contains general information about crisis preparedness. As a part of this information there is a headline named "Who does what in crisis preparedness?" Here, households or citizens are not even considered as an actor in crisis preparedness. However, the Swedish civil contingencies agency (MSB) discuss the responsibilities and capabilities of households and citizens in quite large extent. For example, MSB has a special website[52] that focuses on the safety of households and citizens. Here, both responsibilities and obligations concerning ones own safety are discussed. For exempel, by refererring to *Lagen om skydd mot olyckor* (SFS 2003:278):
"*Lagen om skydd mot olyckor* rests on the principle that the individual is primarily responsible for protecting their own life and property. This means that you are responsible for implementing and finance necessary measures in order to prevent and limit damages caused by an accident. It is only when you are not able to handle an event on your own that the public is obliged to provide support"[53]

The website also offers a short summary and definition of citizen responsibilities for crisis preparedness[54]:

[51] http://www.regeringen.se/sb/d/12083/a/244705

[52] www.dinsakerhet.se

[53] www.dinsakerhet.se/Din-krisberedskap/Alla-har-ett-ansvar/

[54] http://www.dinsakerhet.se/Din-krisberedskap/Alla-har-ett-ansvar/

Figure 4. A short summary of citizens' responsibilities as presented on MSB website

More than clarifying households and citizens' own responsibility related to crisis preparedness the website appears to have the ambition to strengthen household preparedness and their

understating of their own vulnerabilities. For example, there is a checklist for "home preparedness" that the individual should be able to use in order to prepare for long term electricity breakdowns[55]:

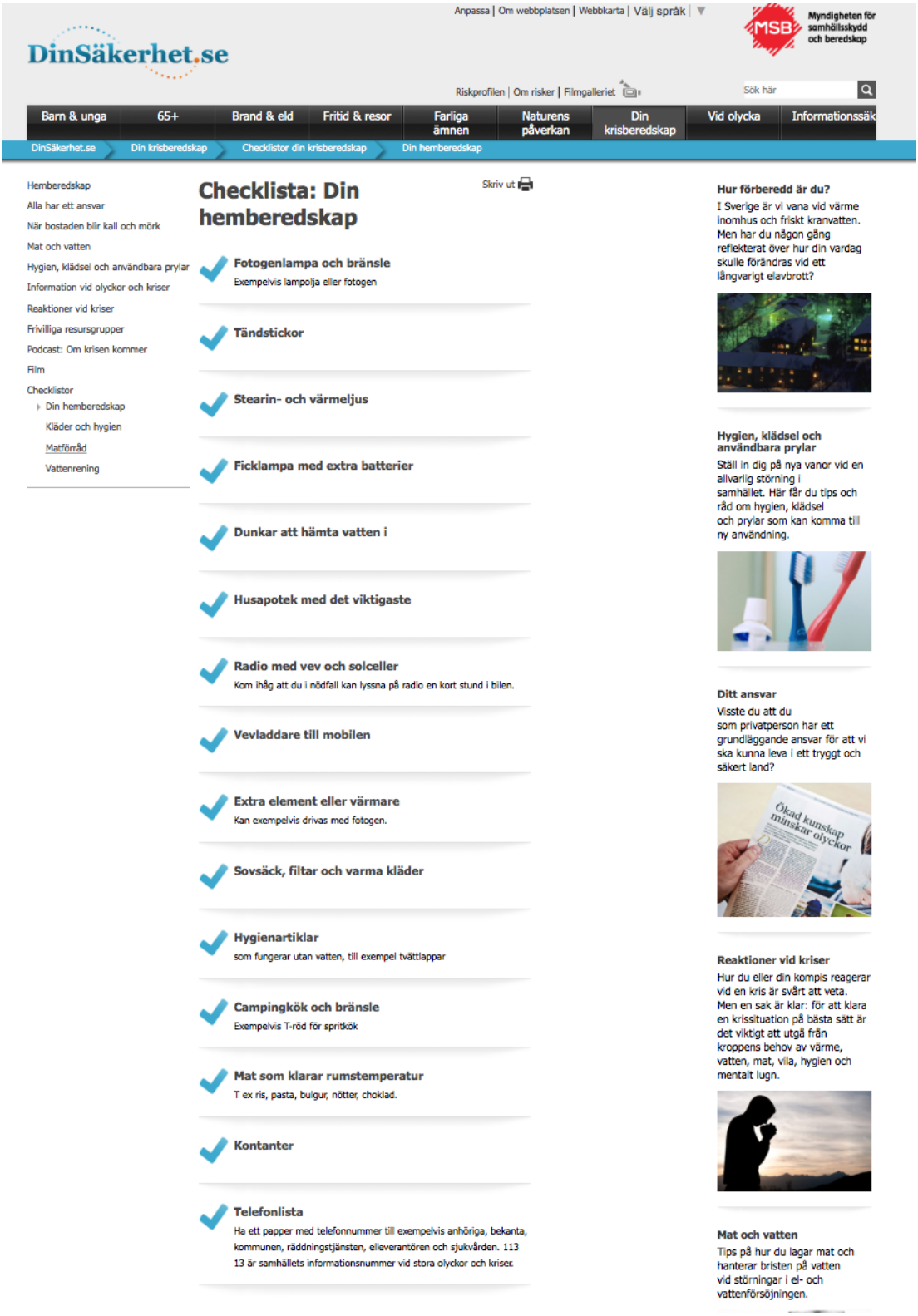

Figure 5. Checklist for household preparedness

[55] http://www.dinsakerhet.se/Din-krisberedskap/Checklistor/Din-hemberedskap/

Information to the public about responsibilities and preparedness is considerably more extensive when it comes to electricity breakdowns compared to ICT breakdowns (e.g. www.dinsakerhet.se; www.krisinformation.se; www.civilförsvarsförbundet.se; www.energimyndigheten.se). For example, the checklist in figure 5 above in large part deals with household preparedness in relation to long terms electricity breakdown, where preparedness regarding ICT breakdowns are only mentioned briefly. For more information concerning crisis preparedness and ICT breakdowns, citizens are directed to the PTS website where they are considered as consumers rather than subjects for crisis preparedness. The website[56] contains information about the *consumers'* right to compensation in case of ICT breakdowns, instructions about how to prepare for such breakdowns are not mentioned at all.

3.3.2 The role of citizens and households in laws and regulations

Worth noting is that there are far more bills, policies and inquiries concerning citizens and households crisis preparedness than there is actual legislation. Below, the most central bills, inquiries and laws in the subject are discussed.

Säkerhet i en ny tid (SOU 2001:41)
This inquiry underlies several bills and following legislation in the area of crisis preparedness (e.g. SFS 2003:778). The inquiry mainly concerns public authorities' responsibility for crisis preparedness, but also emphasizes the fact that citizens are responsible for both preparing themselves and taking action. In order to create conditions for individual crisis preparedness and management, active authorities that communicate risk assessments with citizens and households are required. The inquiry also emphasizes the importance of reasonable requirements when it comes to citizen and household crisis preparedness. Even if they can be expected to take actions in order to protect themselves and their home, the overall responsibility always lies on the authorities. The inquiry also says that people's increasing dependence on technical systems and infrastructure increases households' vulnerability. Expectations regarding such an infrastructure to work is high, which also means that individuals have a poor preparedness for longer breakdowns or extensive disruptions in the technical infrastructure. Also, suggestions are made in order to improve citizen preparedness for disruptions in the technical infrastructure.

Lag om skydd mot olyckor (SFS 2003:778)
Above all, this law specifies the governmental and municipal responsibility for crisis management. To some degree, this law also specifies the responsibilities of citizens in emergency response, for example in 2 chap 1§ where citizens responsibility to warn and call for help when discovering an accident. The official duty (*tjänsteplikten*) also means that citizens are obliged to assist in emergency response if the emergency manager decides so (chap 6).

Samhällets krisberedskap – Stärkt samverkan för ökad säkerhet (Skr. 2009/10:124)
Following a devastating fire in Rinkeby in 2009 that caused the death of four children and their mother as a consequence of insufficient knowledge when it comes to evacuation behavior, the Swedish government created a working group in order to "analyze and value how to strengthen the capacity for fire safety through information to citizens as well as to organizations" (Asp & Sjölund 2013:37). The missive *Samhällets krisberedskap – Stärkt samverkan för ökad säkerhet* present the results from this investigation. Here, the swedish government (through the working group) underlines that citizens are primarily responsible for protecting their own life and property and to avoid causing accidents. Knowledge about how to cope with an accident is considered being the best protection and the government thus point out education as the most important measure in order to strengthen citizens' capacity to manage

[56] http://www.pts.se/sv/Privat/Telefoni/Fast-telefoni/Konsumenters-rattighter-vid-teleavbrott/

accident and crisis correctly. More so, the Swedish government points out that citizens responsibilities include to active take part of crisis communication and follow authorities' guidelines both under, during and after an accident or crisis. As a consequence of this missive, the government ordered MSB to develop a national strategy for strengthening fire safety through support, education and information to citizens and households. This missive is also reflected in the government's budget proposition for 2010-2012, where more financial resources where given in order to strengthen citizens' crisis preparedness and capability to cooperate with the surrounding society.

3.4 Concluding remarks

Citizen responsibilities, or preparedness information, related to electricity or ICT breakdowns is not at all discussed at the PST or the Swedish Energy Agency website. It is also notable that both PST and the Swedish Energy Agency treat citizens as consumers rather than subject capable of crisis preparedness and management. Instead, citizen and household preparedness regarding long term electricity breakdowns is discussed at the MSB website and dinsäkerhet.se. Overall, citizen and household responsibilities and capabilities in crisis preparedness are discussed through policies and normative principles rather than being manifested through actual legislation. In those case where citizen responsibilities is mentioned in the legislation, as in *Lagen om skydd mot olyckor*, it refers to crisis *management* capabilities rather than crisis preparedness.

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4 National Risk Regime in Iceland: The Role of Citizens

By Böðvar Tómasson

4.1 The structure of risk regime

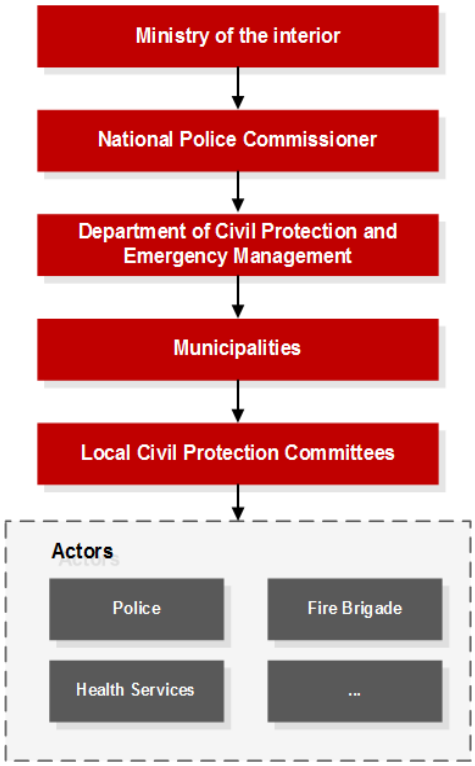
The civil protection law (*Civil protection law No 82*, 2008) defines the general civil protection mechanism in crisis in Iceland, for both land, sea and air. The law define the measures necessary to deal with the consequences crisis that may threaten life and health of the public, the environment and / or property. These may be caused by natural disasters or human activities, epidemics, military or other reasons.

The ministry of the Interior has the overall responsibility for civil protection in Iceland, but the National Commissioner of the Icelandic Police acts on his behalf.

The municipalities are responsible for regional / local civil protection, in cooperation with the government. The municipalities point Civil protection committees (ísl. Almannavarnanefndir) that are responsible on a local level, in cooperation with the state for civil protection policy on a local level.

The National Commissioner is authorized to negotiate with private institutions, organizations or other parties that they should carry out civil protection in a particular area.

In the state of emergency (almannavarnaástand) the National Commissioner of the Icelandic Police, may summon any adult person, which is available, for immediate assistance with work for civil protection. These decisions of immediate assistance to civil defense cannot be appealed to a higher authority.



Figur 12 Actors of the civil protection mechanism

4.2 Preparedness and planning

The Department of Civil Protection and Emergency Management at the National Commissioner of the Icelandic Police is responsible for the overall preparedness planning in Iceland. In addition, the National Commissioner of Police is responsible for monitoring the preparedness planning of private actors.

The Civil protection committees are responsible for preparedness a local level. There are 21 committees; within 9 police districts (see Figure 2 ("Lögregluumdæmi," 2015)).

Figur 13 Police districts of Iceland

The implementation of civil protection are extensive obligations imposed on the National Commissioner responsible for Civil Protection. These include preparation of risk assessments, setting *national risk level* (*Almannavarnastig*), oversee preparedness planning, coordination actions and control their peril.

The Civil protection committees are responsible for carrying out both risk assessments and response planning, and can have an internal cooperation, if necessary. The national police commissioner is responsible for coordination.

Furthermore, municipalities and their organizations are required to do resilience assessments As mentioned earlier, involves civil emergency management in planning and control measures in large trauma and emergency, planning of reflex and evacuation plans, with procedures and checklists in cooperation with local people and organizations. Coordinating actions with mitigation and prevention measures, preparedness, response and reconstruction after trauma in the country are among the main tasks of civil protection.

4.3 State of emergency – Crisis management

The civil protection law (*Civil protection law No 82*, 2008) defines the process for crisis management in Iceland. Management at the regional level when the state of emergency is in the hands of the chief of police in the respective police. He is a part of operation committee (*aðgerðarstjórn*) along representatives from the civil defense committee, representative of ICE-SAR, a representative of the Red Cross, the relevant bodies defined in relevant response plans and other relevant parties related to actions each time. The Police Commissioner shall nominate site officer for control and coordination on the ground.

If the crisis cannot be handled on a local level, the Department of Civil Protection and Emergency Management at the National Commissioner of the Icelandic Police takes control. The National Commissioner of the Icelandic Police may declare a state of civil emergency when emergency is likely, is imminent or has occurred, or similar circumstances. In the state of emergency, the police officer in the relevant police district has the overall control,
In the state of emergency (*almannavarnaástand*) The National Commissioner of the Icelandic Police, may summon any adult person, which is available, for immediate assistance with work for civil protection. These decisions of immediate assistance to civil defense cannot be appealed to a higher authority.

Municipal crisis preparedness and management is therefore very extensive and includes both fire and rescue services and crisis preparedness and management as performed by municipal departments such as health and social services and public schools.

4.4 Communication

Emergency communication is handled by Neyðarlínan ohf. operating the 112 central, which is nation-wide emergency communication system. Neydarlinan is responsible for the TETRA public safety radio network in Iceland. The network is used by all respond units around the country including:

- police
- ambulance
- firefighters
- search and rescue teams
- energy companies

Allowing all those users to communicate in accidents or crisis control. Many of the sites are remote in the mountains allowing communications in previously uncovered areas, along with GSM for public users to call for help in case of emergency. (“112 - Neyðarlínan,” 2015)

The TETRA system is owned by Öryggisfjarskipti ehf and operated by Neyðarlínan. The majority of its users consists of first responders. Other parties are dependent on TETRA-communication such as large industries etc. The system consists of centralized system equipment located in Skógarhlíð 14 in Reykjavík and 157 TETRA-transmitters (BTS, Base

Transceiver System) which are located across the country. The BTS's are located in their own facilities or facilities owned by other companies (Gunnarsson, 1995).
The TETRA-system is not without flaws. The system is dependent on electricity making it vulnerable when faced with power failure. The central system for the network is equipped with emergency power and a diesel power generator which in theory could keep the central system going indefinitely if the oil would not run out. Since TETRA is dependent on telecommunication paths from other companies, which have emergency power of 24 hours, it makes certain parts of the system weaker then TETRA would like to, with its 48 hour emergency power. The paths that TETRA tap into in order to maintain operation are not defined as safety communication. They are therefore less resilient than standards made by TETRA and most of them don't have any backup that lasts as long as equipment operated by TETRA (Pálsson, 2015).

4.5 National systems and actors relevant to outages in electricity and ICT

4.5.1 Energy

There are six main actors on the Icelandic energy market: (a) the energy production companies that produce electricity and feed it into the grid, (b) Landsnet hf, which receives electricity from the energy production companies and transports it to distributors, (c) the local distributors, who distribute electricity regionally to the end users, (d) power-intensive industries, which buy electricity in bulk and get it directly from the grid, (e) the energy sales companies that sell electricity to other users, and (f) the National Energy Authority, whose role is to monitor the companies involved in production and sale of electricity. (Hilmarsdóttir, 2015)

Power failure can have a significant or paralysing effect on societies. In general around the country life saving operations are equipped with electricity backup such as batteries and power generators in some form which could be used for some time. Backup power is mainly present in critical services such as police departments, hospitals and fire department. This is however not the case regarding most other operations which can lead to negative impacts on various industries, production, hot and cold water supply and other critical infrastructures (Department of Civil Protection and Emergency Management, 2011). The specific scenario covers an undefined area that suffers electricity failure, the scenario does not represent a certain event in terms of magnitude, duration etc. but only that an event such as electricity failure would occur. (Hilmarsdóttir, 2015)

In case of power failure an emergency collaboration (NSR) has been set up. It is a collaboration platform for processing companies, transport companies, distribution companies, energy intensive companies and official parties in Iceland in case of emergencies regarding, production, transportation or distribution of electric energy (*Electricity law No 65*, 2003). Many of the larger distribution companies have established emergency management where risk is evaluated officially. This includes inspection of electricity production, distribution safety through transmission lines and substations, etc.

4.5.2 ICT

Information and communication technologies have become a significant part of everyone's daily life. Awareness of the need of securing systems relying on these technologies has been growing. Safety regarding radars, air communications, radio distribution networks etc. have

got to be ensured. Emergency response units are highly dependent on the TETRA system which could lead to great lack of communication and coordination should it fail.
Failures in these systems that could be harmful to the society have been pointed out. The failures cover damaged submarine cables connecting Iceland to Europe and America, a long duration of electric power failure, malfunction in fibre optic cables etc. The same applies for failures in other communication systems such as TETRA. Serious failures in these systems are considered to cause a significant impact on safety, economy, transportation and the common good. Special scenario for ICT is a rather broad view of communication breakdown both domestic and to other countries and cyber threats. (Pálsson, 2015)

The Post and Telecom Administration (PTA) is the responsible institute for network and information Security. It runs PTA cyber security team of which the most prominent part is the CERT-ÍS, whose operations relate to information infrastructure that is critical to the country and to operators of electronic communications networks. Direct service from the PTA to the public with respect to cyber security is first and foremost in the provision of information, where the Administration supports increased awareness of network and information security, among other things by maintaining an advisory website www.netöryggi.is. There one can find practical information for the public and for smaller companies on how to enhance one's own security on the Internet. The PTA cooperates with other domestic parties that work on network and information security. [PTA homepage]

One of the PTA's most important roles is to support operational security of electronic communications networks, including connections to other countries and to ensure that security requirements are defined and active surveillance of access to electronic communications is always at least as good as specified minimum requirements. Work on mapping out the status of electronic communications with measurements in distribution systems across the country, for mobile phone, mobile network or radio services alike is one of the tasks. (“PTS Homepage,” 2015) (Pálsson, 2015)

4.6 The role of households in the national preparedness documents

4.6.1 How households are addressed in risk preparedness documents

In Iceland’s national risk assessment emphasis on the role of the general public is almost non-existent. However, the assessment looks at dangers that could affect the general public and how it is the responsibility of key personnel, government etc. to reduce negative impact towards them. Further, it points out that the resilience of people will have to increase in the future by raising awareness through education regarding natural hazards and make them conscious about insurance. No discussion is made regarding what part the general public has to play in times of crisis and what is expected of them. No discussion is given on whether the general public should be able to handle themselves, for a certain time during a crisis, if they should rely on evacuation or should get themselves out of dangerous situations. (Pálsson, 2015)

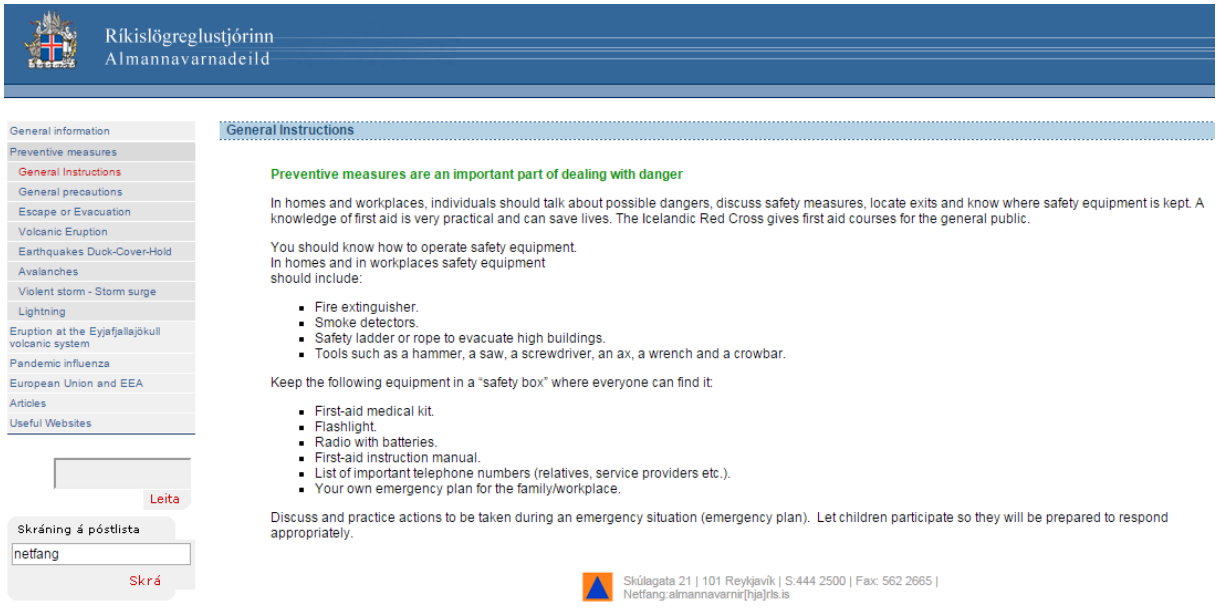
4.6.2 Information to the public

The ministry of the interior is responsible for Civil protection in Iceland, under which the national police commissioner acts. General information regarding civil protection can be found on civil protection site of the National Commissioner of the Icelandic Police (“Civil Protection in Iceland Homepage,” 2015).

Theo focus on this site is on natural hazards and immediate dangers to the public. Very limited information can be found on preparations and response, related to electric infrastructure and ICT.

4.6.3 Almannavarnir.is – preparations and general information

Information for response preparedness for homes and individuals are found on the homepage of Department of Civil Protection and Emergency. The preparation mostly applies for immediate danger situations, like fire, earthquakes and volcano activities. (“Civil Protection in Iceland Homepage,” 2015).



Ríkislögreglustjórinn
Almannavarnadeild

General information
Preventive measures
General Instructions
General precautions
Escape or Evacuation
Volcanic Eruption
Earthquakes Duck-Cover-Hold
Avalanches
Violent storm - Storm surge
Lightning
Eruption at the Eyjafjallajökull volcanic system
Pandemic influenza
European Union and EEA
Articles
Useful Websites

Leita

Skráning á póstlista
netfang
Skrá

General precautions

General precautions if a dangerous situation develops

- If a dangerous situation develops, it is important that families gather together to coordinate their actions.
- If you evacuate your home, keep in mind that mass casualty centres are usually located in schools.
- If a mass casualty centre is not nearby, contact the police (112) and notify them of your whereabouts.
- Report accidents and request assistance by calling Emergency number at **112**.
- If you need assistance and the telephones do not work, and you have no other means of communication, put a cloth or a flag out of a window, or at some other noticeable location, outside the house. In case of emergency, flags or signals, are a request for assistance.
- Do not use the telephone except for emergency purposes. Keep conversations to an absolute minimum.
- Announcements from the Civil Protection are sent to the State Radio and TV as well as other media.

Almannavarnir
Rauði kross Íslands
Fjöldahjálparstöð

If in need for further information after a disaster, contact 112 or your Embassy, Consulat, Travel Agency or Tourist Information Centre. If those are not available, contact the Emergency number **112** or a helpful native.and seek advise

Skúlagata 21 | 101 Reykjavík | S:444 2500 | Fax: 562 2665 |
Netfang:almannavarnir[hja]rls.is

There is also information on radio frequencies, where longwave is recommended if FM signal is not available.

Ríkislögreglustjórinn
Almannavarnadeild

Við vinnum á hættustigi vegna jarðskjálftahrinu við Bárðarbungu
VIÐ VINNUM Á ÓVISSUSTIGI Í HEIMSFARALDRI INFLUENSU
Almannavarnir
Almannavarnadeild RLS
Áhættuskoðun
Náttúruvá
Forvarnir og viðbrögð
Almennar leiðbeiningar
Eldsvoði
Heimilisáætlun
Fyrirtæki - Einkavarnaáætlun
Rýming - brottflutningur
Útvarp
Fjöldahjálparstöðvar
Viðbrögð fyrir skepnur og gæludýr
Stjórnun aðgerða
Viðbragðsáætlanir
Æfingar
Heilbrigðismál
Alþjóðasamskipti
Útgefið efni
Börnin og almannavarnir
Fréttabréf AVD
Kennsluefni
Greinar
Eyðublöð
Myndir úr starfinu

Útvarp

Við hættu- eða neyðarástand eru tilkynningar lesnar í útvarpi.

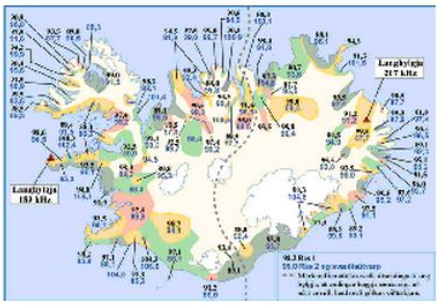
Dreifikerfi Ríkisútvarpsins

Athugið: Ef FM-sendigar nást ekki, munið þá langbylgju Ríkisútvarpsins:

Eiðar: LW **207** og Gufuskálar: LW **189**

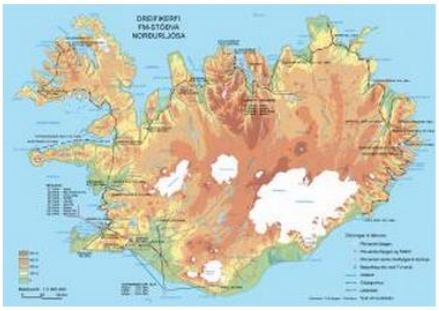
FM dregur ekki eins langt og langbylgjan. Hins vegar er langbylgjan öflug og nær umallt landið og miðin. Lærðu að skipta fyrirvaralaust á milli FM og langbylgju.

Dreifikerfi Ríkisútvarpsins jpg (65 KB)



Dreifikerfi 365 miðla

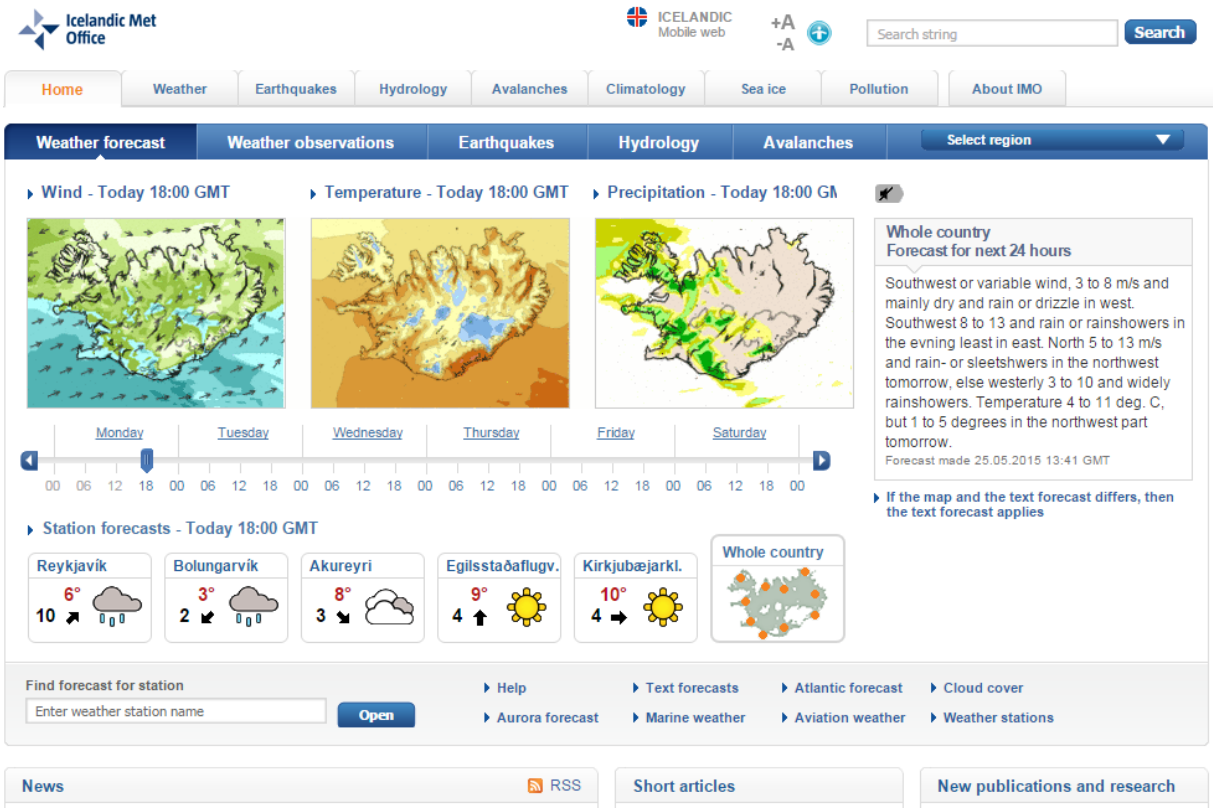
Kortið er úr Íslensku Fjarskiptahandbókinni sem útgefin er af Skjámynd ehf.



Dreifikerfi Norðurljósa pdf (1660,07 KB)
Dreifikefi Norðurljósa JPG (3339,93 KB)

4.6.5 vedur.is - Weather and nature situations

On vedur.is is the website of the [The Icelandic Meteorological Office]. It contains information regarding weather situations and forecast. Also liver update of earthquakes and danger forecasts of avalanches. The site is available in Icelandic and English. (“Icelandic Meteorological Office,” 2015)



4.6.6 Almannavarnir.is – communicating with the public in crisis situations

Information for response preparedness for homes and individuals are found on the homepage of Department of Civil Protection and Emergency. Focus on threats, but not critical infrastructure. It is though recommended that every home have a contingency plan.
(“Heimilisáætlun,” 2015)

4.7 References

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PTS Network and information security. (2015, May). Retrieved May 25, 2015, from http://www.pfs.is/english/telecom-affairs/network-and-information-security/

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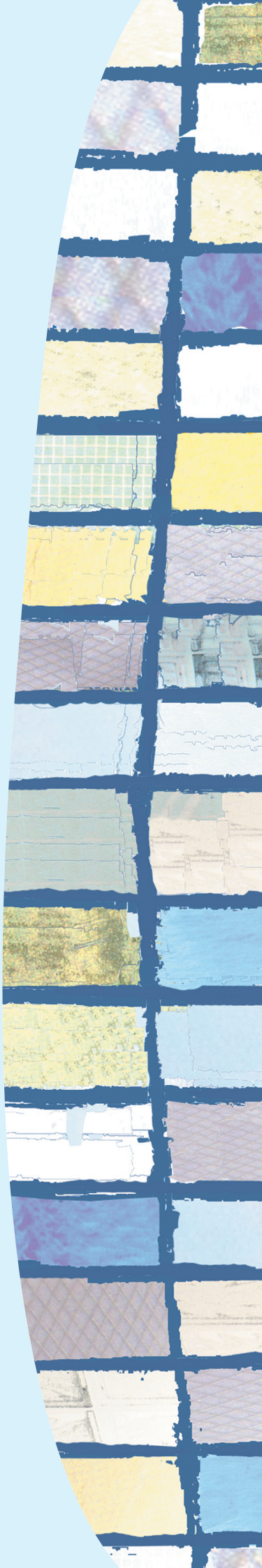
SIFO is a non-bias governmental institute that conducts consumer research and testing. The board of directors is appointed by the Ministry of Children and Equality Affairs which also provides the basic funding. SIFO currently has a staff of 40. The scientific staff is comprised of researchers and other highly qualified personnel from social and natural sciences. SIFO's projects are organized into three categories: Consumption and economy, Market and politics and Technology and environment.



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