



# SkagEx11 Evaluation Report

The SkagEx11 project is co-funded by the Civil Protection Financial Instrument of the European Union



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## Forword

The report you are holding in your hands, describes exercise SkagEx11 and the lessons identified during this exercise, which took place in Skagerrak in September 2011. The Norwegian Directorate for Civil Protection and Emergency Planning (DSB) was responsible for planning and conducting the exercise and is in charge of management throughout the project. The Swedish Civil Contingencies agency (MSB) has had a leading role in the evaluation process, and in the production of this evaluation report. The Danish Emergency Management Agency (DEMA) is responsible for the process of disseminating this report with recommendations for changes that will address some of the findings in this report.

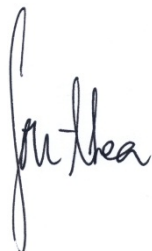
Exercise SkagEx11 is one of the largest civilian exercises ever conducted in Norway. In all, more than 3000 people were involved in this exercise in one way or another. The scenario consisted of a fire on board the passenger ferry MS Bohus, enroute from Strömstad to Sandefjord. An ensuing collision with another ship created a scenario where two distressed ships had to be dealt with simultaneously. The situation required firefighting, evacuation and medical treatment of passengers, and search and rescue (SAR) at the accident site. Firefighting teams and rescue services from Norway as well as neighboring Sweden, Denmark and Finland were involved in this operation.

The Skagerrak basin is among the busiest waters in Northern Europe, with significant shipping traffic consisting of fishing vessels, cargo ships, large passenger ships and a substantial leisure fleet. The coastal regions in this area are densely populated, and the marine environment is fragile. The area where this exercise took place was established as a marine national park in 2009 (Ytre Hvaler nasjonalpark). Should an accident occur in these waters, it could put our ability to handle such a disaster to the ultimate test, both in terms of rescue efforts, and in terms of our commitment to protect the environment. An accident in these waters involving a major oil spill would have serious consequences for the environment and the recreational value of this area for years to come.

We must continuously strive to have sufficient preparedness and capability to deal with major disasters. Although maritime safety in general is very good, there is always inherent danger involved in sea transportation of people and / or goods. SkagEx11 was intended to exercise the civil protection resources in Norway, Sweden and Denmark, and to achieve the best possible preparedness in these neighboring countries to deal with a "worst case scenario" in these waters.

Exercise Skagex11 has been organized as a project funded by the European Union, with a total duration of about two years. Apart from the exercise itself, the project includes the planning phase, as well as a comprehensive evaluation, and follow-up process in the wake of the exercise. It is very important that the lessons identified in this report are dealt with in a manner that makes our ability to handle crisis and disasters even better in the future.

Large complex exercises like SkagEx11 are necessary in order to train interaction and efficient cooperation between actors in case of real emergencies. The most important objective of exercise SkagEx11 was to improve emergency preparedness and crisis management mechanisms within and between the participating countries. I am convinced that we as a society stand better prepared today than we did prior to exercise SkagEx11.

A handwritten signature in black ink, appearing to read 'Jon Lea', with a stylized, cursive script.

Jon Lea  
Director General of DSB  
Head of exercise SkagEx11

## Acronyms and key terms mentioned in the report

English term	Acronym/Abbreviation	Norwegian term	Acronym/Abbreviation
Aircraft Coordinator	ACO		
Base of Operations	BoO		
Chief duty rescue controller (at JRCC-SN)		Vakthavende redningsleder	
Civil National Exercises	CNE	Sivil nasjonal øvelse	SNØ
Common Emergency Communication and Information System	CECIS		
County Governor		Fylkesmannen	
County Medical Officer		Fylkeslege	
Detailed Scenario Episodes Catalogue	DSEC	Dreibok	
Directing Staff of the exercise	DISTAFF	Øvingsledelse	
Disaster Involved Register	DIR		
Emergency Medical Communication Centre	EMCC	Akuttmedisinsk kommunikasjonsentral	AMK
European Union Civil Protection Team	EUCP Team		
European Union Monitoring and Information Centre	EU-MIC		
Evacuee Checkpoint		Evakuerings Kontrollpunkt	EKP
Fire and rescue services (municipal)		Brannvesen / kommunal beredskap	
Helicopter Emergency Medical Service	HEMS		
Host Nation Support	HNS		
Incident Commander		Innsatsleder	IL
Inter-municipal Acute Pollution Committee		Interkommunalt Utvalg mot Akutt forurensning	IUA
International Aeronautical and Maritime Search and Rescue Manual	IAMSAR		
Joint Rescue Coordination Centre	JRCC	Huvudredningscentral	HRS
Joint Rescue Coordination Centre Southern Norway	JRCC-SN	Huvudredningscentral Sør-Norge	HRS-SN

Joint Rescue Management (at JRCC-SN and RSCs)		Kollektive redningsledelse eller blot Redningsledelsen	
Local Emergency Management Authority	LEMA		
Member State	MS	Medlemsland	
National On-Scene Commander	NOSC		
Non-governmental Organisation	NGO	Ideelle organisasjoner	
Norwegian national risk chart		Nasjonalt risikobilde	NRB
On Scene Coordinator	OSC		
Participating States	PS	Deltakende stater	
Persons on Board list	POB list		
Pilot boats		Lotsbåt	
Point of Contact	POC		
Post Exercise Discussion	PXD		
Reception centre		Mottakssenter	
Recue Commander	RC	Aksjonsleder	
Regional Emergency Medical Communication Centre	R-EMCC	Regional akuttmedisinsk kommunikasjonsentral	R-AMK
Rescue response at sea (Also known as Maritime Incident Response Group (MIRG))		Redningsinnsats til sjøs	RITS
Rescue Sub Centre	RSC	Lokal redningssentral	LRS
RITS team leader (lead response officer)		Utrykningsleder	
Role players		Markører	
SAR Mission Coordinator	SMC		
Search and Rescue	SAR		
Search and rescue unit (surface or airborne)	SRU		
Situation report	SITREP	Situasjonsrapport	
Smoke diver		Røykdykker	
Smoke diver leader		Røykdykkerleder	
Supreme On-Scene	SOSC	Innsatsleder Sjø	

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Commander			
Terrestrial Trunked Radio network	TETRA		
Unified/Incident Command System	ICS	Enhetlig ledelse system	ELS

## Executive Summary

SkagEx11 was one of the largest and most complex civil and environmental protection exercises in Scandinavia, with roughly 3.000 people involved in one way or another. It involved a massive response from a large number of organisations, predominately from Norway but also from Sweden, Denmark and Finland. The number of authorities, agencies, companies, NGOs, coordination centres, hospitals, vessels, aircraft and the different teams of responders that took part in the exercise made SkagEx11 very rewarding and highly multifaceted. Not only were they from different local and regional communities but also from different nations – providing an apt opportunity to exercise a number of relevant sectors and their interoperability from a transnational viewpoint. Moreover, a team from the EU Civil Protection Mechanism was also involved.

The exercise scenario was based on the ferry MS Bohus on route between Strömstad and Sandefjord with a simulated list of 800 passengers on board. The ferry experienced fire in the engine room causing it to lose steering and collide with the oil bunker vessel Oslo Tank. The subsequent operation required large scale Search and Rescue, handling of evacuees and casualties as well as protection of the environment from the acute oil spill, which also resulted from the ship's collision.

The objective of SkagEx11 was to examine and help improve emergency preparedness and the crisis management mechanisms within and between the participating states. This objective was generally fulfilled. The exercise was successful and provided a lucrative opportunity to identify strengths that can be built upon and shortcomings that can be overcome. Just as importantly, the exercise provided the opportunity for responders to meet each other, discuss and get to know each other's organisations, and train together – something that has proven extremely helpful in real life emergencies.

Nevertheless, the exercise also identified many possibilities for improvement. A common situation picture that would be relevant for the whole of the accident and that would entail issues relevant to all the different sectors involved was lacking – a tool that offers a holistic view and provides opportunities to find efficient solutions. Another important aspect was information management. While in most cases information was vertically communicated in a satisfactory manner within a sector, the information was not shared as frequently on the horizontal level between different sectors. Moreover, while excellent collaboration was witnessed between responders in the field, from different sectors, this seemed to be more difficult to attain on the operational and strategic command level.

Perhaps the most overwhelming aspect that could be witnessed during the exercise is one that is most commonly taken for granted. The responders engaged in trying to save and protect human life and the environment demonstrated the will to do their utmost at every given moment during the exercise as well as during the planning process. This commitment, together with the conclusions and lessons identified due to SkagEx11, has undoubtedly helped, and will continue to help, increase the level of preparedness in Skagerack and surrounding waters.



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# 1 About SkagEx11

## 1.1 Mandate

The Norwegian Ministry of Justice and Public Security has tasked the Directorate for Civil Protection and Emergency Planning (DSB) to plan and organise the annual Civil National Exercises (CNE), including the CNE in 2011. These exercises are referred to in the General Plan for Exercises and are developed by the organisations involved in the planning process while utilising the Norwegian national risk chart (NRB, Nasjonalt riskobilde) as basis. As a consequence planning for the SkagEx11 exercise started in October 2010 and the exercise itself took place on 7-8 September 2011.

SkagEx11 was a transnational full-scale exercise involving numerous agencies and organisations from predominantly Norway but also from Sweden, Denmark and Finland. As a project, SkagEx11 lasts over two years until October 2012 and is co-funded by the Civil Protection Financial Instrument of the European Union. The overarching objective of the project is to help improve the emergency preparedness as well as crisis management mechanisms within and between the participating countries.

## 1.2 The added value of SkagEx11

In the coastal areas of Skagerack, there are several densely populated areas in which recreation and tourism play a major role. The total number of vessels, consisting of fishing boats, passenger ferries, cruise liners, cargo ships, tankers and smaller yachts is already high, and is increasing every year. The level of traffic is especially high in the waters south of the Hollenderbåen. During 2011, Oslo was the port of call for almost 180 large cruise liners in addition to the normal daily schedule of large ferries that sail these waters north–south, or east–west. There is also a large oil refinery at Slagentangen that is port of call to large oil tankers on a daily basis. Another important aspect to consider is the fact that both Ytre Hvaler and Kosterhavet National Park as situated in this area.

There have been several ship accidents in Skagerack and surrounding waters, often with tragic consequences such as a high number of casualties as well as serious pollution of the sea and nearby shores due to oil spills. During the last 20 years there have been about 20 accidents in the Skagerack area, and those involving Scandinavian Star, MS Langeland and Full City are particularly tragic examples of the relevance of SkagEx11.



Should another major accident occur in these waters, it could quickly escalate into a highly disastrous incident, and put our ability to handle such a disaster to the ultimate test, both in terms of rescue efforts, and in our efforts to protect the environment.

### 1.3 Purpose, focus and objectives

Large, complex exercises like SkagEx11 are necessary in order to train coordination and cooperation. The most important objective of SkagEx11 was to improve emergency preparedness and crisis management mechanisms within and between the participating countries.

According to the Exercise Directive, the main **focus** of SkagEx11 was the exercising of:

- Alarmex
- Strategic crisis management
- Handling of ship on fire
- Search and rescue (SAR)
- Handling of evacuees and casualties
- Handling of oil pollution

According to the Exercise Directive, the **main objectives** of SkagEx11 were:

- To exercise and improve the national, regional and local preparedness as well as coordination between several levels in an emergency situation involving human casualties and serious pollution as a result of a larger ship accident in open sea.
- To test coordination and relevance of EU Civil Protection Mechanism.
- To exercise the understanding of roles and responsibilities at various decision levels during and after a crisis as well as coordination and cooperation between several nations when it comes to SAR efforts and mechanisms for dealing with human casualties and acute pollution.

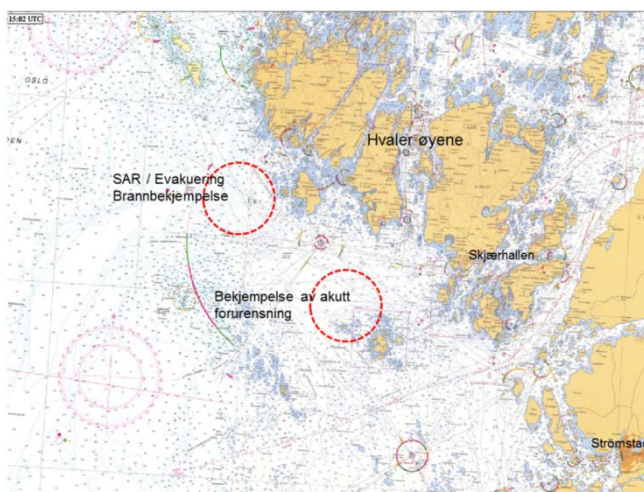
According to the Exercise Directive, **other objectives** of SkagEx11 were:

- To test the relevance of existing emergency plans.
- To train mechanisms for handling a large amount of casualties as a result of an accident at open sea, including the repatriation of wounded and deceased.
- To exercise media management and crisis communication to the public during and after such an incident.
- To test the relevance of existing plans for coping with acute oil pollution.

- To test and verify the relevance of existing plans for dealing with an emergency situation in which several nations are involved.
- To exercise and test procedures for reception of assistance from EU and neighbouring countries.

## 1.4 The scenario

The main scenario of SkagEx11 included the ferry MS Bohus with a simulated list of 800 passengers on board, on route from Strömstad to Sandefjord on 7 September 2011. The ferry experienced fire in the engine room, which resulted in the loss of steering and caused the ferry to collide with the bunkering vessel Oslo Tank. The accident occurred in the outer Oslo Fiord south west of the Hvaler islands and inside the Ytre Hvaler National Park. The chain of events led to a situation where Bohus and Oslo Tank required an immediate and massive cross-sector response.



Besides the need for fire fighting activities on board Bohus, persons from both ships required rescue and transport to reception centres at several locations on both sides of Oslo Fiord, as well as in Sweden, and in some cases re-triaged for further treatment in hospitals. Meanwhile, Oslo Tank simulated a massive oil leak, and a coordinated effort was needed to prevent the spill from polluting Norwegian/Swedish coastlines.

The exercise was played in “real time” and lasted approximately 48 hours. It included a lead-in scenario, alarmex as well as the main events at sea and on land. The exact hours have proven to vary highly depending on what is included or excluded as part of the exercise, hence the approximation. Helna

### 1.4.1 Exercise participants

The list of participants is long, and includes among others the police, search and rescue services (SAR), fire and rescue services, health sector services, and environmental protection assets from Norway, Sweden, Denmark and Finland. There were also participation from different government agencies, municipalities and ministries – though limited. Private companies and volunteer organisations were also involved, and an estimated number of 800 role players were recruited to

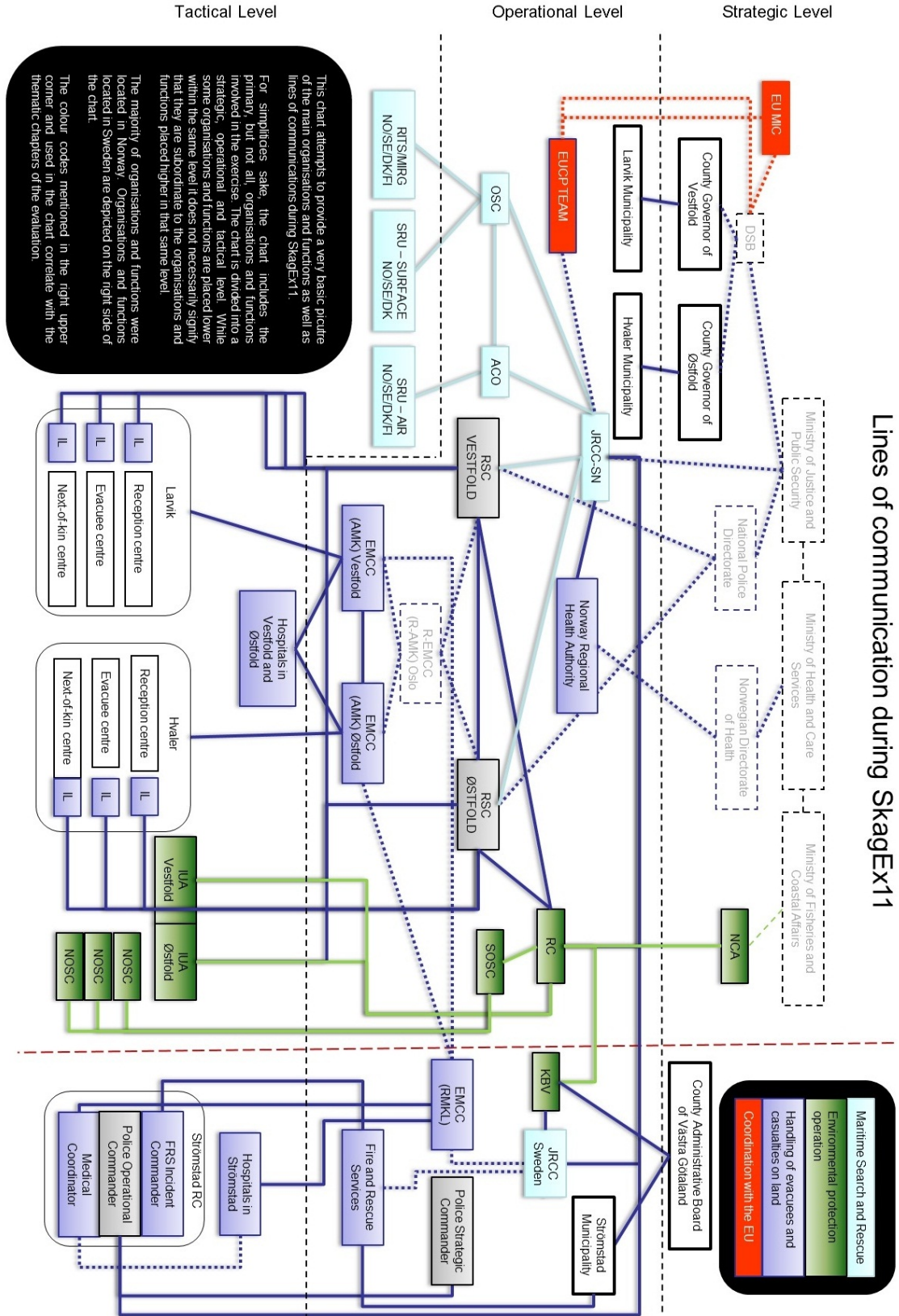
pose as passengers on board the distressed ships<sup>1</sup>. In all, close to 3.000 people were involved in the exercise in one way or another.

In order to offer an overview of what actually took place during SkagEx11, a chart portraying the line of communications that took place during the SkagEx11 exercise is illustrated on the next page. It is important to note that this chart does not provide a near to complete picture, nor does it include all the organisations, focal points and vital functions that were activated during the SkagEx11 exercise. The chart is divided into a strategic, operational and tactical level. While some organisations and functions are placed lower within the same level it does not necessarily signify that they are subordinate to the organisations and functions placed higher in that same level. This is mostly due to the constraints in the process of visualising them within one single chart. Below are some acronyms and abbreviations (in alphabetical order) related to the chart that are not mentioned in the acronyms and abbreviations index inserted in the beginning of this report.

English term	Norwegian/Swedish term	Acronym/Abbreviation
County Administrative Board	Länsstyrelse	
County Governor	Fylkesmannen	
Direktoratet for samfunnssikkerhet og beredskap	Directorate for Civil Protection and Emergency Planning	DSB
Evacuee centre	Evakueringsenter	
Fire and Rescue Services	Räddningstjänsten (Bakre ledning)	FRS
FRS Incident Commander	Räddningsledare	
Hospital	Sykehus / Sjukhus	
Medical Coordinator	Sjukvårdsledare	
Minister of Fisheries and Coastal Affairs	Fiskeri – og kystdepartementet	
Minister of Health and Care Services	Helse – og omsorgsdepartementet	
Minister of Justice and Public Security	Justis- og beredskapsminister	
Municipality	Kommune / Kommun	
National Police Directorate	Politidirektoratet	
Next-of-kin centre	Pårørendesenter	
Norway Regional Health Authority	Regionalt helseforetak	
Police Operational Commander	Polisinsatschef	
Police Strategic Commander	Kommenderingschef	
Reception centre	Mottakssenter / Uppsamlingsplats	

<sup>1</sup> Not all simulated evacuees and casualties were actually on board Bohus or Olso Tank. Some were transported by other ships between locations on land as simulated evacuees in “maritime evacuation packages”.

Regional Emergency Medical Communication Centre	Akut Medicinsk Koordinationscenter / Regional Medicinsk Katastrof Ledning	R-EMCC
Swedish Coast Guard	Kusbevakningen	KVB



This chart attempts to provide a very basic picture of the main organisations and functions as well as lines of communications during SkagEx11.

For simplicity sake, the chart includes the primary, but not all, organisations and functions involved in the exercise. The chart is divided into a strategic, operational and tactical level. While some organisations and functions are placed lower within the same level it does not necessarily signify that they are subordinate to the organisations and functions placed higher in that same level.

The majority of organisations and functions were located in Norway. Organisations and functions located in Sweden are depicted on the right side of the chart.

The colour codes mentioned in the right upper corner and used in the chart correlate with the thematic chapters of the evaluation.

Lines of communication during SkagEx11

## 2 About the evaluation

Evaluations provide opportunities to identify, assess and utilise lessons identified in exercises. It is through evaluation that knowledge and learning becomes tangible. To achieve this, the purpose, focus and objectives of an evaluation must reflect those of the exercise. They cannot, however, correspond completely, since it is not practical to evaluate everything that occurs in a full-scale exercise of SkagEx11's magnitude and complexity.

### 2.1 Purpose, focus and objectives

The **purpose** of this evaluation is to document and assess the ability for cooperation within and between entities with significant coordinating roles during the SkagEx11 exercise.

The **focus** of the evaluation is on four interdependent themes:

1. Coordination of the Search and Rescue (SAR) operation.
2. Coordination regarding the handling of evacuees and casualties.
3. Coordination regarding the handling of the oil pollution.
4. Coordination with the EU.

The **objectives** of the evaluation is to deliver an Evaluation Report that portrays what took place during the exercise, analyse it, and document the most important conclusions and lessons identified. The report will primarily concentrate on those conclusions and lessons identified that are relevant for crisis management at senior levels of decision-making rather than at subordinate ("first responder") levels. The intention has been to provide specific insight into each of the four focus areas and, when applicable, provide cross-sectorial and transnational elements in each focus.

It is important to mention that the greater portion of this evaluation focuses on the Norwegian aspects of the response.

The evaluation report will refrain from covering the exercise-technical aspects in a separate chapter. These aspects will instead be covered in the thematic chapters 5-8.

Finally, it should be stressed that it is not an objective of the Evaluation Report to provide specific recommendations for future arrangements. Following the dissemination of the Evaluation Report, a Way Forward Syndicate will produce a separate Way Forward report with recommendations. The Way forward report will be based on the conclusions and lessons identified in the Evaluation Report. The results may be used to improve civil protection mechanisms in the participating states and vis-à-vis the EU Civil Protection Mechanism.



## 2.2 Evaluation design

The responsibility to deliver the Evaluation Report of the SkagEx11 exercise is placed on the Evaluation Syndicate. The Evaluation Syndicate has provided and utilised various tools and plans to observe the exercise, collect data, analyse data and compose the Evaluation Report.

Each member of the Evaluation Syndicate was assigned to draft one of the focus areas mentioned above, either alone or together with another member. The final drafting of the report has, however, been a joint effort conducted primarily by the Evaluation Syndicate leader.

Evaluators instructed by the Evaluation Syndicate were positioned at sites throughout the exercise area in accordance with the the focus areas of the evaluation. The aim was to closely monitor major decision making processes, action patterns and coordination, as well as other relevant factors. The evaluators were provided with Thematic Questionnaires with specific thematic focus questions to guide them when documenting their observations. In addition, they were given Incident Sheets providing the opportunity to offer observations that were not addressed in the Thematic Questionnaire or require more in-depth.

Some of the evaluators functioned as “dedicated evaluators”, but most were “controllers” who took part in the evaluation in addition to performing their primary tasks as the exercise directing staff’s (Distaff) on scene liaisons to the exercise participants. The evaluation made use of the following methods to collect data:

1. Evaluation Syndicate members’ own observation during the exercise.
2. The feedback collected from controllers and dedicated evaluators after the exercise via the use the Thematic Questionnaires and Incident Sheet templates.
3. Summaries from Hot-Wash Ups held at different localities after the exercise.
4. Documentation from the Post Exercise Discussion (PXD) held the day after the exercise and the Hot-Wash Ups.
5. Feedback based on a Generic Questionnaire, (supplementing the Thematic Questionnaire) that was sent to representatives of each participating organisation.
6. Individual interviews conducted with exercise participants, controllers or dedicated evaluators after the exercise regarding issues that required further clarification.
7. An Evaluation Conference held with representatives from participating organisations providing feedback to the first dissemination draft of the Evaluation Report as well as written replies after the conference.

### **2.2.1 The Thematic Questionnaire**

The Evaluation Syndicate's Thematic Questionnaire was divided into the four interdependent themes that constitute the evaluation's focus areas. In relation to the four focus areas, the Thematic Questionnaire included 10 hypotheses, which the Evaluation Syndicate aimed to either confirm or disconfirm through a total of 76 questions/indicators. In this capacity, the Evaluation Syndicate used the Thematic Questionnaire as an essential tool for structuring the content of the Evaluation Report.

Prior to the exercise, the relevant sections of the Thematic Questionnaire were provided to controllers and dedicated evaluators to guide them when documenting their observations in the field. In addition, the participating organisations received the Thematic Questionnaire shortly after the exercise and was asked to answer those questions they were able to in each of the four sections that was of relevance to them.

### **2.2.2 The Generic Questionnaire**

The Generic Questionnaire was sent to all the organisations that participated in the exercise. The purpose of this was to complement the Thematic Questionnaire with a broader understanding of experiences drawn from the exercise from an organisational viewpoint.

The Generic Questionnaire contained 32 questions, and each organisation was encouraged to answer all the questions regardless of their role during the exercise. By doing so, the organisations summed up their own experiences and assessments pertaining to the following seven topics:

- The purpose of SkagEx11
- Crisis management organisation
- Information management
- Coordination of actions and resources
- Crisis communication
- Existing plans and agreements
- Field response operations

In addition to serving as a basis for the evaluation, the answers to the Generic Questionnaire fulfilled the requirement set out in the Exercise Directive's section 5.7.2 for local debriefings within the organisations. Section 4.2 of this report is to a great extent a summary of the feedback that was collected by the Evaluation Syndicate via the Generic Questionnaire.

### **2.2.3 The Hot-Wash Ups**

At several venues, a short local de-briefing took place shortly after the exercise had ended. These Hot-Wash Up gatherings highlighted and summarised initial impressions from exercise participants

in relation to the intentions set forth in the exercise objectives. The exact occasions, locations and format was left to the Distaff appointed controllers or other appointed facilitators of the Hot-Wash Ups.

Although the Hot-Wash Ups were not arranged by the Evaluation Syndicate, they presented an occasion, where facilitators could gather relevant feedback, which they were subsequently encouraged to share with the Evaluation Syndicate in the form of written notes. Moreover, the Hot-Wash Ups were also to serve as forums, where leaders with key coordinating roles could prepare themselves for the Post Exercise Discussion. Evaluation Syndicate members personally participated in the Hot-Wash Ups at the Norwegian Maritime Authority, Distaff and RITS Response.

#### **2.2.4 The Post Exercise Discussion**

The Post Exercise Discussion (PXD) was held in Tønsberg the morning after the exercise on 9 September 2011. The PXD lasted approximately 4 hours and was facilitated by the Evaluation Syndicate.

The objective was to identify what exercise participants deemed the most important lessons identified through a combination of individual work, group discussions and plenary presentations. All exercise participants who had coordinating responsibilities at a senior level of decision-making were asked to be present and take active part in the PXD. Approximately 70 representatives participated in the PXD.

#### **2.2.5 The Evaluation Conference**

A final method used by the Evaluation Syndicate was the Evaluation Conference held on 26 April 2012 at DSB in Tønsberg along with feedback received after the conference from participating organisations. Representatives from all participating organisations, the SkagEx11 Core Planning Group and relevant experts were invited to participate (approximately 45 people attended). Prior to the conference a dissemination draft of the Evaluation Report was distributed to all relevant organisations for comments. Formal feedback in writing was to be provided within a week after the evaluation conference.

The purpose was to provide an opportunity for the Evaluation Syndicate to receive feedback on the first dissemination draft of the Evaluation Report as well as for participants to provide last remarks prior to the report's finalisation. In other words, both suggestions for alterations and additions were communicated. The feedback received has been incorporated into this report.

#### **2.2.6 Shortcomings of the evaluation**

The evaluation report does not include all aspects of the exercise and has targeted those specific aspects that were deemed of greater interest for exercise management and the Way Forward Syndicate. Hence many more lessons could be identified if greater resources had been allocated at an early stage.

Moreover, language difficulties have to some extent impeded the task of the evaluation syndicate. Besides the differences between the different Nordic languages, it is the understanding of the evaluation syndicate that the use of the English language has to some degree discouraged a number of the training audience from providing sufficient feedback in order to help develop this document.

The magnitude and quality of data received was generally also less than desired. Regarding the questionnaires, some organisation provided very extensive feedback, others provided answers which were not very useful. While the PXD proved to provide the evaluation with a very good representation of participating organisations, the evaluation conference would have benefited from greater participation from relevant organisations.

### **3 Main conclusions and lessons identified**

This chapter is divided into three sub-chapters. The first provides conclusions regarding the purpose and objectives of the SkagEx11 exercise. The second sub-chapter provides conclusions and lessons identified regarding issues that are common for all participating organisations. The third sub-chapter summarises the conclusions and lessons identified covered in each of the thematic chapters (5 to 8), which represent the core of the Evaluation Report.

#### **3.1 The purpose and objective of SkagEx11**

The general impression from all the data gathered was that the SkagEx11 exercise has fulfilled its purpose. Both structurally and contextually the SkagEx11 exercise was considered to be adequate in general regarding information from the exercise management, scenario, injects, length, pace, etc. The exercise scenario was also in general considered to be realistic and well delivered.

SkagEx11 also provided the opportunity to exercise and better understand the responsibilities and roles at different levels of decision-making before, during as well as, to an extent, after a crisis.

Some exercise-technical problems arose during the exercise that had an impact on specific aspects of the exercise. These issues are mentioned in the focus areas it concerns. There was, for instance, a difference of opinion among exercise participants regarding the balance between “free play” versus detailed direction by Distaff and appointed controllers in the field. While some participants expressed a desire for more instructions from Distaff, others complained that Distaff was too intrusive.

SkagEx11 has provided the opportunity to improve the international, national, regional and local preparedness as well as operations in the field and coordination between different levels of decision-making entities during accidents at sea involving many evacuees and casualties as well as major oil pollution.

The highest level of national bodies such as the Office of the Prime Minister, the Ministry of Justice and Public Security, the Ministry of Fisheries and Coastal Affairs, the Ministry of Health and Care Services did not take part in the exercise. It is most likely that these ministries would be involved in a real case scenario similar to that of the SkagEx11 exercise. The lack of involvement of this level is believed, by the evaluation syndicate, to be due to down prioritisation of the exercise as a consequence of the tragedy at Utøya.

Even though the repatriation of wounded and deceased was one of the stated exercise objectives of SkagEx11, exercise management decided to exclude this objective from the exercise for practical reason. At present time, passengers boarding a ferry are not required to register their nationality, which would in a case similar to SkagEx11 lead to challenges regarding repatriation. This issue could be tested more specifically in future exercises.

Finally, SkagEx11 provided the opportunity to exercise coordination and cooperation between different nations (Norway, Sweden, Denmark and Finland) and to an extent tested the use and relevance of the EU's Civil Protection Mechanism.

## **3.2 Cross-cutting conclusions and lessons identified**

The term “cross-cutting” in the Evaluation Report refers to the issues that are common among exercise participants regardless of sector. We have delimited the scope to areas crisis management organisation, information management, coordination of actions and resources, crisis communication, and relevant plans and agreements.

Each section of this sub-chapter will first provide a normative description of the topic treated followed by conclusions and lessons identified from the SkagEx11 exercise.

### **3.2.1 Crisis management organisation**

#### ***Norm***

Every organisation with preparedness responsibility should be able to set up a crisis management unit – e.g. a crisis staff with associated staff support functions. The ability to activate the crisis management unit quickly is essential for maintaining control and establishing a sound foundation for subsequent crisis management and field operations. Furthermore, it may be relevant or required to send liaison officers to other organisations' crisis management units and/or the coordinating joint crisis management forums at local, regional or national level. These forums typically have a permanent set of participants and the ability to incorporate other participants, depending on the incident in question.

#### ***Conclusions and lessons Identified***

Generally, SkagEx11 participants indicated that their crisis management units were established shortly after receiving the first warnings during the exercise. However, the start time of the exercise was well known ahead of time and therefore provided participants with an opportunity to prepare them in a manner that would not have been possible in a real life situation.

Joint emergency management centres were established at several locations, on local, regional and national levels. Many participants indicated that the presence of liaison officers in their crisis management unit was highly appreciated and useful. Since the exercise stretched over a broad geographic area, operation centres were established at local level, and they cooperated with the regional level regarding allocation of resources, registration etc. Some participants indicated that they experienced the absence of a joint emergency management centre at the central/national level.

In general participants believed that they had a good understanding of their own roles and crisis management responsibilities as well as a realistic understanding concerning other actors' roles and responsibilities.

### **3.2.2 Information management**

#### ***Norm***

The ability to make the right decisions at the right moments during crises requires, that the involved organisations continuously maintain a comprehensive overview of the situation. At the same time, they must strive to obtain a joint understanding of the situation to coordinate actions and decisions. For this purpose, it is necessary to collect, analyse, and distribute large amounts of information about the crisis in all its phases. This may include “situation reports” (SITREPs) from field operations, minutes from staff meetings, intensified media monitoring, and registration of incoming communications by phone, e-mail, fax, etc.

#### ***Conclusions and lessons identified***

A main finding regarding information management during SkagEx11 was that the majority of participants asked for a common situation picture which they felt was lacking.

At the municipal level, as well as national level, participants indicated the absence of a written common situation picture for the entire operation. In some cases they indicated the need for more information from participants which acted as focal points for information sharing. Some non-governmental bodies indicated problems due to the lack and inconsistency of the exchange of information with other actors.

Each sector had its own specific information management problems. In some cases the authorities exchanged information between each other, merely by frequently gathering the needed information in their own sector rather than receiving formal reports. In these cases it was difficult to use the information they had gathered for decision making purposes.

However, in general, information sharing seems to have functioned better between actors within a sector, vertically, than between different sectors, horizontally. Information was shared between local and central levels within the confinement of one sector. The absence of participation at government ministry level might have been the structure that was lacking in order to assemble one common situation picture. The lack of a common situation picture made it difficult for bodies responsible for specific tasks to be able to understand their part in the whole.

Since information management is essential for decision making, a lack of a common situation picture may have affected decision making processes negatively. Information management is also crucial for coordination of actions and resources as well as crisis communication.

### **3.2.3 Coordination of actions and resources**

#### ***Norm***

During a crisis there will always be a need for coordination both within organisations and with partners to ensure, that on-going and planned actions and resource allocations support each other. The results of the coordination should be that acute resource shortages are solved; that individual resources are used where they will matter most; and that unacceptable vulnerabilities are not created by emptying entire areas of resources. Furthermore, effective coordination will provide

better conditions for assessing, when resources may be recalled without weakening the collective crisis management effort and emergency response operations in the field.

### ***Conclusions and lessons identified***

The different management levels combined with the multitude of field operation levels brought a great degree of complexity to the exercise. This complexity strained the cooperation patterns as well as the coordination of actions and resources.

In general there seems to be good cooperation between actors at operational command level and especially on the field at tactical level. In some cases participants indicated a satisfactory coordination between operational command actors and actors on the strategic command level. The cooperation at regional level worked satisfactory, where actors cooperated by proactively providing and receiving information, in order to set up and update a joint situation report.

As the coordination of actions and resources is closely linked to the scope and intensity of information sharing and thereby a common situation picture, it was difficult to fully assess the coordination efforts of the exercise as a whole. However, a common understanding was that the coordination of actions and resources seemed to work better within each sector than between sectors.

Finally, it is uncertain if strategic decisions took into account all aspects of the operation based on a joint and cross-border perspective. More specifically, it is uncertain how well the overall situation needs were identified, analysed and coordinated from a cross-border and cross-sector perspective prior to or in conjunction to decisions taken by sector responsible entities. The exercise proved that accidents such as SkagEx11 are not restricted by national or sector based borders. Response actions, as a whole, are interdependent where different sector based operations affect other sectors of the incident.

### **3.2.4 Crisis communication**

#### ***Norm***

Large accidents and catastrophes result in a massive and sudden pressure for information from the media, affected citizens, politicians, partner organisations, and others – not to be confused with information management. The organisation's crisis communication thus becomes a very important task. The crisis communication should be precise, timely, honest, consistent, and coherent, and it should provide recipients with a foundation for deciding appropriate action. Coordinated crisis communication can help ensure relevant information about the incident, the response and recommended precautions is passed on quickly and continuously via the media and the authorities' own communication channels.

#### ***Conclusions and lessons identified***

Since the impact of media wasn't that large in the SkagEx11 exercise, it is difficult to fully evaluate the participating organisations crisis communication capacity and ability. The overall understanding



was that even though participants did not experience a large media response, the participating organisations believe that they had the capacity and ability to handle media relations.

### **3.2.5 Relevant plans and agreements**

#### ***Norm***

Every organisation with preparedness responsibility have at its disposal a set of plans, which describe how crisis management and field operations should be initiated and carried out to handle extraordinary incidents. The purpose is to give the organisation some practical tools for use, when ordinary resources and routines are no longer sufficient. The planning complex may include general preparedness plans, contingency plans, written instructions, etc. In addition, various sector-wide and national preparedness plans as well as international agreements may contribute to setting the framework for mutual, overall coordination and cooperation.

#### ***Conclusions and lessons identified***

The common notion is that the participating organisations' relevant plans and agreements were applicable and adequate. However, as is mentioned in each chapter specifically, some plans and agreements may need to be reviewed and updated. In some cases the lack of knowledge regarding relevant international agreements was highly noticeable.

### 3.3 Thematic conclusions and lessons identified

This sub-chapter summarises the conclusions and lessons identified that are covered in each focus area of the Evaluation Report (Chapters 5-8). These are to be considered the main findings of the evaluation.

#### 3.3.1 Regarding the combined maritime search and rescue (SAR) operation

##### *The SAR mission*

- SkagEx11 succeeded in testing and training the ability and capacity for deploying multiple SAR resources from public, private and voluntary rescue services in the Nordic region.
- Activation, organisational mobilisation, and subsequent coordination of actions and resources were generally conducted in a professional manner within the Joint Rescue Coordination Centre Southern Norway (JRCC-SN). Nonetheless, the overall operational management became a challenge at JRCC-SN. There were several reasons, of which some concern the performance of exercise participants while others relate to exercise-technical constraints. Pre-planned prioritisations for airlifting RITS teams onto the ferry Bohus vis-à-vis airlifting injured persons off Bohus, for example, proved an issue of contention in the first hours of the exercise.
- The simultaneous use of an On Scene Coordinator (OSC) and an Aircraft Coordinator (ACO) was effective, although some uncertainty arose regarding lines of command and communications between them vis-à-vis the SAR Mission Coordinator (SMC) at JRCC-SN. The evaluation is inconclusive about whether the location of the ACO on a surface vessel was ideal.
- Despite well-arranged status meetings, exchange of SITREPS, and other activities at JRCC-SN to manage the flow of information, a common situation picture was lacking and relevant information regarding the SAR mission was not always shared widely enough with external partners. Efforts to generate an accurate persons on board (POB-list) list failed due to various exercise-technical constraints; the sheer complexity of the mass evacuation trained; and variations in the quality and timeliness of information available by actors at sea and on land.
- The crews on the various airborne and seaborne search and rescue unit (SRUs) generally performed their tasks well, although evacuation of persons via helicopters proved to be slower than desired, and several surface vessels evidently gained too little training from the exercise. Evaluators also generally agree, that the number of SRUs present in the exercise arena within the SkagEx11 timeframe did not realistically reflect the number expected in a real-life situation.

##### *The RITS response*

- SkagEx11 succeeded in testing and training the ability and capacity for deploying multiple RITS teams from different services, cities and countries in the Nordic region.
- At the tactical level, the RITS response was with few exemptions effective. The RITS team cooperated well with SRU crews and the ship's fire chief and crew. The coordination of tactical activities within and between the different RITS teams varied, but was generally very effective.

- At the operational level on board Bohus, the RITS response would have benefitted from better organising principles, a more straightforward chain of command, and a more pronounced leadership from the bridge. The use of a coordinating RITS team leader could also have worked better. Coordination with medical personnel apparently also left much to be desired.
- Similarly, there was room for improvement as regards information management. Despite available means of communications, SITREPs from RITS teams to the bridge were insufficient. There was also lack of communication to the OSC, and hence to the SMC at JRCC-SN.
- Based on the experiences, evaluators emphasise a need to revise relevant Norwegian and Nordic documents regulating the management aspects of multinational RITS response at sea.

### **3.3.2 Regarding the handling of evacuees and casualties on land**

- The participants stress that the agencies' crisis management organisations were quickly established, and that the cooperation between the crisis management teams across different agencies was good.
- Roles and responsibilities were clear internally in the various agencies.
- The exercise showed a lack of common situation picture and insufficient exchange of information, both horizontally and vertically, particularly between the police and medical services.
- There was a lack of a joint system for prioritisation, registration and identification of evacuees and casualties.
  - The forms used to register personal information were not suitable, and made it difficult to maintain an overview of the number of evacuees and casualties.
  - Disaster Involved Register (DIR) did not function satisfactorily.
- There was a lack of joint systems or registries of available resources.
- There were challenges with both CIM and Nødnett (emergency communication system): The capacity was not sufficient, and the emergency communications system was not a good communication platform neither between land and sea, nor between land and air.
- The liaison system between medical services, the police, the County Governors and the municipalities/fire brigades did not work satisfactorily in all instances.
- Having evacuee centres and next-of-kin centres in different locations was not practical.
- There is a need to update and/or develop routines and planning framework.
- The medical services underline that reception and treatment of injured persons at the reception area and ER (Emergency Room) provided very good training.

### 3.3.3 Regarding the handling of the oil spill

- SkagEx11 exercised all three command levels in the environmental rescue operation and the phases prior to and after the accident. The overall assessment is that the exercise objectives were achieved in a satisfactory manner.
- The offshore oil spill recovery was exemplary when it came to requesting and receiving international assistance. Five further sub-objectives were tested and the overall assessment is that the results are satisfactory/good enough:
  - Handling a cross-border environmental rescue operation
  - Establishing cooperation and communication
  - Staff and command
  - Documentation
- Synchronization and knowledge between nations at the strategic command level could improve as regards to the use of resources and operation safety.
- The ICS (Incident Command System) provided good preconditions for an environmental rescue operation connected to the complex accident. The staff and command at the environmental rescue operation worked well on strategic command level due to the routines established and the templates used. However, the plan of action only considered the sector's own responsibilities.
- Coordination of the different units worked well within the environmental rescue operation.
- Oil spills do not pay attention to any geographical borders, such as joint national parks. The agreements that regulate environmental rescue operation across different geographical borders do not adequately take this into account. The need for a revision or alternatively an addition was pointed out during the exercise, which would facilitate possible need for diplomatic clearance.
- The engaged offshore units should be divided nation-wise according to the Copenhagen Agreement. This was not the case in SkagEx11, where the nations' units were mixed in the sectors. The conclusion from the post-exercise evaluation is that the possibility for situation adapted sectors (i.e. function, geography, organisation or capacity together with nation) should be investigated.
- The Copenhagen Agreement is not sufficiently known outside of each country's sector responsible agency.
- The participating units had, individually, unique preconditions for staff work with associated functions. Nonetheless, some of them were not fully adequate.
- Consensus was the key word for the cooperation between the Norwegian Coast Guard and the Norwegian Coastal Administration (NCA). Although this demonstrated good collaboration it was

unclear who would have the preferential right of interpretation of the orders from the Recue Commander.

- Communication lines for the management needs were not ensured, neither horizontally nor vertically in the operational organisation.
- Finally, the overall assessment is that the exercising personnel were professional and competent.

### **3.3.4 Regarding the coordination with the EU**

- SkagEx11 provided good opportunities to test some aspects of coordination with the EU. However, a portion of the settings were unrealistic and the exercise-technical means to test the role of the EU Civil Protection Team (EUCP Team) was not adequate. For instance, strategic cooperation or coordination was not exercised during SkagEx11.
- SkagEx11 demonstrated the need for a more coherent preparedness framework within the Mechanism. The EU Civil Protection (EUCP) Team experts need to undergo adequate education and drill based training and exercises before taking part in full-scale and complex exercises such as SkagEx11. They should have undergone higher level of courses within the Mechanism training framework to ensure that they are properly skilled to perform their duty. Besides individual adequacy, apt team training and building exercises should also be conducted prior to participating in exercises such as SkagEx11. The exercise should not test the specific individuals' abilities during a large scale exercise but rather test the system and the Mechanism itself.
- Since the EUCP Teams can be deployed anywhere within or outside of the EU, the team members' must be fluent in at least English.
- Future EU co-funded exercises should either ensure the proper inclusion of the EUCP Team by adjusting the overall scenario or by focussing on the EUCP Team in particular. It may however be useful to look further into the matter if the presence of EUCP Teams in large-scale exercises should continue to be obligatory or not.
- Large scale and multi-disciplinary or multi-sector EU co-funded exercises should, when enlisting EUCP Team members, ensure proper use of the opportunity. EUCP Team experts recruited in SkagEx11 were not fully able to test the EUCP Teams role within EU. Hence, the evaluation instead focuses on the assessment of the individuals' and team's particular proficiency. Since the numbers of large-scale EU exercises co-funded by the EU Financial Instrument of the Mechanism is low each year, it would be advisable to use this opportunity to test or develop the Mechanism as a system rather than an opportunity to provide individual EUCP Team experts the opportunity to strengthen their abilities.
- Participating States to the EU Civil Protection Mechanism should increase the knowledge and know-how regarding the role and responsibilities of the Mechanism to key function units

within their national crises management system. This is especially relevant for functions at national and in some cases regional level.

- Providing the EUCP Team with a dedicated and knowledgeable liaison officer from the Local Emergency Management Authority is highly resource efficient and thus recommended.
- The EU Civil Protection Mechanism guidelines for Host Nation Support (HNS) have very recently been published and the Norwegian Host Nation Support guidelines are currently being drafted and have not yet been finalised. Hence it would not be of much value to assess this aspect of the exercise. Occasions such as the SkagEx11 exercise is an excellent opportunity to, in the future, test and develop these guidelines when completed.

## 4 Coordination of the maritime search and rescue operation

The situation following the simulated outbreak of fire on Bohus and the ferry's subsequent collision with the bunkering vessel Oslo Tank in outer Oslo Fiord necessitated a large maritime search and rescue (SAR) operation. The operation was led by Norwegian authorities and carried out through a cooperative effort involving government agencies, voluntary organisations and private enterprise from Norwegian, Swedish, Danish, and Finnish SAR services. Significant coordination was thus required at all levels of decision-making in Norway and across state borders.

The combined SAR operation can for practical and analytical purposes be divided into two constituent parts, which will be addressed separately in the main sections 5.1 and 5.2 below:

- The "traditional SAR mission", i.e. the deployment of airborne and seaborne assets to search for and rescue passengers and crew from the two ships in distress and evacuate them to reception centres and hospitals in Norway and Sweden.
- The "RITS response", i.e. the deployment of fire and rescue services – using SAR assets for transportation – on Bohus to search for and rescue persons while also assisting with fire fighting and handling a chemical contamination incident.



It should be stressed, that the chapter focuses exclusively on the maritime SAR operation. The available information regarding shore side SAR is considered inadequate for evaluation purposes.

### 4.1 The SAR mission

#### 4.1.1 Organisational framework

Since the simulated accident occurred in Norwegian waters below the 65° N latitude, the overall operational management and coordination responsibility rested with the Joint Rescue Coordination Centre Southern Norway (JRCC-SN), situated at Sola airport near Stavanger. Like its counterpart in Northern Norway (JRCC-NN), JRCC-SN is co-located with a Telenor Maritime Radio station,



which contributes to its capacity for rapid reaction to emergency calls on maritime distress frequencies. When receiving such calls, the essential tasks of JRCC-SN are to quickly assess the situation, take action, and lead the subsequent SAR missions – i.e. missions where lead responsibility cannot be delegated to one of Norway's 28 Rescue Sub Centres (RSCs).

The Chief of Police in Rogaland Police District is supreme head of JRCC-SN and chairman of the Joint Rescue Management, which is a collegium of representatives from the police, the Navy, the Air Force, Telenor Maritime Radio, Avinor (Air Traffic Service), the County Medical Officer in

Rogaland, the Norwegian Coastal Administration, and the Directorate for Civil Protection and Emergency Planning. Day-to-day administration is handled by a general manager, two rescue inspectors, and a variable number of rescue controllers and clerical assistants. A minimum of two rescue controllers, one of which serves as the chief duty rescue controller, are present 24/7 to deal with alarms and coordinate missions from the Operation Room.

JRCC-SN's personnel and staff structures are highly flexible. When large accidents occur, extra rescue controllers and other personnel can be mobilised to supplement those already present. The Chief of Police decides if the Joint Rescue Management should be activated (in full or in part). If called in, members will assemble in a staff room on the 1st floor to support the mission coordination conducted from the Operation Room on the ground floor. In addition, any advisors needed from public, private or voluntary organisations may be summoned. Pre-appointed information officers may also be called in to handle relations with the media.



During SkagEx11, the Chief of Police and other permanent members of the Joint Risk Management were present at JRCC-SN. To strengthen the collective leadership and operational coordination, liaisons from the health sector, Sør-Rogaland Fire Department and Oslo Fire and Rescue Services were also summoned to serve as advisors in the Joint Risk Management staff room and Operation Room.



Each mission is carried out under the guidance of a SAR Mission Coordinator (SMC). This function exists only for the duration of the mission and is typically assumed by the chief duty rescue controller. The officer in question will relinquish own rescue controller duties to colleagues in order to perform the wider coordination duties as SMC. These include activities to obtain and assess all available data on the emergency and prevailing environmental conditions; develop a workable SAR action plan; dispatch and coordinate relevant resources; and issue situation reports (SITREPS) on mission status, progress, future plans, etc.



When SkagEx11 began, the chief duty rescue controller at JRCC-SN became SMC. During day 1 of the exercise, the SMC function was for training purposes momentarily transferred to an assisting rescue controller and back again. The SMC role changed hands again between the day and night shifts and was deactivated when the SAR mission was terminated on the morning of day 2.

When several search and rescue unit (SRUs) – i.e. surface vessels, helicopters and/or fixed wing aircraft – have to work together, the SMC may nominate an On Scene Coordinator (OSC). The OSC is responsible for executing the SAR plan provided by the SMC. This includes establishing



search areas and patterns; delegating tasks to SRUs; and reporting to the SMC on local conditions, actions taken, resource needs, mission progress, etc. The OSC function can in principle be performed from any surface vessel or aircraft suitable for the task. In Norway, Navy and Coast Guard vessels and Orion fixed wing aircraft are especially suitable.

If the need arises, the SMC may also nominate an Aircraft Coordinator (ACO). The ACO function is primarily intended for SAR missions that involve multiple aircraft from several countries, poor weather conditions, communication problems, and/or logistical problems. The responsibility of the ACO is to prioritise and allocate aircraft tasks to increase mission effectiveness and maintain flight safety (e.g. vertical and horizontal deconfliction to avoid mid air collisions). The ACO function can be located on a fixed wing aircraft, a helicopter, a ship, an oil rig or an appropriate land facility.

In Norway, the on scene coordination of airborne and seaborne resources has so far been coordinated by an OSC alone. SkagEx11 was the first exercise in Norway in which the SMC appointed an ACO to act alongside the OSC in the second tier of decision-making. Training the ACO function was therefore an important exercise objective.

Throughout SkagEx11, the OSC and ACO functions were both situated on board the Norwegian Coast Guard vessel KV Bergen, which is a modern, multi-purpose ship of the Barents Sea Class delivered in 2010. From here, the OSC and ACO coordinated a substantial number of SRUs put at JRCC-SN's disposal from the various Norwegian, Swedish, Danish and Finnish SAR services.



The airborne SRUs included five rescue helicopters: a Sea King from the Royal Norwegian Air Force, an S-76 from the Swedish Maritime Administration, two EH-101s from the Royal Danish Air Force, and a Super Puma from the Finnish Border Guard. Other aircraft included a Norwegian and two Swedish helicopter ambulances (HEMS), a Norwegian police helicopter, and two fixed-wing Norwegian and Swedish surveillance aircraft.

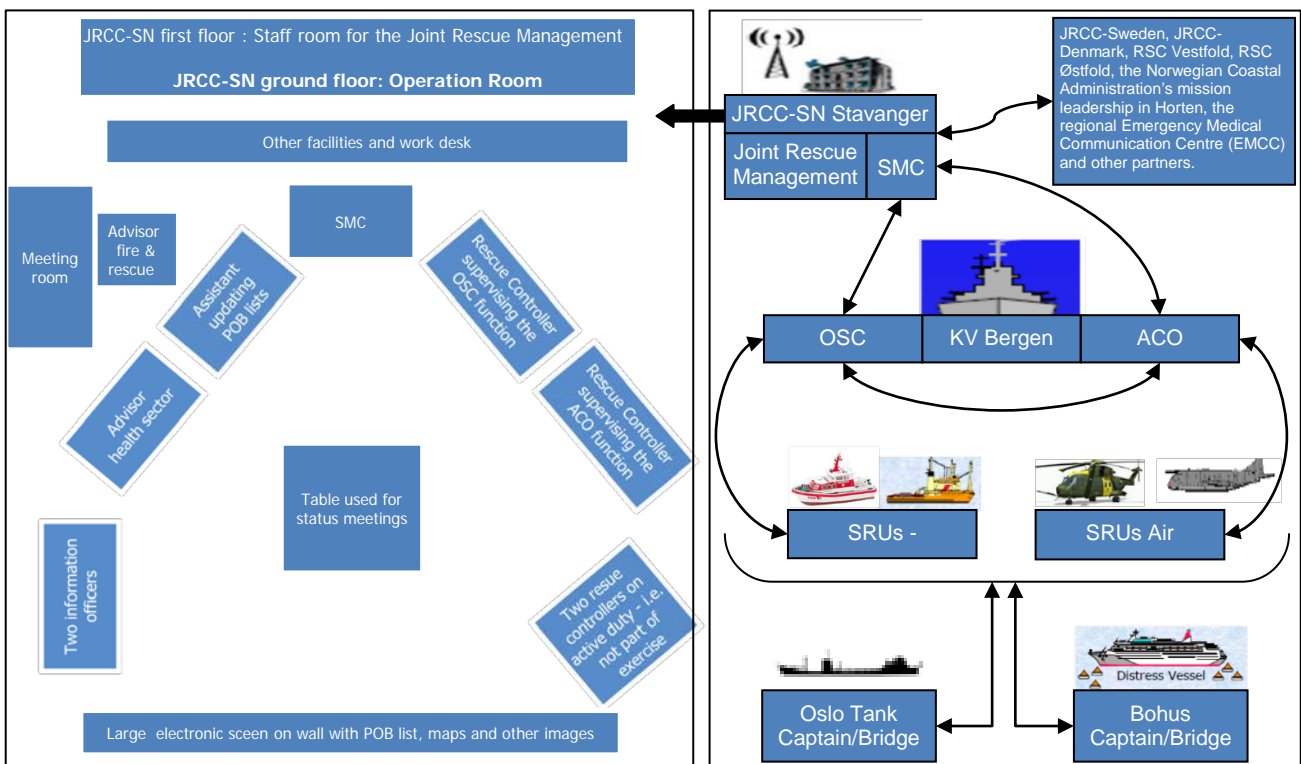


The seaborne SRUs were vessels either dedicated entirely to SAR or primarily intended for the oil pollution scenario but assisting with SAR when required, given that life always takes precedence over environmental values. These included vessels from the Norwegian Coast Guard (KV Bergen and KV Tor), the Norwegian Coastal Administration (Oljevern 01 and pilot boats 110, 111 and 112), the Norwegian Society for Sea Rescue (RS Horn Flyer, Stormbull, Askerbæringen, Sundt and Simrad Færder), the Norwegian Red Cross (Tjøme LN 7512), the Swedish Coast Guard (KBV 003, 051 and 307), the Swedish Maritime Administration (pilot boats 746 and 747), the Swedish Sea Rescue Society (SSRS Gustaf B.



Thorden, Maximat, Minlouis and Sparbanken Tanum), the Royal Danish Navy (Rota and Gunnar Thorson), police boats from Norway and Sweden, and the Norwegian tug boat BB Connector.

To sum up, the organisational framework and lines of command and communications for the SkagEx11 maritime SAR mission can be depicted as in the figures below. Independent decisions may be taken in all the boxes, resulting in the complex coordination challenges subject to evaluation in the following sections. The main focus will be on the coordination by and between JRCC-SN/SMC, the OSC and ACO functions, and other relevant stakeholders at the operational level, whereas emphasis will to a lesser extent be on SRU performance at the tactical level. Moreover, the evaluation of the maritime SAR mission does not cover land-based activities related to the rescue sub centres (RSCs), including SAR on land.



#### 4.1.2 Activation

The organisational set-up is generally considered to have been effective in establishing a sound foundation for the subsequent SAR mission during SkagEx11. The efficiency of the activation process is difficult to assess, however, since all exercise participants were on standby prior to STARTEX. At JRCC-SN, extra personnel, members of the Joint Rescue Management, advisors and information officer were already convened as a practical precondition. Similarly, it was known in advance that the OSC and ACO functions would be nominated on board KV Bergen. Consequently, the time required to adapt from two rescue controllers routinely on duty in the JRCC-SN Operation Room to a crisis management organisation sufficiently large to meet the challenges presented during SkagEx11 was not tested. This made the exercise easier to

commence but also less realistic. Evaluators also generally agree, that the large number of SRUs present in the exercise arena within the given timeframe did not realistically reflect the number expected in a real-life situation.

Formal activation began when Tjøme Coast Radio station acknowledged and re-transmitted the first MAYDAY from the Captain of Bohus. JRCC-SN was alerted by Tjøme as soon as the incident was known according to standard procedure, and the chief duty rescue controller could monitor the MAYDAY directly by listening to maritime VHF. The MAYDAY was correct and precise based on available information at the time (except that it was transmitted without “EXERCISE” prefix).

It was quickly recognised at JRCC-SN that the extent of the incident was very serious, not least given the large number of persons on board Bohus and the fact that the initial scenario – fire on Bohus – rapidly developed into a dual scenario following the ferry’s collision with Oslo Tank.

Evaluators present at JRCC-SN have described the subsequent activation phase as “chaotic”, but generally assess that prioritisations from the outset were handled professionally and in accordance with established SAR plans, procedures and agreements. These initial prioritisations included:

- The transition in role by the chief duty rescue controller to assume the wider duties as SMC.
- Consecutively alerting and engaging all available sea and air based resources for SAR service. Given that all exercise participants were pre-appointed, this alert was less widely distributed than in a real situation, where as many resources as possible – be they dedicated SAR assets or “Good Samaritans” – would have been alerted and engaged.
- Receiving and replying to offers of assistance from JRCC-Sweden and JRCC-Denmark.
- Nominating the OSC, after KV Bergen had reported in via maritime radio. It was communicated early and clearly to SRU’s that KV Bergen was awarded the role as OSC, and all SRUs en route to the accident scene were requested to contact the OSC.
- Nominating and delegating tasks to the ACO on KV Bergen, and informing relevant exercise participants of this.
- Assigning two rescue controllers at JRCC-SN to liaise with and supervise the OSC and ACO.
- Tasking an assistant with continuously updating JRCC-SN’s Persons on Board (POB) list.
- Notifying the RSCs so they could implement their own plans, including activation of reception centres. The locations in Larvik (RSC Vestfold area), Hvaler (RSC Østfold area) and Strömstad in Sweden followed from SkagEx11 planning documents. Contrary to normal procedure, these locations were not commented in the initial dialogue between JRCC and RSCs.
- Alerting the Regional Emergency Medical Communication Centre (R-EMCC) at Oslo University Hospital, which on behalf of the South-Eastern Norway Regional Health Authority was to coordinate vis-à-vis local EMCCs and hospitals in Vestfold and Østfold counties. JRCC-SN had established procedures for helicopter transport of injured directly to the hospitals in Fredrikstad and Tønsberg in addition to the ad hoc arrangements for transport to the reception centres.

**Aspects concerning physical crisis management facilities and locations**

The Operation Room at JRCC-SN has an excellent layout and is well equipped with information and communications systems. The staff room for the Joint Rescue Management, on the other hand, is assessed as too small to accommodate the number of permanent members, liaisons, and advisors that might be activated, if a real incident similar to that trained in SkagEx11 should occur.

KV Bergen was considered satisfactory as the location for the OSC and ACO functions. KV Bergen is a very modern ship with physical and technological characteristics that make it ideal as a platform for the OSC when dealing with a distress area of the size used in SkagEx11. However, some evaluators indicate that it might have been better, if the OSC function had at first temporarily been given to someone at a smaller vessel on-scene, and subsequently transferred to KV Bergen. KV Bergen was some distance from the accident site at the time of activation, wherefore the OSC could not initially generate a clear visual picture of the local situation. Moreover SRU radio contact with the OSC was initially poor due to long distance, wherefore Tjøme Radio relayed all messages to the SRUs while KV Bergen approached.

The evaluator for the ACO function describe the location on KV Bergen as ideal in the sense, that it allowed the ACO to be on-scene, right next to the OSC, and with good radio coverage. Another benefit was the availability of two ACO cells on the ship, which made it easy to manage the handover from one crew to another during personnel rotation. On the downside, it was apparently sometimes difficult for the ACO to communicate and listen to radio communication from air-traffic due to noise from the OSC's maritime radio sets and occasional loud discussions in the OSC cell.

For their part, evaluators for the OSC function argue, that it might have made it clearer who made priorities for and directed airborne SRUs if the ACO had been located elsewhere. They also stress, however, that a different ACO location would have necessitated more communication between the OSC and ACO, and thus more load on communication networks with risk of time delays.

The comments by the OSC and ACO evaluators do not by themselves indicate if a different location for the ACO had been preferable. It may be worth mentioning, however, that rescue services in other countries often prefer the ACO to be airborne, since this ensures the ability to use an aircraft's technical equipment to maintain constant radio contact with helicopters and keep visual track of their positions. An ACO on a vessel or on the ground may risk experiencing difficulties due to lack of communication means or poor radio coverage. In SkagEx11, a transfer of the ACO function between a fixed-wing aircraft and KV Bergen had originally been planned but this had to be cancelled prior to the exercise, as the aircraft was otherwise engaged.

**4.1.3 Coordination of actions and resources**

Internal coordination within the JRCC-SN Operation Room is assessed to have been highly effective. Established plans and procedures were followed, and all persons involved generally exhibited a thorough understanding of roles and responsibilities. The SMC quickly delegated tasks to the rescue controllers supervising the OSC and ACO functions and other personnel, and kept a good overview to coordinate the tasks. The SMC also quickly put in place effective procedures for

SITREPS, status meetings, and briefings to the Joint Rescue Management. The distribution of tasks proved functional although there was periodically great pressure on individuals, especially related to coordination with RSCs and following up on information from the OSC and ACO. At times it was discussed if the distribution was the most appropriate. The SMC chose to maintain the original organisation and has been commended for steady leadership in this respect.

Coordination and support by the Joint Rescue Management staff is also assessed to have been effective, not least given well-known roles, mandates, and agreements among its members. An evaluator mentions the extent an advisor from the fire and rescue services got involved in directing the RITS response as “the only irregularity” observed at the Joint Rescue Management.

Despite the above factors, overall operational management and coordination became a challenge at JRCC-SN. Several reasons are cited, of which some concern the performance of exercise participants while others primarily relate to exercise-technical issues. DISTAFF’s exercise-technical conduct is not subject to evaluation in this report, but since it impacted on JRCC-SN’s ability for coordination of actions and resources so significantly, the topic does deserve further comment.

First of all, it was decided for safety reasons that no one was to be evacuated directly from Bohus by the rescue boats that would normally have been best suited for the task. Instead, seaborne evacuation was simulated via pre-planned "maritime evacuation packages", i.e. where DISTAFF regularly reported that a certain number of persons had been rescued and were being transported to reception centres. To facilitate this, role players came aboard surface SRUs from various locations on land. These transports frequently occurred using less time that would have been the case from Bohus and without use of proper procedures or direct involvement by the captain of Bohus or the OSC. As a result, reports of some maritime evacuation packages did not reach JRCC-SN via correct channels or format, thus impeding the ability to gather accurate information. It also made it difficult to alert relevant entities on land in a timely manner and with essential data regarding the number and medical status of persons being transported to shore by surface SRUs.

Secondly, since all physical evacuation from Bohus thus had to be done by helicopters, limited to one in pick-up over Bohus at a time, the airborne evacuation naturally took a very long time. The airborne evacuation was not completed before Bohus was towed to port in Sandefjord (simulated when the ferry had to resume normal operations once its exercise timeframe ended). A planned air evacuation of RITS teams could thus not be executed within the allocated time either.

Thirdly, a scenario inject was introduced, which involved stowaways on Oslo Tank. This meant that the list of crew and passengers initially supplied by the company Bergen Tankers was incomplete. Evaluators assess that this inject was probably well thought out by planners, but not understood well enough at JRCC-SN or by the OSC. It resulted in confusion vis-à-vis the Norwegian Coastal Administration concerning SAR and environmental protection assets allocated to Oslo Tank. It also led to a somewhat de-motivating episode, where some evacuees who had been airlifted from nearby islands were sent back to their original point of departure for exercise-technical reasons.

Finally, and most importantly, JRCC-SN experienced a consistent high level of detailed management by DISTAFF, which to a large extent stripped it of opportunities for “players’ action”. In a real situation, prioritisations between airlifting rescue personnel onto Bohus and evacuating victims off Bohus would have been based of deliberations between JRCC-SN, the OSC, the captain of Bohus and relevant advisors. However, after the first helicopter (Norwegian Sea King) was scrambled from Rygge Air Station to rescue injured persons from Bohus, DISTAFF gave a counter-order as it arrived on scene and directed it to return and transport a RITS team. In the next few hours all helicopter traffic was, on DISTAFF’s orders, directed towards the transport of RITS teams. JRCC-SN was apparently deprived of possibilities to influence this. JRCC-SN did, however, manage to get a small number of health personnel on board Bohus through players’ action and as a result of cooperation with the Regional Emergency Medical Communication Centre (R-EMCC).

Before STARTEX, participants at JRCC-SN had not been aware of expected mandatory directions following from DISTAFF’s planning. Evaluators assess that prior awareness of this would have given JRCC-SN opportunity to better understand and play along with the focus on RITS. Instead, DISTAFF’s interventions became a source of significant confusion and some frustration. At times, JRCC-SN tried to make recommendations to DISTAFF or freeze the exercise, but to no avail.

The argument that the RITS response had too much focus is supported by the ACO evaluator, who points to the fact that, when about five hours into the exercise, the helicopters had airlifted six RITS teams with 36 personnel on board Bohus but only evacuated 38 injured persons from Bohus. Evaluators from the Royal Norwegian Air Force 330 Squadron, among others, take a similar view.

While practically all exercise participants and evaluators agree that the helicopter evacuation went too slowly, this does not imply, however, that all consider the high prioritisation of the RITS response as an impediment to a more realistic exercise. A counterargument can be made, that a RITS response may, under ideal circumstances, manage to contain a fire, allow a ferry such as Bohus to return to or be towed to port, and thereby reduce the risks to lives associated with full or partial evacuation at sea by surface SRUs and helicopter winching. Moreover, RITS personnel by their very nature are able to conduct SAR in areas of a ship not accessible to others. Balancing RITS response and airborne evacuation is thus highly conditional on the specific situation in question, e.g. the number of persons on board a ship that are or may potentially be trapped by fire.

In any case, SkagEx11 Exercise Directive documents clearly stated that training a transnational RITS response (hitherto subject to less training than traditional SAR missions in Nordic exercises) was a main objective in SkagEx11. This could have been known by exercise participants even though they did not have access to the Detailed Scenario Episodes Catalogue (DSEC) or specific scenario descriptions in the planning documents available to DISTAFF-appointed RITS controllers.

Needless to say, the experiences from Skagex11 warrant serious future-oriented deliberations regarding the planning for RITS response as an, at times, integral part of SAR operations, as well as clarification of the lines of command and communications to be used for RITS response. RITS will be evaluated below in section 5.2 and therefore not be commented on any further here.

**On scene coordination of the airborne SRUs**

As mentioned earlier, it was a major objective in SkagEx11 to train the ACO function for the first time in a Norwegian exercise. The overall assessment is that the ACO function performed well but needs further development. The ACO evaluator concludes that the ACO procedures proved to work as intended; that flight safety was well maintained; and that the ACO's coordination of SRUs was generally effective under the circumstances. It has also been highlighted, that the ACO personally exhibited good situation awareness in a high-stress situation. The ACO was, for example, not only quick to establish an air coordination plan, but also managed to improvise and use this plan in an effective and safe way. This improvisation was necessary since the ACO did not have established procedures for use over land (a major part of the ACO zone was over land, and partly inside nearby airport control zones).



There were also important shortcomings, however, especially that the ACO, due to high workload, did not manage to present a flow-plan for helicopters, and that capacity was therefore not used to full extent. At times there were several helicopters in the area in holding, and at other times there were no helicopters to airlift persons from Bohus. The need for the ACO to plan ahead for lengthier time intervals has also been stressed. Another example was that the ACO did not inform some of the helicopters of their tasks following refuelling. A reason was that the ACO had not exchanged cell phone numbers with the aircrews on some of the helicopters to establish a line for communication during periods when the helicopters and crew were on the ground for refuelling, etc. Unsurprisingly, divergence in orders from the SMC and DISTAFF also caused a considerable amount of confusion and difficulty for the ACO's tasking of helicopter traffic.<sup>2</sup>

Concerning the effectiveness of coordination between the ACO and OSC function, the assessment of evaluators varies somewhat. To understand why, some background information is necessary.

The ICAO/IMO International Aeronautical and Maritime Search and Rescue Manual (IAMSAR), which is used as a basis for all national SAR plans, outlines ACO duties but does not dictate if the ACO shall report directly to the SMC or via the OSC. However, the OSC and ACO are described as "equal partners" in an International Manual for Aircraft Coordinator from 2010, which is approved for operational use by Denmark, Finland and Sweden. Norway had not approved this manual at the time SkagEx11 was held, but the planners used its guidelines and produced two documents entitled "SkagEx11 – Info to Airmen" and "Air-Coordinator/ATC info". These clearly stipulated that the ACO would be directly subordinate to the JRCC-SN and should communicate directly with JRCC-SN via phone, albeit in close dialogue with the OSC and the Air Traffic Service.

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<sup>2</sup> Examples given: 1) SMC asked to use a helicopter to airlift wounded persons from Oslo Tank but DISTAFF said no. 2) SMC asked for a helicopter search overhead a nearby island, and a helicopter was tasked, but had to return to Larvik with no task due to intervention by DISTAFF.

Despite that it had thus been planned that the OSC and ACO should be at the same level, some uncertainties arose once SkagEx11 had begun. The ACO evaluator stresses, that it was not clear whether it was the SMC or OSC who was supposed to give the ACO evacuation points for various helicopters. Similarly it was not clear to whom ACO should report which helicopters were leaving the area, the positions they were going to, and how many evacuees/casualties they had onboard. For their part, OSC evaluators point out, that since the OSC and ACO worked in parallel as planned, the OSC accordingly did not have control at all times with actions and priorities executed by the ACO. These evaluators are of the opinion, that lines of command and communication would have been clearer if the OSC had been given superior responsibility also for the ACO function.

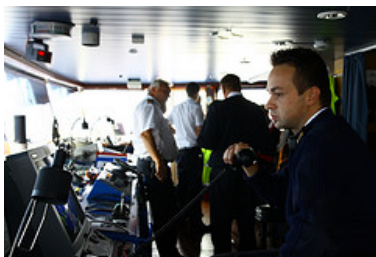
Finally, the exercise generally showed a high level of professionalism as regards the performance of the individual rescue helicopters under the given circumstances. The aircrews also generally performed their tasks effectively, including the hoisting of rescue personnel and different types of role player casualties, which went smoothly and without security incidents. The pilots appeared to have familiarised themselves well with the new ACO procedures, and there were only few exceptions where independent decisions were not communicated through the chain of command.<sup>3</sup>

**On scene coordination of the surface SRUs**

Given the sheer scale of the exercise, a massive responsibility rested with the OSC in tasking the large number of surface SRUs with rescuing and evacuating passengers and crew onto land, conducting patterned searches for victims on the water, transporting equipment between locations, etc. The overall assessment is that the OSC’s coordination was satisfactory once the exercise was



well under way but also that considerable – perhaps too much – time passed before the OSC had established overview of where and when the various surface SRUs resources should be deployed.



As mentioned previously, the OSC’s job was made difficult by the use of “maritime evacuation packages”, where all role players for safety reasons came onto surface SRUs from locations other than Bohus and subsequently transported to the reception centres on land. The actual transports occurred using less time that would normally have been the case, and in several cases without use of proper procedures or direct involvement by the captain of Bohus or the OSC. This significantly impeded the OSC’s ability to gather information and coordinate actions and resources effectively.

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<sup>3</sup> Examples given: 1) It was not communicated to the ACO that a medical team was supposed to be airlifted to Bohus prior to the team’s arrival. 2) A Swedish helicopter arrived at Bohus with a RITS team, despite having been instructed not to bring this team at the time. 3) A Danish helicopter landed in Strömstad without JRCC-Sweden having been informed of this in advance.





The OSC also had to deal with considerable confusion regarding when environmental response vessels could be released from the SAR mission to concentrate exclusively on the oil spill from Oslo Tank. There was, for example particular confusion concerning the roles of the Danish environmental ship Gunnar Thorsen and the Swedish multi-purpose ship KBV 003 Amfitrite. The latter is specially fitted with hazmat capacity, and was partly despatched to

assist a Swedish RITS team responding to the chemical contamination incident on the car deck of Bohus. The content of this scenario was not clearly understood by the OSC and other exercise participants, however, thus negatively affecting coordination between SAR, RITS, and environmental response resources. In general, there was very little coordination between the OSC and the SOSC concerning the oil spill (cf. chapter 7) and no involvement of the OSC in the coordination of RITS response (cf. section 5.2).

As one of the most serious shortcomings of SkagEx11, SAR resources for Oslo Tank were totally neglected in the initial stages by the OSC. The number of passengers and crew on Bohus obviously warranted most attention. However, the Oslo Tank scenario had injects involving casualties on board, "man overboard", and use of life rafts by the crew and stowaways to evacuate themselves. Nonetheless, there was a long delay before any organised search was in progress, and hours passed before anyone boarded Oslo Tank to search for casualties.



The general assessment regarding participating surface SRUs is that they were quick to respond, adhered to standard procedures, followed orders from the OSC, and performed their individual tasks well. It also appears that cooperation between Norwegian and Swedish SRUs was positive.

Assessments of the learning gained from SkagEx11 at the tactical level vary significantly, however. The Norwegian Society for Sea Rescue, for example, points out that while SkagEx11 seemed to offer good training for the OSC role, there was in fact little training for its rescue boats. These were frequently lying dormant, e.g. on direction from DISTAFF or the OSC; due to maritime evacuation packages with role players that did not arrive; and in some instances, that rescue boat personnel from stations at Skjærhalden, Stavern and Oscarsborg have

described as poor use of resources and local knowledge.<sup>4</sup> Colleagues from the Swedish Sea Rescue Society reportedly expressed some similar sentiments after the exercise.

Evaluators from the Swedish Maritime Administration (SMA) also mention that the Swedish pilot boats at first had nothing to do except circle around Bohus and search for person in the water. From SMA's perspective, however, it was stressed that the search pattern was very well performed once it was in progress, and that the transportation of role players went very well even if numbers due to practical circumstances were not always correct compared with what was planned.

### ***Coordination between JRCC-SN and other Norwegian entities***

Evaluators for JRCC-SN have generally applauded the coordination, communication, and dialogue with the captain of Bohus and his officers on the bridge on Bohus. Evaluators from Colorline concur, and have described SkagEx11 as a very good exercise for Bohus from start to finish.

Coordination between JRCC-SN and the Norwegian Coastal Administration's mission leadership at Horten was assessed as effective for the most part. It is always challenging to coordinate efforts during incidents at sea that has both SAR and oil spill response elements involved. But communication and dialogue to resolve any conflicts of interest was established and maintained in a productive manner.

The effectiveness of coordination between JRCC-SN and the RSCs appears to have varied significantly. The evaluator at RSC Østfold at Sarpsborg, for example, reported that JRCC-SN communicated too little and too rarely with RSC Østfold, and that this negatively affected organisation and registration of evacuees; SAR on land; operation of the reception centre at Skjærhalden; information to relatives, the media and the public; and allocation of resources at the RSC joint rescue management and external partners. The evaluator also reported poor communication at operational level between the OSC, the police's tactical commander on land (IL), and the staff function for "operations" (P3) in the police chief's staff.

Similarly, the health authorities have documented insufficient coordination with JRCC-SN, pinpointing needs such as better information regarding the accident, standardised procedures for airlifting medical teams, as well as triage coordination and evacuation site coordination on Bohus. Lack of direct communications means between helicopter crews and EMS ground units, as well as the short distance by air from Bohus also made timely information to RSCs/reception centres and R-EMCC/hospitals difficult to achieve. Dialogue with R-EMCC is described as having been good

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<sup>4</sup> Examples: 1) Having responded to the MAYDAY on its own initiative, the rescue boat Horn Flyer was the first vessel to reach Bohus, but were told upon arrival to remain passive. It remained passive when Swedish SRUs arrived 20 minutes later and commenced full SAR activities. 2) A Swedish pilot boat was told to travel between Hvaler and Strömstad to fetch medical equipment and transport it to Bohus. This order was given despite a Norwegian rescue boat lying dormant had offered to transport the equipment faster.

seen from JRCC-SN's perspective but less so seen from R-EMCC's perspective. The hospitals in Østfold and Vestfold found that they lacked information about the patients and the estimated arrival times for the helicopters. There seems to be consensus among the emergency medical services that they ought to have had more influence on JRCC-SN regarding SAR helicopter coordination.

Evaluators at Larvik and Strömstad municipalities have also commented on poor information flow from JRCC-SN, especially regarding information on the evacuation carried out by seaborne SRUs.

Finally, it has been pointed out that the Norwegian host nation support did not prove effective when a Danish helicopter experienced difficulties getting support at Rygge Air Station after technical problems during start up following refuelling. It is assessed, that the appointment of a liaison officer on the initiative of JRCC-SN could have made it possible to get host nation support more quickly.

### ***Transnational coordination at JRCC-Sweden and JRCC-Denmark***

Offers of assistance to JRCC-SN were made by JRCC-Sweden and JRCC-Denmark and accepted soon after STARTEX. All despatched Swedish, Danish, and Finnish SRUs were subsequently put at JRCC-SN's disposal and thus reported directly to the SMC via the OSC and ACO. For the remainder of the SAR mission, only a moderate amount of transnational cooperation took place at JRCC level.

The primary tasks of JRCC-Sweden in Gothenburg were to alert Swedish resources, inform relevant Swedish authorities about the incident, coordinate the arrival of aircraft in Sweden, and coordinate the landing of casualties and evacuees at the reception centre in Strömstad by surface SRUs. JRCC-Sweden reportedly did not receive any explicit tasks from JRCC-SN, and most of the work performed by JRCC-Sweden was conducted spontaneously conditioned by events. The pressure on JRCC-Sweden was therefore limited.

Aside from a number of telephone conversations, JRCC-Sweden received four written SITREPS from JRCC-SN. Swedish evaluators find that these ought to have been more frequent and more detailed regarding the situation and progress on scene. It was, for example, not clear if the fire on Bohus was extinguished, how many people were evacuated, and how long JRCC-SN expected to need the Swedish SRUs, although the latter was important for planning changes of crews, etc.

Among the positive lessons from SkagEx11, Swedish evaluators emphasises in particular that the response from Swedish SRU's to Tjøme Radio and the telephone call by JRCC-Sweden to offer assistance to JRCC-SN happened within minutes of the MADAY; that two new staff members did excellent work; and that the alerting and information activities within Sweden generally went very well. Other than this, Swedish evaluators mostly comment on problems experienced related to communications means and the linking of these between air, sea and land.

By comparison with JRCC-Sweden, JRCC-Denmark had far fewer tasks to perform during SkagEx11, and consequently did not activate its crisis management organisation. There was very little direct contact with JRCC-SN, but Danish evaluators confirmed that JRCC-Denmark found the coordination with and information from JRCC-SN adequate, given the extent of its involvement.

Finland's Maritime Rescue Coordination Centre (MRCC) did not participate in SkagEx11 despite the presence of a Finnish rescue helicopter and RITS team. Any coordination needed with Finland at RCC level would thus have had to be simulated by JRCC-SN. Such a need did not arise.

#### 4.1.4 Information management

It is crucial for decision-making in any SAR mission to collect, analyse and distribute data about the incident's development and the mission's status and progress in all its phases. The primary measures for information management in the SkagEx11 SAR mission included the following.

##### ***Status meetings at JRCC-SN***

The SMC continuously held brief and concise status meetings, where all personnel in the Operation Room were updated regarding each others' work and the mission's overall status and progress. The Joint Rescue Management, led by the Chief of Police, took part in these status meetings and on some occasions also the advisors from the fire and rescue services. In addition, the information officers provided input about external reactions and media focus during the meetings.



The status meetings were described as particularly effective because they were used to gather information collectively from everyone present – as an alternative to the SMC gathering information from individuals in advance and then sharing it with everyone else during the meetings.

The status meetings are thus assessed to have been highly beneficial for the efforts to obtain and maintain overview within JRCC-SN. However, there are no indications that written minutes from the meetings or any written “common situation pictures” were ever produced. Moreover, the status meetings were not consistently followed up by reports to the RSCs, the police, reception centres, maritime radio stations, the R-EMCC, hospitals and other relevant partners in Norway, or the JRCCs in Sweden and Denmark. It is not known to what extent external stakeholders proactively contacted JRCC-SN to require such statuses during the exercise but, as mentioned above, several evaluators have since assessed the communication from JRCC-SN as having been inadequate.

##### ***Situation Reports (SITREPS)***

In SAR missions, oral communication and dialogue via radio or phone is supplemented by written SITREPS in fixed templates. SITREPs are used by the OSC (and the ACO if activated) to keep the SMC aware of mission events, including actions taken and planned. The OSC (and ACO) addresses SITREPs only to the SMC unless otherwise directed. SITREPs are also used by the SMC to keep the OSC, ACO and external agencies informed of mission progress. The SMC may address SITREPs to as many agencies as deemed necessary, including other RCCs and RSCs.

Throughout the SkagEx11 SAR mission, the SMC at JRCC-SN continuously received SITREPS from the OSC. However, evaluators point out that there was some uncertainty regarding the procedures for collecting and reporting information to SMC. SITREPs were also received from the

ACO, although not as frequently as from the OSC. As mentioned earlier, it had initially been somewhat unclear whether the ACO was supposed to report to the SMC directly or via the OSC.

SITREPS from the SMC were sent to the OSC and ACO in accordance with procedures in addition to frequent contact via telephone. The OSC received written SITREPs from the SMC every 1-2 hours, and these were reportedly used by the OSC as a vital part of his basis for decision-making.

JRCC-Sweden and JRCC-Denmark received four SITREPS from the SMC at JRCC-SN. Both JRCC-Sweden and JRCC-Denmark also produced their own SITREPS.

It is unclear to what extent written SITREPS from JRCC-SN were distributed to keep essential partners in Norway such as RSC Østfold, RSC Vestfold and R-EMCC up to date on developments. Comments by evaluators suggest that these partners received few if any SITREPS from JRCC-SN.

### **Log**

Relevant information regarding developments in the scenario and the inputs and actions at JRCC-SN and Telenor Maritime Radio, was continuously recorded in SARA, which is JRCC-SN's log system. However, the log, reports and email accounts were only to a lesser extent routinely checked and quality assured. Better procedures for this with a view to summarising and using information from the log might have been beneficial for developing a common situation picture.

### **Substitution procedures**

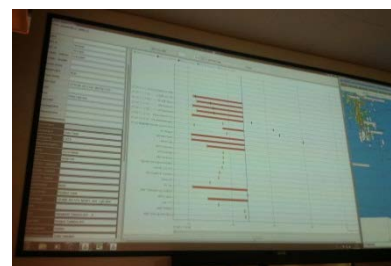
Procedures at JRCC-SN were in place to ensure that relevant information was not lost between colleagues during handover of tasks. Staffing lists were drawn up and followed. The personnel in rotation were given routine status between work shifts so that the transitions went smoothly.

### **The Persons on Board (POB) list**

The single most important piece of information in any SAR mission involving a ship at sea is how many people that remain to be rescued at any given time. This is the only real benchmark for determining when the mission can be terminated. Hence, great care must be taken to register:

- The number of passengers and crew that were on board the ship prior to the accident.
- The number of rescue personnel that have been transferred to and from the ship.
- The number of passengers and crew rescued by SRUs, "good Samaritans" or via own efforts.
- The number of people confirmed to be still on board or presumed missing.

SAR services use these numbers to create a single list entitled the "Persons on Board" (POB) list. The POB list must not be confused with the passenger list ("pax list") and crew list supplied by the captain or owner of a distressed ship. The ability to maintain the POB list may rely heavily on the quality of reporting from numerous sources, and even if this quality is consistently high, there can still be uncertainties, e.g. related to people who attempt to rescue



themselves via small boats, floats or by swimming. This can make it impossible to keep a POB list up-to-date at all times.

The POB list for SkagEx11 – encompassing both Bohus and Oslo Tank – was displayed on a giant screen in the JRCC-SN Operation Room throughout the exercise. There were several impediments to keeping it accurate, of which some have already been mentioned above. These included:

- The exercise–technical artificialities and the sheer complexity of an exercise with two ships in distress, hundreds of role players, and dozens of SRUs in simultaneous action.
- That reports of “maritime evacuation packages” handled by surface SRUs did not always reach the OSC and thus not JRCC-SN via ordinary channels, in correct format, or in a timely manner.
- That the list of crew and passengers for Oslo Tank turned out to be deficient due to stowaways.
- Shortcomings in the timeliness and accurateness of data from the OSC and ACO.
- That the RSCs did not continuously forward SITREPS to JRCC-SN about the number of persons that had gone through the reception apparatus on land during the first exercise day.
- That JRCC-SN was not informed of the number of passengers, crew, and RITS personnel still on Bohus in the evening, when it was simulated that the fire was extinguished and the ferry towed to port in Sandefjord. Registration of this was not conducted effectively in Sandefjord.
- That the RSCs in JRCC’s view terminated exercise activity prematurely. None of the RSCs had personnel available for exercise activity after midnight on day 1. This made clarifications about the police’s DIR (Disaster Involved Register) and JRCC-SN’s POB list impossible during the night. JRCC had arranged for rotation of personnel throughout the night. The OSC and ACO functions on KV Bergen also remained on scene the whole night.

Since JRCC-SN was aware that the POB list was incomplete by nightfall on day 1, it would also have been normal procedure to continue search activities at night. However, exercise planning did not allow for airborne or seaborne SRU resources to be made available for this. On the morning of day 2 a new inject was introduced concerning missing persons near Tjøme, but given the lack of input overnight from the RSCs, this inject became rather artificial for JRCC-SN.

To its benefit, it should be acknowledged that JRCC-SN at all times had very good control of the number of first responders transferred to and from Bohus. But in terms of passengers and crew, the fact remains that JRCC-SN was not continuously able to keep an accurate count, and that despite hard work to alter this state affairs, there was still no correct POB list at ENDEX. Keeping track of POBs is often an “Achilles heel” in large SAR exercises, and SkagEx11 was no exception.

### ***Aspects concerning communications technology***

Neither the SMC, other personnel at JRCC-SN, the OSC, or the ACO are reported to have experienced problems communicating with each other due to lack of communication means or poor radio coverage. Communications was carried out using aviation radio (frequency 123.1) and maritime VHF, and no major challenges were identified, apart from some uncertainty at the start of the exercise whether maritime VHF channel 16 was simulated via channels 67 or 72.

Sea-land and air-land communications at the tactical response level, on the other hand, frequently did not work well. The Norwegian Society for Sea Rescue, for example, has remarked that it had great expectations that the Norwegian TETRA (Terrestrial Trunked Radio) network NØDNETT would be a good communication platform between sea and land-based units during SkagEx11, but that this was not the case. Whereas its rescue boats had good communication with the OSC on maritime VHF, they were not able to contact the emergency services in shared NØDNETT talk groups, and were at no point able to report directly to the onshore reception apparatus about the number and medical condition of injured persons they were bringing in. In any case, NØDNETT was eventually overloaded at some base stations, and evaluators at JRCC-SN have since expressed a need for a central contact point for reporting NØDNETT capacity challenges. JRCC-SN was equipped with NØDNETT as a supplement to aviation radio and maritime VHF during SkagEx11. The OSC was not equipped with NØDNETT.

As regards air-land communications, the health authorities and the Norwegian Home Guard point out that the rescue helicopters and air ambulances (HEMS) were not equipped with NØDNETT, wherefore direct communication about incoming patients prior to landing were not possible between helicopter crews and reception centres, EMCCs, hospitals, ambulance services, etc. on land. In addition, Colorline/the captain on Bohus has for example reported, that radio contact with the Norwegian SAR 330 Squadron was difficult due to poor coverage.

In the aftermath of SkagEx11, evaluators have generally stressed the need for better future integration of land-sea communication through maritime VHF, NØDNETT and the Swedish TETRA network RAKEL. JRCC-Sweden reported that it did not use the gateway function established between RAKEL and NØDNETT during the exercise, since it had no need to contact any Norwegian SRUs, as these were handled by the SMC, OSC and ACO.

As another lesson from SkagEx11, evaluators from the Directorate for Civil Protection and Emergency Planning point to a need for measures to ensure that the Directorate for Emergency Communication (DNK), which is the owner of NØDNETT, is quickly informed when large incidents occur, so that it can initiate monitoring and take steps to strengthen NØDNETT capacity locally.

#### **4.1.5 Crisis communication**

Information officers charged with handling media relations were activated at JRCC-SN in accordance with established plans. All incoming media inquiries about the SAR operation were handled, and feedback from status meetings indicates that the enquiries were perceived as relevant and well organised. The information officers were also assessed by evaluators to have used the media proactively and described as very experienced and autonomous in this regard.

It also appears clear, however, that the media play was toned noticeably down on the second day of the exercise due to exercise-technical factors. Media focus at this point was on the POB-lists, which had not been updated by information from the RSC's, because they had ended their exercise participation. The information officers at JRCC-SN were not in a position to comment on the deficiencies of information gathering that should have been handled by the RSC's.

As another potential shortcoming, there is no information to suggest, that JRCC-SN at any point coordinated its crisis communication to the media and public with other organisations.

Evaluators have not assessed the specific content or quality of the crisis communication from JRCC-SN.

#### **4.1.6 Conclusions and lessons identified**

SkagEx11 succeeded in testing and training the ability and capacity for simultaneous deployment of SAR resources from multiple public, private and voluntary rescue services in the Nordic region.

The activation process and organisational mobilisation at JRCC-SN was effective, although the time realistically needed to build up the crisis management organisation was not tested. The SMC's leadership and delegation of tasks in the Operation Room was assertive and consistent. Roles, responsibilities and mandates were clear within JRCC-SN, although this was not always the case vis-à-vis external partners such as the RSCs, the Maritime Administration or the R-EMCC.

The overall operational management and coordination by JRCC-SN was conducted professionally but exercise-technical direction from DISTAFF impeded opportunities for "players' action" by the SMC, OSC and ACO when coordinating actions and resources – especially as regards the prioritisation between airlifting RITS teams onto Bohus vis-à-vis airlifting injured persons off Bohus.

The simultaneous use of the OSC and ACO functions on KV Bergen was effective, although some elements of uncertainty arose about the lines of command and communications between them in relation to the SMC. The ACO function, maintained high flight safety and coordinated airborne SRUs satisfactorily under the circumstances. An air coordination plan was produced but not a flow plan for the helicopters. Several aspects regarding the ACO function, which was tested for the first time in the Nordic region in SkagEx11, may need further development. Although a long time passed before the OSC had established overview of where and when the various surface SRUs resources should be deployed – and neglected SAR assistance for Oslo Tank for too long – the OSC function also performed effectively once the exercise was well under way.

The crews on the various airborne and seaborne SRUs conducted their activities in a professional manner under the leadership of the OSC and ACO. Mainly due to exercise-technical factors, however, several surface vessels evidently gained too little training from the exercise, and the number of persons evacuated by helicopters, and the tempo for this, was much less effective than desired.

Evaluators also generally agree that the total number of SRUs present in the exercise arena within the SkagEx11 timeframe did not realistically reflect that number expected in a real-life situation.

Although well-arranged status meetings and other activities were conducive to establishing overview within JRCC-SN, a written common situation picture was lacking. SITREPS from the SMC were distributed according to procedure but there were shortcomings in ensuring that



information on mission status and progress reached relevant recipients other than the SMC, OSC and ACO.

Efforts at JRCC-SN to generate an accurate list of persons on board (POB) failed. Several factors caused this, including exercise-technical constraints; the sheer complexity of the mass evacuation trained; and variations in the quality and timeliness of information gathered by the captains of Bohus and Oslo Tank, the OSC and ACO, the involved airborne and seaborne SRUs, and the police from the RSC's and reception centres in Østfold, Vestfold and Strömstad. Keeping correct POB count is often an Achilles heel in large SAR exercises and SkagEx11 was no exception.

As is frequently the case, communication between sea and land was also a challenge during SkagEx11. NØDNETT did not prove to be the effective platform for sea-land communication many hoped for as a supplement to aviation radio and maritime VHF.

## 4.2 The RITS response

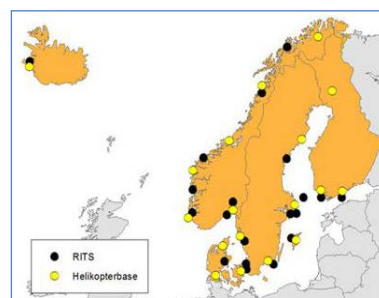
### 4.2.1 Organisational framework

Fire safety on a ship is by maritime law first and foremost the responsibility of the ship's owner and captain. It depends on the presence of relevant equipment and countermeasures on board; the effective functioning of the ship's preparedness organisation; and crew members' abilities in the fields of fire prevention, fire fighting, smoke diving, search and rescue, evacuation, etc.

However, when extraordinarily dangerous fires or other accidents occur at sea, a ship may need external assistance from professional fire and rescue personnel – using SAR service assets for transportation – collectively referred to as RITS. In Norwegian, RITS stands for “Redningsinnsats til sjøs”, which literally means “Rescue response at sea”. Since the same term is used in Swedish (though not in Danish or Finnish), it is applied throughout this report. The English term for the equivalent concept is MIRG (maritime incident response group).



RITS arrangements based on formal agreements between state authorities and select local fire and rescue services are in place in all Nordic countries. In Norway, seven fire and rescue services along the coast are currently part of such an arrangement. Norway also leads the “Nordic RITS-forum”, which incorporates 20 fire and rescue services from Norway, Sweden, Denmark, Finland and Iceland. In addition, many other fire and rescue services without separate RITS agreements have capacity for response at sea.



Indeed, all fire and rescue services with coastal affiliation generally have a duty to assist, upon request, during accidents involving ships at sea, whether inside or outside territorial waters.

Specifically, RITS entails the deployment of one or more RITS teams to a burning or otherwise disabled ship. The teams are transported to the ship via a helicopter or surface vessel, and will bring their own equipment (e.g. breathing apparatus) but will also rely on equipment on the ship (e.g. fire hydrants). Once on board, RITS teams are assigned individual sectors of the ship in which to focus their activities. Their primary function is to search for, rescue and evacuate passengers and crew, who have been trapped by the propagation of fire, smoke and fire gases. RITS teams may extinguish fire in order to do so, but fire fighting is a secondary activity and not an end in itself. The main purpose of RITS is always to save people from death or injury – not salvaging the ship or minimising damage to property from fire. In addition, some RITS teams are specially trained and equipped to handle incidents with contamination from hazardous materials.

RITS teams typically consist of six personnel: four smoke divers working in pairs, one smoke diver leader, and one lead response officer who functions as “RITS team leader”. When several teams are involved, a “Coordinating RITS team leader” may be appointed. In such circumstances, the person in charge of the first team to arrive may assume the function as the coordinating RITS team leader, albeit acting in close cooperation with the subsequently arriving RITS team leaders.

In SkagEx11, seven RITS teams participated from land-based municipal fire and rescue services in Norway (three), Finland (two), Sweden (one) and Denmark (one). The participants were:

- A team from the Oslo's Fire and Rescue Services (Brann- og redningsetaten i Oslo).
- A team from Larvik Fire Department (Brannvesenet i Larvik).
- A mixed team of personnel from the other five fire and rescue services that are part of Norway's RITS arrangement, i.e. Sør-Rogaland, Bergen, Ålesund, Salten and Tromsø.
- A team from Helsinki City Rescue Department (Helsingin Kaupungin Pelastuslaitos).
- A team from Southwest Finland Rescue Services in Turku (Varsinais-Suomen Pelastuslaitos).
- A team from Greater Göteborg Fire and Rescue Services (Räddningstjänsten Storgöteborg).
- A team from Aarhus Fire Brigade (Aarhus Brandvæsen).

In addition, two sea-based RITS teams participated. One was a team of smoke divers from the Norwegian Coast Guard. The other was a specialised hazmat team from the Swedish Coast Guard operating from the vessel KBV 003 Amfitrite, which is fitted with custom-built equipment for handling incidents that involve contamination from hazardous materials on board ships at sea.

SkagEx11 was the first joint exercise in the Nordic region where such a large number of RITS teams from different services, cities and countries were put into action simultaneously. It was also the first joint Nordic exercise in which the function as coordinating RITS team leader was tested. This was performed by the leader of the Oslo RITS team, who was the first to arrive on Bohus.

As an integral part of a broader SAR operation, RITS teams may be activated either via a Rescue Coordination Centre (RCC) or a Rescue Sub Centre (RSC). Consequently, it may be an SMC, OSC or ACO who alerts RITS services; decide when and how each RITS team is to be transported; and arranges the necessary transport by airborne and/or seaborne SRUs. Once on board the ship in distress, however, all RITS personnel operate under the general command of the ship's captain, and all RITS activities are regarded as assistance to the captain.

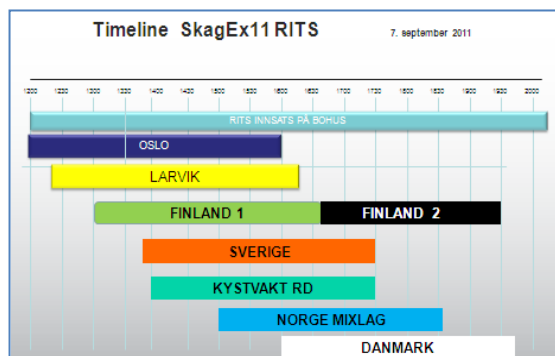
Coordination responsibility at the operational level on board the ship thus rests firmly with the captain or a designee on the bridge (typically the officer customarily responsible to the captain for safety and security) – although naturally in close cooperation with the individual RITS team leaders or coordinating team leader. At the tactical level beyond the bridge the activities of smoke divers may similarly be coordinated between the ship's deck and engineer officers, RITS team leaders and RITS smoke divers' leaders. During SkagEx11, the chief engineer on Bohus played a pivotal role as coordinator on the bridge, while the ship's fire chief (first mate) was in direct contact with RITS teams on the various decks.

Coordination between the leadership on the bridge and the OSC, who in turn report to the SMC, is also necessary for the effective overall operational coordination of the combined SAR operation. Furthermore, this coordination may be guided by RITS experts in relevant staffs on land who can advise the ship's captain, the OSC and the SMC. In the case of Norway, such advice may, for

example, be offered by members or advisors in the Joint Rescue Management at JRCC or RSC level or from an ICS (Incident Command System) staff activated at a municipal fire and rescue service. During SkagEx11, the fire chief from Sør-Rogaland Fire Department served as an advisor regarding RITS to the Joint Rescue Management at JRCC-SN alongside a staff member from the Directorate for Civil Protection and Emergency Planning. Simultaneously, a liaison from Oslo's Fire and Rescue Services was present in the JRCC-SN's Operation Room as advisor to the SMC.

### **The RITS scenarios**

A review of the situation facing the RITS teams on Bohus may be beneficial for understanding the assessments in the following sections. A brief summary of the six more or less integrated RITS scenarios is therefore presented below. The figure to the right illustrates a rough timeline for the arrival of the various RITS teams, but since it stems from the original SkagEx11 planning documents, it does not accurately present the actual times of arrival during the exercise.



According to the scenario planning, the fire on Bohus originated in the engine room. The fixed fire fighting system was triggered in the engine control room, but the system malfunctioned. Bohus suffered a total power black-out and lost steering. The crew began manual fire fighting, but were forced to pull back due to intense heat. Subsequently, the ferry's smoke diving teams began cooling the bulkhead around the engine room, while simultaneously trying to evacuate crew trapped by smoke, which had spread to the engine control room as well as storage tanks on deck 1 and crew quarters on deck 2. Meanwhile, the collision with Oslo Tank caused a leakage of nitric acid from a truck that shifted on the car deck.

The area around the engine room on deck 1 was the Scenario 1 location for the Oslo team, while the storage tanks on deck 1 and crew quarters on deck 2 was the scenario 2 location for the Larvik team and the 1st Finnish team. The chemically contaminated area around the truck on deck 3 was the Scenario 3 location for the Gothenburg team and the Swedish Coast Guard hazmat team.

After a while, the heat from the fire on decks 1 and 2 spread so much that smoke and fire gases seeped through elevator and ventilation shafts up to decks 4 and 5, where up to 200 people were gathered in recreational, dining and shopping areas. The captain of Bohus decided to close all fire doors in the ship on all decks, whereby many passengers became trapped on decks 4 and 5. On deck 5, fire subsequently erupted in the ship's discotheque, where around 50 people were gathered. The areas on decks 4 and 5 were the Scenario 4 and Scenario 5 locations for the mixed Norwegian team, the Danish team, and the 2nd Finnish team.

Finally, hot fire gases had spread all the way to the ship's top deck 6, where the air-condition room took fire, and affected the gathering of passengers for evacuation on the open deck. This was the Scenario 6 location for the Norwegian Coast Guard team and available RITS teams from the land-based fire and rescue services.

All the scenarios involved search and rescues of missing crew and passengers (unharmed, injured, or deceased). In total there were 50+ missing and/or injured persons (live role players) and 20+ fatalities (exercise dolls). In Scenario 4, an episode with a missing smoke diver was also trained.

#### 4.2.2 Activation

As an exercise-technical condition, all RITS teams had been kept on standby and ready to despatch prior to STARTEX. This makes it difficult to assess the timeliness of the RITS activation. Evaluators generally assess, that the timeframe for activation would have been more realistic if all the RITS-teams had been at their permanent bases, or at least activated as if they had been there.

Following the MAYDAY from Bohus, the RITS teams were alerted as soon as the need for RITS became known, and their subsequent transport received high priority over the next approximately five hours. Formal responsibility for activating the RITS teams and arranging their transport rested with JRCC-SN. As described in section 5.1, however, the transport decisions were to a very large extent made by DISTAFF rather than the SMC, the OSC, or the ACO. Six of the seven land-based RITS teams were airlifted to Bohus by rescue helicopters, while one team (from Larvik) arrived on the rescue boat RS Askebæringen. The seaborne hazmat team from the Swedish Coast Guard arrived on KBV 003. The Norwegian Coast Guard RITS team was transferred from a Coast Guard ship to Bohus on a fast-going boat.

Most RITS evaluators agree that parts of the activation went on too fast, and several reported problems because the order in which RITS teams arrived differed from what had been planned in the SkagX11 Detailed Scenario Episodes Catalogue (DSEC) and other planning documents developed for DISTAFF-appointed RITS controllers. Some claim this was because the sequence of the RITS response was known among exercise participants, resulting in unwarranted eagerness and too fast actions. Others claim that DISTAFF's directions did not follow its planned schedule.

Whatever the cause, it appears clear that communications between involved entities did not function in the initial activation stages. A good example of this was the early activation of the Swedish rescue helicopter Lifeguard 901 and the RITS team from Gothenburg, which meant that too many resources arrived at the same time to Bohus and had to stand by. Upon direction from DISTAFF, JRCC-Sweden ordered Lifeguard 901 to unload the Gothenburg RITS team. The helicopter crew asked JRCC-Sweden to get the requests directly from an exercise participant, i.e. from the ACO or OSC at KV Bergen or JRCC-SN, but JRCC-Sweden insisted that they unload, since DISTAFF had called this in "as a prelude from game management". In turn this created confusion, because when Lifeguard 901 reported it was empty and at disposal, it was again ordered to load the RITS-team and prepare for takeoff. In addition, the arrival of the Gothenburg RITS-team earlier than the Swedish Coast Guard hazmat team also caused some problems for the response to the chemical contamination incident.



### 4.2.3 Coordination of actions and resources

There is general agreement among evaluators that the RITS response would have benefitted from better organising principles, a more straightforward chain of command, and a more pronounced coordinating leadership for RITS on Bohus. These shortcomings may to some extent be linked to the absence of plans, procedures or guidelines outlining responsibilities and tasks in greater detail.

The leader of the RITS team from Oslo, who was the first to set foot on Bohus, took position on the bridge in order to fill the function as “coordinating RITS team leader” for all the subsequently arriving RITS teams. This function is not formally set out in the Nordic framework for rescue efforts at sea, but it had been planned to test the concept in SkagEx11, and as such the exercise went according to plan. However, some evaluators have pointed out that it was the ship's chief engineer who took over as the de facto coordinator of the RITS response, at times making the coordinating RITS team leader function appear somewhat redundant.

The exercise also showed that it can be difficult for RITS team leaders to direct their team members where to deploy when present on the bridge. All RITS team leaders met on the bridge and communicated with their respective teams from the bridge with few exemptions. The Swedish leader of the Gothenburg team, for example, alternated between the bridge and the location of his team. In at least one instance, a Norwegian RITS team leader also chose to seek out his team, deploy it directly, and then return to the bridge. This may be a sensible option in certain circumstances, but it is time consuming on large ships like Bohus and slows down coordination on the bridge. Instructing the ship's own smoke divers to guide the RITS team smoke divers from a base point to their specific allocated sectors on the ship was considered the preferable option.

An alternative solution could involve a sectorisation, whereby the RITS response to a greater extent would be controlled from locations other than the bridge. One such suggestion is to divide the ship into sectors with several appointed sector chiefs in order to relieve leaders on the bridge. Another suggestion involves an organising principle, whereby the first arriving RITS team leader would proceed directly to the bridge, and the next arriving RITS team leader would establish a base point from which to manage the tactical coordination alongside the ship's fire/safety chief. Subsequent arriving RITS teams could then be referred to this base point. A principle like that could also counter communication problems by establishing a line of contact between the (1st) coordinating RITS team leader on the bridge vis-à-vis the (2nd) coordinating RITS team leader and the ship's fire/safety chief at the base point. Similarly, it could facilitate the expansion of RITS to additional sectors of the ship if needed. The coordinating RITS team leader on the bridge would of course still be able to request support on the bridge from one or more of the RITS team leaders.

Turning from the operational to the tactical level, it is generally assessed that the coordination of actions and resources was, with few exemptions, carried out effectively by each of the RITS teams.

Coordination between the six RITS teams transferred by air and the SAR helicopter crews generally went well – both prior to takeoff, while in flight, and during the hoisting of personnel and

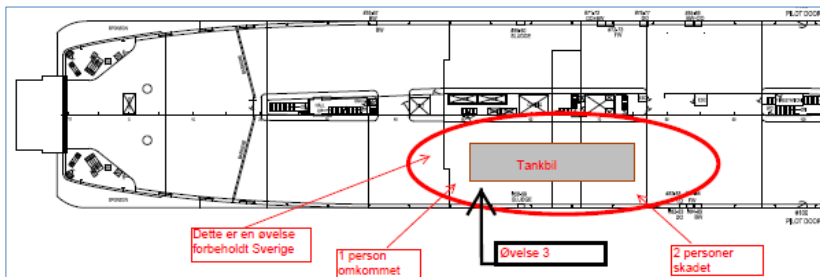
equipment onto Bohus. The transfer of the Larvik team by RS Askebæringen apparently also went smoothly - although the rescue boat had to wait in port for the team for over an hour.

The reception of the RITS teams by the crew of Bohus and subsequent coordination has been described as outstanding. The ferry's chief engineer and fire chief had initiated an appropriate first response and the crew carried out activities for a long period until they were relieved by RITS teams. The crew subsequently continued to support the RITS teams with search and rescue, fire fighting and, not least, carrying of stretchers.



Coordination within each RITS team can also be concluded as having been effective. The smoke divers exhibited a good understanding of the RITS concept and generally performed tasks around the ship in a highly professional manner. As regards the effectiveness of coordination between the RITS teams, opinions among evaluators differ somewhat. The RITS team from Oslo reached Bohus first and, as more teams arrived, the smoke divers' leaders cooperated in dividing the ship into sectors. After that, however, tactical actions were largely carried out independently by each team. There are no indications that any joint action plan for the combined tactical response was developed. Hence, it cannot be stated conclusively that there was clarity regarding the tasks each RITS team were to carry out.

The response to contamination from a truck carrying nitric acid was for a variety of reasons the least successful of the trained scenarios. Firstly, while en route to the engine room on deck 1, the Oslo RITS team passed the chemical incident site on deck 3, and contemplated responding – having no knowledge that this scenario was reserved for the two Swedish RITS teams. It took some time before this situation was corrected by one of DISTAFF's RITS controllers. Secondly, fire fighting activity was initiated on the car deck without proper precautions as regards the risk to personnel from contamination. Thirdly, the Gothenburg RITS team arrived to Bohus directly by helicopter and earlier than the Swedish Coast Guard hazmat RITS team.



Evaluators assess, that the Gothenburg team ought instead to have been airlifted to KBV 003, or been on board KBV 003 from port, in order to prepare for the hazmat response and the make us of

KBV 003's decontamination equipment. The cause may have been an exercise-technical timing error or, alternatively, the limited original information passed to the Gothenburg team: *"Fire in engine room. Bring chemical response equipment"*. Under normal procedures, a hazmat response is not to be initiated until a retreat site with decontamination facilities has been established.

Finally, some more specific lessons identified included:

- That a safe meeting place for RITS teams should have been designated during initial reconnaissance.
- That neither the assembly point for the RITS teams nor the medical treatment point or gathering point for evacuees was suitably located. The proximity to the winching area where the helicopters hoisted RITS and medical personnel onto Bohus and victims up from Bohus meant a lack of room and a very high level of noise, which resulted in communications problems. Meanwhile, heavy equipment brought by the RITS teams was initially set down in a place, where it to some extent blocked easy access to the helicopter winching area.
- That there was insufficient coordination between RITS team leaders and medical personnel on board Bohus, e.g. in designating the location of the medical treatment point. In some instances, injured persons rescued by RITS smoke divers had to wait for medical treatment for extended periods. There were also instances where injured were given first aid by RITS team members.
- That better "ship knowledge" can help RITS team members orient themselves – especially since electricity blackouts on burning ships are not unusual, and require RITS teams to operate in the dark, as was trained during SkagEx11. Reading and understanding a ship's safety plan is an important tool in this regard. Familiarity with technical maritime expressions commonly used on ships can also help RITS team members communicate better with crew members.
- That language was a challenge. When communicating with persons of different nationalities on the bridge and elsewhere, members of the Finnish teams spoke English whereas the remainder spoke Norwegian, Swedish and Danish. Most evaluators seem to agree, that it would have been better, if all had used English when communicating with several nationalities. As one evaluator points out, however, members of a given Norwegian, Swedish or Danish (not Finnish) RITS team will not necessarily understand a larger proportion of English than another Scandinavian language. At a minimum though, repetition of numerical values in English is preferable, given that numbers are pronounced very differently in the Scandinavian languages.
- That nationality insignia on uniforms might be an advantage in transnational RITS operations.
- That fire containment via cooling of bulkheads and floors did not receive sufficient priority and that it was not clear to the coordination leadership on the bridge who was in charge of this.
- That the importance of maintaining the boundaries established to prevent the spreading of smoke throughout the ship cannot be understated. Smoke containment is a critical factor on a burning ferry, where crowds of people cannot easily be evacuated to a smokeless environment.
- That re-filling of oxygen tanks for breathing apparatus became a challenge due to different types of couplers for different types of tanks. Refilling of some of the RITS teams' tanks was



therefore not possible on Bohus. A solution was found, where tanks were refilled on a Coast Guard ship, but ideally different couplers might have been packed by the RITS teams.

#### **4.2.4 Information management**

Evaluators agree, that the leadership on the bridge, including the coordinating RITS team leader, did not maintain overview of the progress of individual RITS teams on Bohus or the collective RITS response. The officers on the bridge reportedly stated, that they only wanted information about when the various responses to the RITS scenarios began and ended. Several evaluators also point out, that status reports by RITS teams to the bridge left much to be desired. Moreover, the OSC on KV Bergen and the SMC at JRCC-SN did not at any point receive SITREPS regarding RITS.

Taken together, these factors suggest that the information management during the RITS response was ineffective, and that a common situation picture was never fully established. Developing and maintaining a common situation picture could undoubtedly have formed the basis for better feedback to – and thus more effective coordination with – the OSC, the SMC, the Joint Rescue management at JRCC-SN and other relevant stakeholders in the combined SAR operation.

#### ***Aspects concerning communications technology***

Some evaluators points to the radio communication by RITS teams as an area for improvement, whereas others notes this as something that worked well during the exercise.

Each RITS team brought its own communications equipment on board Bohus, thus enabling internal communication. The Norwegian, Finnish and Danish teams were also able to communicate with each other and the leadership on the bridge via their hand-held radio terminals, since they all used the TETRA network in the shared EURO 10 DMO talk group. As an additional advantage, the two Finnish RITS teams were capable of speaking directly to helicopter crews via their TETRA terminals, unlike their Norwegian, Swedish and Danish colleagues.

The TETRA terminals brought by the Swedish team from Gothenburg, on the other hand, did not allow for communications with the other RITS teams or the coordinating leadership on the bridge. The team was, however, able to borrow terminals on board Bohus. Given that a solution was thus found, the available communications technology is generally assessed to have been sufficient for the RITS response, and there is consensus that TETRA worked well. Nonetheless, it gives some cause for concern that it had not been clarified how radio communication was to be handled between the bridge and each country's RITS teams prior to their arrival on Bohus.

#### **4.2.5 Conclusions and lessons identified**

SkagEx11 succeeded in testing and training the ability and capacity for simultaneous deployment of multiple RITS teams from different services, cities and countries in the Nordic region.

At the tactical level, the RITS response was on the whole effective – the notable exemption being the response to chemical contamination scenario. The majority of the RITS team were airlifted to Bohus and they cooperated well with helicopter crews during transport and hoisting. Once on

board, there was also exceptionally good cooperation with the ship's crew. Coordination of tactical activities within each RITS team was generally very effective, and the personnel exhibited a good understanding of the RITS concept. The effectiveness of coordination between the different RITS teams was also good, although this varied somewhat, depending on the specific scenarios.

At the operational level, there is general agreement that the RITS response would have benefitted from better organising principles on board Bohus, a more straightforward chain of command, and a more pronounced leadership from the bridge. The use of a coordinating RITS team leader could have worked better. Coordination with medical personnel apparently also left much to be desired.

Similarly, available data suggests significant room for improvement as regards the management of relevant information regarding the RITS response in all its phases. Despite available means of communications (TETRA terminals), SITREPs from the RITS teams to the bridge were insufficient. There was also a lack of communication with the OSC, and hence also with JRCC-SN.

Based on the experiences from SkagEx11, RITS evaluators have emphasised that fire-technical leadership support is – in addition to the concrete capacities RITS teams provide – one of the main arguments for facilitating the support of land-based fire and rescue services to ships on fire at sea. The role as fire-technical advisor to the ship's captain or an OSC is, however, not formally set out in the existing framework regulating the management aspects of large rescue responses at sea.

Evaluators from the Directorate for Civil Protection and Emergency Planning therefore recommend revising relevant Norwegian and possibly also international documents to ensure a clear division of tasks and responsibilities. This should also take into account the planning of logistics to maintain a RITS response from a fire-technical perspective, which the evaluators consider it natural, that the first RITS-leader to arrive on a ship or the OSC should perform. In a Norwegian context, the relevant document suggested for revision is “JD, G-0234. Tasks and cooperation arrangements in the event of shipping accidents” - a guide to the relationship between shipping and rescue services in the Norwegian rescue service's area of responsibility”. In a Nordic context, the current framework would be the “Agreement on Rescue Services between Nordic Countries” (NORDRED).

## 5 Coordination regarding the handling of evacuees and casualties on land

All evacuees and casualties were transported to shore by either helicopter or rescue vessel. Passengers and crew were transported to different sites in both Norway and Sweden. Reception centres, evacuee centres and next-of-kin centres were established in both countries.



Even though a massive crises management response was initiated in Sweden this section will primarily focus on that which took place on Norwegian soil. The police had the overall responsibility for coordination of the response from the moment the evacuees and casualties reached land.

### 5.1 Organisational framework

The police have the overall responsibility for maintaining records of casualties and evacuees. Each police district operates as a Rescue Sub Centre (RSC) in the day-to-day operations through their Operations Centre, so that search and rescue missions are handled equally be they minor or more major incidents. The formal establishment of a RSC is the expansion of the operations that is conducted on a daily basis.

Supervised by the JRCC, the RSC is the management and coordination unit implemented during a rescue mission in order to coordinate rescue operations on land. The RSC is run by the police, which convenes the rescue management when deemed necessary. Rescue management (including the Chief of Police) is the strategic management of RSC. While the JRCC leads all rescue operation at sea the RSC is usually responsible to lead all rescue operations on land. Regardless of the type of action and responsibility, the JRCC and RSC always assist each other.

The same police staff and response personnel are used regardless of whether providing rescue services or conducting other police emergency responses. The operating staff supports the Chief of Police and emergency management in planning, management, coordination and control during a rescue mission.

RSC emergency management is led by chief of the police district and consists of the Chief of Police (Commander), Fire brigade (Chief Fire Officer), Medical services, Port Authority, Coastal Administration, Air traffic control services, Armed Forces, Civil Defence, Telenor and a representative from a volunteer organisation.

Given the location of the incident in SkagEx11, JRCC decided that the police districts on each side of the fiord should function as independent Rescue Sub Centres. RSC Østfold was established in Sarpsborg and RSC Vestfold was established in Tønsberg. However, the two RSCs would work closely together in terms of the allocation of resource, evacuee centres, etc.

RSC decided to establish the following centres:

Vestfold County

- Reception centres at Color Line, Larvik
- Evacuee centre at Farrishallen, Larvik
- Next-of-kin centre at Larvik municipality's offices in Romberggata

Østfold County

- Reception centre at Rove sports grounds and Skjærhalden
- Evacuee centre for evacuees at Floren School in Hvaler municipality. Next-of-kin centre was not established, but the police sent an officer to the hospitals next-of-kin centre.

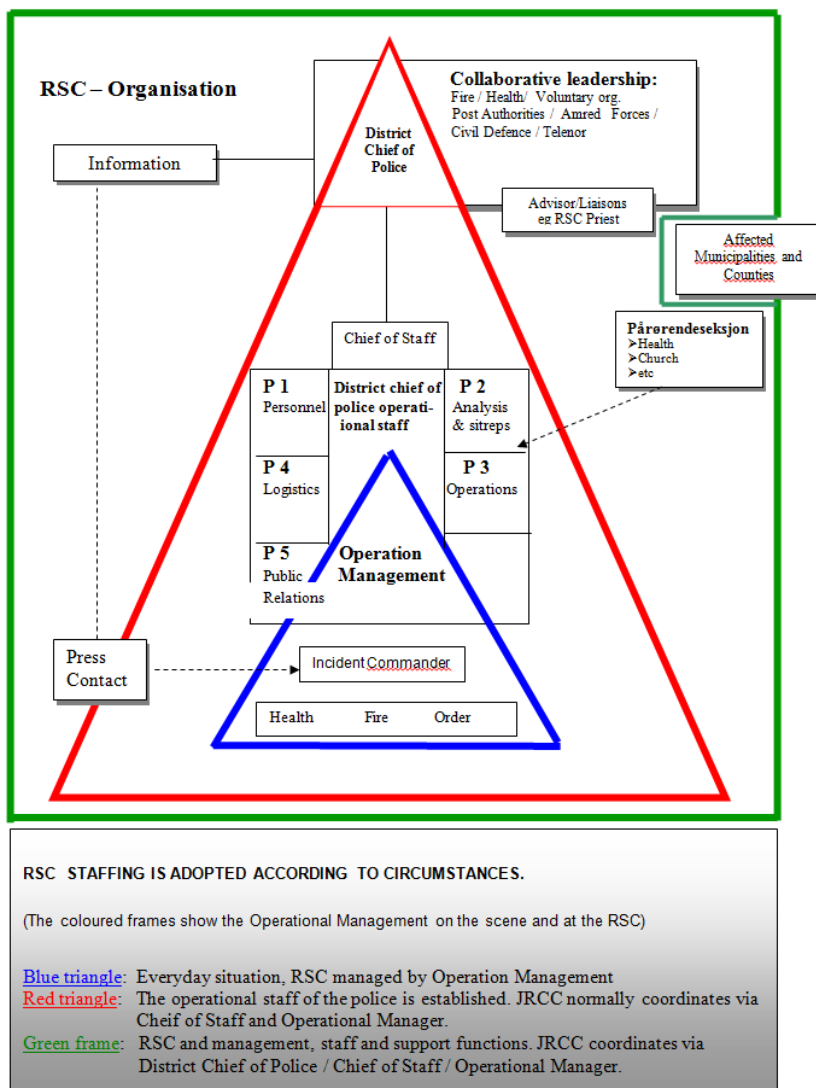
The following centres were established in Sweden:

- Reception centre at Color Line, Strömstad
- Next-of-kin centre Strömstad (co-located with the reception centre)

Below is a presentation of the different functions established during a crisis of this scope, and how the various centres are intended to function. A Reception centre, Evacuee centre and Next-of-kin centre are established which are all headed and efforts are coordinated by the police.

**Reception centre**

The Reception centre is a location used to receive a greater number of people who have been evacuated from an accident, at sea or abroad. All evacuees must pass through here for triage and registration. The reception centre will ensure that JRCC and RSC are in control of the number and identities of the people involved in an accident.



### **Evacuee centre**

The evacuee centre is a location for physically unharmed persons who have been involved in the incident and are in need of assistance. This could include being reunited with their next-of-kin, conversation services and other form of care. The evacuee centre could also tend to people with minor injuries who can be treated by local medical staff.

### **Next-of-kin centre**

The next-of-kin centre is a location and point of contact for next-of-kin in connection with rescue efforts/incidents, where next-of-kin can ask for or register their missing persons and receive assistance. RSC decides whether to establish a next-of-kin centre, and agreements can be made with other organisations regarding the operation of the centre.



Gathering areas and traffic checkpoints:

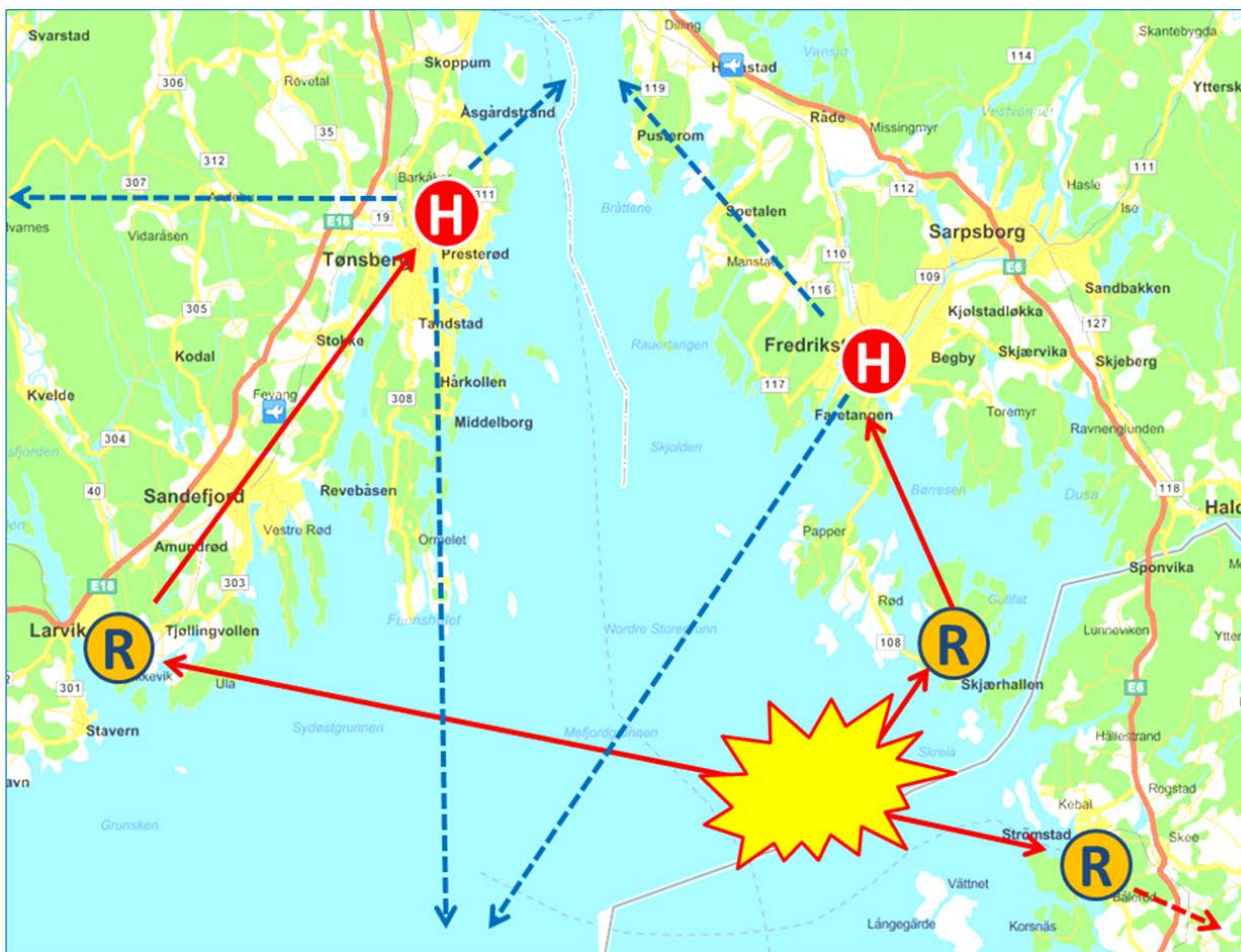
1. IL-KO (Incident commander)
2. Helicopter landing ground
3. Gathering area for injured persons
4. Evacuee centre
5. Gathering area for deceased
6. Waiting site for ambulances.

7. Entrance to the parking space, exit/entrance service vehicles
8. EKP (Evacuee checkpoint) / traffic record - roundabout at the entrance to the terminal
9. Initial arrival of evacuees from the terminal.

## **5.2 Activation**

Evacuees and casualties were gathered in reception centres. Here, registration forms were completed, before the evacuees, upon agreement with the police, were transferred to an evacuee centre. The police coordinated and headed the efforts at the reception centre, while the civil defence handled the operation.

The pre-hospital service at the hospitals, primarily the ambulance service, was responsible for the reception area for the injured. Here, the service decided where the evacuees and casualties would be transferred to (triage). Moreover, while one designated area is used to gather injured persons another area is designated to gather the deceased. Strict regulations and requirements are observed regarding registration of people at or passing through the gathering area at the Reception centre. The registration was coordinated with personal information from other gathering areas and evacuee checkpoint (EKP) which formed the basis for the overviews at RSC. The civil defence was responsible for operating the gathering area for injured persons, and cooperation with the hospital's crisis team and volunteer organisations.



The map shows approximately where the accident took place, the location of the three reception centres (R) and the two hospitals (H). The blue arrows indicate possible directions for possible transfer of patients internally in Norway or to treatment institutions abroad.

The evacuee centres were the location for physically unharmed persons who had been involved in the incident. The police headed and coordinated the efforts at the centres. While RSC decided whether or not to establish evacuee centre, the municipality was in charge of establishing and operating the centre. The municipalities had in turn made agreements with volunteer organisations in regards to operational responsibility. The municipality also provided psychosocial care, conversation services, medical services and catering services. On behalf of the municipalities, the Norwegian Red Cross and the Norwegian Women’s Public Health Association were involved in registration of personal information.

A separate centre for next-of-kin was established in Vestfold County, at Larvik municipality’s premises. The Church of Norway was notified in accordance with cooperation agreements. The centre for the next-of-kin functioned as a meeting and contact point for next-of-kin in connection with inquires where next-of-kin could ask for or register their missing persons and get assistance if they needed. The police headed and coordinated the efforts at the centre. The municipality and volunteer organisations assisted with emergency assistance teams and psychosocial services.

Guard services were established for both the evacuee and next-of-kin centres. This was done to protect evacuees and next-of-kin from the media and the public, as well as to maintain an overview of who arrived at/left the centres. The Red Cross handled this task.

### 5.3 Coordination of actions and resources

The incident triggered crisis management at all levels. An operation of this size and scope required a high degree of coordination. A major effort was organised for handling the crisis on land; emergency services established their crisis organisations and prepared to receive a large number of evacuees and casualties. Preparations were also made to deal with relatives and the media.



#### 5.3.1 Crisis management organisation

All involved agencies quickly established a crisis management organisation in order to have the best possible basis for further crisis management and a coordinated and controlled effort. The crisis management organisation mainly consisted of crisis staff with associated staff support functions. Most have a core of regular members. Other participation depends on the situation at hand. The incident also led to some agencies dispatching liaisons to crisis management organisations in other agencies.

For example: The hospital in Vestfold County was very satisfied with the fact that they quickly established a preparedness committee, and notified 1200 employees within a short period of time.

On the other side, DSB organised the staff required, but there were some challenges in terms of maintaining their national responsibility and maintaining DSB as an affected agency, as the incident involved a group of employees on board the Color Line vessel.

The majority of the agencies managed to establish an internal crisis management organisation that was appropriate in terms of time, level and composition. The police immediately established staff and contact with the Joint Rescue Coordination Centre (JRCC). Due to the scope of the incident, the rescue management officers were called in to function at a strategic level. Larvik municipality had a liaison from the police in their rescue management team that provided great advantages. In Sweden, the crisis management organisation in Strömstad municipality was established after the Swedish Rescue Services were notified of the accident.



The roles and responsibilities internally within each participating organisation seems to have been clear and functioned well. The roles and responsibilities seem also to have been clear between agencies and venues in the majority of the cases. At the same time, there were challenges in the communication between hospitals and RSC, and not all communication complied with the relevant plans. The hospital in Vestfold County noted that they had a liaison officer in RSC, from whom they unfortunately received little information during SkagEx11.

The exercise uncovered challenges relating to the physical crisis management facilities and the technical tools, particularly in Norway, but also in Sweden. The Østfold County Governor (Fylkesmannen) and DSB reported problems with DSB-CIM (capacity issues). The problems were fixed on the spot. Hvaler municipality did not have separate rooms for crisis management with the necessary technical tools. Temporary rooms were therefore established, but this did not function satisfactorily. The hospital in Østfold County underlines their positive experience using a preparedness web to inform the management.

### **5.3.2 Plans and agreements**

Almost all agencies state that the exercise showed that their own plans need to be updated and that the cooperation agreements with other agencies must be changed. Both operative and strategic players state this. For instance, plans for reception centres, evacuee centres and next-of-kin centres will be reviewed according to the Vestfold County police district. Several of the involved agencies also state that the exercise showed a need to review cooperation agreements, including between the Home Guard and the police, and the civil defence and the police. The exercise also showed that many agencies need to review their preparedness plans. The hospital in Østfold County points out that it is also necessary to review some communications channels and registration routines.

The hospitals believe that the exercise showed that it is necessary to improve coordination and cooperation between the police's and the hospitals' plans, for instance when selecting reception centres.

Many of the agencies stated that changes in their own plans would provide them with better practical tools when regular resources and routines are not sufficient. Examples of agencies' plans include general preparedness plans, response plans and written instructions. Sector-wise and national preparedness plans, as well as international agreements can provide the framework for overall coordination and cooperation, and should be looked into more closely.

### **5.3.3 International cooperation**

In terms of international cooperation, Norwegian authorities received for the most part good assistance from Danish and Swedish public health authorities.

The use of international points of contact for notification and possible assistance requests worked well for the hospitals. The Nordic health preparedness agreement could have been subjected to exercise, but the scenario did not cover this during the day of the exercise. Notification and

requests for resources were handled by the Norwegian Directorate of Health. In addition, the hospital in Østfold County has an agreement with Sweden, with Västra Götalands County, for assistance during preparedness situations, and the hospital practices communications with SOS Gothenburg on the use of resources. This worked well.

One challenge with the cooperation between Sweden and Norway is that the public health authorities in the two countries are organised differently, as stressed by the Västra Götaland region. This was primarily an information and communication challenge. Reference was made to the need for a separate communications plan in connection with the cooperation. The benefits and possibilities in the Rakel system should emerge in such a plan. Communicating through Rakel between Norway and Sweden was not tested during the exercise.

The main impression from the exercise is that the necessary rotation, food, safety and information were provided to the personnel in the crisis management facilities.

#### 5.3.4 Field efforts

It is crucial that an appropriate organisational setup is established onshore in a timely manner in order to register and receive evacuees and casualties. i.e. reception centres, evacuee centres, next of kin centres.



The hospital believes the organisation of reception centres and accident sites, handling of injured persons, prioritisation and treatment worked more or less as planned. The hospital crisis truck for transport of personnel and medical equipment to be used at the gathering area worked optimally.

The military and the medical services had at times a different perception of roles and responsibilities at the reception area in Larvik. The military said that their resources are under the command of the police and that their unit performs their missions as one cohesive unit.

Almost all agencies stated that before and during the exercise, it was clear which main and sub tasks the agency would handle in the field. For the majority, it was clear who had command over the field efforts. Furthermore, tasks and organisation were also for the main part quickly clarified. The majority of agencies also used applicable procedures and routines for task-solving and coordinating with other agencies.

At the same time, some challenges as regards the field efforts were pointed out. The military says that the roles were more clearly defined in the field efforts in Østfold County than in Vestfold County. Østfold Civil Defence District points out that the gathering areas for injured persons and deceased were changed several times. The hospitals state that there were different perceptions as

to where the anaesthetists were to be transported; while the personnel thought they were being transported onshore, they were airlifted to the vessel (Bohus). In this regard, there was, according to the hospitals, uncertainty in connection with safety directives and rules for foreign (Finnish) helicopters.

It was also revealed that the guard service at the evacuee centre was not satisfactory, and that evacuees will need to be protected.

With modern technology, evacuees are able to quickly notify their next-of-kin. Next-of-kin who are near the evacuee centre or have the opportunity to travel there, will mostly likely want to see the evacuees. As a result, a separate next-of-kin centre near (in the same town as) the evacuee centre was not very practical, as we saw in Larvik.



### 5.3.5 Physical facilities and technical tools during field efforts

As regards personnel and material, the agencies vary in their feedback. Some say that the number and types of resources were quickly established, while others state that this was not clear enough. For the majority of participants, the necessary rotation, food, safety and information were provided to field personnel.

The large sports hall in Larvik, which was used as an evacuee centre, was considered to be unsuited. The premises are cold, and could not accommodate the need for care that people in shock have, including small and private units for conversations.

The evacuee centre in Larvik also lacked technical equipment such as laptops, Wi-Fi and scanners. This meant that all lists had to be completed manually, which made it difficult to maintain an overview. This also meant that those who worked at the evacuee centre were unable to keep updated via web pages, PO or other systems and communicate this information to the evacuees.

The emergency network did not provide a good communications platform between sea and shore, and the capacity was insufficient. The hospitals point out that the emergency network does not cover the medevac helicopters, and that the communication between the ground (AMK and ambulance) and air units was not satisfactory. At the same time, the hospitals state that the emergency network worked well between land-based units, particularly between Oslo and Østfold counties. The emergency network was not established in Vestfold County.

Rakel was used for communication between sea, air and land resources. The system has made it possible for Sweden's JRCC to communicate with several parties via radio, and thus provided an

opportunity to establish contact between various types of rescue services. However, this exercise showed that it is unclear for several of the players how this is done as there are no established routines for doing this. Additionally, the players lack experience with cooperating through Rakel, and several of the players do not cooperate on a daily basis. The Swedish observers believe that it could be advantageous to establish a designated speech group for the various rescue services which could always be used for sea/air rescue.

## 5.4 Information management

### ***Overview and registration of evacuees and casualties***

For the authorities the registration of evacuees and casualties after an accident such as the one in SkagEx11, it is vital that they gain access to lists of the identity of passengers and crew on the vessels. It is also important that the authorities have an overview of where the casualties and evacuees are at any given time (reception or evacuee centres, which hospital, etc.).

The hospitals report that they had an overview of all incoming patients at any given time. However, verified IDs of the patients were not registered. The police were present at the ER (Emergency Room) at the hospitals, and they received all information the hospital had about patient IDs.

The hospitals found that using LESS reflective bands and PRE-DOC notes worked well, but also pointed out that there is no joint system for prioritisation and registration of patients or persons involved.

The police state that the evacuee centre in Larvik was sufficiently staffed for the registration work. However, the forms used for registration of personal information were not practical. Four evacuees were registered per form, and there was no space for registering the time of discharge. This caused confusion, and with many evacuees it was difficult to maintain an overview. At the end of the exercise, 63 people who had left the centre were unaccounted for.

The police registry for registration and overview of involved persons (Disaster Involved Register (DIR)) did not function satisfactorily. The system is a tool for ensuring that information about involved persons and next-of-kin is quality assured. After the exercise, no cause was stated as to why the system did not work satisfactorily. However, the police in Vestfold County state that the system should be evaluated as regards user-friendliness.

There were also some challenges in connection with the routines for transfers to the Disaster Involved Register centre, according to the police in Vestfold County. The fact that the site commander had to travel from the evacuee centre to the police station to fax the forms, but after the evacuees had been registered and discharged, did not work well. This was very



time-consuming, and the site commander spent a lot of time away from the centre.

#### **5.4.1 Exchange of information**

The exchange of information between the various parties, regarding evacuees and injured persons, shows that there is a need for reviewing procedures and routines to improve these. Communication between the police and medical services is particularly challenging. Not all necessary information arrived in time, and even though the cooperation is good in the field, the exchange of information failed in key areas. There is also room for improvement for the exchange of information across borders, between various national authorities, both for the police and other authorities.

About half the agencies say that they received the information they needed to solve their tasks efficiently, while the other half says that they did not receive this. The hospital in Østfold County says lack of information (from the site commander) made the planning of patient reception less than optimal.

The hospitals want the opportunity to influence the distribution of patients between the various hospitals and believe the AMKs also should be able to influence where the helicopters airlift patients. In addition, there was at times a lack of information regarding arrival times and patients that were airlifted to hospital by helicopter.

A greater number of patients had been planned for Vestfold County than for Østfold. In this county, the interaction between the AMK and the ER worked well. The hospitals are in daily contact with the municipalities regarding the transfer of patients to the primary health service. The hospitals say this works well, but this was not tested during SkagEx11.

The hospitals believe there is a need to review the roles of both the hospitals and the police, and the delineation between these in terms of registration and information.

#### **5.4.2 Situation overview**

Most agencies prepared their own situation reports to be used in the line, and these were also exchanged with other agencies. The exchange of situation overview provided the basis for coordination of actions and decisions. Overviews were to a great extent prepared and exchanged from the site, staff meeting minutes were prepared, many parties implemented greater media monitoring and other inquiries were registered by the agencies.

Still, the agencies missed a shared overview of the situation that had been prepared at a higher level. This would have facilitated a greater degree of interaction and would have been a more practical method for exchange of information, coordination and communication. The majority of agencies did not receive a shared overview from the coordinating staff or a higher-level central authority.

Most of the agencies solved the reception, treatment and distribution of information at the right time well. The municipalities did not, however, prepare situation reports. Hvaler municipality explains that processing incoming information was not a priority and that focus was on providing information.

## **5.5 Crisis communication**

During exercises it is difficult to achieve the same attention from the media as what naturally occurs during real, major catastrophes and accidents. However, the agencies' communication with the public is still an important task that must be performed and coordinated. If a common situation picture is not available, this will become difficult. Due to a lack of common situation picture, the coordination of the crisis communication was not optimal. Relevant information regarding the incident, handling and recommended precautions could have been communicated quicker and continuously through media outlets and the communications channels of the authorities.

However, the main impression is that the agencies coordinated their crisis communication with other agencies. All of the agencies that were contacted by the media, state that they handled it. At the same time, many agencies point out that the media attention was not particularly high. Only a few of the agencies made active use of the media in connection with the crisis management. The majority of those who practiced communicating with the public, established separate crisis communications teams.

## **5.6 Conclusions and lessons identified**

As regards the handling of casualties and evacuees on shore, it appears that many of the learning items are the same as what we have experienced from previous exercises:

Besides the lack of common situation picture the exchange of information was insufficient, both horizontally and vertically. This was particularly noticed between the police and medical services. Moreover, there was a lack of joint systems or registries of available resources.

The evaluation could identify the lack of a joint system for prioritisation, registration and identification of patients or involved parties. Two main reasons for this could be discerned. The forms used to register personal information were not suitable, making it difficult to maintain an overview of the number of evacuees and the Disaster Involved Register did not function satisfactorily.

The exercise showed that there were challenges with both CIM and Nødnett (emergency communication system). The capacity proved to be insufficient, and the emergency communications system confirmed it's inadequacy as a communications platform for both between land and sea as well as land and air.

Furthermore, the liaison system between medical services, the police, the County Governors and the municipalities/fire brigades did not work satisfactorily in all instances.

During SkagEx11 the next-of-kin centres and the evacuee centres were situated at different locations which proved to be impractical. However, there are good reasons to keep the centres separated.

In regard to the routines and planning framework in place it was evident during the exercise that in some cases they need to be updated while in others they need to be developed in according to the lessons identified.

There were also several other aspects that functioned well during the exercise. The participants stress that the agencies' crisis management organisations were quickly established, and that the cooperation between the crisis management teams across different agencies was good. Roles and responsibilities were clear internally in the various agencies. The medical services underline that reception and treatment of injured persons at the reception area and ER provided very good training.

## 6 Coordination regarding the handling of the oil pollution

Alongside the massive response in regard to Search and Rescue and emergency medical treatment a considerable amount of oil spill was detected leaking from the bunkering vessel Oslo Tank as a result of the collision with the ferry Bohus. The collision took place on Norwegian territorial water near Swedish and Norwegian coastlines. Subsequent to the actions taken to preserve human life, a substantial effort was initiated to combat and respond to the consequent oil spill.

This chapter addresses the environmental rescue operation and its relation to the accident as a whole. Emphasis is set on how the collaboration and coordination between the nations have been conducted on the strategic command and operational command level. Two sub-objectives of the exercise that also will be touched upon are the ability to request and receive international assistance and the crisis communication performance in regards to the environmental rescue operation.

### 6.1 The Copenhagen agreement

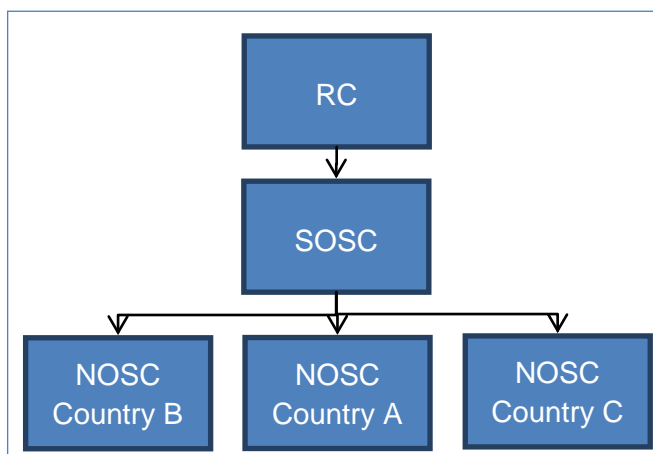
The Copenhagen Agreement plays a predominant role in an environmental rescue operation such as in the case of the SkagEx11 exercise. It is therefore important to provide a basic introduction to those aspects of the agreement that are relevant for the SkagEx11 exercise and the combating of the oil spill.

The agreement is an arrangement between Norway, Sweden, Denmark, Finland and Iceland that relates to the response to oil and chemical discharges in the Baltic Sea, Skagerack and Kattegatt. The parties have agreed to co-operate with one another in surveillance, investigations and reporting, with the aim to protect the marine environment from oil discharges and other harmful substances. Cooperation includes, among other, the mutual assistance in response operations and arranging joint exercises. The SkagEx11 exercise itself helps fulfil the agreed-upon joint exercises.

#### 6.1.1 Operational management

According to the Copenhagen Agreement, when the joint operation takes place in two or more adjacent geographical areas of responsibility (i.e. crossing the country borders), the country that has the greater majority of operation within its area is designated the Lead Country for the whole operation, following a mutual agreement between the partners.

A Recue Commander (RC, Aksjonsledare), assisted by a staff, is appointed at the Lead





Country's agency to be in charge of the overall responsibility and control of the operation.

Under the supervision of the RC a Supreme On-Scene Commander (SOSC, *Insatsledare Sjø*) from the lead country is designated. The SOSC has in turn National On-Scene Commanders (NOSC) from each country assisting in the joint efforts. The NOSCs, operating under the command of the SOSC, are in charge of the resources made available from each country. These resources are often called Strike Teams.

## **6.2 Preconditions and delimitations**

In order to better understand the task of the evaluation in this chapter it is important to provide a sound understanding of the delimitations that have been set and were required.

The descriptions of the various units, posts, and respective responsibilities of the agencies have not been included in this report. The reader is referred instead to the participating organisations' own websites.

As regards to the management levels, only the strategic and operational management levels are analysed while the tactical management level – the third and lowest level – is not included. This also implies that the technical and practical exercise aspects have also been excluded.

The participating units had, individually, unique preconditions for staff work with associated functions (analysis, resource, log, liaison officer and logistics). This will be discussed, but not for staff analysis at SkagEx11 oil spill. The reason for this is the choice of exercise management to simulate oil with popcorn in one area and use a drift prognosis for another area.

### 6.3 Activation

All units were on site according to the logistic plan of exercise management. The alarm routines worked well at earlier occasions, both considering real situations and training, SkagEx11 was no exception.

It became evident in the course of the exercise that the Norwegian Coastal Administration (NCA, Kystverket) was the lead agency in charge of the emergency response regarding the acute oil pollution.

The RC, positioned at NCA headquarters in Horten together

with his staff, stands for the most important descriptions of the accident. For this reason, the assessments and decisions made here are based predominately on judgements made by the evaluators at RC.

During the exercise the weather forecast predicted decent September weather with both rain and sunshine. The temperature was around 14 degrees and the wind speed around 6 m/s. See figure 3.

RC declared that *Oslo Tank* was empty from cargo and had damaged ballast tank Port 2 as well as Centre 1 and 2 cargo tanks. Initially there was 720 m<sup>3</sup> oil (IF-180) on board, from which 415 was lightered. The command estimated the spill to 305 m<sup>3</sup>.

Measures were taken to determine the oil's toxicological risks and were communicated to the RC's organisation through the plan of action. A well-functioning risk analysis for oil took place during the exercise. The meteorological institute participated and incident leader on land made a description and assessment of the threatened shoreline. Furthermore, an assessment of work environment issues on-land with associated safety directives and prioritised objectives were made. A guideline regarding chemical usage was also developed within the



Figure 3 The accident occurred offshore and affected both Norway

At 11:00 AM on September 7, the passenger ship Bohus collided with the tanker Oslo Tank between Tisler and Søndre Sandøy near the Hvaler Islands in the outer Oslo fjord. A comprehensive search and rescue mission is under way, led from the HRS in Stavanger. There are reports of oil contamination from the Oslo Tank which was said to have approximately 720 cu m of heavy bunker fuel (IF 180) on board.

A national incident was established at 12:30 PM. Norwegian state vessels, the Swedish Coast Guard, and Søværnet from Denmark have mobilised in accordance with the Copenhagen Agreement. Private resources have also been mobilised. KV TOR is planned as the SOS. IUA Vestfold and IUA Østfold have been mobilised, see attachment 3, Units in the Mission.

Box 1 from the plan of action

environmental rescue operation. See box 1.

Everything that is expected to be included concerning the environmental rescue operation was included in the plan of action. The plan was a good tool for the three incident leaders (SOSC, IL Vestfold and IL Østfold) to build their assignments around. The plan was also a good base for other organisations and their liaison officers to enable them to understand the RC's decisions as well as to enable coordination at the scene. An early prognosis indicated that Sweden would be affected by the oil spill. Cooperation was established early between the countries as they have several common grounds, one of these being the shared, and threatened, marine nature reserve.

However, an overall assessment of the accidents dimensions was lacking in the plan. Therefore problems arose in the field regarding what was expected to be prioritised in regard to environmental rescue operation and other operations.

## 6.4 Organisational framework

Participating units and organisations were compiled in DISTAFF's directives. The RC built a staff with 12 personnel and three incident leaders (SOSC, IL Vestfold and IL Østfold). The available material did not include details on the size of organisation in Vestfold or Østfold. The SOSC built his organisation with Norwegian and international units. In total 78 personnel worked with the environmental rescue operation offshore.

The three incident leaders received environmental rescue objectives and strategies from the RC's task assignment.

The next step was for the respective incident leader to divide their given objectives to each of their separate tasks. The SOSC divided his units into three groups and as an example he gave the following orders day two:

- Emergency towing of the ship in distress *Oslo Tank*
- Boom and sweep north of the ship in distress
- Boom and recover behind the towed ship in distress

Based on the situation today as of 12:00 PM the following prioritisations apply regarding measures/efforts:

- Stop the leakage and limit emissions during emergency unloading
- Tow the vessel to the harbour of refuge
- Conduct reconnaissance and take samples
- Mechanical uptake of oil near the source
- Prevent spread
- Prevent oil buildup in national parks (Hvaler Islands)
- In case of land buildup, prevent remobilisation

The following environmentally sensitive areas must have the highest priority as regards protection against contamination (see also Attachment No. 2 / see also project site):

- Akerøya
- Tislerøyene during changes in wind/current
- The Torbjørnsjær/Heia area (shallow area with numerous magpies)

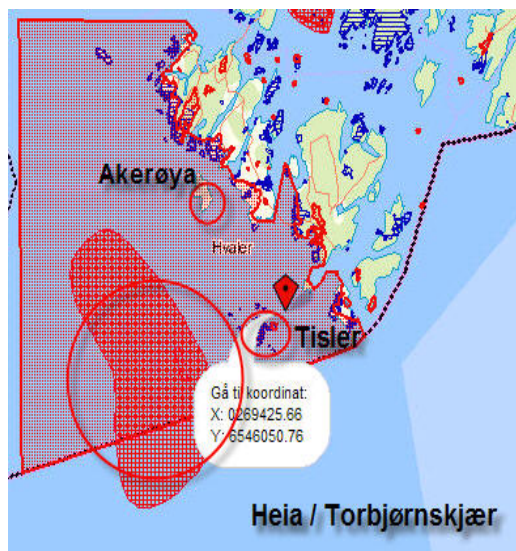
Each offshore sector was provided a channel for communication. The incident leaders had support from aviation.

The mission leaders on land were tasked with organising themselves (in accordance with their plans) with feedback directives.

The NCA made use of the ICS (Incident Command System) that provided some advantages that were noticed on an early stage. The different organisations involved found it easy to get hold of information and to coordinate in accordance with the RC's command. The start-up phase of the environmental rescue operation proved to be successful.

The plan of action includes descriptive charts, prognosis and consequences of the oil spill. However, there did not seem to be coordination between the environmental rescue operation and the other on-going operations.

While some units mentioned that they were mostly idle during the exercise, others experienced being under the command of several different operational commanders.

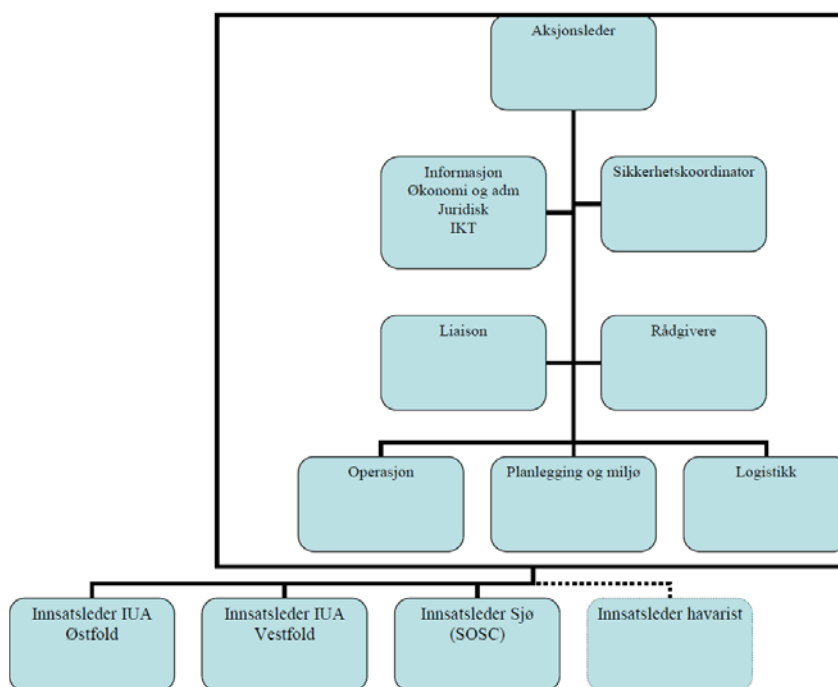


Box 3 from the plan of action

## 6.5 The crisis management

### 6.5.1 Rescue Commander on strategic command

The RC decided that the commander on the KV Tor boat would be the SOSC. In an early phase of the exercise it became clear that the commander on Gunnar Thorson had regarded himself as the SOSC. The confusion was quickly cleared out by NCA's advisor on board KV Tor. Right from the start, the RC took on the responsibility for environmental protection services, and command over both resources allocated from the Coast Guard and the land-based organisations in the Inter-municipal Acute Pollution



Box 4 from the plan of action

Committee (IUA).

Responsibilities with associated tasks were allocated between the Coast Guard and IUA. As a result, the RC (Recue Commander) created an organisation chart illustrated in box 4. There seemed to be a good line of communication between the leading positions. However, the IUA believed that they should be more involved in this process.

The RC's staff seemed to work very methodically and professionally. There was calmness over the work being done and they demonstrated great confidence – both regarding the staff capacity and competence. Seemingly well-considered decisions were made timely.

The use of technical assistance (map charts with AIS info etc.) was surprisingly low, when providing a picture of the situation during the staff briefings. It is beneficial if the entire staff would acquire a clear situation awareness at these briefings.

It would be beneficial if the operating room was big enough to hold the entire staff during the briefings. This would simplify and provide better opportunities to spread information at briefings etc.

The staff seemed to be over-dimensioned regarding personnel, especially in regards to the administrative functions, such as economy, law etc. It is certainly not a disadvantage, however it is doubtful if this level of capacity could be maintained over a longer period of time. An assumption is that the intention was to train as many as possible during the exercise.

It was difficult for an outsider to see which person had what task, especially since the composition of the staff and allocation rooms were different from a non-crisis situation. Some kind of clothing, vest or similar could be appropriate in this context. Alternatively functional labels for i.e. the RC and the different staff functions could be an option. It was not possible to identify a designated chief of staff.

The RC held informative staff briefings with his three incident leaders. Each briefing was logged – it is however uncertain if they were all available online and if they could be customised for decision-making processes.

### 6.5.2 Supreme on-Scene Commander on operational command

The SOSOC established his staff and the staff methodology in a very early stage of the exercise. A simple template was used to evaluate the staff and command on board KV Tor, see figure 5. Focus was on the people on board, the Oslo Tank vessel and the oil spill. Practically all points were dealt with in the management work within the environmental rescue operation. The points not covered due to natural reasons were relief, business, tourism and accommodation.

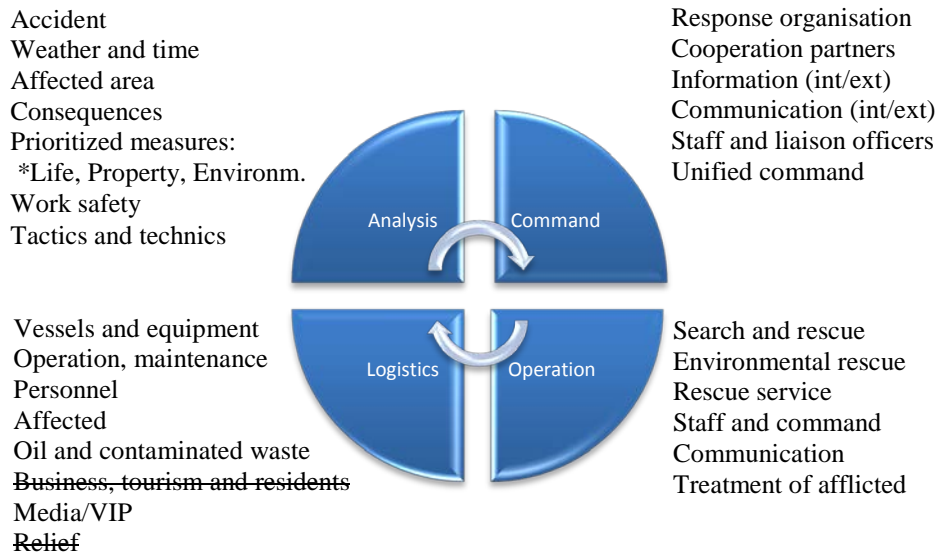


Figure 5 shows a simple template used to evaluate staff and command on board KV TOR.

The technical work with environmental rescue operation was successful. Staff and command on board KV Tor worked well but the need to develop a practical operation analysis became clear, as a holistic view of the entire accident was missing.

The Danish counterparts have a very impressive online plotting system for the accident sequence and measures taken. This enables both the RC and the incident leaders on both offshore and on land to obtain a current common situation picture. It would have been interesting to see how an already well-functioning command at SkagEx11 would have been further developed with such a tool.

It would also be interesting to see resource allocations with associated capacity descriptions online. This would facilitate the SOSOC to make a function-based response organisation based on the situation.

There were also a few situations when decisions were taken by the SOSOC which were not secured in the plan of action. One example was when SOSOC suspended Gunnar Thorson from search and rescue in favour for the environmental rescue operation. The reason for this is most likely that each commander on strategic and operational level is focused on their core task and not on the entire situation. The SOSOC had simply not been given preconditions to prioritise between environmental

rescue and the status of the search and rescue. The RC was probably not informed about the change of task by Gunnar Thorson.

The SOSC received from the On-Scene Commander (OSC) a request regarding KBV 003 to assisting in the rescue service operation at *Bohus* and the vessel was redirected from the environmental rescue operation. There was knowledge of the chemical pollution at that time. But it was never discussed how a possible risk zone around the damaged vessel *Bohus* would affect the environmental rescue operation. See figure 6 and 7.

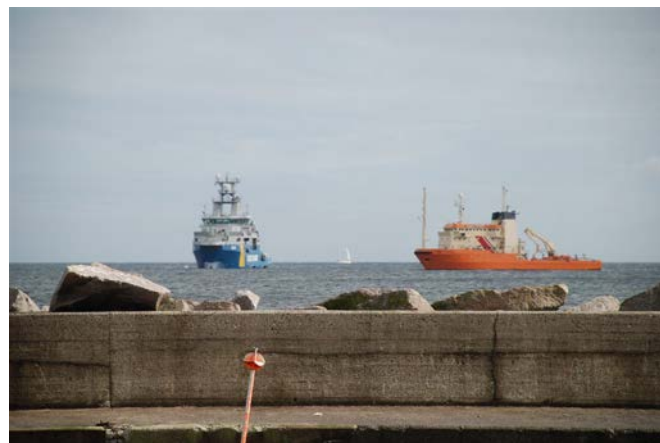


Figure 6 shows KBV 003 and Gunnar Thorson.  
Photo David Hunt

The SOSC conducted a sector division during the exercise. Due to the prioritisation of the mechanical recovery of popcorn, no analysis of the drift prognosis from the RC was made. According to the Copenhagen Agreement, the engaged offshore units should be divided nationwide. This was not the case during SkagEx11.

There were several examples of proactive leadership in the exercise. Gunnar Thorson was exemplary in their search and rescue endeavours and the SOSC in his request for complementary “overall decisions” and “tactical basic orientation” from the RC. The meetings between the RC and his incident leaders were well arranged and conducted and helped follow the plan of action.



Figure 7 is from the NRK news report from the exercise and shows the second days activities from KV Tor.

## 6.6 Coordination of actions and resources

Good collaboration between the various units within environmental protection was obvious. A good example is the dialogue between the Norwegian Coastal Administration advisor on board KV Tor and the SOSC. Consensus was the watchword for collaboration between them. This however raises several questions; what happens when they have different opinions? What is the distinction between them? Who has the preferential right of interpretation of the orders from the RC?

It was obvious that there was good cooperation between the units within the environmental rescue operation. The mission, on the field, was very flexible and the units could switch effectively between lifesaving, emergency services at sea, and environmental protection. Out of respect for the amount of work the OSC for SAR at sea had to do, the SOSC was very careful not to overextend the amount of dialogue.

The RC had well developed cooperation with other responsible organisation and authorities on the strategic command level. A common situation picture on the working environment and safety was included in the cooperation.

Liaison officers were appointed both from Denmark and Sweden. Liaison officers were present on several positions in the response organisation and were a very positive element. The interview with the liaison officers on board KV Tor revealed that they had been appointed but not trained. They were uncertain of what their mandate was and what expectations others had on their presence on board.

Nevertheless, taking into account the preconditions that resided, the liaison officers performed their duty well. The concluding assessment is that a specific education for liaison officers is needed as well as working description including an associated delegation plan. It is a position with large potential for development and a success factor for cross-border cooperation.

The collaboration between Nordic countries worked well, however resources from the defence forces and NGOs should have been requested earlier.

Each organisation has its own rules and regulations to follow. Inconsistencies between these need to be reviewed before an accident occurs. National parks do not have their own cross-border regulation at the time being. A mission must be managed unhindered across the border, and a dialogue on supplements to the Copenhagen Agreement would not be out of place.



Figure 9 is from the staff room on KV Tor and shows the SOSC together with Kystverket's advisor. Photo NRK

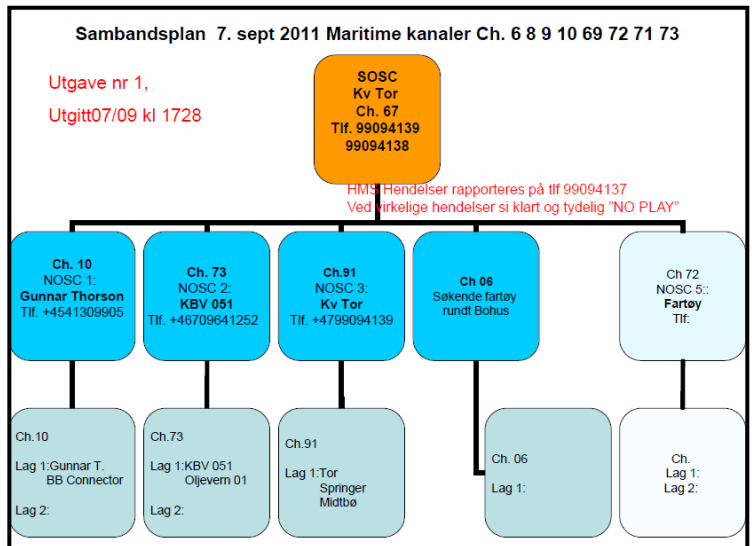


## 6.7 Information and communication

The staff in Horten had no possibility to send or receive radio traffic, unless one goes up a couple of floors into the traffic central. This is a great disadvantage during an operation, especially in the initial phase, as people depend the whole time on second- or third-hand information called in by phone, for example from JRCC-SN. As a result, momentum can be lost at the beginning of an operation – it would have been easy to hear there was an issue of a serious accident resulting in an oil spill and thereby start a state action immediately, if provided the opportunity to follow radio traffic. This would also affect the RC's possibilities to forward consistent and clear information to all other vessels/units if required.

The communication was good offshore with IL and the SOSC. The dialogue between NCA and JRCC-SN was adequate. The Norwegian RC and the Swedish commander had a good dialogue already in an early phase where clarifications between responsibilities and work divisions were made, however information to and communication with the municipalities could improve.

The Copenhagen Agreement exercises have been important in order to develop the communication between the participating units. Despite that the communication was good enough. Further on in the exercise, however, it became clear that it would have been an advantage if there had been knowledge of KBV 003's ability and capacity. It was only at the briefing after the exercise that it became clear that the Swedish command on KBV003 established a staff and assigned the vessel to subordinated commander. This meant that the SOSC came into contact with the bridge instead of the NOSC in the staff room. Routines are needed that clarify the communication routes for the command.



Box 5 from the SOSC

The communication routes for the participating units were well described. The Nordic languages are used according to the Copenhagen Agreement. Unfortunately several situations lead to misunderstandings despite of the similarities between the languages. English should be an alternative.

There were no templates online on how to establish resource and contact lists for the staff on board KV Tor.

It is possible to improve an effective staff work on KV Tor, since all radio communication took place in the same room where all other staff functions work. Further on, SITREP were sent frequently from the SOSC to the RC and the group leaders. Apparently SITREP for the environmental rescue operation was not sent to the other commanders on operational level. A template of the SITREP is also missing online. Overall, the situation reports included the necessary information for a response operation and the tasks given by the RC.

However it is not possible to make an assessment on how the recipients perceived the described situation picture or if they felt it was sufficient. It is also difficult to assess if the technical equipment was sufficient for the communication needs between the units. Poor coverage was reported during the exercise itself. There is a need for training in and simplifying the use of Rakel/Nødnet.

There was a certain element of media pressure in the exercise. Real media was also on board the KV Tor and the liaison officers from Denmark and Sweden got the opportunity to train in media contact for the first time. See figure 10.

## 6.8 Cross-border issues that affect the oil recovery response

The rescues services offshore and on land are dimensioned for specific accident types. These organisations also have a flexibility to adapt to the situation at hand in complex accidents that affects a large area. The SkagEx11 exercise provides a multidimensional threat scenario and thereto response that is a seldom utilised and provides the participating organisations with a very good opportunity to test their cross-border capabilities and interoperabilities.

The need for a joint situation picture was very clear during the exercise especially in regard to the command structure of particular interest in complex accidents such as in the SkagEx11 exercise.

The decision support for both the oil spill recovery and for the other rescue operations needs to be joint and cross-border. It is an advantage in the work to develop practical incident response analysis, staff methodology on the vessels and liaison officers. See figure 11.

The Norwegian command system ICS for oil spill response is used both at sea and on land and it has a

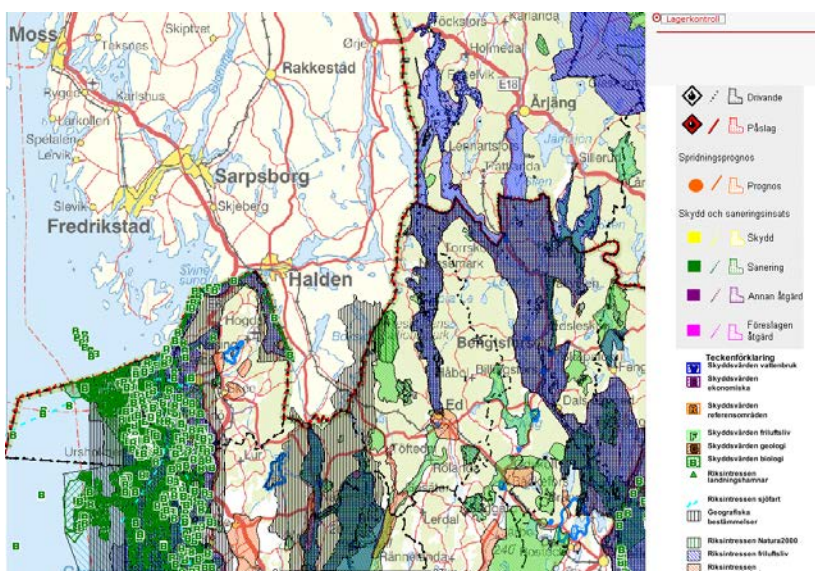


Figure 11 is from the Swedish environmental atlas tool and shows the amount of details south of the border and the lack of details on the northern side. In the Norwegian systems the situation is corresponding to the level of information –the atlas tools are not cross border.

built in ability to establish a joint command group. A joint common situation picture could be provided with the use of this system in order to synchronize and priorities from a common picture.

The exchange of resources worked well between the different rescue operations during the exercise. The results from the other two command levels are, however, worth reassessing.

The overall situation picture needs to be analysed prior to taking decisions by each commander within their sector. Naturally it is possible that the decisions taken might not affect the oil spill recovery response, and vice versa, but this is not always the case.

Imagine the transports of the afflicted persons have started and reception centres on land are established. At that time both hazmat and oil spill are stated at the accident site. Let us discuss the possibility that the hazmat is both toxic and hazardous to humans and environment.

A unified command has to consider several aspects. Should the afflicted persons be cleaned up offshore or at the receptions centres? What is most efficient resource-wise and what measures will save most lives? Can an organisation “afford to” and is it appropriate to fly a contaminated helicopter or should it be cleaned up between each transport? Is there enough capacity to also build up a clean-up site at the already overloaded RSC?

In order to take these kinds of decisions it is necessary to have knowledge of other aspects except resources and their capacity. For example, KBV 003 has a high capacity to recover oil at sea as well as take on other vessels' recovered oil. The very same vessel is also provided with an overpressure system and perfect for working in the hot zone of a hazmat spill and organise a clean-up spot for afflicted persons. How are actions and resources prioritised on a cross-sector cross-border perspective in order to optimise the saving of lives?

How is the oil recovery around the disabled vessel affected if only vessels with overpressure systems can operate within the risk zone? If some areas will be left – how does that affect the oil drift prognosis and the shoreline oil spill? Is there any information provided to the land based organisations that enables them to protect their prioritised areas out of the decisions that have been taken on the incident site?

In other words – the environmental rescue operation is affected by the entire incident and therefore needs it to be aware of other plans of action. It is not possible to isolate the different operations – there needs to be a unified command on a strategic level which creates situation awareness for the entire affected area. A common situation picture needs to be available for all sections of the incident organisation. This issue is referred to in chapter 4. Specifics regarding the chemical spill on-board Bohus is referred to in chapter 5.

## **6.9 Conclusions and lessons identified**

As regards to the evaluation of the environmental protection mission, SkagEx11 exercised all three command levels and the phases prior to and after an accident. The combined evaluation of the

environmental rescue operation is that the exercise objectives are considered to be achieved in a satisfactory manner regarding the environmental protection mission.

All units were on site and were only waiting for go-ahead for the operation. SkagEx11 also succeeded in providing the opportunity to exercise coordination between different authorities and the responsibilities between the different management levels, responsible authorities and affected nations. The overall assessment is that there is more to be done in order to achieve good coordination and clear division of responsibilities.

The offshore oil spill recovery acted exemplary when it came to requesting and receiving international assistance. Five further part-objectives were tested and the overall assessment is that the results are satisfactory/good enough regarding environmental rescue operations:

- Handling a cross-border environmental rescue operation
- Establishing cooperation
- Staff and command
- Communication
- Documentation

Coordination and information sharing between nations on strategic command level could be improved as well as the use of resources and safety issues. The ICS (Norwegian Incident Command System for environmental rescue operation) provides good preconditions especially in regard to a complex rescue operation such as SkagEx11. The staff and command at the environmental rescue operation worked well on strategic level due to well established routines and templates.

As the ICS is introduced a need for training the terminology was discovered during the SkagEx11, as well as a need to learn more about the existing agreements. Since the oil spill does not pay attention to any geographical borders, such as joint national parks, the rescue service also need to be able to work cross-border. The need for a revision or alternatively an addition was pointed out during the exercise, which would facilitate possible need for diplomatic clearance.

## 7 Coordination with the EU

The EU Community Civil Protection Mechanism (referred to as “the Mechanism”) both co-financed and took part in Skagex11. The co-financing was conducted to strengthen the regional preparedness and ability to better utilise assistance from the Mechanism, while the active participation of an EU Civil Protection Team aimed at testing the Mechanism’s role during the exercise.

The primary responsibility for dealing with the immediate effects of a disaster lies with the affected country. Nevertheless, when the scale of the emergency overwhelms national response capabilities, an affected country can benefit from civil protection means or teams from EU Member States and other states participating in the Mechanism (“Participating States”). By pooling the civil protection capabilities of the Participating States (PS), the Mechanism can provide assistance. Apart from the 27 EU Member States, Iceland, Liechtenstein, Norway, Croatia and the Former Yugoslav Republic of Macedonia also participate in the Mechanism.

The Mechanism aims to support, coordinate and supplement the actions of the PS in the field of prevention, preparedness as well as the response to natural and man-made disasters both within and outside of the EU. In terms of response, the Mechanism aims to facilitate co-operation and provide direct assistance in the event of major emergencies where an affected country ask for assistance. Since the establishment of the Mechanism in 2001, 157 missions have been carried out in the framework of the Mechanism, out of which 94 were operations outside of the EU.

The term civil protection, within the Mechanism, refers primarily to the protection of human life but also to the protection of the environment, property and cultural heritage against all natural and man-made disasters, technological, radiological or environmental accidents, marine pollution and acts of terrorism<sup>5</sup>.

### 7.1 The Monitoring and Information Centre (MIC)

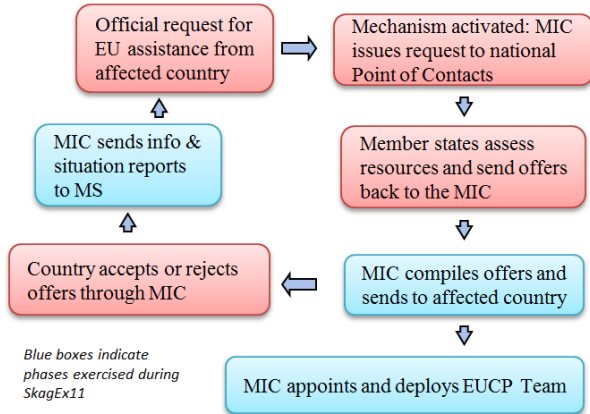
The Monitoring and Information Centre (MIC) in the European Commission’s Directorate-General for Humanitarian Aid and Civil Protection (DG ECHO), is often referred to as “the heart” of the response operations of the Mechanism. The MIC functions as a “one-stop-shop” of civil protection assets and experts available in the PS. The MIC runs a database of information concerning modules, in kind-assistance (such as blankets) and experts etc., the MIC continuously circulates information regarding emergencies as they develop.

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<sup>5</sup> Council Decision 2007/779/EC, Euratom of 8 November 2007.

As illustrated in the figure below, a disaster stricken country – whether inside or outside of EU – may choose to send a request for assistance to the MIC, thereby activating its response. Each PS has appointed a designated Point of Contact (POC) through which all communication and

collaboration is channelled. In Norway, the POC is the Duty Officer at Directorate for Civil Protection and Emergency Planning (DSB) for civil protection and the Norwegian Coastal Administration (NCA) for marine pollution. A request requires initially the approval of the ministry in charge.



Upon request, the MIC will issue a consolidated request to all POCs, often specifying the type, scope and promptness of the emergency. PS should respond to the request by specifying the assistance they can provide, whereupon the MIC will gather the

different offers of assistance. This process is facilitated by a database and alert system called the Common Emergency and Information System (CECIS). The assistance provided could be in the form of in-kind assistance, assessment teams, coordination teams and/or different compositions of expert teams with specific tasks. The assessment and coordination teams are called EU Civil Protection Teams (EUCP Team) while teams with specific capabilities (often technical) are called EU Modules. The EUCP Teams are composed by experts from a number of different PS whereas each module normally consists of assets and personnel from one or a few PS.

According to the Council Decision 2007/779/EC, Euratom of 8 November 2007 the EUCP Team’s task is to (a) assess the civil protection needs of the state requesting assistance in view of the assistance available from the PS and the Mechanism; and (b) facilitate, when necessary, coordination of civil protection assistance operations on site and liaising, when necessary and appropriate, with the authorities of the State requesting assistance.

## 7.2 EU Civil Protection Team assessment missions

Since the involvement of the Mechanism in Skagex11 was solely through an EUCP Team assessment mission, this evaluation will only address the basics of such a mission.

Upon request for a EUCP Team, the MIC assembles a mission tailored team comprising of, at least, a Team Leader and a MIC Liaison Officer. Experts in the field of coordination, assessment, information management, logistics, ICT, technical experts etc. can be included depending on the mission at hand. The team is initially briefed in Brussels at the MIC before deployment.

Any EUCP team or other assistance dispatched by the Mechanism to a disaster area, remains under the direction of the national authorities of the affected country, which also has the right to ask the EUCP Team to stand down at any time.

The procedures described up until the team's arrival to its destination are clear and well established. However, the procedures following the teams arrival to a PS has just recently been confirmed within the Mechanism. PS and the Commission recently developed and approved the so-called Host Nation Support (HNS) non-binding guidelines which suggest supportive tools in order to assist affected countries to effectively utilise incoming EU assistance.

PS are also in the process of drafting guidelines regarding the manner they are to receive assistance. The process of drafting the Norwegian HNS guideline has been initiated by the Norwegian Ministry of Justice and Public Security (JD) and is currently nearing completion. DSB has been assigned the task of drafting the document.

Accordingly, the EUCP Team is, upon arrival, advised to set its Base of Operations (BoO) close to the Local Emergency Management Authority (LEMA) in charge of the incident and to the POC of the affected country. The affected country (within the EU) is advised to provide the EUCP Team with vital information regarding:

- the situation at local (provincial) level;
- command and control structure;
- communication systems;
- maps (at BoO and work sites);
- information regarding the area and the population;
- security aspects;
- media (possible procedures for interacting with the media);
- safety and security plan for the team (agreement on possible plans) and
- coordination of activities and management at BoO ;

The stricken country's HNS is also to:

- provide logistic and ICT support;
- provide communication between incident commander and the LEMA;
- facilitate relations with all civil protections actors involved;
- support the team leader/deputy team leader/liaison officer during coordination meetings;
- liaise any request coming from national, regional and local authorities and
- update LEMA regarding the activities carried out by the team.

The EUCP Team should from this point serve the needs of the LEMA via the POC. The team should, upon request, assist the LEMA with assessments, observations, reconnaissance, technical expertise, repatriation services, facilitate coordination, etc. The EUCP Team should also be in

direct contact with the MIC, providing situation reports and updates regarding current and foreseen developments. The team is also required to inform and support the EU Delegation in the stricken country.

### **7.3 The EUCP Team during SkagEx11**

Normally the request, composition, dispatch, and arrival of a EUCP Team take a minimum of 2-3 days. However, it was decided that during Skagex11, the EUCP Team would arrive to Norway prior to the exercise and through a well organised pre-exercise program be provided with extensive preparatory information through seminars. The one day pre-exercise program included general information on Norwegian, Swedish and Danish crisis and emergency systems as well as specific information on Nordic rescue services, Norwegian civil defence and the handling of marine pollution.

Due to this exercise-technical aspect, the team had both arrived and was able to organise itself at the BoO, at least one day earlier than what would have been realistic according to normal procedures. This provided the EUCP Team with a lucrative opportunity to gain insight into the main crises management systems and the SkagEx11 incident.

The BoO was situated at the Civil Defence School in Stavaern, a location predetermined by the directing staff of the Exercise (Distaff). Although logistics and ICT provisions were more than adequate, the geographical location was not in proximity to the LEMA or POC at DSB. This in itself resulted in a gap between the team and the authorities they were meant to assist. However, this issue could have been addressed and rectified by the Team Leader during the exercise.

The EUCP Team consisted of four members: a Team leader, Deputy Team Leader, who was also a medical expert, a logistics officer, who was also a pollution expert, and a MIC Liaison officer. The MIC Liaison officer was a desk officer from the MIC, as is usually the case.

The EUCP Team was assigned a Norwegian ICT expert at the BoO but no national liaison officer. The ICT expert and the Distaff appointed controller occasionally performed the duties of a national liaison officer. Consequently, the exercise illustrated the need for a designated national liaison officer seconded to the EUCP Team, to provide information on the national crisis management system and be a door-opener to the various actors in the crisis.

During the first day, the EUCP Team members managed to organise themselves and initiate contact with the MIC, DSB, Civil Defence, EMCC in Larvik, Bergen Tankers, The Polish Embassy, The Latvian Embassy, RSC in Vestfold and the Norwegian Coastal Administration. They visited the POC at DSB and the head of the reception centre in Larvik. They also provided the MIC with a situation report at the end of the first exercise day.

During the second day of the exercise, the EUCPT Team was in contact with DSB and the MIC. They initiated contact with the University Hospital in Bergen and JRCC-SN and held a meeting with the Norwegian Coastal Administration. The EUCP Team was also interviewed by the media.



The EUCP Team ended their mission by taking part in a debriefing at DSB and a Hot-Wash Up for the EUCP Team conducted by the Distaff appointed controller and evaluator.

Although the EUCP Team took some initiatives, the designated controller and evaluator who followed the team unanimously reported that the team unfortunately seemed to lack adequate functional training for their individual tasks and the duties of the team as a whole. There was some frustration in the EUCP Team in regards to the lack of knowledge concerning the Mechanism and the role of the EUCP Team within the majority of organisations that the team was in touch with. These circumstances are not unusual, since the familiarisation of national, regional and local crisis management responders with the Mechanism is not common practise in PS. Moreover, real life missions very often require EUCP Teams, upon initial contact, to familiarise the entities they meet with the team's role and in what manner they are able to assist.

Even though a SAR mission, like the one trained in SkagEx11, could last a number of days, it is only during the initial stages that extensive assistance would be required. The EUCP Team would therefore not be involved in this stage of the incident.

Regarding support to the medical sector on land, the scenario did not result in the demand for medical assistance from other PS than Sweden, Denmark and Finland. Since the Nordic countries have a well-established bilateral medical cooperation with each other, the EUCP Team had no role to play except the task of gathering information and advising the MIC (after clearing with the LEMA) that no further assistance was needed. The EUCP Team was, however, able to provide assistance concerning to repatriation of other EU citizens by informing the embassies of the number and condition of expatriates involved in the incident. Through contacts and meetings held with the Norwegian Coastal Administration the team was both able to collect information and provide expertise.

Since the deployment of the team was "played" and the mission did not consist of any coordination or request for additional resources from the European Community, CECIS was not tested.

Towards the end of the mission it was apparent that the team did not have a sufficiently understanding of the Norwegian, Swedish or Danish crisis management system and that the national and local actors in turn, did not have sufficient understanding of the Mechanism and what role it could have. This led to frustration both for the team and their counterparts. Language was another obstacle. The evaluator and controller noticed that only a few of the EUCP Team members had adequate foreign/English language skills, which made communication with national, regional and local authorities more difficult.

## **7.4 Main conclusions and lessons identified**

Upon Arrival, the EUCP Team was briefed regarding, the situation at hand, the command and control structure and communication systems. They were also provided adequate logistic, ICT support, maps and baseline information.

The EUCP Team was not briefed regarding the security aspects, procedures for interaction with the media or safety and security plans for the team.

The facilitation of communication with local incident commanders and LEMA demonstrated the need for improvement, even though it was provided to some extent. Since there was no dedicated national liaison officer, the updates to DSB were provided by the team itself. The communication between the EUCP Team and the POC could have been more frequent and more structured.

The EUCP Team lacked a good enough understanding of the Norwegian crisis management system to be able to better provide assistance. Due to lack of sufficient structures and channels of communication, as well as lack of mutual knowledge regarding each other, the EUCP Team was not able to perform up to its potential and the Norwegian authorities were not able to utilise the team sufficiently. The EUCP Team might have needed to be more proactive and provided the decision makers with information. On the other hand Norwegian authorities, assisted by DSB, could have been more aware of the potential provided by the team's presence and capabilities. These capacities could have been useful in a real life situation especially in dealing with long term aspects of the incident, involving environmental contamination from the oil spill.

Nevertheless, it is important to understand that the Norwegian, Swedish, Danish and Finnish cooperation during SkagEx11 was based on bilateral and multilateral agreements between the Nordic Countries in contrast to the EUCP Team, which is based on a Pan-European form of cooperation. This made it more difficult for the team to include itself in these channels of communication. It is not up until the point where the Nordic assistance is exhausted that substantial assistance would be requested from the EU via the Mechanism.

The EUCP Team required more training as a team and individually regarding their specific tasks. While the main bulk of the exercise was focused on the interactions and collaboration between the different entities involved, the EUCP Team had to concurrently train their ability as a team and their individual tasks within the team.

It is common that a national liaison officer from the stricken county is provided to the EUCP Team – something that has proven to be very effective and occasionally vital during missions. The lack of a designated liaison officer from the Norwegian authorities certainly hampered the ability of the team to fulfil its duties adequately. A national liaison officer would, as a minimum, have been able to “open doors” and provide the team with essential information.

Since the HNS framework for Norway is still being drafted it is uncertain where the EUCP Team ought to have set up their BoO. Regardless, since Stavaern was provided to the EUCP Team as a BoO it neither provided them the proximity to POC or LEMA. Consequently, the communication gap was evidently more difficult to overcome for both the national authorities and the EUCP Team. Being positioned in Stavaern, however, provide the team with proximity to both sides of the Oslo fiord and the RSCs.

The scope and play of the SkagEx11 scenario did not adequately include the needs required to sufficiently provide the EUCP Team with exercising or testing opportunities. Besides those exercise participants that had frequent contact with the EUCP Team, very few other exercise participants were aware of their presence in the Exercise. Many exercise participants mentioned that they would very much prefer to become better aware of the EU dimensions of a large scale crisis, the roles and responsibilities of the EU MIC and the EUCP Team - something that could be provided both during but also before an exercise. This would help better integrate and prepare for exercises and would spread knowledge regarding the EU Civil Protection Mechanism among organisations that would or could be involved in the management of large scale crises.

Finally, absent of adequate training as a team and individually in their appointed duties it is difficult to provide a more thorough and purpose oriented analysis of how a EUCP Team would function during an incident such as that which is simulated in Skagex11.